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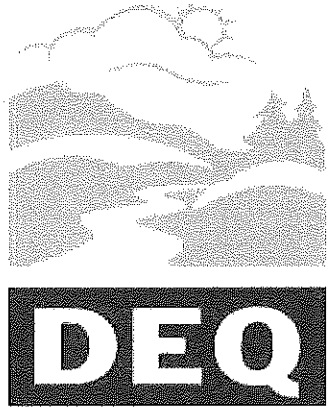
OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS 10/21/2004



State of Oregon
Department of Environmental Quality

State of Oregon
Departments of Forestry and Environmental Quality Memorandum

Date: September 24, 2004

To: Environmental Quality Commission and Board of Forestry

From: Stephanie Hallock, Director and Marvin Brown, State Forester

Subject: Environmental Quality Commission and Board of Forestry Joint Discussion on Water Quality and Forest Practices
October 21, 2004 EQC Meeting

Purpose of Item

The purpose of this joint Board of Forestry (Board) and Environmental Quality Commission (Commission) meeting is to discuss the Commission's authorities and processes for establishing state water quality standards and the Board's authorities and processes for meeting water quality standards through implementation of the Forest Practices Act (FPA). Discussion will include the statutory direction to the Board and Commission for rule revision under the FPA and the current status of the FPA rulemaking process and proposed rules. This meeting is a follow-up to the Commission's forest practices discussions on February 6, 2004 and July 7, 2004 and the Board's ongoing meetings since July 2003 regarding possible riparian protection revisions, and the workshop on September 7, 2004.

The Commission and the Board will tour private forestlands in the Tillamook area and discuss stream protection issues in the morning and will host a joint public meeting in the afternoon (See Attachment A for Joint Meeting Agenda). The meeting will consist of presentations regarding the relationship between the Board and the Commission; the general history of the interactions between the FPA and water quality standards; decisions that have been made to date regarding the current rulemaking; and issues of science, law and policy. Discussion of the information presented, and any necessary future steps will conclude the meeting.

Background

The October, 2002 Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality, identified a series of recommendations to improve the effectiveness of the FPA in achieving and maintaining water quality standards on state and private forest lands in Oregon. This joint review was conducted by DEQ and ODF staff under a 1998 Memorandum of Agreement. The Board and

Commission unanimously accepted the report, and encouraged ODF and DEQ to incorporate its recommendations through appropriate means, including rulemaking.

The Sufficiency Analysis identified twelve recommendations that included improvements to the implementing rules or guidance of the Forest Practices Act and other recommendations under the Oregon Plan for Salmon and Watersheds (e.g., active placement of large wood in streams to create fish habitat). Attachment B, (Executive Summary of the Sufficiency Analysis) provides a summary of the Analysis including the specific recommendations on pages 8 through 10. ODF has completed rulemaking for recommendations involving roads and for those involving harvests on locations prone to landslides (Effective January 1, 2003). ODF initiated rule development for recommendations involving riparian areas, and has held a series of stakeholder meetings across the state on draft rule language. DEQ has actively participated in this rule development process, including attending many of the stakeholder and Board meetings.

Prior to the Sufficiency Analysis, the Independent Multidisciplinary Science Team (IMST) conducted an evaluation of the riparian protections of the FPA as part of the Oregon Plan for Salmon and Watersheds. IMST recommendations were provided to two stakeholder groups evaluating policy changes (i.e., the Forest Practices Advisory Committee, or FPAC, and the Eastside Riparian Functions Advisory Committee). These advisory groups arrived at many similar conclusions that were subsequently reached by the Sufficiency Analysis.

Concurrent with these Forest Practice processes, the EQC reviewed its water quality standards related to water temperature. The temperature standard review ultimately led to the adoption of new temperature standards in March 2004. The standards development process was informed by extensive scientific literary work conducted by the EPA at the regional level, and was reviewed by the Independent Multidisciplinary Team.

The Board is currently considering sixteen concepts and two statewide initiatives that are based on recommendations from the Sufficiency Analysis, the advisory committees and the IMST, as well as additional recommendations from Oregon Department of Fish and Wildlife (ODFW), DEQ, and other stakeholders. Attachment C, (Summary Table of the Sufficiency Analysis recommendations and corresponding FPA rule concepts) outlines the status of recommendations and actions to date.

The Board has directed the implementation of some recommendations as voluntary measures rather than incorporating them into their rules. The reason for addressing some of the recommendations through voluntary means rather than through rule relates to the Forest Practices Act statute (ORS 527.714) requirement for the Board to consider non-regulatory alternatives and to make certain findings of fact before adopting rules. One of the required findings is providing scientific documentation that degradation of resources is likely if forest practices continue to be conducted under existing regulations. ODF has recommended the use of voluntary measures where it cannot clearly document such degradation has or will occur.

Use of voluntary measures also provides an opportunity to generate more definitive information in the future through monitoring. Although specific monitoring plans have not been developed for proposed voluntary measures, ODF intends to develop voluntary measures through Oregon Plan between October 2004 and July 2005. If the monitoring results indicate that the voluntary measures are not effective in attaining water quality standards, the Board would have the information available to consider the appropriate rulemaking.

Since the initiation of the rulemaking process, the Board has approved four of the draft rules to go forward as potential rule requirements, and directed ODF staff to revise the proposed language to address concerns expressed during the regular Board meeting's public comment periods. At the July 2004 meeting, the Board approved revised draft rule language and directed ODF staff to proceed with economic cost and scientific analyses as required by ORS 527.714 for the following four concepts.

1. Provide habitat above human caused fish barriers
2. Provide wood for debris flows
3. Revise the large wood placement rule and active management basal areas (size and number of trees)
4. Increase basal area for medium and small fish bearing streams in Western Oregon

The findings are scheduled to be presented to the Board at the January 5, 2005 BOF meeting.

The Board, however, delayed moving forward with the revision of the water protection policy statement including Total Maximum Daily Load (TMDL) language as proposed by ODF based on a DEQ staff recommendation. (See the Key Issues section of this memorandum). This request was an addition to the FPAC and SA processes and

recommendations.

- Clarify the policy statement that outlines the goals of the Forest Practices Act's water protection rules

In addition, the Board approved the following five concepts as voluntary measures with the intent that they will be implemented under the Oregon Plan.

1. Treat medium and large non-fish bearing streams as same size fish bearing streams
2. Provide protection for channel migration zones
3. Limit harvesting within the riparian management areas to no more than 40 percent of the basal area
4. Limit harvesting to the outer half of the riparian management area
5. Retain the largest trees within the riparian management area

The Board deferred action on one concept that would provide for added protection on small non-fish streams. ODF plans to present a revised draft rule and recommendation to the Board in January 2005 (see the Key Issues section of this memorandum).

- Increase protection on small non-fish bearing streams for Western Oregon

The Board determined the four remaining concepts require further monitoring prior to being considered as either rule changes or voluntary measures. No further action will occur on these four concepts during the current round of FPA's Water Protection and Riparian Function rulemaking process.

1. Modify protection on small non-fish bearing streams for Eastern Oregon
2. Revise desired future condition for Eastern Oregon
3. Revise basal area retention for Eastern Oregon
4. Provide harvesting alternatives for Eastern Oregon

The Board directed changes to ODF's guidance documents and training to address a concept related to thinning dense stands within riparian management areas. It was determined that this was already available under current rules, and simply needed clearer direction. A statewide initiative on monitoring small non-fish bearing streams will receive emphasis on ODF's monitoring priority list. A policy enhancement package addressing funding and staff for this has been included in the

agency's 2005-07 biennial budget request. This recommendation does not require rule language, however, minor changes are being proposed to remove obsolete references in the rule. ODF has decided to incorporate the statewide initiative to create incentives for fish habitat into other efforts currently under development.

During the September 7, 2004 the BOF Forest Practices and Water Quality Workshop, Bob Baumgartner, DEQ's Policy Program and Project Assistance Section Manager, and ODF's Charlie Stone, former Forest Practices Program Director, reviewed the historical relationship between the Board and Commission regarding water quality protection. Additional topics presented and discussed included the geo-physical and biological science for riparian functions and stream temperature, and the context and ramifications of respective policy decisions made by the Board and Commission pursuant to statutory responsibilities. Attachment D, (Board of Forestry Workshop – Forest Practices and Water Quality Information Package) provides reference materials that were given to the Board prior to the September workshop.

Ian Whitlock and Larry Knudsen, Senior Assistants to the Attorney General, briefed the Board on the roles of the Commission and Board in protecting Oregon's water quality and the statutory requirements of the Board and Commission. The presentation covered issues related to the FPA and Oregon's Water Quality Standards. Attachment E, (Regulation of Water Quality and Forest Practices) a briefing paper was submitted to the Board.

One of the issues discussed at the workshop was what is referred to as the "BMP shield". ORS 527.770 states that forest operations conducted in accordance with BMPs shall not be considered in violation of any water quality standards. If at any time, the Commission with reasonable specificity believes that nonpoint source discharges of pollutants resulting from forest operations being conducted in accordance with the best management practices are a significant contributor to violations of such standards, the Commission has the opportunity to petition the Board to change the FPA rules in such a way that there is assurance that water quality standards are met. If the Board does not adopt revised standards or find revised standards are not required within a two- year timeframe, enforcement of water quality standards may be directed against a forest operator even though they are complying with existing FPA standards. There is an equal and reciprocal opportunity for the Board to petition the Commission if they determine the water quality standards are not appropriate for forestlands.

Both the Board and Commission are subject to the Administrative Procedures Act, however, there is a difference between the rule-making requirements of the Board and the Commission. When DEQ proposes to alter water quality standards, the proposed rule must be based on the best available science at the time to assure full protection for the most sensitive designated or existing beneficial uses. Science and policy guidance from EPA and concurrence from the National Oceanic and Atmospheric Administration, Fisheries (NOAA Fisheries) and the U. S. Fish and Wildlife Service (USFWS) are critical elements of the rule-making process. The Legislature has directed the Board to adopt BMPs that to the "maximum extent practicable" will meet water quality standards. In both authorities, science must be used to support the decision-making. In the case of the Board, it is also required to integrate a number of different policy objectives into its decision and to make specific findings. This set of policy objectives and required findings to a large degree define "maximum extent practicable" in the context of adopting BMPs.

Key Issues

1. Riparian Package

There are four concepts now proposed as rule changes and two concepts yet to be determined. If these were to be adopted as rules by the Board, there would be added riparian and water quality protections to the current Forest Practices rules applicable to western Oregon. These changes would address certain recommendations from the Sufficiency Analysis that have not been addressed thus far. These draft rules would add to the assurance that water quality standards would be attained on private and state forestlands. On the other hand, there is less certainty that riparian and water quality protection will be added to the current Forest Practices in eastern Oregon, since some of the proposed rules are applicable only to western Oregon. This is due primarily to the Board's determination that applicable scientific information to meet the requirements of ORS 527.714 is lacking at this time.

Additionally, if some of the rule concepts still under consideration for formal rulemaking result in direction to voluntary measures, there is in the opinion of DEQ less certainty that the water quality standards will be attained on private and State forestlands. One of the reasons DEQ has consistently encouraged adoption of most concepts in rule form rather than voluntary as well as the addition of protections on type N streams is to provide greater certainty that practices will lead to attainment of water quality standards on private and state forestlands since rules are applied uniformly. This is important to DEQ for a

number of reasons, including the Environmental Protection Agency (EPA) authority to approve DEQ's water quality standards, TMDLs, and Coastal Zone Management Act Management Measures.

EPA may influence the Board's actions through their involvement with the Commission's implementation of federal programs. The Commission is responsible for implementing the Clean Water Act in Oregon with EPA's oversight. EPA must approve all of Oregon's water quality standards and TMDLs, and if deemed necessary, consults with NOAA Fisheries and the USFWS under the Endangered Species Act.

EPA has cited the need for revisions of the FPA in correspondences regarding the Coastal Nonpoint Pollution Control Program, which DEQ administers in Oregon, and in the approval letter for the North Coast TMDL. Since EPA retains authority to redirect federal funds if it is determined that Oregon does not have an adequate nonpoint source management plan, it is important for DEQ to address outstanding issues that EPA raises.

DEQ, however, acknowledges restrictions placed on the Board by ORS 527.714 and understands that the Board must fulfill the statutory requirements for the FPA. DEQ also understands, as mentioned previously, that the use of voluntary measures could provide an opportunity to generate more definitive information in the future through monitoring and appropriate oversight of the proposed voluntary measures. If the monitoring results indicate that the measures implemented are not effective in attaining water quality standards, the Board would then have the required information to consider rulemaking. If voluntary measures are endorsed by the Board, DEQ recommends that the implementation of concepts through voluntary measures be monitored at the level that will fulfill ORS 527.714 analysis requirements and the program will be implemented in a reasonable timeframe. There is no statutory requirement in the FPA for monitoring voluntary measures, so this recommendation will be addressed within the development of the voluntary measures.

2. TMDL and FPA Link

In July of 2004, ODF added the TMDL language to the revision of the water protection rules policy statement at the request of DEQ. The Board, however, delayed moving forward with the revision until the Board could clarify their statutory responsibilities and further discuss this concept at a later meeting. ODF plans to readdress this recommendation at the January 2005 Board meeting following internal

discussions.

When a TMDL is approved by the EPA, the TMDL Load Allocations provide descriptions of what is necessary to achieve water quality standards for that specific part of the watershed. This additional wording may clarify that the FPA's riparian rules meet numeric criteria or the TMDL Load Allocation. The insertion of this language is important to DEQ because it links the TMDL rule to the FPA rules. OAR 340-042-0080 (2) states, "The Oregon Department of Forestry will develop and enforce implementation plans addressing state and private forestry sources as authorized by ORS 527.610 through 527.992 and according to OAR chapter 629, divisions 600 through 665." Since the TMDL rule is fairly new (adopted in December of 2002), and it reiterates the fact that the FPA is the implementation plan for TMDLs, it is, in DEQ's opinion, important to state that the goal of the FPA is to meet water quality standards by implementing TMDL load allocations. In ODF's opinion, this is true only to the extent that they can address load allocations through regulations under the authority of the FPA. Both the FPA and Water Quality Management Plan process recognize that non-regulatory means are also appropriate. This has been particularly recognized for legacy issues. Furthermore, ODF continues to have major technical and policy concerns about load allocation through the application of maximum potential shade as a surrogate, and how TMDL Load Allocations are distributed across the watershed.

The Water Quality Management Plans that DEQ submits with each TMDL to EPA explains that FPA is the mechanism to achieve compliance with the TMDL Load Allocations. ODF is concerned that a direct rule link is inconsistent with the Board's responsibility under ORS 527.714 to ensure that rules it adopts are in proportion to the degree that existing practices of the landowners and timber owners, in the aggregate, are contributing to the overall resource concern.

3. Type N Protection

ODF staff presented draft rule language to the Board in April, 2004, and recommended the concept for rule adoption. DEQ testified in support of ODF's recommendations to implement these protections in rule form. The Board also received fifteen testimonies that were not in support of ODF's recommendations. Four members of FPAC testified they no longer supported the FPAC recommendation to provide additional protection on small Type N streams due to ongoing scientific research information regarding temperature and the physical processes for transmission of heat downstream. The Board was provided scientific background information at the September workshop. This

presentation is included as part of Attachment E. The Board deferred decision and directed ODF to develop a revised recommendation for the Board's consideration at a later date.

A brief history of Oregon's temperature standard is outlined in Attachment F. Some stakeholders that have questioned the interpretation and application of Oregon's temperature standard and pointed to uncertain outcome of currently ongoing research. The current temperature criteria, however, has been peer-reviewed and deemed scientifically credible from a number of different sources including the IMST (Attachment G, IMST Report on Oregon's Temperature Standard) and has been approved by EPA (March 2004).

Since the FPA's riparian rules are the mechanism for ensuring compliance with water quality standards, DEQ is concerned that if there are not additional protections on Type N streams, there is less certainty that the water quality standards for temperature will be met on private and state forestlands. DEQ believes Type N stream protection is warranted to comply with the cold water protection and is consistent with the Sufficiency Analysis recommendations. DEQ has on a number of occasions encouraged the Board and the ODF staff to proceed with adoption of additional protections on type N streams. DEQ will continue to work with ODF and stakeholders on refinements to the draft rule language regarding small type N streams that will be based on existing and emerging science and present to the Board in a reasonable timeframe.

Although the difference in statutory requirements for rule adoption makes alignment of levels of regulation a difficult task for DEQ and ODF, we are committed to assisting the Board and the Commission. As determined in the Briefing from the Senior Assistants to the Attorney General, the legislature has provided the agencies with a process and incentives to reach agreement. DEQ and ODF request the Board and the Commission to provide guidance for future cooperation and collaboration toward a resolution to the issues that have been raised in this memorandum.

Next Steps

The following actions are scheduled before the final rule adoption by the Board of Forestry planned for July, 2005.

January, 2005 BOF Meeting

- ODF plans to present its findings for the ORS 527.714 analysis and request approval to initiate formal rulemaking for the five concepts the Board has approved to date.

- ODF plans to present its recommendation for clarifying the policy statement that outlines the goals of the Forest Practices Act water protection rules.
- ODF may also present draft language to increase protection on small type N streams for western Oregon and may request to initiate ORS 527.714 analysis as well as formal rulemaking for this concept along with the five concepts in the rule package.

The rulemaking process will continue to include formal public comment and hearing processes.

EQC/BOF Involvement

1. DEQ encourages the Commission to request that the Board continue to consider the riparian rulemaking as a priority and make the best effort to remain on the current timeline. Although DEQ realizes that the Board has a number of tough issues to weigh when adopting new rules, there have been agreements between ODF and DEQ on the applicability of available science regarding most of the rule concepts. The main topic to be explored is whether the current riparian rule package is still necessary to adequately address issues raised in the Sufficiency Analysis, and to provide reasonable assurance that the improved BMPs implemented through the FPA and voluntary measures will result in attainment of Oregon's water quality standards.

In this context, we will need to discuss whether there have been changes in policy and/or science that indicate new alternatives need to be considered. ODF and DEQ seek guidance in resolving the outstanding issue of type N streams as well as inclusion of TMDL language in the policy statement in the FPA's water protection rules.

2. Another issue to be discussed is whether the current water temperature standards and its application adequately consider key forest ecosystem processes and temporal and spatial disturbance patterns and their influence on beneficial uses. Although the Sufficiency Analysis identified recommendations for the FPA to meet water quality standards, there are concerns as to how the temperature standard should be applied to the forest ecosystems.

The Board is required by statute to consult with the Commission in adoption of practices and other rules to address nonpoint source discharges of pollutants resulting from forest operations on forestlands. The Commission may initiate procedures to petition the Board of Forestry to review the FPA rules and best management practices under ORS 527.765 at any point if the Commission determines that the rules and practices are inadequate to protect water quality standards. There

is an equal and reciprocal opportunity for the Board to petition the EQC if they determine the water quality standards are not appropriate for forestlands. DEQ and ODF are not recommending that either the Commission or the Board petition each other, but hope to provide the Board and Commission an adequate update of the rulemaking process and have the opportunity to present any questions and/or issues for a joint discussion.

Attachments

A. Agenda for the Joint BOF-EQC Meeting, October 21, 2004
B. Executive Summary of Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality
C. Summary table of Sufficiency Analysis recommendations and corresponding FPA rule concepts
D. Oregon Board of Forestry Forest Practices and Water Quality Workshop Supporting Information Package
E. Regulations of Water Quality and Forest Practices
F. A Brief History of the Oregon Temperature Standard
G. Executive Summary of IMST Report: Oregon's Water Temperature Standard and its Application: Causes, Consequences, and Controversies Associated with Stream Temperature

Approved:

DEQ

Section:

Division:

Report Prepared By: Koto Kishida
Phone: 503-229-6381

ODF

Program:

Division:

Report Prepared By: Lanny Quackenbush
Phone: 503-945-7478

Board of Forestry / Environmental Quality Commission
Joint Meeting

Thursday, October 21, 2004
ODF Tillamook District Office
5005 East 3rd Street, Tillamook

7:30 – 12:00 Tour to learn about stream protection issues on forestland

12:00 – 12:30 Lunch in route to the meeting from the tour

12:30 – 5:00 Joint public meeting, at the ODF Tillamook Headquarters Building, 4907 East 3rd Street, in Tillamook, Oregon

- 12:30 Introductions and purpose of the meeting; Steve Hobbs and Mark Reeve
  Key objectives and values of the Board and Commission
- 1:00 Overview of recent history and decisions to date; Lanny Quackenbush and Koto Kishida
  Brief review of the sufficiency analysis, FPAC, ERFAC process through rule change process to date
- 1:15 Issues of science; Bob Baumgartner and Gregg Cline
  Brief description of DEQ temperature standard, IMST report and other technical issues.
- 1:30 Issues of law; Ian Whitlock and Larry Knudsen
  Brief description of BOF and EQC statutory responsibilities and requirements.
- 1:50 Issues of policy; Paul Slyman and Marvin Brown
  Complementary policies and values; areas where policies and values may conflict.
- 2:15 Break
- 2:30 Discussion: *What are the areas of interest or concern for Board and Commission members on decisions to date or recommendations awaiting action by the Board*?
  - Are there decisions to date that warrant discussion given the issues of science, law and policy?
  - In what direction would Board or Commission members like to see the recommendations still under consideration go?
  - Generally, what are the areas of opportunity or concern for the application of water quality standards in forestlands?
- 3:30 Public comment opportunity; open invitation to audience members to provide brief comments to Board and Commission members
- 4:00 Discussion: *What guidance do Commission and Board members have for future cooperation and collaboration between DEQ and ODF to ensure that water quality standards are achieved in forest lands and that water quality standards are adopted and applied appropriately on forestlands?*
- 5:00 Adjourn

6:00 - 9:00 Meet and greet with local officials and interests to discuss local environmental and economic issues, Swiss Hall , 4605 Brookfield Rd, Tillamook.

1. Welcome and presentation of county issues. Tillamook County Chair
2. Welcome and presentation of City issues. Mayor of Tillamook
3. General Welcome and discussion. All

Environmental Quality Commission and Board of Forestry Joint Meeting
October 21, 2004
Attachment B

Oregon
John A. Kitzhaber, M.D., Governor

Department of Forestry
State Forester's Office
2600 State Street
Salem, OR 97310
(503) 945-7200
FAX (503) 945-7212
TTY (503) 945-7213/800-437-4490
http:/ /www.odf.state.or.us

"STEWARDSHIP IN FORESTRY"

Memorandum

Date: October 17, 2002

To: Interested Parties

Subject: **Oregon Department of Forestry and Department of Environmental Quality Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality**

The Oregon Department of Forestry (ODF) and Department of Environmental Quality (DEQ) are pleased to present this joint evaluation of the sufficiency of the Forest Practices Act (FPA) to protect water quality. In recent years increased attention has been given to the development of Total Maximum Daily Loads (TMDLs) and the listing of 303(d) water quality limited streams in the state of Oregon under the Clean Water Act. This presented new opportunities for the ODF and DEQ to move forward together to address water quality issues on nonfederal forestlands. This report represents the culmination of four years of work by our departments, pursuant to an April 1998 Memorandum of Understanding.

The ODF is the designated management agency by statute for regulation of water quality due to nonpoint source discharges or pollutants resulting from forest operations on forestlands. The Board of Forestry, in consultation and with the participation and support of the Environmental Quality Commission, has adopted water protection rules for forest operations (ORS 527.765). Forest operators conducting operations in accordance with the FPA are considered to be in compliance with Oregon's water quality standards (ORS 527.770).

This report draws on available research and monitoring data relevant to current forest practices, and demonstrates overall program adequacy at the statewide scale with due consideration to regional and local variation in effects. This analysis is based on the premise that achieving the goals and objectives of the Forest Practices Act will ensure the achievement and maintenance of water quality goals. Conclusions include the

finding that there is some risk current protection may not be sufficient at a site-specific scale for some small and medium streams, however, the significance and scope of this risk is uncertain.

The purpose of the recommendations included in this report is to ensure that the FPA goals and objectives, and thus water quality standards, are being met. The Board of Forestry will consider the recommendations in light of the relevant social, economic, and environmental context of the FPA. Accordingly, the recommendations are offered to highlight general areas where current practices are either sufficient or could be improved in order to better meet the FPA goals and objectives and in turn provide added assurance of meeting water quality standards.

James E. Brown, State Forester
Oregon Department of Forestry

Stephanie Hallock, Director
Oregon Department of Environmental Quality

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EXECUTIVE SUMMARY

Background

In recent years, increased attention has been given to the development of Total Maximum Daily Loads (TMDLs) and the listing of 303(d) water quality limited streams[1] in the state of Oregon under the Clean Water Act. This has presented new opportunities for the Oregon Department of Forestry (ODF) and the Department of Environmental Quality (DEQ) to move forward together to address water quality issues on non-federal forestlands. To adequately address these issues, the ODF and DEQ have agreed through an April 1998 Memorandum of Understanding (MOU) to jointly evaluate the sufficiency of the Forest Practices Act (FPA) to protect water quality. The MOU outlines five specific water quality parameters that will be addressed: temperature, sedimentation, turbidity, aquatic habitat modification, and bio-criteria.

The purpose of this sufficiency analysis, as described the MOU (Appendix D) is to determine:

(a) The adequacy of the FPA pursuant to ORS 527.765 in the achievement and maintenance of water quality standards, with due consideration to regional and local variation in effects;
(b) If forest practices contribute to identified water quality problems in listed water quality limited streams; and
(c) If so, to determine whether existing forest practice rules provide sufficient control to assure that water quality standards will be met so that waters can be removed from the 303(d) list.

Consistent with the MOU, water quality parameters not specifically addressed in the sufficiency analysis "are generally not attributable to forest management practices as regulated by the EPA." Given the lack of any significant information on "other" parameters that might be influenced by current practices since the drafting of the MOU, the ODF and DEQ have agreed that an evaluation of parameters beyond those specifically listed in the MOU is not warranted at the time of this evaluation. The intent of the MOU and the focus of this report is on those parameters where it is known that forest practices have in some cases caused documented changes in water quality conditions.

The overall goal of the water protection rules as stated in Oregon Administrative Rules (OAR 629-635-0100 (7)) is to provide resource protection during operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met.

> (a) The protection goal for water quality (as prescribed in ORS 527.765) is to ensure through the described forest practices that, to the maximum extent practicable, non-point source discharges of pollutants[2] resulting from forest operations do not impair the achievement and maintenance of the water quality standards.

[1] Water quality limited streams are those waters included on the 303(d) list maintained by the DEQ. These are waterbodies currently identified as not meeting water quality standards (see Appendix E).
[2] Non-point source discharges are those originating from diffuse sources across the landscape and cannot be traced to a single point or descrete activity.

(b) The protection goal for fish is to establish and retain vegetation consistent with the vegetation retention objectives described in OAR 629-640-0000 (streams), OAR 629-645-0000 (significant wetlands), and OAR 629-650-0000 (lakes) that will maintain water quality and provide aquatic habitat components and functions such as shade, large woody debris, and nutrients." OAR 629-635-0100 (7)

State policy on water pollution control for state and private forestlands originates from the Environmental Quality Commission (EQC) and applicable administrative statutes:

> "To protect, maintain and improve the quality of the waters of the state for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, municipal, recreational and other legitimate beneficial uses." [ORS 468B.015(2)]
>
> "Implementation of any limitations or controls applying to nonpoint source discharges or pollutants resulting from forest operations are subject to ORS 527.765 and 527.770." [ORS 468B.110 (2)]

Consistent with these statutes, the FPA is Oregon's water quality standard compliance mechanism with respect to forest operations on state and private forestlands:

> "The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state. Such best management practices shall consist of forest practices rules adopted to prevent or reduce pollution of waters of the state. Factors to be considered by the board in establishing best management practices shall include, where applicable, but not be limited to:
>
> (a) Beneficial uses of waters potentially impacted;
> (b) The effects of past forest practices on beneficial uses of water;
> (c) Appropriate practices employed by other forest managers;
> (d) Technical, economic and institutional feasibility; and
> (e) Natural variations in geomorphology and hydrology." [ORS 527.765 (1)]
>
> "A forest operator conducting, or in good faith proposing to conduct, operations in accordance with best management practices currently in effect shall not be considered in violation of any water quality standards." [ORS 527.770]

These Oregon administrative rules are designed to achieve water quality goals consistent with the relevant statutes, ORS 468B.015(2), 468B.110 (2), 527.765, and 527.770 cited above. It is in this regulatory and policy context that applicable water quality standards and the FPA are implemented to address water quality protection for waters of the state.

Most of the parameters addressed in this sufficiency analysis are inter-related, and forest management activities often have the potential to affect more than one parameter at the same

time. For example, habitat can be modified with changes in sedimentation and turbidity, and sedimentation can influence stream temperature by altering channel dimensions and subsurface hydrology, thus affecting the net heat load to the stream. It is logical to take a holistic approach and consider water quality conditions as a result of all the parameters interacting collectively rather than attempting to consider each parameter wholly independent of the others. Accordingly, this report takes a broad approach to examining the sufficiency of the FPA and considers the multiple factors and functions by evaluating water quality standards primarily through the FPA rule objectives.

Given the consistency between the FPA and state water quality statutes and their respective administrative rules, achieving FPA goals, as articulated in the administrative rules, will ensure achieving and maintaining water quality goals and water quality standards to the maximum extent practicable. This sufficiency analysis will therefore consider the adequacy of the rules in achieving the objectives and goals of the FPA. If current practices are meeting FPA objectives and goals, state water quality standards will be met as well. If the ODF and DEQ find FPA objectives and goals are not being met, the BOF will create or modify statewide or regional rules, or design other effective measures to address the water quality impairment.

In analyzing natural resource data and attempting to draw specific cause-and-effect conclusions between human activities and natural resource conditions, the quality and/or quantity of data necessary for a high level of scientific certainty is often not available. This effort at evaluating the sufficiency of the FPA is no exception. Available data pertinent to direct cause-and-effect linkages between the FPA and quantitative water quality conditions is very limited.

There are at least two general points of view regarding such scientific uncertainty. One is to assert that since it cannot be determined with certainty that a set of practices *is* achieving a given water quality standard, a conservative approach should be taken and the rules changed to provide a higher level of protection in case a significant risk does, in fact, exist. Another view is to assert that since it cannot be determined with certainty that a set of practices *is not* achieving a given water quality standard, there is no reason for a change in practices until further monitoring and/or research can prove that a significant risk does, in fact, exist. Both points of view are valid when scientific findings are uncertain, and values and beliefs play a large role in how these points of views utilize limited scientific information.

One task of the ODF and DEQ sufficiency analysis is to present and analyze all of the applicable science and information. Following the completion of this analysis, the Board of Forestry will consider the recommendations in light of the relevant social, economic, and environmental context of the FPA. The goal of this approach is to utilize the recommendations so that outcomes are consistent with both the scientific information and the existing socio-economic framework of the FPA.

Social, Economic, and Environmental Framework

For the report recommendations to be acted upon following its completion, a review of the legal and policy setting, Oregon's forest land base, and forest ecosystem dynamics will need to be considered by the Board of Forestry in reviewing the adequacy of the FPA in meeting water

quality standards "to the maximum extent practicable" as defined by state statute. Appendix A provides this review and describes the overall context in which the FPA operates. There are different environmental, social, and economic implications, depending on the interpretation of "maximum extent practicable," and these implications should be considered for this evaluation to result in an outcome that does not create unintended negative consequences for resource protection. For example, increased forestry regulations in Washington state, combined with development pressures, are partly responsible for ten-times the area of forestlands being converted to other land uses as compared to Oregon over the last decade. While these increased regulations may have resulted in some increase in resource protection for forestlands at a site-specific level, it may have been at the cost of losing an area of land (400,000 acres) to other uses that may not provide as high a level of resource protection as forestlands. Taking into account the social, economic, and environmental aspects in evaluating FPA-sufficiency early on can help to avoid this type of unintended negative consequence, while also ensuring that statutory obligations are met.

Current Scientific Knowledge

Appendix B is a review and summary of the current scientific findings and monitoring results relevant to specific forest practice issues directly related to achieving water quality goals. Each of the water quality parameters that are the subjects of this report are linked to specific forest practice issues that address those parameters. The forest practice issues reviewed here include stream temperature, large wood, forest roads, landslides, and fish passage. The technical information included in this section of the report is used as the basis of the evaluations and recommendations developed in the remainder of this report, and they are referenced accordingly.

Description of Pollution Control Mechanisms

Appendix C describes the current pollution control mechanisms implemented to meet or exceed current water quality standards. These mechanisms include both the FPA and Oregon Plan voluntary measures. They are organized under the same forest practice issues outlined in Appendix B.

Evaluation

The following conclusions apply to all applicable standards (temperature, sedimentation, turbidity, aquatic habitat modification, and bio-criteria).

Site-Specific Evaluation

Current protection requirements may be inadequate in the following areas:

- Standards for some medium and small Type F streams in western Oregon may result in short-term temperature increases at the site level. However, the significance and scope of this increase is uncertain, and it may be offset at the landscape scale by other factors. Relevant to

the habitat modification standard and criteria, large wood potential for some of these streams are less than what was assumed under the 1994 rules.

- Standards for some small Type N streams may result in short-term temperature increases at the site level that may be transferred downstream (this may impact water temperature and cold-water refugia) to fish-bearing streams. The significance and scale of this change is uncertain, and it may be offset at the landscape scale. Relevant to the habitat modification standard and criteria, large wood potential delivered by debris torrents (typically in areas of very steep topography) along these streams may be less than optimal.

For large Type F streams, shade levels appear to be adequate, and large wood outputs for these streams is consistent with that assumed under the 1994 rules.

With the exception of the issue of wet-weather hauling and steep-slope ground skidding and those areas noted above, the FPA appears to be adequate when implemented successfully.

Holistic Evaluation

Over time and space the forested landscape changes. Disturbance is an important process for maintaining productivity and resetting the environment, but it can also have a number of impacts to water quality parameters. Human activities can alter the frequency and magnitude of disturbance relative to historical patterns. While some human activities, like timber harvesting, may be more frequent than historical rates of disturbance, harvesting may also be less intense of a disturbance as compared to, for example, historical wildfire. Other impacts, like fire suppression, may reduce the frequency of disturbance, but result in somewhat more intense disturbances when fires do occur. The frequency and intensity of the event can influence vegetative and other disturbance recovery. Human activities to reduce adverse effects, therefore, need to be evaluated against historical patterns of disturbance.

The current distribution of forest stand age classes, the levels of tree stocking in managed plantations, and fire suppression have resulted in well-stocked, dense, closed canopy conifer stands across a larger portion of the forested landscape than has historically occurred. Thus the current rules and practices likely result in an increased level of shade at a landscape scale. At a site-specific scale, however, some level of risk exists along some streams, as noted in the next section. The significance of this risk in terms of influencing stream temperatures at a watershed (or sub-basin) scale is uncertain.

More arguably, higher conifer stocking levels across the landscape in upland and riparian areas may result in an increased potential for large wood delivery. The likelihood of such additional stocking resulting in increased large wood production is dependent upon the harvest levels, retained trees, natural mortality and other disturbance events. Until the sizes of riparian trees increase through normal growth volume may be limited, even though the number of trees may be relatively high. Nonetheless, current practices are likely sufficient at a landscape scale.

Temperature

The following is an evaluation of the temperature standard by specific stream types and sizes:

Medium and small Type F streams: Current research and monitoring results show that current RMA prescriptions for western Oregon may result in short-term temperature increases on some Type F streams; however the significance of the potential temperature increases at a watershed (or sub-basin) scale is uncertain.

Small Type N streams: Current research and monitoring results show current practices may result in short-term (two to three years) temperature increases on some Type N streams. The significance of potential temperature increases on Type N streams to downstream fish-bearing streams and at a watershed (or sub-basin) scale is uncertain.

All other streams: Influences on stream temperatures from shade levels resulting from specific BMP prescriptions for the other stream category types have not been assessed due to a lack of relevant data. However, in light of the data and findings specific to medium and small Type F streams, and given the higher level of vegetation retention on large Type F streams, it is likely that the standard is being met on large Type F streams.

Sedimentation Standard

The intent of the sedimentation standard as it applies to the FPA is to minimize soil and debris entering waters of the state. (OAR 629-30-000(3)) With the exception of wet-weather road use, complying with the road construction and maintenance rules currently in place is likely to result in meeting water quality standards. The rule and guidance recommendations described in the next section of this report will work towards ensuring the goals of the FPA and water quality standards are being met.

Turbidity Standard

Given the lack of quantitative data to specifically address the turbidity numeric standard, the turbidity standard is evaluated qualitatively. The intent of the turbidity standard, as it applies to the FPA, is to minimize soil and debris entering waters of the state. (OAR 629-30-000(3)). Both the FPA and water quality standards are being met when unfiltered surface runoff from road construction is entering applicable waters of the state and there is a visible difference in the turbidity of the stream above and below the point of delivery of the runoff for less than a two- or four-hour duration (depending on the stream grade and with all practicable erosion controls in place). When unfiltered surface runoff from general road use is minimized, and/or if all applicable BMPs have been applied, both the FPA and water quality standards are being met as well.

With the exception of wet-weather road use, complying with the road construction and maintenance rules and guidance currently in place is likely to result in meeting water quality standards. The rule recommendations will help improve compliance and implementation of the FPA to ensure the goals of the FPA and thus water quality standards are being met. Specific to

wet-weather hauling, construction and maintenance standards should be developed for roads at risk for sediment delivery. Prohibiting hauling during periods of wet weather on road systems that have not been constructed with specific standards for surface materials, drainage systems, or other alternatives (paving, increased numbers of cross drains, sediment barriers, settling basins, etc.) will also minimize delivery of sediment streams.

Habitat Modification Standard

The FPA standard as it relates to habitat modification is "to grow and retain vegetation [along fish-bearing streams] so that, over time, average conditions across the landscape become similar to those of mature streamside stands;" and "to have sufficient streamside vegetation [along non fish-bearing streams] to support functions and processes that are important to downstream fish use waters and domestic water use."(OAR 629-640-0000)

The following is an evaluation of the habitat modification standard described above by specific stream types and sizes:

Medium and small Type F streams: Monitoring data indicates the assumptions used to determine basal area targets for small and medium streams in western Oregon may not be consistent with what the RMAs are capable of growing along these streams. The data also shows that 60 percent of harvest operations occurring along fish-bearing streams do not result in management within the RMAs. There is a reasonable possibility that, under the current rules, some of these streams are not likely to result in the "desired future condition" in a timely manner, as described in the goals of the FPA.

Small Type N streams: There is increasing scientific evidence that small non-fish-bearing streams prone to debris flows provide an important source of large wood for downstream fish habitat. While these streams are providing some level of functional large wood inputs and shade production under the current rules, the rules were not specifically designed to retain significant sources of large wood and shade in these areas. There is a reasonable possibility that, under the current rules, some of these streams are not likely to adequately support functions and processes important to downstream fish use waters, as described in the goals of the FPA.

All other streams: Influences on habitat modification resulting from specific best management practices for the other stream category types have not been assessed since they were considered a lower priority. However, given the higher level of vegetation retention on large Type F streams, and in light of the data and findings specific to medium and small Type F streams, it is likely the standard is being met on these streams.

Fish passage blockages: Since 1994, the FPA has required juvenile fish passage be provided on all fish-bearing streams. Current monitoring information does not indicate Forest Practices policies need to be significantly changed on how to install fish-passable stream crossings. With few exceptions, it appears when the guidelines are implemented correctly, the success rate is high for creating conditions believed to provide a high likelihood of fish passage.

Biocriteria Standard

This standard is consistent with multiple FPA purposes and goals that refer to the sound management of soil, air, water, fish and wildlife resources, while at the same time ensuring the continuous growing and harvesting of forest tree species. Given the general nature of this standard and the lack of specific criteria to use in evaluating this standard, biocriteria cannot be explicitly evaluated at this time. It is reasonable to assume that, given the inter-related nature of the temperature, sediment, turbidity and habitat modification parameters relative to biocriteria, to the extent these other parameters are being met, the biocriteria standard is likely to be met as well.

Recommendations

The FPA goals and objectives, as well as most of the state water quality standards and criteria being evaluated in this analysis (temperature and turbidity being the exceptions), are qualitative in nature. Thus, conclusions regarding the effectiveness of the rules in meeting the goals and objectives are qualitative as well. Available data relevant to those quantitative water quality standards (i.e. temperature and turbidity) is inadequate to draw specific and comprehensive conclusions about the adequacy of current practices; therefore, the evaluation of these criteria is also qualitative.

Data in many areas is lacking and, in many cases, not comprehensive. In light of this, any policy decisions made when this report is completed will depend upon professional judgement consistent with available scientific information. As the Board of Forestry considers these recommendations, social and economic factors, along with the scientific evidence on the adequacy of current practices presented here, will be considered as well.

The following recommendations are offered to highlight general areas where current practices could be improved upon to better meet the FPA goals and objectives and, in turn, provide greater likelihood of meeting water quality standards.

Recommendation #1: The RMA basal area retention standards should be revised, where appropriate, to be consistent with achieving characteristics of mature forest conditions in a timely manner; and to ensure that RMAs are providing desirable amounts of large wood and shade over space and time.

Recommendation #2: Revise current practices so desirable amounts of large wood are available along small stream channels that can deliver debris torrents to Type F streams. Ensure that adequate shade is maintained or rapidly recovered for riparian areas along small perennial Type N streams with the potential to impact downstream Type F waters.

Recommendation #3: Provide additional large wood to streams by actively placing the wood in areas where it will provide the greatest benefits to salmonids.

Recommendation #4: Reduce the delivery of fine sediment to streams by installing cross drains to keep drainage waters from eroding slopes. This will allow filtering of sediments and infiltration of drainage water into undisturbed forest soils. Cross drains should not be confused with stream crossing culverts. Cross drains take water from the road surface and ditch and route it under/across the road, discharging the water downslope from the road.

Recommendation #5: Develop specific standards for roads that will be actively used during the wet season. This would include a requirement for durable surfacing of roads in locations where fine sediment can enter streams. This would also include ceasing to haul if roads have not been constructed with effective surface materials, drainage systems, or other alternatives (paving, increased numbers of cross drains, sediment barriers, settling basins, etc.) that minimizes delivery of sediment into streams.

Recommendation #6: Develop specific guidance describing how roads in critical locations would be reviewed to reduce road length, and determining when, despite the relocation, the road location would pose unacceptable risk to resources and not be approved.

Recommendation #7: Construct stream crossings that adequately pass large wood and gravel downstream, and provide other means for passage of large wood and sediment at those crossings that restrict passage. The transport mechanisms for large wood and gravel should include both stream storm flows and channelized debris flows. This would reduce the risk of debris backing up behind the structure, potentially resulting in catastrophic sediment delivery caused by washouts.

Recommendation #8: Develop specific steep-slope, ground-based, yarding practices, or add a prior approval requirement for ground skidding in high-erosion hazard locations.

Recommendation #9: Manage locations most prone to landslides (high-risk sites) with techniques that minimize impacts to soil and water resources. To achieve this objective, best management practices to protect landslide-prone terrain currently in guidance should be incorporated into the forest practice rules, while developing a better case history for evaluating the effectiveness of those practices. These standard practices are designed to minimize ground alteration/disturbance on high-risk sites from logging practices.

Recommendation #10: Provide for riparian functions along stream reaches above impassable stream crossing structures that have a high probability of recolonization by salmonids once the structure is replaced/improved. If an upstream reach has the capacity to be a fish-bearing stream, but is currently a non-fish-bearing stream because a stream crossing structure cannot pass fish,

the forest practices rules should be amended so the upstream reach is classified as a fish-bearing stream.

Recommendation #11: Facilitate the identification, prioritization, and restoration of existing culverts that currently do not pass fish. Culvert replacement should be accelerated above what is currently being done, specifically for family forestland owners who often do not have adequate resources to address this issue in a timely manner.

Recommendation #12: Provide a more effective and efficient means of classifying streams for "fish use." Revise the forest practice rule definition of Type F and Type N streams using a physical habitat approach to classify fish-use and non-use streams.

Compliance and Effectiveness Monitoring

The goal of the ODF forest practices monitoring program is to evaluate the effectiveness of the forest practice rules. Monitoring results are used to guide future management practices through the rule revision process. The goal includes a commitment to address specific Oregon Plan issues. The forest practices monitoring strategy is currently being revised. The key areas identified for improvement include:

- Building understanding, acceptance and support for the monitoring strategy.
- Using random sample design to select all sites. This has been used for two current projects.
- Combining monitoring efforts at each site to increase efficiency (i.e. compliance monitoring and riparian function at the same site)
- Increasing coordination with other Oregon Plan monitoring efforts, most notably DEQ and ODF&W.
- Addressing issues at a watershed scale.
- Improving communication of project status and results, both internally and externally using newsletters and project publications.

The following are specific recommendations for future monitoring:

1. Maintain a riparian monitoring program that continues to monitor the effectiveness of riparian prescriptions and riparian functions to ensure water quality goals are achieved in the future.

2. Monitor improvement of forest roads at a landscape level, looking specifically at implementation of the road hazard and risk reduction project.

3. Evaluate the need for further road compliance and effectiveness monitoring following the completion of the BMP compliance monitoring project relating to road BMPs. Also evaluate the progress and effectiveness of current voluntary efforts under the Oregon Plan to upgrade existing culverts that do not pass fish.

4. Monitoring of watershed-scale effects relative to current practices along small Type N streams should be a priority to help narrow the current level of uncertainty.

The following are remaining issues identified in this report that may warrant future examination as additional information is available:

- Is the occurrence of blowdown having an effect on meeting the goal of achieving "over time, average conditions across the landscape become similar to those of mature forest conditions" in RMAs?

- Are current forest practices meeting the water quality standard with respect to cold-water refugia? (This analysis will not be possible until the DEQ develops the specific guidance necessary to identify cold-water refugia on the ground that can be evaluated against the standard.)

- What effect, if any, are current practices along small non-fish-bearing streams having on downstream sediment regimes?

The Board of Forestry is currently deliberating the recommendations introduced by the Forest Practices Advisory Committee (FPAC) in September 2000. The process of implementing changes to current BMPs will occur over the next few years and is likely to consist of both regulatory and non-regulatory measures. The ODF monitoring program is also beginning a new series of effectiveness monitoring projects to evaluate BMP sufficiency in protecting riparian functions and water quality. There may also be some issues with water quality parameters that are not specifically addressed in this report that could have an unknown potential for current practices to cause changes in water quality conditions. In these cases, the DEQ will coordinate with the ODF and its monitoring program to address these parameters as concerns are identified and documented. Specific details of future monitoring efforts will be determined once the FPAC recommendations are developed further and implemented. ODF's monitoring strategy will continue to be developed at that time.

DEQ/ODF SA Recommendations and Corresponding OFPA Rule Concepts

Sufficiency Analysis Recommendations	Draft Rule Concepts	ODF Recommendation	Board of Forestry Decision	Next BOF/ODF Action	DEQ Comments
1- revise basal area (size and number of trees) targets / achieve mature forest conditions and provide large wood and shade	8- basal area increase for small and medium fish-bearing streams (west)	Rule change	Continue on regulatory path 10/03	**1/05** BOF will make a decision for formal rule making based on 527.714 findings	support rule change
	14- basal area targets (east)	No rule change - insufficient science	Not proceed approved 3/04	ODF will revise monitoring priority list	neutral, encourage monitoring
	10- no harvest within 1/2 riparian management area (RMA) (west)	Non regulatory - insufficient science	Voluntary path approved 9/03	**10/04-7/05** ODF will develop voluntary measures through Oregon Plan	prefer rule, encourage monitoring
	11- retain largest trees within RMA (west)	Non regulatory - insufficient science	Voluntary path approved 9/03	**10/04-7/05** ODF will develop voluntary measures through Oregon Plan	prefer rule, encourage monitoring
	9- limit harvesting within RMA to 40% (west)	Non regulatory - insufficient science	Voluntary path approved 9/03	**10/04-7/05** ODF will develop voluntary measures through Oregon Plan	prefer rule, encourage monitoring
2- revise current practices so desirable amounts of large wood is available along small stream channels that can deliver debris torrents to fish bearing streams. Ensure that adequate shade is maintained or rapidly recovered for riparian areas along small perennial non-fishbearing streams with the potential to impact downstream fish-bearing waters	4- Wood from debris flows and landslides	Rule change	Continue on regulatory path 9/03	**1/05** BOF will make a decision for formal rule making based on 527.714 findings	support rule change
	12- small non fish-bearing streams (west)	Rule change	Deferred decision 4/04	**1/05** ODF will present draft rule language to BOF	rule language uncertain, BOF action uncertain, prefer rule change
	16- small non fish-bearing streams (east)	No rule change - insufficient science	Not proceed approved 4/04	ODF will revise monitoring priority list	prefer rule, encourage monitoring
	18- small non fish-bearing stream monitoring	(Rule change) - house cleaning, remove obsolete references	Continue on regulatory path 7/03	**1/05** BOF will make a decision for formal rule making based on 527.714 findings. ODF will also revise their monitoring priority list	support rule change and encourage monitoring
3- provide additional large wood to streams by actively placing wood to benefit salmonids	7- Large wood placement (also increase active management basal area target)	Rule change	Continue on regulatory path 4/04	**1/05** BOF will make a decision for formal rule making based on 527.714 findings	support rule change for west side, neutral on east side
	17- Fish habitat incentives	Non regulatory - statewide initiative	Not required	**10/04-7/05** ODF will develop language along with voluntary measures for Oregon Plan	initiative language uncertain
10- provide riparian functions along stream reaches above impassable culverts that are likely to be recolonized by salmonids after structures are removed or improved	3- provide habitat above human caused fish barriers	Rule change	Continue on regulatory path 4/04	**1/05** BOF will make a decision for formal rule making based on 527.714 findings	support rule change
12- revise the FPA rule definition of fish bearing and non fish-bearing streams by using physical habitat approach to classify fish use and no fish streams					
Other	1- clarify water protection rules policy statement	Uncertain	Continue on regulatory path 7/03, then deferred decision 7/04	**1/05** ODF will determine its recommendation after internal discussion	ODF/ BOF action uncertain, prefer rule change with TMDL language
	2- treat medium and large non fish-bearing streams as same size fish-bearing streams	Non regulatory - insufficient science	Voluntary path approved 3/04	**10/04-7/05** ODF will develop voluntary measures through Oregon Plan	prefer rule, encourage monitoring
	5- channel migration zones	Non regulatory - insufficient science	Voluntary path approved 9/03	**10/04-7/05** ODF will develop voluntary measures through Oregon Plan	prefer rule, encourage monitoring
	6- treat dense stands within RMA	Guidance on rules	Address through guidance	ODF will develop guidance	guidance language uncertain
	13- revision of desired future condition (east)	No rule change - insufficient science	Further policy discussion approved 3/04	This topic will be included in the Dynamic Ecosystem white paper discussion	support no rule change
	15- provide harvesting alternatives (east)	No rule change - insufficient science	Not proceed approved 3/04	ODF will revise monitoring priority list	support no rule change

Rule package | Voluntary measures

Regulation of Water Quality and Forest Practices

Briefing for the Oregon Board of Forestry
September 7, 2004

Ian Whitlock, Senior Assistant Attorney General
Larry Knudsen, Senior Assistant Attorney General

I. Introduction

This paper outlines the roles of the Environmental Quality Commission and Board of Forestry in protecting Oregon's water quality. The legislature has established a partnership between these bodies, and their respective Departments, to achieve the goals of federal and state law.

The Board of Forestry (Board) is charged with responsibility to "supervise all matters of forest policy and management under the jurisdiction of the state ..." ORS 526.016. Under the Forest Practices Act (FPA), the Board is given exclusive authority to adopt and enforce rules governing forest practices. ORS 527.610 to 527.770, 527.990(1) and 527.992. The Environmental Quality Commission (EQC) is responsible for establishing the policies for the operation of the Department of Environmental Quality in executing a wide variety of environmental programs, including the state's solid and hazardous waste programs, air and water pollution control programs, sewage treatment operations, and prosecution of environmental crimes. ORS 468.015; ORS chapters 465 and 466.

The regulation of forest practices on private and state lands is almost entirely a matter of state law. Although operations on forestlands may give rise to liability under such federal laws as the Endangered Species Act and the Clean Water Act, there is no federal law governing forest practices on state and private lands, and no mandate that states adopt such laws.

In contrast, the water quality programs under the EQC's jurisdiction are the product of both longstanding state statutes and more recent federal delegations of regulatory authority. With respect to the latter, the most important legislation is the Clean Water Act (CWA).[1] Congress intended the Act to be implemented by the states. However, to the extent that states fail to take necessary implementing measures, or if the Environmental Protection Agency (EPA) finds state action insufficient to protect water quality, the federal government retains ultimate authority to administer and enforce the CWA. The legislature also has established a goal of retaining state control over water quality regulation by giving the EQC broad authority to take any actions "necessary ... to implement" the CWA. ORS 468B.035(1)[2].

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[1] 33 USC § 1251-1387.

[2] That authority is shared with the Board and the Department of Agriculture for certain purposes. ORS 468B.110(2), 468B.200-468B230, 568.900-568.933.

II. Water Quality Regulation

Under Oregon law, water is a public resource and pollution of the public waters has been prohibited for many decades. Furthermore, other statutes affecting water quality must be construed so that water quality is protected and in the case of conflict, the EQC's authority is controlling. See ORS 468B.010[3].

Added on to this longstanding state authority, Congress adopted the Federal Water Pollution Control Act in 1948. The FWPCA was substantially amended, however, in 1972 and again in 1987. As amended, it is often now referred to as the Clean Water Act. Congress intended that states be delegated the principal role in administering the Act, with EPA being responsible for oversight[4]. With respect to many key provisions of the Act, EPA must step in and take over if the State fails to accept the delegation or fails to operate the delegated program properly. In other situations, if a state fails to fulfill its obligations, EPA is authorized to withhold federal funds. With respect to some provisions of the Act, citizens are also authorized to ask federal courts to require EPA to act or to impose penalties on persons who fail to comply with the Act.

The core CWA provisions relevant to this outline are:

1. States are required to adopt **Water Quality Standards**. If a state fails to adopt standards or EPA determines the standards are insufficient, EPA must adopt standards for the state. Water Quality Standards are:

    a. A determination of what the beneficial uses are or should be for each water body. This must include protection of all fisheries that are present or were present in the streams in 1974.

    b. The criteria that need to be applied to pollutants or pollution to protect the most sensitive of the designated or actual beneficial uses. These criteria ordinarily must be numeric, but narrative criteria can be used when it is not possible to develop numeric criteria.

    c. Provisions that protect existing high quality water from being degraded and prohibit new sources of pollution in waters that already fail to meet standards.

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[3] The later and more specific provisions in ORS 468B.110 and 527 control over the general statements found in ORS 468B.015, 020, and 025, and DEQ rules, but only to the extent that they are express and unambiguous.

[4] The Corps of Engineers plays a significant role in the permitting of dredged and fill material placed in "navigable waters," including wetlands, under Section 404 of the CWA. 33 USC § 1344. The State of Oregon also administers a regulatory program governing the placement and removal of fill material in waters of the state, through the Oregon Department of State Lands (DSL). *See* ORS 196.800 – 196.905 (DSL removal/fill permits).

2. Point sources are required to obtain discharge permits (known as **NPDES or Section 402 permits**) before adding pollutants to waters of the U.S.[5]

   a. Generally, any discrete conveyance, such as a pipe, a ditch, or truck, is a point source.

   b. Pollutants are broadly defined and include sediment and turbidity, and in some contexts, heat.

   c. Waters of the U.S. include all navigable rivers and lakes and the tributaries to those rivers and lakes. This includes intermittent natural and artificial ditches or streams that feed the rivers. Adjacent wetlands are also included, although the precise coverage is currently being litigated and also is the subject of draft regulations.

   d. The NPDES permits must include effluent limits. These are permit conditions that require the use of appropriate pollution control technology and conditions that prohibit discharges that would cause or contribute to a violation of water quality standards.

   e. Traditionally, most silvicultural activities, including ditches and culverts have not been treated as point sources. The regulatory status of these sources is currently the subject of litigation in federal courts.

3. Section 319 of the CWA requires states to adopt and implement **Nonpoint Source Management Programs** that ensure, to the maximum extent practicable, nonpoint source pollution does not cause or contribute to violations of water quality standards[6]. Unlike the Section 402 permit programs, states have a considerable degree of flexibility in developing and implementing such programs and EPA has only indirect authorities to enforce state compliance. Failure to secure approval of a 319 plan, or to implement identified BMPs, can result in loss of federal grant funds.[7]

4. States are also required to determine which water bodies fail to meet water quality standards. This is known as the **Section 303(d) List**[8]. A **Total Daily Maximum Load** (TMDL) must be developed for the listed water bodies[9]. The TMDL is essentially an equation wherein the state or EPA determines how much assimilative capacity exists in a water body and then allocates portions of that capacity to point sources, non-points

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5 33 USC § 1362(14) (definition); § 1311(a) (prohibition of discharges without permits).
6 33 USC § 1329.
7 The Coastal Zone Management ACT (CZMA), 16 USC §§ 1451-1465, also links federal funding to approved state management plans.
8 33 USC § 1313(c)(2)(A).
9 33 USC § 1313(d).

> sources, and reservations for future growth. States are required to implement TMDL allocations. Allocations are a matter of policy, subject to the usual administrative law requirement of reasoned decisionmaking. Point source allocations are implemented directly through permits. Nonpoint source allocations are implemented through planning, non-regulatory and regulatory activities such as the Forest Practices Act, and Agricultural Water Quality Management Plans under SB 1010. If a state fails to implement a TMDL, EPA will require implementation, but since it lacks direct authority over most nonpoint sources it is required to further reduce loads given to point sources if the state fails to implement nonpoint source allocations.

III. Forest Practices Regulation

The Forest Practices Act (FPA) gives the Board authority to adopt rules governing forest practices. ORS 527.610 to 527.770, 527.990(1) and 527.992. Responsibility for enforcement falls to the State Forester and Department of Forestry. For the present discussion, the FPA's key elements can be summarized as follows:

1. Forest practice rules must encourage "economically efficient" forest practices that "ensure the continuous growing and harvesting of forest tree species" as the leading use of private forestlands. ORS 527.710(2). Consistent with the Act's general statements of policy, the rules must "provide for the overall maintenance of the following resources: (a) air quality; (b) water resources, including but not limited to sources of domestic drinking water; (c) soil productivity; and (d) fish and wildlife." ORS 527.710(2).

2. The forest practice rules include Water Protection Rules governing activities in or adjacent to water bodies, wetlands, and riparian areas. OAR 629-635-0000 to 629-660-0060. The rules are intended to serve the FPA's resource protection goals for water, fish, and wildlife:

> "The overall goal of the water protection rules is to provide resource protection during operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met.
>
> (a) The protection goal for water quality (as prescribed in ORS 527.765) is to ensure through the described forest practices that, to the maximum extent practicable, non-point source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of the water quality standards.
>
> (b) The protection goal for fish is to establish and retain vegetation consistent ... that will maintain water quality and provide aquatic

> habitat components and functions such as shade, large woody debris, and nutrients.
>
> (c) The protection goal for wildlife is to establish and retain vegetation ... that will maintain water quality and habitat components ... . For wildlife species not necessarily reliant upon riparian areas, habitat in riparian management areas is also emphasized in order to capitalize on the multiple benefits of vegetation retained along waters for a variety of purposes." OAR 629-035-0100(7)(a)-(c).

3. The FPA contains important substantive limitations on new rules which directly affect forest practice standards. ORS 527.714. Rules which implement the FPA's resource-protection objectives and which would "provide new or increased standards for forest practices" must meet stringent evidentiary criteria. ORS 527.714(1)(c), (5). For example, evidence must show that existing practices are likely to cause degradation of protected resources, and the proposed rule must reflect available scientific information, relevant monitoring, and, as appropriate, adequate field evaluation at representative locations in Oregon. ORS 527.714(5)(a)-(c). Proposed rules must be drafted with precision to prevent the harm or provide the benefits for the resource requiring protection. Rules must directly relate to, and substantially advance, their underlying objective. ORS 527.714(5)(d). New rules must undergo an alternatives analysis, non-regulatory approaches must be considered, and the "least burdensome" alternative must be chosen. ORS 527.714(5)(e). The benefits to the resource achieved by the rule must be proportional to the harm cause by forest practices. ORS 527.714(5)(f). New rules must also be accompanied by a detailed economic impact analysis. ORS 527.714(7).

4. Subject to ORS 527.765 and 527.770 (the BMP provisions discussed below), forest operations must comply with EQC rules and standards relating to air and water pollution control, and violations are subject to DEQ and EQC regulations and sanctions. ORS 527.724.

IV. Relationship Between the Commission and Board

The legislature has given the Commission primary responsibility for complying with the mandates of the federal CWA[10] and has given the Board exclusive responsibility for regulating forest practices. However, the potential for regulatory conflict or overlap arises from the fact that forest operations can affect whether a water body meets water quality standards. The legislature has dealt with this issue by exempting forest practices from certain aspects of the EQC's jurisdiction, providing the Board with limited water quality regulatory authority, and providing each body with a process to request that the other consider its concerns.

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[10] As noted above, this authority is shared with the Department of Agriculture for certain purposes. *See* footnote 3.

1. Forestry exemption from effluent limitations. Although the EQC has full authority to use TMDLs and related load allocations to protect water quality standards (ORS 468B.110(1)), that authority is limited in the following manner:

> "Unless required to do so by the provisions of the [CWA], neither the [EQC nor the DEQ] shall promulgate or enforce any effluent limitation upon nonpoint source discharges of pollutants resulting from forest operations on forestlands in this state. Implementation of any limitations or controls applying to nonpoint source discharges or pollutants resulting from forest operations are subject to ORS 527.765 and 527.770. ..." ORS 468B.110(2).

This exemption withdraws "forest operations on forestlands" from EQC's regulatory jurisdiction (at least as far as "effluent limitations," "limitations" or "controls" are concerned) and places jurisdiction in the Board's hands, through the best management practice provisions of ORS 527.765 and 527.770.

The precise meaning of ORS 468B.110(2) has not been explored by the courts and it contains several ambiguities. Technically it prohibits the EQC and DEQ from imposing "effluent limitations" on nonpoint source forest operations. The term is not defined in state law, but under federal law an effluent limitation is a condition imposed on a NPDES permit to require use of specified technology or ensure compliance with water quality standards. We therefore assume that the legislature meant something more, particularly in light of the broader terms "limitations or controls" used in the second sentence.

2. *Best Management Practices.* As a substitute for EQC "limitations or controls," the legislature directed the Board to adopt best management practices (BMPs), i.e. "forest practices rules adopted to prevent or reduce pollution of waters of the state." ORS 527.765(1).

> "The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state."

3. BMP enforcement shield. The FPA provides that forest operations conducted in accordance with BMPs "shall not be considered in violation of any water quality standards." ORS 527.770.

4. Enforcement savings clause. The forestry exemption, BMP rules, and BMP shield, are narrowly drawn. Apart from these provisions, the EQC retains full enforcement authority:

> "Subject to ORS 527.765 and 527.770, any forest operations on forestlands within this state shall be conducted in full compliance with the rules and standards of the Environmental Quality Commission relating to air and water pollution control. In addition to all other remedies provided by law, any violation of those rules or standards shall be subject to all remedies and sanctions available under statute or rule to the Department of Environmental Quality or the Environmental Quality Commission." ORS 527.724.

V. Cooperation and Collaboration

We have described how the legislature has divided responsibility for water quality regulation between the EQC and Board. Despite the relative clarity of this division, possibility of conflict remains because the agencies might disagree over the appropriate level of regulation. (In this connection, "the agencies" includes the federal EPA, which has ultimate authority under the CWA with respect to water quality standards and TMDLs and the authority to cut off federal funds if it determines that the state does not have an adequate nonpoint source management plan.) The EQC might believe that the Board has not appropriately applied its BMP authority (ORS 527.765); conversely, the Board might take issue with the EQC's water quality standards as they affect forest operations (ORS 468B.105). The legislature anticipated disagreement and created cooperative mechanisms for the review of water quality rules governing forest operations.

The scope of potential disagreement includes BMPs established under ORS 527.765 and WQSs and TMDLs adopted under ORS Chapter 468B. As noted above, significant portions of EQC's water quality program are subject to EPA oversight, including WQSs and TMDLs. By the terms of the forestry exemption, the EQC is prevented from imposing effluent limitations, but not if the EQC is "required to do so by the provisions of the [CWA]." ORS 468B.110(2). As a consequence, some water quality disputes implicate the EPA as well as the Board and EQC.

The legislature has established reciprocal processes by which the Board and EQC may bring disagreement over water quality standards and BMPs to each other's attention. Under ORS 468B.105, upon the Board's request, the EQC "shall review any water quality standard that affects direct operations on forestlands." Conversely, under ORS 527.765, the EQC may petition the Board to review BMPs.

ORS 527.765 requires the Board to adopt BMPs and other rules "as necessary to insure that to the maximum extent practicable nonpoint source discharges ... do not impair the achievement and maintenance of water quality standards established by the [EQC]." When developing BMPs, the Board must consider five factors, among others:

(a) Beneficial uses of waters potentially impacted;

(b) The effects of past forest practices on beneficial uses of water;

(c) Appropriate practices employed by other forest managers;

(d) Technical, economic and institutional feasibility; and

(e) Natural variations in geomorphology and hydrology.

In addition to these factors, the Board applies the FPA's strict rule-setting standards, found in ORS 527.714. ORS 527.710(2), 527.714(1)(c). The Board must also consult with the EQC in adopting and reviewing BMPs and other rules to address nonpoint source pollution. ORS 527.765(2).

Special procedures govern review of existing BMPs. The Board is required to consider petitions seeking review of BMPs, so long as the petitions meet certain minimum criteria. ORS 527.765(3)(a). Having initiated review, the Board *must* dismiss a petition if it finds "that forest operations being conducted in accordance with the best management practices are neither significantly responsible for particular water quality standards not being met nor are a significant contributor to violations of such standards." ORS 527.765(3)(b). Dismissal must be by an order that includes findings regarding allegations in the petition, and the Board's reasons and conclusions. ORS 527.765(3)(d). If the EQC is the entity petitioning for review, the Board has two options: terminate review with the EQC concurrence, or begin rulemaking. ORS 527.765(3)(c).

If the Board determines that BMPs should be reviewed, rulemaking must begin. "Rules specifying the revised best management practices must be adopted not later than two years from the filing date of the petition for review, unless the board, with concurrence of the [EQC], finds that special circumstances require additional time." ORS 527.765(3)(e). Upon EQC's request, the Board is required to take interim action "to prevent significant damage to beneficial uses" while the BMPs are being reviewed. ORS 527.756(3)(f).

It is apparent from the structure of the BMP and WQS adoption and revision process that the legislature has given the matter considerable thought. With respect to WQSs, the process anticipates dialog between the Board and EQC. With respect to BMPs, the process anticipates significant public involvement in Board decision making. Interested parties have a specific burden of proof, and the Board must justify a decision not to revise a BMP in a manner unlike routine petitions for rulemaking under the Administrative Procedures Act.[11] *Compare* ORS 183.390. The EQC is given a special role in each stage of the process. Finally, the legislature included a disincentive to discourage Board inaction: the "BMP shield" is lost if the Board fails to complete BMP revisions, or make a finding that revisions are not required, within the statutory deadline. ORS 527.770. In sum, although the legislature has not mandated agreement between EQC and the Board on all aspects of water quality regulation, it has provided the agencies with a process and incentives to reach agreement.

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[11] As noted above, a decision to revise a BMP is also subject to specific statutory criteria. ORS 527.714, 527.765(1).

GENJ9812

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A Brief History of the Temperature Standard

Debra Sturdevant, Standards Coordinator

The first temperature criteria in Oregon were adopted in 1967 for the Willamette River. The stated purpose was to keep water temperature as low as possible and maintain normal seasonal variation to accommodate fish, and still allow for other reasonable uses of the water. In 1979, water temperature criteria were adopted by basin statewide. The criteria ranged from 58 to 72°F.

The Commission adopted comprehensive revisions to the temperature criteria in 1996. The Department worked with Technical and Policy Advisory Committees from 1992 to 1995 and recommended revisions intended to improve the implementation and effectiveness of the temperature standard at preventing further warming of the states waters and reducing temperatures in waters that had already been warmed to harmful levels by human activity.

After a long review period and consultation with the National Marine Fisheries Service (NMFS, now NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS), the Environmental Protection Agency (EPA) approved the revised criteria in July 1999, with one exception. EPA rejected the temperature criteria (68 degrees Fahrenheit) for the Lower Willamette concluding that it was not protective of salmonids. During the EPA review and consultation process, the State agreed to a number of conservation measures considered vital to the federal agencies to ensure that the new standard would not impair federally listed threatened and endangered fish.

On March 31, 2003, the Federal District Court of Oregon overturned EPA's approval of Oregon's temperature criteria when it ruled on the case Northwest Environmental Advocates (NWEA) v EPA (filed in 2001). In response to the ruling, EPA withdrew its approval of the criteria. The court order required EPA to either: 1) develop federally-promulgated rules to replace the disapproved state rules, or 2) approve revised state rules that address the concerns identified by the Court, by March, 2004. The temperature concerns the court said needed to be addressed included the criteria for the lower Willamette River, which EPA had disapproved but which had not yet been replaced, and clarification in the rules about when and where the various temperature criteria apply.

DEQ revised its temperature criteria in December 2003, after another 3 years of review. The review during this time period included working with a regional group of agencies led by EPA to develop EPA temperature criteria guidance to States and Tribes. The group included the federal fisheries agencies, Northwest tribes, and the states of Washington, Idaho and Oregon. EPA's guidance document was completed in March of 2003.

During this time Oregon also worked with Technical and Policy Advisory Committees on the temperature criteria review. The committees provided input to DEQ as we participated in the EPA guidance development and provided input into DEQ's recommendations for revising our temperature criteria and fish use designations. In addition, DEQ formed a Bull Trout workgroup and obtained information from ODFW, who was updating its database on fish distribution and received an EPA grant to develop needed fish use timing information as well. The information that was developed during this time period enabled us to revise our fish use designations in a way that would satisfy the court's requirement to better specify where and when the various temperature criteria apply.

The new criteria are primarily based on the EPA guidance document and fish use designation information assembled by a team of Oregon and federal agencies, including DEQ, ODFW, EPA, USFWS and NOAA Fisheries. EPA reviewed and consulted on the revised criteria and approved most of the temperature criteria in March, 2004, meeting the court ordered deadline. There are some provisions in the revised temperature criteria that EPA has not yet acted on, including the criterion for cool-water species, oceans and bays, lakes and borax lake chub.

DEQ is now working on a guidance document that will describe how the temperature standard will be applied and implemented through the State's various water quality control programs.

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Attachment G

Oregon's Water Temperature Standard and its Application: Causes, Consequences, and Controversies Associated with Stream Temperature

A report of the Independent Multidisciplinary Science Team, Oregon Plan for Salmon and Watersheds

Technical Report 2004-1

May 7, 2004

Members of IMST who contributed to this report during their appointed terms
"*" Denotes incumbent members who adopted the report

John Buckhouse, Department of Rangeland Resources, Oregon State University
*Wayne Elmore, Bureau of Land Management, U.S. Department of Interior (Retired)
*Stanley Gregory, Department of Fisheries and Wildlife, Oregon State University
*Robert M. Hughes, Dynamac Corp.
Kathleen Kavanagh, Forest Resources Department, University of Idaho
Jim Lichatowich, Alder Fork Consulting
Logan Norris, Department of Forest Science, Oregon State University (Emeritus)
*William Pearcy, College of Oceanic and Atmospheric Sciences, Oregon State University
*Carl Schreck, USGS Biological Resources Division
*Richard Shepard, Applied Ecosystem Services, Inc.
*Carlton Yee, Yee Forestry Associates

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EXECUTIVE SUMMARY

This report was written to fulfill former Governor John Kithzaber's and the State Legislature's request to review the scientific basis of Oregon's water quality standards for temperature. To accomplish this goal, we discuss the answer to science questions that the Independent Multidisciplinary Science Team (IMST) deemed to be relevant to this charge and important to accomplishing the goals of the Oregon Plan. While this request was initiated based on concerns surrounding the 1996 temperature standards, the discussions in this report are completely applicable to the recently adopted 2003 temperature standards. Our primary focus was "non-point" sources of elevated temperature in streams and cumulative sources from across Oregon's landscape.

Stream temperatures and their modifications from changes in environmental conditions, including the various land uses within Oregon, are complex issues, and we have attempted to highlight areas of apparent conflicting information within the state. Stream temperature is a product of complex interactions between geomorphology, soil, hydrology, vegetation, climate, elevation, and aspect of the watershed. The relative influence of these factors can vary spatially across the landscape and over time. Water temperature can vary along the length of a stream as a result of local topographical and geological factors. Thermal heterogeneity within streams and rivers and can be affected by local energy inputs and outputs.

Salmonids require relatively cold water during most of their life history stages. Stream temperature is closely linked with salmonids' requirement for dissolved oxygen. As water temperatures increase, the amount of dissolved oxygen is reduced. Habitat degradation associated with human land uses (urbanization, agriculture, forestry) often increase surface water temperatures. Where human activities have caused water temperature to increase, survival and productivity of migrating or rearing salmonids may be lowered.

Human land use activities typically affect stream temperature by altering one or more of the following factors: 1) channel morphology 2) streamflow and water quantity, 3) surface/subsurface water interactions, and 4) riparian vegetation. These four factors are highly interrelated. The overall influence that individual factors may have on stream temperature will depend on stream size. Specific stream and watershed conditions cause wide variations in the processes affecting the rate of heating and water temperature therefore stream reach-specific information is critical to understanding stream temperature responses to human activities. Additionally, human activities and management of stream and river systems can shift thermal profiles and lead to earlier or later warming of seasonal water temperatures.

Recent debate in Oregon has been intense regarding the relative importance that shade has on influencing stream temperatures. IMST has found that the vast majority of published studies document that riparian shade has a significant effect on stream temperature. The scientific literature reviewed by the IMST indicates that removal of vegetation along small- to medium-sized streams usually results in increased surface water temperature. In addition, most scientists agree that riparian vegetation provides many benefits to stream and terrestrial ecosystems, in addition to shading streams (IMST 2000). Therefore, despite the level of public controversy, the IMST does not find substantial scientific disagreement on the topic of the importance of riparian vegetation to maintaining stream temperatures.

The IMST was concerned that the debate among the public, natural resource managers, agencies, politicians, and scientists in Oregon has obscured the areas of agreement and disagreement. We developed a new report section called Straightforward Answers to Straightforward Questions (p. 14) to help Oregonians better understand the issues surrounding water temperature and our collective actions to protect and restore the natural resources of the state.

The main body of this report 1) describes the process that the State of Oregon uses to manage water quality under the Clean Water Act and its history, 2) answers five major science questions posed by the IMST that are critically important in accomplishing the mission of the Oregon Plan, 3) develops specific recommendations of the IMST to state agencies and other entities, and 4) discusses policy implications.

Science Questions and IMST Conclusions

Science Question 1. Are the Oregon temperature standards for salmonids technically sound?

1. IMST concludes that the scientific basis for Oregon's temperature standards is credible.
2. Cool temperatures are vital to salmonids, which evolved in cold-water, oxygen-rich systems. Warm streams (in combination with other human impacts) are likely to hinder recovery of salmonid stocks.
3. IMST concurs with EPA and DEQ that the seven day moving average of daily maximum temperatures (7DADM) has a sound scientific rationale, and is an appropriate unit of measurement for stream temperature criteria.
4. Redband trout and Lahontan cutthroat trout exhibit higher thermal tolerances than the salmonid species examined in the 1995 Issue Paper (DEQ 1995). IMST concludes that it is appropriate for the State of Oregon to consider recent data on the physiological performance of Lahontan cutthroat trout & redband trout when setting stream temperature criteria.

Science Question 2. How can salmonids occur in streams that are warmer than criteria in Oregon temperature standards? Does this indicate a weakness in the standards?

1. There are numerous reasons why salmonids may be present in waters that exceed the temperature criteria in Oregon's water quality standards:
    - Physiological or genetic adaptations allow some individuals or populations to survive exposures to high temperatures;
    - Fish observed could be transients, not members of healthy populations resident in a warm stream reach;
    - Performance could be impaired (e.g., earlier emergence, faster growth, changes in migration timing, increased susceptibility to disease, altered response to competition and predation), the effects of which could be cumulative and not apparent until later life stages;
    - Variation in stream temperature over the course of a day or week might allow fish to survive unexpectedly hot conditions;
    - Fish are utilizing coldwater refugia in these warm streams;
    - Range of temperatures that fish populations can tolerate may be wider than scientists realized when Oregon's temperature standards were written.

2. Salmonids have physiological and behavioral mechanisms that allow them to survive high temperatures, up to some maximum temperature and over a maximum duration. Therefore, duration and magnitude of temperature extremes are relevant to setting temperature standards.
3. There is no evidence indicating that salmonids thrive in waters that exceed criteria in Oregon's temperature standards for prolonged periods of time.
4. Presence of individual fish in a stream does not necessarily indicate a population of healthy, reproducing fish. There are relatively few data on the response of fish populations to waters of different temperature in Oregon.
5. Temperatures affect salmonids differently at different life stages; therefore, requirements and optimal temperature ranges vary with life history stage. Temperature regulation must satisfy the most sensitive of these life stages.
6. In the future revision and application of temperature standards, the State of Oregon should consider recent data on coldwater refugia. Oregon's standard for coldwater refugia is difficult to implement when these habitats are difficult to identify and their distributions are not documented.

Science Question 3. How do land use activities influence stream temperatures?

1. Stream temperatures are affected by many environmental factors including, but not limited to, direct and indirect solar radiation, watershed elevation, aspect and topography, regional and seasonal climate, local climate (air temperature, vapor pressure, humidity, wind, etc.), precipitation amounts and timing, channel dimension, streamflow (water quantity), groundwater inputs, and riparian vegetation.
2. Riparian vegetation can reduce stream heating, can regulate temperatures by blocking incoming solar radiation, and maintain channel morphology and functioning floodplains. Riparian vegetation has direct and indirect effects on stream temperatures.
3. Human activities can affect stream temperature by modifying channel morphology, streamflow, surface/subsurface water interactions, and riparian vegetation.

Science Question 4. Is the temperature model used by the State of Oregon based on sound scientific principles? How can temperature models be used effectively in water quality actions under the Clean Water Act?

1. Heat Source, the temperature model used by the State of Oregon, is scientifically sound. The direct and indirect influences of climate, topography, elevation, riparian vegetation, channel morphology, hydrology, and point sources are accounted for in Heat Source, which can predict patterns of stream temperature at river network scales.
2. Further sensitivity analyses should be conducted on the current version of Heat Source (7.0) to evaluate the performance of this version of the model. In addition, the model should be compared with the output from several major stream temperature models to assess the performance of Heat Source. Other approaches to evaluating the consistency of model output with observed stream temperatures should be conducted by DEQ.
3. Temperature models, such as Heat Source, should not be used to set basin-specific temperature standards, but can be used to develop basin-specific total maximum daily loads for heat.
4. Oregon's TMDL process (public process, analysis of sources of elevated stream temperature, and Water Quality Management Plans) is conducted at the basin scale, which is consistent with a landscape approach. Therefore, the IMST concludes that the

State's application of the TMDL process and Water Quality Management Plans is appropriate for implementation of the water temperature standards at a landscape scale.

Science Question 5. What are the benefits of alternative watershed and stream evaluation methods to 1) identify appropriate actions or 2) effectively involve the public?

1. When restoring aquatic and riparian conditions, including stream temperature regimes, each watershed and stream reach is unique (based on soil, climate, topography, etc.). Accounting for these site-specific differences can greatly benefit restoration programs.
2. Site-specific assessment techniques are a means to evaluate the unique characteristics of a site relevant to restoration.
3. Many site-specific assessment techniques are dependent on understanding the expected vegetation and hydrology at a site. To determine expected conditions, scientists and managers often turn to local reference sites with minimal human impacts. When these reference sites are not available, conditions can be defined by groups of regional experts.
4. We are currently limited to case studies to determine the effects of channel restoration on temperature regimes. However, based on the well-documented relationship between riparian and channel degradation and elevated stream temperature, IMST concludes that restoring stream and riparian characteristics will often improve stream temperature.
5. Where water temperature limit salmonid recovery, restoration activities or changes in land uses that lead to reestablishing natural flow regimes, erosion rates, and riparian plant communities should be promoted.
6. Oregon Plan monitoring presents the opportunity to examine the effects of channel restoration on temperature regimes. Individual restoration projects could provide replication in studies evaluating the effectiveness of restoration practices on restoring stream temperature regimes.
7. Given the long time frame and large spatial extent necessary for restoring stream temperature regimes, participation of landowners, community groups, and state & federal partners is essential to minimize the non-point sources of elevated stream temperature across the landscape.
8. IMST agrees with NRC (2002) that confidence in the application of Proper Functioning Condition would be strengthened if the approach was validated.

Recommendations

Based on the five Science Questions and conclusions, the IMST makes the following recommendations to the State of Oregon and its entities. The bases for these recommendations are elaborated on in the Recommendations section of this report.

Recommendation 1. IMST recommends the Oregon State University (OSU) Extension Service and relevant state agencies develop a coordinated education and information distribution system for citizens, watershed councils, and special interest groups on the topic of elevated stream temperature. We recommend that OSU Extension Service conduct workshops to summarize current relevant scientific information to be included in educational programs.

Recommendation 2. IMST recommends that Oregon Department of Environmental Quality (DEQ) continue systematic evaluation of the performance of the Heat Source Model that is used in total maximum daily load (TMDL) planning for stream temperature.

Recommendation 3. IMST recommends that Oregon Department of Fish & Wildlife (ODFW) and Oregon Department of Environmental Quality (DEQ) conduct or fund studies of temperature requirements and/or use of coldwater habitat by redband trout, Lahontan cutthroat trout, and other temperature-sensitive aquatic species occurring in more arid areas in the state.

Recommendation 4. IMST recommends that Oregon Watershed Enhancement Board (OWEB) develop consistent guidance on assessment of current conditions of stream and riparian areas relative to elevated stream temperature.

Recommendation 5. IMST recommends that Oregon Watershed Enhancement Board (OWEB) and Oregon Department of Environmental Quality (DEQ) should jointly monitor effectiveness of protection and restoration activities aimed at improving stream temperatures. OWEB and DEQ should coordinate with other state agencies involved with temperature issues including ODA, ODF, and ODFW.

Recommendation 6. IMST recommends that the Oregon Water Resources Department (OWRD) should continue to promote protection of instream water flows for fish and aquatic life.

Recommendation 7. IMST recommends that Division of State Lands (DSL) and Oregon Department of Agriculture (ODA) should emphasize and implement programs to restore wetlands for use as natural water storage systems.

Recommendation 8. IMST recommends that the Governor's Natural Resource Office and the Oregon Legislature complete and implement a statewide program of riparian protection and restoration. The Oregon Riparian Policy should be expanded and used as a framework for restoring the riparian resources of the State of Oregon.

Implications for Policy

IMST suggests that the following actions are consistent with our review of science:

- Honest scientific inquiry needs to continue.
- Riparian zone management should be implemented.
- Over-appropriation of water in Oregon streams is a problem that needs to be resolved.
- Equity issues should be addressed.
- The State should continue to involve Oregon citizens in stream restoration and the TMDL process. By adopting an approach that allows citizens to become vested in the process and the potential benefits of stream restoration, we have a hope of achieving water quality goals.
- Strong educational programs should be implemented. Different state entities charged with public education need to deliver consistent messages about stream temperature, and to clarify these complex issues, rather than complicate them.

In some cases, citizen groups have criticized Oregon's temperature standard, and suggested that the standard is "bogus" or not supported by science. Groups have also criticized efforts to restore riparian vegetation as unnecessary and ecologically unsound. IMST finds these criticisms to be incorrect, misguided, and damaging to Oregon's resources in the long-term. IMST encourages all citizens, agencies, and politicians to move beyond these arguments, and to move forward with the protection and restoration of streams and riparian areas for the numerous important ecological and social functions of these critical features of Oregon's landscape.

STRAIGHTFORWARD ANSWERS TO STRAIGHTFORWARD QUESTIONS

Here, we give short answers to questions that are asked frequently about stream temperature and Oregon's temperature standards. For more detailed information, see the main body of this report.

1. What is the purpose of Oregon's water quality standards?

The purpose of water quality standards is to formally describe the level of water quality necessary to protect aquatic life and desired human uses of water bodies. The Clean Water Act is a federal law, but it delegates authority to states and tribes to set water quality standards appropriate to their areas. The standards include 1) descriptions of the aspects of water quality to be protected (beneficial uses) and 2) thresholds that indicate potential problems in water bodies (water quality criteria). In simple terms, the criteria serve as a signal to warn that aquatic health may be problematic. As we describe in more detail later, once a stream passes these thresholds, the state or tribes can begin to examine: 1) if there is a problem, 2) potential causes of the problem, and 3) what actions can be taken to protect aquatic life and human use of streams. The purpose of the water quality standards is not to punish individual landowners, but to indicate when a stream may no longer be able to support beneficial uses and where different management practices may be needed to improve water quality.

2. Are temperature standards the most critical part of Oregon's management of water quality related to temperature?

No. The most important part of Oregon's water quality management is what happens on the ground---the many actions of citizens that influence the environment and water temperature. Standards establish a framework to protect water quality, and assist in the evaluation of watershed conditions and appropriate management actions.

Management actions are generally determined by community or watershed planning processes and guided by regulation. Regulations have been effective for controlling discharges from pipes. However, community involvement and coordinated management are essential to minimize temperature increases from cumulative ("non-point") sources across Oregon's landscape. Developing an analysis of the sources of elevated temperature (a "TMDL") and a water quality management plan for a basin are the most critical steps in the process leading to actual land management.

3. What is the TMDL process?

The term total maximum daily load (TMDL) was derived from the idea that one could calculate the maximum amount of a pollutant that could be added to a lake or stream without causing harm to aquatic life and human uses. This total amount could then be divided up, or allocated, among all polluters. In the case of stream temperature, heat is considered the pollutant that is added to a stream through human activities and land use.

In order to allocate allowable levels of each pollutant, the State carries out a multiple step process. This "TMDL process" is based on community involvement, development of local information, and application of sound scientific tools. The TMDL process is designed to apply water quality standards to the landscape through three steps. DEQ:

- Compiles a list of stream segments with impaired water quality needing TMDLs,
- Prioritizes watersheds for TMDL development, and
- Works with stakeholders to develop a TMDL analysis and a water quality management plan for each watershed (EPA 2003b).

4. What are Oregon's temperature standards?

Oregon revised its temperature standards in December 2003. The standards are designed to protect salmonids and other aquatic life. Water bodies must not be warmer than:

- 16.0 °C (60.8 °F) for core cold water habitat use,
- 18 °C (64.4 °F) for salmon and trout rearing and migration,
- 20 °C (68 °F) for migration corridor use,
- 20 °C (68 °F) for redband trout (*Oncorhynchus mykiss* subspecies)and Lahontan cutthroat trout (*O. clarki henshawi*) use,
- 13 °C (55.4 °F) for salmonid spawning, egg incubation, and fry emergence,
- .12 °C (53.6 °F) for native Oregon bull trout (*Salvelinus confluentus*) spawning and rearing, and
- 16.0 °C (60.8 °F) for native Oregon bull trout migration, foraging and sub-adult rearing.

The numbers are based on the different temperature requirements of salmonids during different seasons and life stages. The State has specified both times and locations where the standards apply on maps and in tables.

For other waters, the standards also limit the increase in temperature allowed from human activity to 0.3 °C (0.5 °F). These rules apply to:

- Natural lakes,
- Oceans and bays,
- Waters that support cool water species, and
- Designated rivers and streams that are colder than the numeric standards above and are important to endangered and threatened species.

The standards also describe how the State will implement the standards and how to treat streams that are "naturally" warmer than the criteria (see more discussion in No. 17). There are exclusions from the standards in cases of extremely low streamflow or high air temperatures. The standards also allow a small increase (0.3 °C; 0.5 °F) in water temperature caused by human activities. The exact language of the standards can be found on the Department of Environmental Quality web site at http://www.deq.state.or.us/wq/standards/WQStdsTemp.htm.

5. Are Oregon's temperature standards (1996 and 2003) scientifically sound?

Yes. Oregon's 1996, and now the 2003, temperature standards are based on several technical reviews by regional and national scientists. Reviews since the development of the 1996 standards have only added additional support. Standards are reviewed and revised on a regular basis to incorporate more recent scientific information. The revision and adoption of new standards by the Oregon Environmental Quality Commission is an appropriate step to keep water quality standards up to date with the current state of knowledge. While there are many questions about how to best implement the standards, the standards are scientifically sound and provide a reasonable framework for developing watershed management plans. Oregon's TMDL process

and temperature standards are some of the most well-reasoned and well-developed approaches in the United States. We conclude that the standards were based on the best science available at the time.

6. How can trout and salmon live in streams that exceed the criteria in Oregon's water temperature standards?

Trout and salmon can exist in water ranging from just above freezing to 75°F (~24°C) depending on how long they are exposed. Some salmonids can even survive temperatures above 75°F for short periods of time. This means they can survive, but short-term survival is not the same as growing and reproducing effectively. For example, people can tolerate extreme heat in a hot tub or sauna for a short time period, perhaps up to a few hours. If a person had to stay in a hot sauna for days or weeks, their health would be threatened. Similarly, people could survive for days, perhaps longer, at air temperatures well over 100° F (~38°C), yet they could not perform life-sustaining work for any period of time. Similarly, salmonids can persist for extended periods of time in warm streams, but are extremely vulnerable to other threats.

Temperatures in the high 60s to mid-70s °F [approximately 18–24 °C] can harm salmon and trout. More food is required and growth can be decreased, ability to compete with warm water fish is reduced, and risk of predation is increased. In addition, fish are more susceptible to disease and stress at high temperatures. Salmonids also sometimes avoid the highest temperature water in the stream. Just as people will sit in the shade on a hot day, salmon and trout are often found in colder portions of the streams (deep pools, close to the bottom, near cooler seeps and tributaries). Oregon's temperature standards include provisions to protect these "coldwater refugia".

Some evidence suggests that fish can cope with high temperatures if the daily highs do not persist too long and/or the daily lows are sufficiently low; however, the ways fish adapt to or cope with fluctuating temperatures are not yet well understood.

7. Other than fish, why is stream temperature an important ecological issue?

Stream temperatures are often seen as primarily directed at fish -- but in reality are a surrogate to overall stream health. Temperature influences many processes in a stream, including nutrient cycling and productivity. Temperature is also important because it influences the metabolic rates and physiology of aquatic organisms, including fish. In addition, cold water is able to absorb more oxygen than is warmer water; therefore, the question of oxygen-richness of water is directly linked to water temperature. Likewise, many processes influence temperature. For example, elevated temperatures are often linked with other signs of stream degradation including loss of riparian vegetation and wider than expected stream channels.

8. What environmental factors affect stream temperature?

There are a number of physical and biological features that influence water temperature: shade, streamflow, elevation, subsurface water flows, wind, climate and weather (e.g., air temperature, humidity, cloud cover), time of year (day length and sun angles), watershed orientation, and streambank entrenchment.

9. Which of these factors are influenced by human actions?

People change stream temperatures either at single points (e.g., warm water from pipe discharges into streams) or by human activities that accumulate over larger areas such as watersheds. In this second category, people affect stream temperatures by 1) altering the shade and vegetation along a stream, 2) changing the width and depth of a channel, 3) changing the amount of flow in the stream, and 4) altering the exchange between the surface water in the stream and the water flowing through its streambed and banks.

10. Do land uses (urbanization, agriculture, forestry, livestock grazing) influence stream temperature?

Yes. All of these land uses, depending upon where and how practiced, typically affect the four factors listed in the previous question, and therefore influence stream temperature.

11. Does shade from riparian vegetation influence stream temperatures?

Yes. IMST looked for every possible "real-world" experimental study on the influence of removing riparian vegetation on stream temperature. Of the 48 studies we found, 45 showed that when you removed riparian vegetation, stream temperatures increased. In these 44 studies, the stream temperatures increased from as little as 1.09 °C [2 °F] to as much as 12.7 °C [22.9 °F] after vegetation was removed.

The relative influence of shade on stream temperature is greatest for small streams and decreases as streams increase in width, depth, and velocity. For example, one would not expect riparian vegetation along the Columbia River to significantly influence the temperature of the mainstem river. In fact, most of Oregon's stream miles are made up of small streams. Stream size is taken into account in the analysis of stream temperatures in Oregon's TMDL process.

12. Can shade cool a stream?

No, not directly. Shade cannot cool a stream by physically transferring heat energy from water to the surrounding environment. Water temperatures decrease when heat energy is transferred from the water to the surrounding environment via evaporation (liquid becoming a gas), convection (mass movement of heat within a liquid or gas), and conduction (heat transfer by substances coming in direct contact with each other). Temperature indicates the direction heat energy will move; heat will move from the warmest to the coolest substance. Temperatures will also decrease when heat in the water is diluted by cool water inputs from ground water or precipitation.

The major source of heat added to streams is from solar radiation (both direct and indirect). Shade blocks radiation from reaching the surface of the stream and decreases the amount of heat added to the water. With increasing amounts of heat blocked and not allowed to reach the water's surface, cooling via evaporation, convection, and conduction will be more effective. If shaded reaches are long enough, the amount of heat leaving the stream will be greater than the amount entering the stream, causing water temperatures to decrease. Therefore, shade from riparian vegetation or topography plays a key role in lowering stream temperatures.

13. Can the changes in temperature provided by shade really benefit salmonids?
Yes. The amount of influence shade exerts on salmonid health varies in relation to the combination of features at play on a given day and in a given location. Most studies indicate that removing shade increases stream temperatures by several degrees over the course of 24 hours, and causes wider variation in stream temperatures. These small changes in temperature can affect salmonids, especially if the water temperatures are near the critical point for invertebrate production and/or fish health.

14. In addition to providing shade, what else does riparian vegetation contribute to stream ecosystems?
Vegetation provides a myriad of features germane to stream form and function in addition to providing shade. These features include, but are not limited to:

- Roots that stabilize stream banks and protect the banks from erosion;
- Potential sources of large and small wood for pool formation;
- A source of detritus (decaying material) and terrestrial insects necessary for biological food chains;
- Creation of instream and riparian habitat for fish and other aquatic organisms;
- Encouragement of infiltration of precipitation into soil and groundwater;
- Allows soils to act as a sponge storing water and releasing it later in the season, and
- Encouragement of subsurface water flows and exchange of water in the stream with the area underneath the stream bed (called "hyporheic" exchange);
- Riparian plants that take up nutrients from soil solutions, which is important for maintaining water quality; and
- Creation of temperature and humidity microclimates that slow stream heating.

Riparian areas also provide many critical functions and habitat for wildlife communities and terrestrial ecosystems.

15. Are air temperature and elevation more important than direct solar radiation in determining stream temperature?
No. Solar radiation, both direct and indirect, is the principal energy source that causes stream heating. Air temperature and elevation are only two environmental factors affecting stream temperatures. Solar radiation directly affects air temperatures. Elevation influences the amount of solar radiation reaching the earth's surface and therefore, air temperatures. Summer air temperatures are often correlated with stream temperatures giving rise to the commonly held belief that air temperatures have a major and direct effect on the warming of streams. However, heat transfer from air to water is a slow process, and yields minimal heat input into the water compared with direct solar radiation. Air temperature influences the exchange of heat between water and air; heat will go from the warmer medium to the cooler medium. Oregon accounts for the effect of elevation when it models and evaluates stream temperatures in the TMDL process.

16. Once a stream is placed on the 303(d) list, can it ever be removed?
Yes. The 303(d) list is composed of all water quality limited waters that do not have a TMDL. The Clean Water Act, a federal law, directs states to create these lists. According to EPA, the federal agency that oversees the Clean Water Act, water bodies can be removed from the 303(d) list for three reasons:

- A TMDL has been developed for those waters;

- New information concludes that the listing was inaccurate; or
- A formal analysis proves that a designated use in a particular water body is inappropriate. In this case, the designated use is then changed.

Generally, once EPA approves a TMDL document, streams in that watershed are no longer listed on the 303(d) list. However, streams and stream segments are considered to be water quality limited until they meet all criteria in the State's water quality standards (temperature being just one set of criteria). DEQ continues to track all water quality limited streams in its Integrated Report.

17. How does DEQ treat streams that are naturally warmer than the criteria in the water temperature standards?

When carrying out the Clean Water Act, a stream that was historically naturally warmer than the temperature criteria does not need to be restored to a temperature lower than the natural conditions.

DEQ estimates natural conditions – or the range of temperatures before human influence – from current data, historical data, and stream temperature modeling. DEQ uses modeling because historical temperature data are often very scarce. The agency uses a model called Heat Source, and conducts its analysis when creating a TMDL for each basin. If DEQ determines that a stream was naturally warmer than the temperature criteria, the agency no longer considers the stream to be in violation of the standards. The "natural thermal potential" determined by modeling becomes the goal for a water body found to be naturally warmer than the criteria.

18. Is the Heat Source model used in Oregon's TMDL process scientifically sound?

Yes. Heat Source, the model used in the TMDL process for developing watershed management plans for stream temperature, is a scientifically sound model and incorporates the major physical factors that determine stream temperature. Sensitivity analysis of the model has been conducted, and we have encouraged the State to continue to explore the sensitivity of the factors in the model. The process used by the state of Oregon to assess stream temperature and address the human activities that affect stream temperature is based on sound scientific principles and is comparable to the best models available.

19. Have private landowners in Oregon been forced to take actions on private lands as a result of temperature standards and the TMDL process?

IMST asked the Oregon Department of Agriculture (ODA) if the Heat Source model or TMDL process had been used to force any landowner to take an action on their land to protect or restore stream temperature. We were told that the agency knows of no circumstances when the State of Oregon required an agricultural landowner to take a mandatory action to protect or restore stream temperature.

As acknowledged in the Oregon Administrative Rules (OAR 603-095-0440), riparian vegetation is known to play several roles that ultimately reduce stream heating (control of erosion that widens streams, moderation of solar heating, and infiltration of water into the soil profile), and state law requires that agricultural activities allow development of riparian vegetation to control water pollution.

Oregon Board of Forestry Workshop
Oregon Department of Forestry – Salem Headquarters
Administration Building #C – Tillamook Room
2600 State Street
Salem, Oregon

Tuesday, September 7, 2004

1 – 7 p.m.

1:00 **Welcome and Purpose** *Steve Hobbs, Board of Forestry*

1:10 **Historical Perspective – 1970 to Present** (20 min. presentation; 15 min. Q&A)

Charlie Stone, Department of Forestry
Bob Baumgartner, Department of Environmental Quality

1:45 **Legal and Administrative Framework** (30 min. presentation; 30 min. Q&A)

Statutes and Rules for Forest Practices and Water Quality – Background, Responsibilities, Decisions and Findings
Ian Whitlock and Larry Knudsen, Department of Justice

2:50 **Short Break**

3:00 **Science Foundation – Riparian Function and Temperature for Small Streams**
(Three presentations totaling 60 min; 50 min. Q&A and discussion)

Watershed Processes – Vegetation, Stream Temperature, Flow and Solar Radiation
Arne Skaugset, Oregon State University, Forest Engineering

Biological and Geomorphic Processes – Patterns and Interactions with Aquatic Habitat
Gordon Reeves, USDA Forest Service, Pacific Northwest Research Station

Interrelationships and Limiting Factors
Stan Gregory and Carl Yee, Independent Multidisciplinary Science Team

4:50 **Short Break**

5:00 **Decision Ramifications – Parallel Bodies of Law, Difference Decision Contexts: How One Board's Decision Affects the Other's** (5 min. launch, 55 min. discussion)

Conversation with Department of Environmental Quality, Department of Fish and Wildlife, Department of Forestry, Department of Justice and Oregon Watershed Enhancements Board staffs

6:00 **Stretch Break**

6:05 **Was a Common Understanding Reached?** *Board of Forestry Discussion*

6:30 **Board of Forestry Strategic Issues** *Board of Forestry Discussion*

FOREST PRACTICES AND WATER QUALITY WORKSHOP

The purpose of this workshop is to provide the Board with an opportunity to interact with staffs from various state agencies concerned with water protection rules administered under the Forest Practices Act. Board responsibilities and those of other state boards and commissions, relative to water-related resources in forested environments, are complex and interrelated. Therefore, during this workshop the Board will develop a common understanding of:

- The historical relationship between the Board of Forestry and the Oregon Environmental Quality Commission (and respective staff agencies) with respect to water quality protection.
- The legal and administrative framework for adopting resource protection rules pursuant to the Forest Practices Act.
- The geo-physical and biological science for riparian functions and stream temperature in and around the fish bearing – non-fish bearing stream interface.
- The context and ramifications of respective policy decisions made by the Board of Forestry and the Environmental Quality Commission pursuant to each board's statutory responsibility.

The format for the workshop is informal presentations by invited speakers with follow-up question and answer periods and discussion. The Board is free to direct the conversation to each other, invited speakers and staff of participating state agencies.

During the final hour of the workshop, the Board may raise new issues of strategic importance for discussion by its members.

Public testimony will not be taken at this workshop.

Board of Forestry Workshop – Forest Practices and Water Quality
Supporting Information Available on the Web

(1) Oregon Forest Practices Act (ORS 527.610 – ORS 527.992). Available on the web at: http://www.leg.state.or.us/ors/527.html?id=403010601

(2) Oregon Department of Forestry Forest Practice Administrative Rules (OAR Division 600 – OAR Division 665) Available on the web at: http://arcweb.sos.state.or.us/rules/OARS_600/OAR_629/629_tofc.html?id=403010601

(3) ODF/DEQ Sufficiency Analysis: A Statewide Evaluation of FPA Effectiveness in Protecting Water Quality. Available on the web at: http://www.deq.state.or.us/wq/nonpoint/nonpoint.htm

(4) Oregon Department of Forestry - Forest Practices Monitoring Reports. Available on the web at: http://www.odf.state.or.us/divisions/protection/forest_practices/fpmp/techreport.asp?id=3060105

- OFPA Water Protection Rules: Policy and Scientific Considerations. FP Technical Report 1
- Cooperative Stream Temperature Monitoring Project Completion Report for 1994 – 1995 (Small Type N Streams). FP Technical Report 2
- Effectiveness of Riparian Management Areas and Hardwood Conversions in Maintaining Stream Temperature. FP Technical Report 3
- Harvest Effects on Riparian Function and Structure Under Current Oregon Forest Practice Rules. FP Technical Report 12
- Shade Conditions Over Forested Streams in the Blue Mountain and Coast Range Georegions of Oregon. FP Technical Report 13
- Forest Road Use During Wet Weather. FP Technical Report 17

(5) IMST Forestry Report – Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 (Independent Multidisciplinary Science Team). Available on the web at: http://www.fsl.orst.edu/imst/ (Reports – Technical Reports)

(6) IMST Temperature Report – Oregon's Water Temperature Standard and its Application: Causes, Consequences, and Controversies Associated with Stream Temperature. Available on the web at: http://www.fsl.orst.edu/imst/ (Reports – Technical Reports)

(7) Oregon's Temperature Water Quality Standard – Final Temperature Rule and other Water Quality Standards (Div. 41) Revisions . Available on the web at: http://www.deq.state.or.us/wq/standards/WQStdsTemp.htm

(8) Oregon's Total Maximum Daily Load Administrative Rules (OAR Division 42). Available on the web at: http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm

(9) Oregon's Water Quality Limited Streams 303(d) List. Available on the web at: http://www.deq.state.or.us/wq/303dlist/303dpage.htm

(10) Memorandum Of Agreement Between The United States Environmental Protection Agency and The State Of Oregon Department Of Environmental Quality Regarding The Implementation Of Section 303(D) Of The Federal Clean Water Act. Available on the web at: http://www.deq.state.or.us/wq/TMDLs/TMDLMOA.htm

(11) U.S. Environmental Protection Agency (EPA) Temperature Guidance. Available on the web at: http://www.deq.state.or.us/wq/standards/WQStdsTemp.htm

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- Background Material:
  - 1979 EPA Approval of Oregon Water Quality Management Plan
  - 1997 Oregon's Forestry NPS Control Strategy
  - 1999 EO 99-01 Oregon Plan for Salmon & Watersheds

LEGAL & ADMINISTRATIVE FRAMEWORK

- Presentation – *Whitlock, Knudsen*
- Background Material:
  - DEQ Water Quality Standards
  - ODF/DEQ MOU
  - *Journal of Forestry*, Dec. 2003, pp 42-47

SCIENCE FOUNDATION – RIPARIAN FUNCTIONS & TEMP.

- Presentations:
  - Watershed Processes – *Skaugset*
  - Biological & Geomorphic Processes – *Reeves*
  - Interrelationships and Limiting Factors – *Gregory, Yee*
- Background Material:
  - USGS April 2004 #3055
  - "Fish and Aquatic Ecosystems of the Oregon Coast Range", *Reeves, Burnett, Gregory*
  - 2002 Sufficiency Analysis
  - 2000 FPAC Report
  - 2003 ERFAC Report

Historical Perspective

Presentation

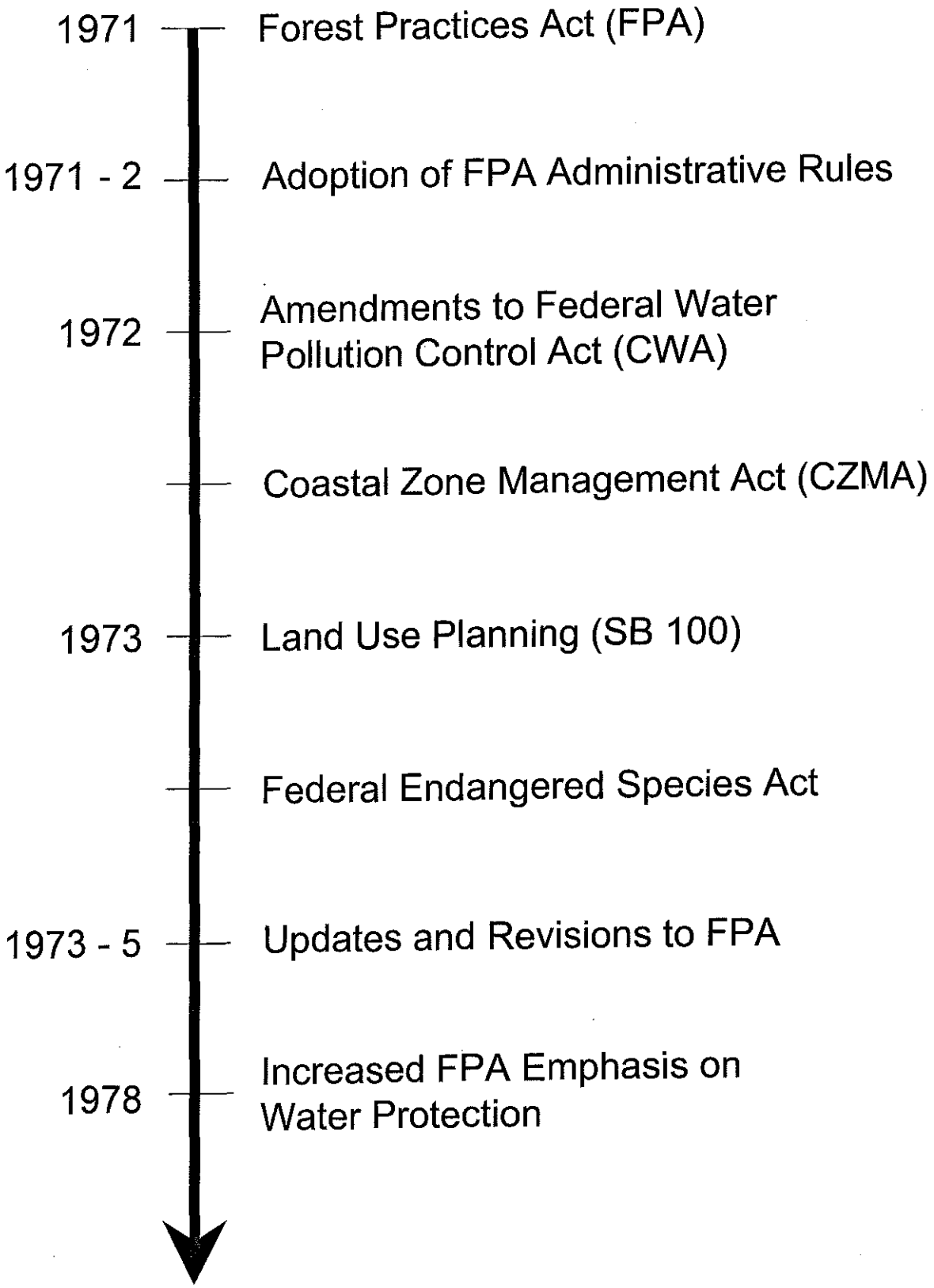
Historical Perspective
Forest Practices and Water Quality

Charlie Stone
Oregon Department of Forestry

Bob Baumgartner
Oregon Department of Environmental Quality

Oregon Board of Forestry Workshop
September 7, 2004
Salem, Oregon

"STEWARDSHIP IN FORESTRY"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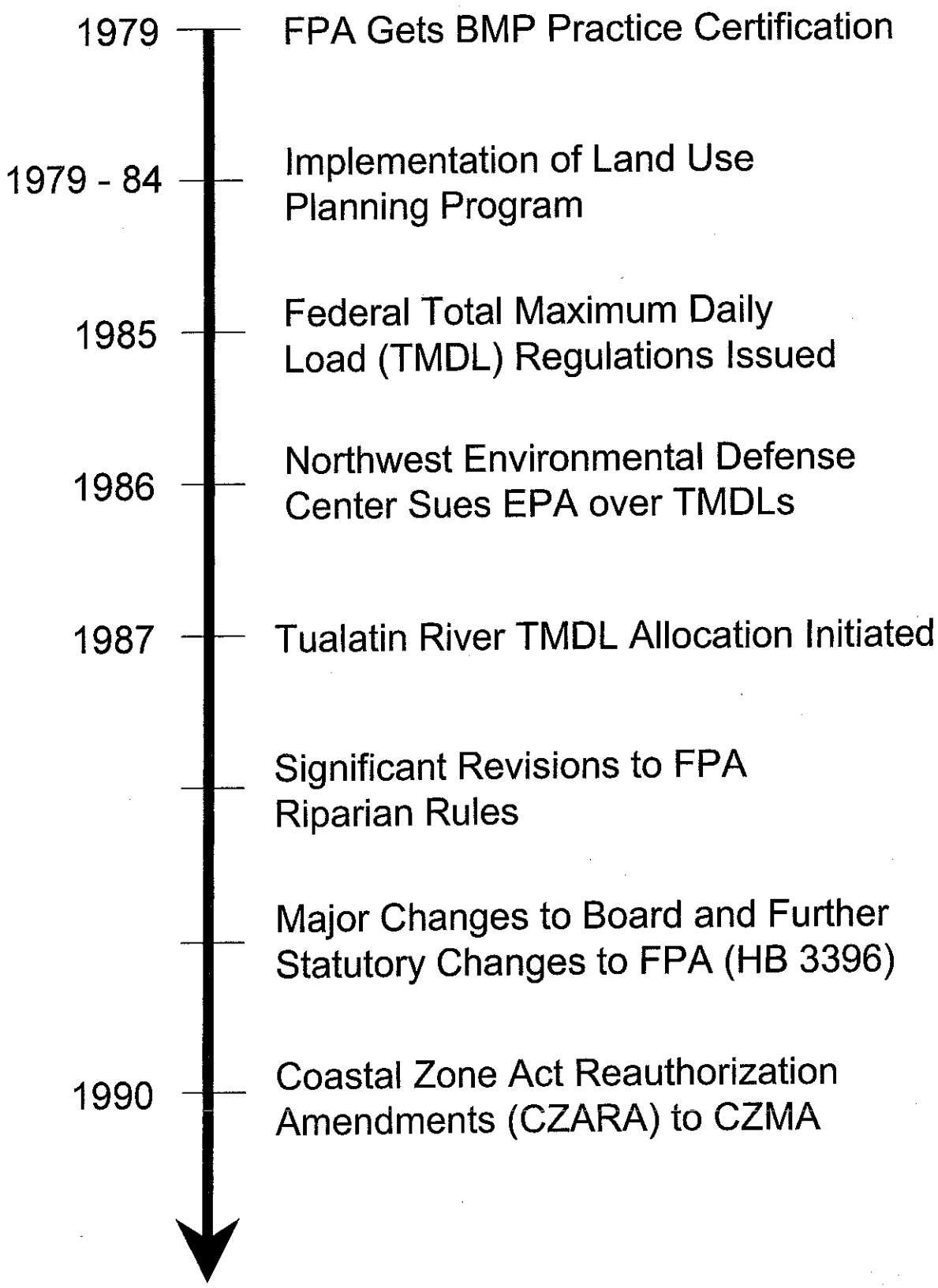
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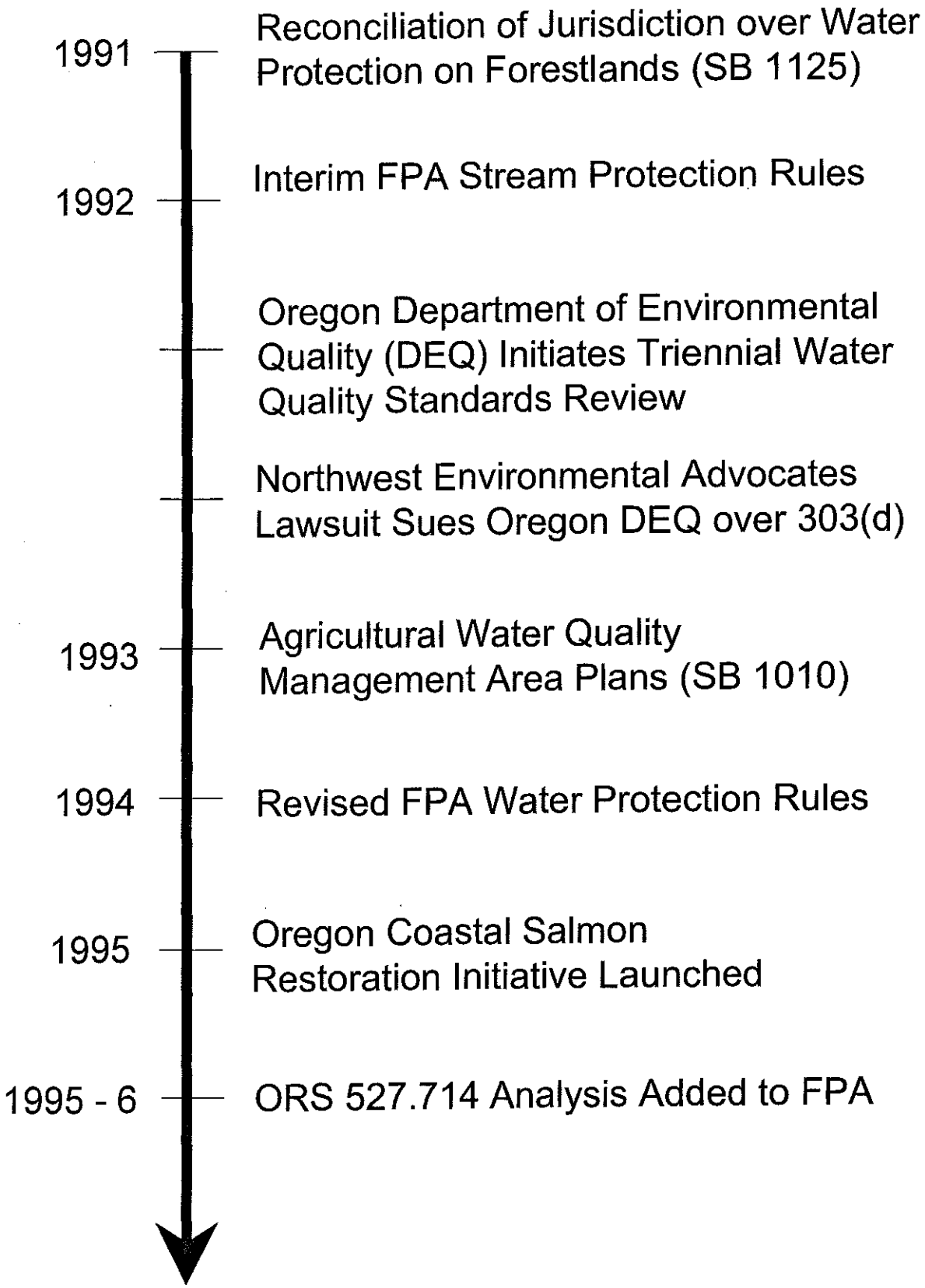
1991
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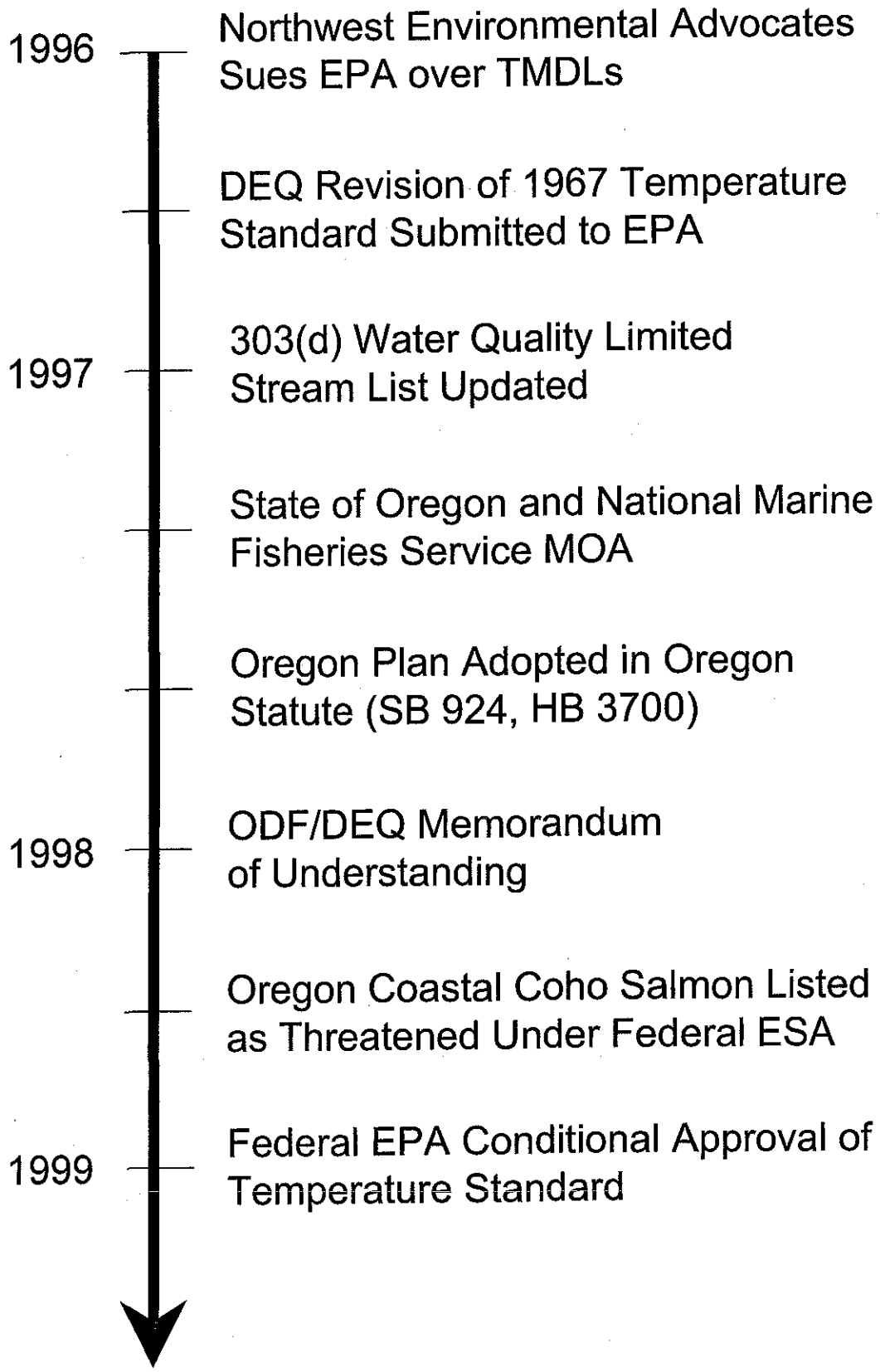
1996
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303(d) Water Quality Limited Stream List Updated
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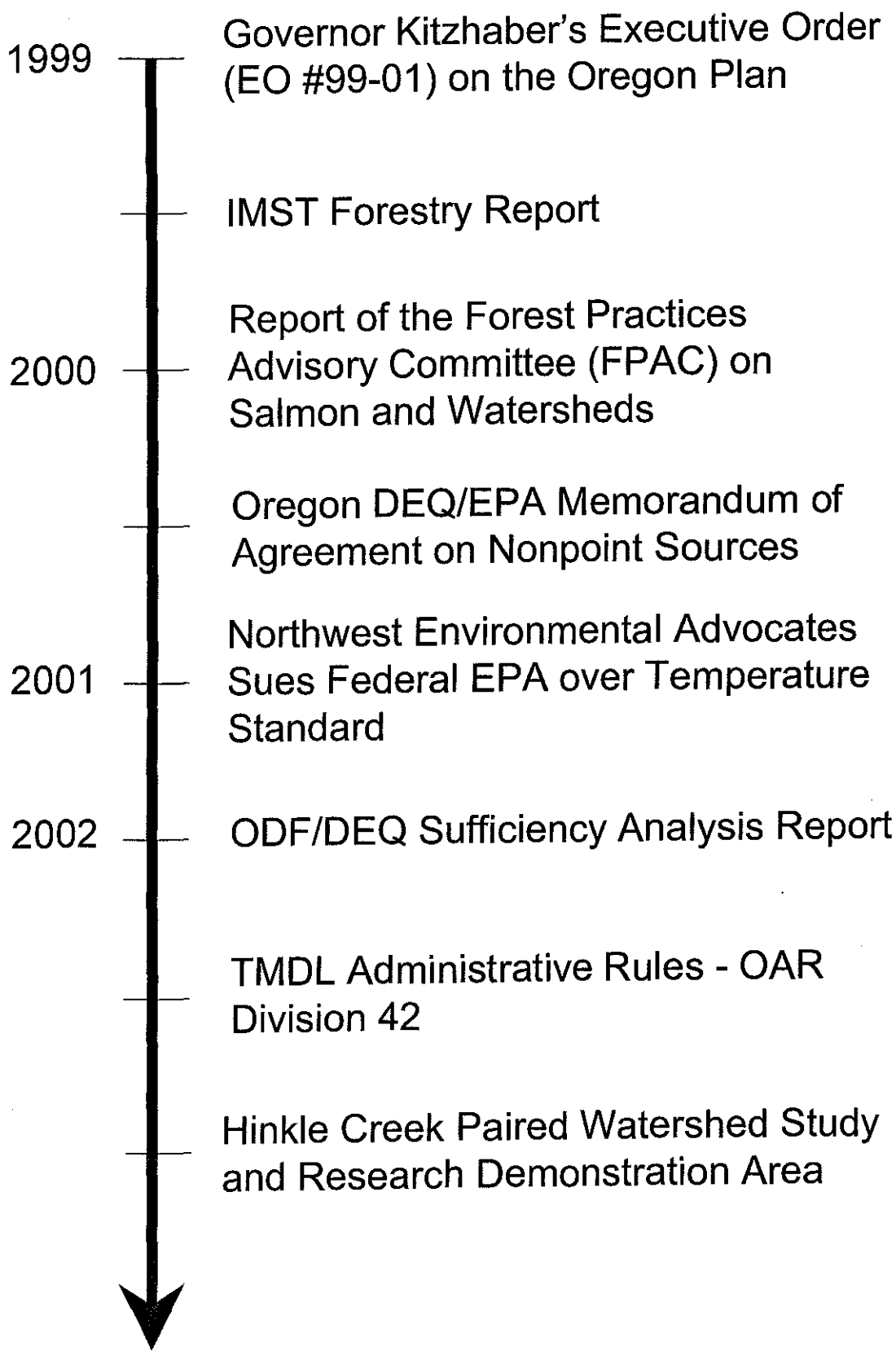
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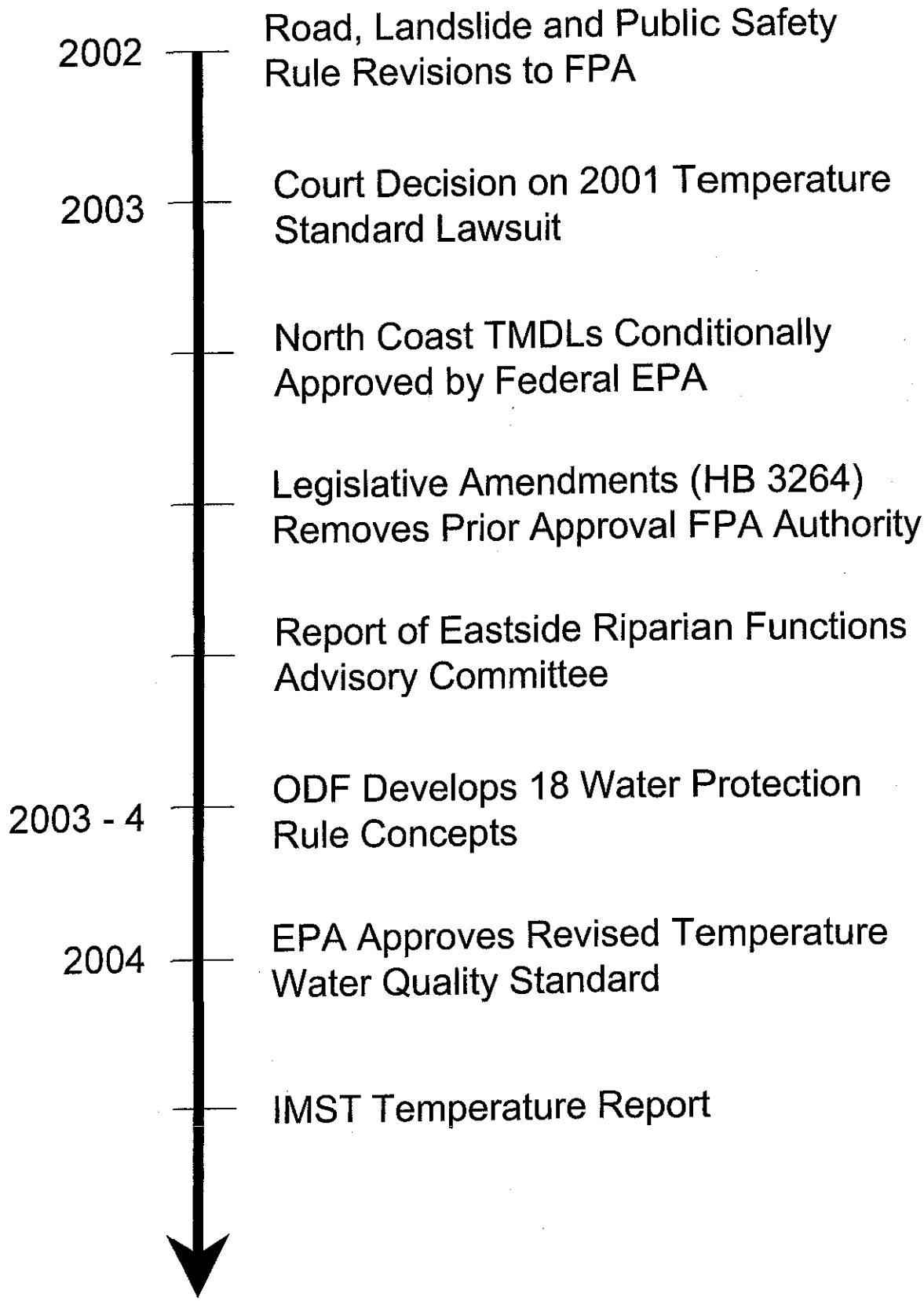
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Board of Forestry Workshop on Forest Practices and Water Quality

HISTORICAL PERSPECTIVE – FOREST PRACTICES AND WATER QUALITY

Charlie Stone – Oregon Department of Forestry
Bob Baumgartner – Oregon Department of Environmental Quality

Board of Forestry Workshop
Forest Practices and Water Quality

September 7, 2004
Salem, Oregon

1971 -- Forest Practices Act

- First in the nation - passed with industry support in 1971 Legislative session
- Key Tenet - Notification of planned operations (not a permitting system)
- Regulatory standards for reforestation, roads, harvest design, chemical application and slash disposal.
- Water quality protection from roads, mixing and application of chemicals; provide for fish passage
- Riparian protection component of harvest design (Class I streams - domestic, recreational or fish importance).
  - ⇒ Goal - provide shade, bank stability and water filtering functions
  - ⇒ Leave hardwoods, shrubs and if necessary merchantable timber to provide 75% of original shade
  - ⇒ No buffer widths set. If retention not feasible, re-establish forest cover along stream without delay
  - ⇒ Understory vegetation retained or re-establish on small streams (Class II) influencing Class I stream water quality
- Authorized criminal enforcement of violations

1971 – 72 - Adoption of FPA Administrative Rules

1972 – Amendments to Federal Water Pollution Control Act (also known as Clean Water Act – CWA)

- Protect sensitive Beneficial Uses by developing Water Quality Standards
- Classify water bodies that do not meet Water Quality Standards as 303(d) Water Quality Limited
- Section 303(d) added to gain broad based state and industry support for CWA
- Determine Total Maximum Daily Loads (TMDL) for listed Water Quality Limited water bodies
- Implement TMDLs through NPDES Permits (point sources) and Water Quality Management Plans
- FPA evaluation of water quality protection effectiveness under Section 208 initiated

1972 -- Coastal Zone Management Act (CZMA)

- Set stage for substantive 1990 amendments affecting forestry

1973 – Land Use Planning (Senate Bill (SB) 100)

- Adopts statewide land use planning goals including Goal 4 relating to maintaining the forestland base
- Establishes urban growth boundary as a tenet to land use planning so as to protect farm and forestland from sprawl

1973 – Federal Endangered Species Act

1973-5 -- Updates and Revisions to the FPA

- 1973 - Changes to stream channels (natural fish bearing) prohibited.
- 1974 - Rules defining "waters of the state" required drainage systems to control runoff from timber harvest activity
- 1975 - Water protection rules relating to surface mining (e.g. rock quarries)

1978 – Increase FPA Emphasis on Water Protection

- 15 day prior notice requirement for all forest operations
- General structure of riparian protection standards unchanged
- Prior approval required for several practices, which potentially affect water quality (e.g., before merchantable tree removal along streams so as to ensure shade and water filtering functions and prior to developing stream crossings).

1979 – FPA Gets Best Management Practice (BMP) Certification

- FPA water protection standards first approved Section 208 "Best Management Practices" certification under CWA
- FPA revisions placing more emphasis on water quality protection key to BMP certification
- Initiated annual DEQ/EPA field reviews of forest practices (discontinued in early 1980's due to budget constraints)

1979-84 – Implementation of Land Use Planning

- 1979 – HB 3008 squarely put forest practices jurisdiction exclusively with the Board of Forestry
- 1979 – Basin specific temperature water quality standards developed by DEQ
- 1983-84 – Several county water protection overlays challenged HB 3008. HB 3008 prevailed in 1987 Oregon Supreme Court ruling on Tillamook County vs. 1000 Friends of Oregon
- FPA revisions emphasized road construction and harvesting rules in response to 1980-81 floods and landslides
- 1983 Written plan provisions for specifying resource protection adopted related to detailed harvest and road engineering in high risk (for landslides) sites

1985 – Federal Total Maximum Daily Load (TMDL) Regulations Issued

- 40 Code of Federal Regulations (CFR) Part 130, section 130.7
- Mandate that states, territories, and authorized tribes list impaired and threatened waters and develop TMDLs

1986 – Northwest Environmental Defense Center (NEDC) Sues Environmental Protection Agency (EPA) over TMDLs

- Lawsuit claimed EPA not forcing states to develop TMDLs for Water Quality Limited streams
- EPA under court order to establish TMDLs if the State does not establish TMDLs
- Consent decree signed in 1987 requires that all TMDLs would be developed for the state within five years

1987 – Tualatin River Total Maximum Daily Load (TMDL) Allocation Initiated

- Non-point source phosphorus, ammonia, and dissolved oxygen allocation to protect water quality
- Board of Forestry would not accept load allocations for predominately forested subbasins without critical review
  - ⇒ Commissions literature review
  - ⇒ Recommends Technical Specialists Panel to review various non-point sources and suitability of load models.
- Early TMDLs highlight emerging tension over water quality protection jurisdiction on forestlands
- Process ended 10 years later (1997) with Board of Forestry adoption of nonpoint source (NPS) control plan
  - ⇒ Establishes FPA as best management practices in lieu of adopting load allocations
  - ⇒ Adds requirement for additional in-stream monitoring of phosphorus from forested subbasins

1987 -- Significant Revisions to FPA Riparian Rules

- Riparian management areas (RMA) explicitly recognized to be maintained on both sides of the stream due to their "... concentration of public values, including timber, wildlife habitat, aquatic habitat, soil and water quality ...."
- Comprehensive revisions to water protection rules for Class I Streams
  - ⇒ 75% of pre-harvest shade and 50% of pre-harvest tree canopy required to be left
  - ⇒ Snags posing no safety hazard and down wood within RMA to be left
  - ⇒ RMA widths (25 to 100 foot RMAs) established based on average stream width (western Oregon)
  - ⇒ Tree size, number, basal area (about 10-15% of current rules) set for conifer retention in RMAs (western Oregon)
- Stream classification an unresolved issue as revisions stick with the Class I and Class II systems

1987 -- Major Changes to Board and Further Statutory Changes to FPA (HB 3396)

- Passage of House Bill (HB) 3396
  - ⇒ Reorganizes Board of Forestry from 12 members to current 7
  - ⇒ Major revisions to FPA regarding:
    - State Agency Coordination in land use planning
    - Coordination with the Oregon Fish and Wildlife Commission
    - Site specific protection for: threatened and endangered species; sensitive bird nesting, roosting and watering sites; wetlands; and ecologically and scientifically significant biological sites.

⇒ Written plan requirement (and prior approval) for all operations within 100 feet of Class I streams (administrative rules for written plans adopted in 1988)
⇒ Civil penalty provisions added to FPA

1990 – Coastal Zone Act Reauthorization Amendments (CZARA) to Coastal Zone Management Act (CZMA)

- New section, 6217 Protecting Coastal Waters requires that states with approved coastal zone management programs develop Coastal Nonpoint Pollution Control Programs (CNPCP)
- Envisioned that nonpoint source programs developed under section 319 of the Clean Water Act (CWA) would be combined with existing coastal management programs
- EPA and National Oceanic Atmospheric Administration (NOAA) developed management measures for different land uses; states need a combination of enforceable and non-enforceable measures
- Multi-state working group with NOAA/EPA formed
  - ⇒ Oregon Department of Forestry (ODF) participated on forestry subgroup
    - Subgroup reviewed and discussed substantial revisions to management measures for forestry
    - End result was forestry needed additional management measures for water quality protection
    - ODF did not concur with the need for additional measures

1991 – Reconciliation of Jurisdiction over Water Protection on Forestlands (SB 1125)

- Senate Bill (SB) 1125 passed
  - ⇒ Calls for review and revision of FPA water classification system and water protection rules
  - ⇒ Stream classification to be based on beneficial uses
  - ⇒ Maintains Board's exclusive authority over Forest Practices regulation including water protection
  - ⇒ Differentiates Board of Forestry and Environmental Quality Commission roles in water quality protection

    "The Board shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state (ORS 527.765)"

  - ⇒ Sets up consultation requirements with the Environmental Quality Commission in adoption and review of BMPs to address nonpoint source discharges from forest operations.
  - ⇒ Sets up Environmental Quality Commission written petition process for reviewing BMPs for nonpoint source discharges from forest operations (ORS 527.765)
  - ⇒ Sets up counter measure of Board of Forestry ability to request Environmental Quality Commission to review Water Quality Standards (ORS 468.105)
  - ⇒ Establishes "good faith" compliance with BMPs as not violating water quality standards (ORS 527.770)
  - ⇒ Calls for review and revision of FPA water protection rules
  - ⇒ Adds provisions relating to wildlife leave trees, clearcut size, green-up and scenic highway corridors.
- Board of Forestry adopts protection rules for significant wetlands

1992 - Interim FPA Stream Protection Rules

- RMAs of 3 times the stream width or 25 feet, whichever is greater
- Retain all non-merchantable vegetation
- Removal of merchantable trees from RMA consistent with riparian protection only with prior approval

1992 – Oregon Department of Environmental Quality (DEQ) Initiates Triennial Standards Review

- According to the CWA, States are to review their water quality standards at least once every 3 years
- Used best scientific information available; completed in 1996
- Numeric criteria set to protect the use of the water body
- Standards are set for wide application, but with flexibility
- Recognized unique local circumstances - when there is reliable evidence, a specific criteria supersedes the general

1992 - Northwest Environmental Advocates (NEA) Sues DEQ over 303(d)

- Lawsuit claims state 303(d) list of Water Quality Impaired Streams inadequate

1993 – Agricultural Water Quality Management Plans (SB 1010)

- Authorized ODA as lead agency to deal with agricultural non-point source pollution
- Oregon Department of Agriculture (ODA) to develop and implement water quality management plans (WQMP)
- 39 plan areas to address variable agricultural practices and water quality concerns in the state
- Healthy Streams Partnership created

1994 – Revised FPA Water Protection Rules

- Meets statutory direction in SB 1125
- Stream classification explicitly based on size and beneficial use (current classification)
- Sets "Desired Future Condition" Goals for vegetation retention for streams
  - ⇒ Average conditions across landscape become similar to those in mature (i.e., 120 year old) stands
  - ⇒ Conifer basal area is the parameter and measure for achieving desired future condition
  - ⇒ Non-fish bearing or use streams must have sufficient vegetation to support the functions and processes to downstream fish use, domestic water use and supplement wildlife habitat (functions and processes include maintenance of cool water temperature and other water quality parameters).
  - ⇒ Allows alternative and site specific prescriptions (i.e., active management) to achieve desired future conditions
- Sets RMA widths, active and standard basal area retention targets based on stream size and beneficial use (6-10 fold increases in basal area retention targets compared to 1987 rule standards)

1995 - Oregon Coastal Salmon Restoration Initiative

- Initiated by Governor John Kitzhaber in October 1995
- Effort became known as the Oregon Plan for Salmon and Watersheds (also known as Oregon Plan)
- Addressed coho Salmon on the Oregon Coast
- Set of voluntary actions by state, local, tribal, private landowners, non-governmental organizations and individuals.
- Draft plan for review in August 1996
- Final Plan Documents in March 1997

1995-6 - ORS 527.714 Analysis Added to FPA (Proceedings, Findings and Analysis Necessary for Adopting Rules)

- Originally proposed in 1995 Legislative Session (SB 160)
- First vetoed by Governor Kitzhaber because of non-related regulatory limit provision also in the original bill.
- Revised in fall 1995 and 1996 Special Sessions
- Establishes types of rules (procedural, definitional and rules that set standards for forest practices)
- For rules that set standards for forest practices
  - ⇒ Clear statement of the purpose of the rule
  - ⇒ Findings that the following statements of fact and standards are met
    - Monitoring or research evidence that documents degradation of resources likely under existing FPA standard
    - Biological status of a species the rule addresses has been documented using best available information
    - Proposed rule reflects scientific information and field evaluation relevant geographically to scope of rule
    - Restrictions on forest practices clearly benefit or prevent harm to the resource to be protected
    - The availability, effectiveness and feasibility of alternatives to the proposed rule, including non-regulatory alternatives were considered.
    - The proposed rule is the least burdensome to landowners in the aggregate
    - The resource benefits to be achieved by the rule are in proportion to the degree existing forest practices in the aggregate are contributing to the overall resource concern
  - ⇒ Completion of an economic and fiscal impact statement that
    - Estimates potential change in timber harvest
    - Estimate of the overall statewide economic impact (change in output, employment and income)
    - Estimate of impact to forest products industry and county school and land trust revenues
    - Specific information derived by consultation with potentially affected landowners (case study impacts)

1996 – Northwest Environmental Advocates Sues EPA over TMDLs

- Again, for lack of progress and failing to force states to develop TMDLs
- Resulted in EPA/DEQ Memorandum of Agreement for TMDLs
- The court motioned to consolidate this case with the 1986 NEDC case due to overlapping issues and parties.
- Consent decree was signed in 2000
- 1987 consent decree was modified to conform to the 2000 consent decree

1996 -- DEQ Revision of 1967 Temperature Standard Submitted to EPA

- Standard developed based on findings from 1992-1996 triennial standards review (technical and policy analyses)

1997 – 303(d) Water Quality Limited Stream List Updated

- Covers the period 1994-6 [referred to as the 1994-96 303(d) List]
- More water bodies listed to address the litigation against DEQ by Northwest Environmental Advocates
- Based on November 1995 EPA "Guidance Document for listing waterbodies in the Region 10 Section 303(d) Program"
- Includes priorities and targets for developing TMDLs

1997 -- State of Oregon and federal National Marine Fisheries Service (NMFS) Memorandum of Agreement (MOA)

- State commitment to Oregon Coastal Salmon Restoration Initiative
- State agreement to take additional actions to protect and restore coho Salmon on the Oregon Coast
- National Marine Fisheries Service determined Oregon Coast Evolutionary Significant Unit coho salmon did not warrant listing under the federal Endangered Species Act.
- MOA Committee established to review FPA effectiveness with respect to fish and water quality and later terminated upon subsequent NMFS listing decision (see Executive Order 99-01 adopted in early 1999)

1997 - Oregon Plan adopted in Oregon Statute (SB 924, HB 3700)

- Endorsed and funded by State Legislature - Oregon Revised Statutes Chapters 7 (SB 924) and Chapter 8 (HB 3700)
- Principal documents
  - ⇒ Oregon Coastal Salmon Restoration Initiative (March 1997)
  - ⇒ The Oregon Plan for Salmon and Watersheds, Supplement I – Steelhead (January 1998)
- Established Independent Multidisciplinary Science Team (IMST) (SB 924)
- IMST is to develop a report regarding the role of forest practices and habitat in protecting and restoring salmonids

1998 – ODF/DEQ Memorandum of Understanding

- Further defines respective roles and responsibilities of the Environmental Quality Commission (EQC), the DEQ, the Oregon Board of Forestry and ODF
- Initiated the DEQ/ODF Sufficiency Analysis by defining the process to determine whether forest practices contribute to identified water quality problems and if so, determine whether existing forest practices rules provide sufficient control to assure that water quality standards will be met so that waters can be removed from the 303(d) list.
- Describes interagency coordination process for revising FPA rules (if rule revisions necessary)
- Encourages the use of voluntary and incentive-based regulatory solutions to achieve and maintain water quality

1998 – Oregon Coastal Coho Salmon Listed as Threatened under federal ESA

- U.S District Court Orders NMFS to Reconsider non-listing of Oregon Coastal Coho Salmon (June 1998)
  - ⇒ NMFS cannot take into account anything in Oregon Plan and MOA that are not enforceable measures
  - ⇒ Court concluded MOA was speculative due to fact agreement could be terminated by either party
- NMFS lists Oregon Coast Evolutionary Significant Unit coho salmon as "threatened" under federal ESA

1999 – Federal EPA Conditional Approval of Temperature Standard

- Disapproved in part the Oregon temperature, pH, bacteria and dissolved oxygen criteria in July 1999
- EPA did not accept Oregon's standard of 68 degrees for the Lower Willamette River
- Based on EPA consultations with NMFS and other technical reviews
- EPA shifted focus to completing the Regional Temperature Criteria Guidance.

1999 – Governor Kitzhaber's Executive Order (EO #99-01) on the Oregon Plan

- Central purpose of MOA eliminated with listing of Oregon coastal coho salmon
- Incorporates Healthy Stream Partnership (Senate Bill 1010) as part of the Oregon Plan
- Expands scope of Oregon plan to protection and restoration of all salmonids
- Maintains Oregon Plan objective to improve water quality
- Recognizes the IMST role in providing oversight to ensure best use of scientific information as the basis for implementation and adaptive changes to the Oregon Plan
- Recognizes monitoring as a key element to the Oregon Plan
- Directs Oregon Board of Forestry to determine (with assistance of an advisory committee) to what extent changes in forest practices are needed to meet state water quality standards and to protect and restore salmonids
- Calls of Continuation and Expansion of Existing Agency Efforts
  - ⇒ Hatchery and terminal fisheries management
  - ⇒ State agency Memorandum of Understanding on fish passage
  - ⇒ Governors Watershed Enhancement Board Watershed Improvement Grant Fund
  - ⇒ Interim Aquatic Habitat Restoration and Enhancement Guidelines
  - ⇒ ODF and Oregon Department of Agriculture Memorandum of Understanding(s) with DEQ
  - ⇒ State agency coordinated monitoring program
  - ⇒ State agency incentive program funding to local, tribal and private efforts to Oregon Plan implementation
- Recognizes other key agency efforts in implementing the Oregon Plan
  - ⇒ U.S. Department of Agriculture Conservation Reserve Enhancement Program
  - ⇒ ODF Habitat Conservation Plan under Section 10 of the ESA for Clatsop and Tillamook State Forests
  - ⇒ Senate Bill 1010 Agricultural Water Quality Management Area Plans
  - ⇒ Instream flow restoration efforts of Oregon Department of Fish and Wildlife (ODFW) and Oregon Water Resources Department (OWRD)
  - ⇒ Environmental Quality Commission and DEQ protection to priority areas through in-stream flow protection and antidegradation policy for water quality standards pursuant to federal Clean Water Act
  - ⇒ Division of State Lands Essential Salmonid Habitat rules
  - ⇒ Oregon Department of Fish and Wildlife evaluation of effects of predators and Oregon Fish and Wildlife Commission adoption of fishery regulations not under jurisdiction of the Pacific Fishery Management Council
  - ⇒ Other agency efforts with respect to land use planning, law enforcement, public education and safety
  - ⇒ State natural resource agency support of and technical assistance to watershed councils.
- Executive Order directed state agencies to:
  - ⇒ Fully implement the Oregon Plan consistent with their authorities
  - ⇒ Work collaboratively with Joint Legislative Committee on Salmon and Stream Enhancement, IMST, watershed councils and other affected local entities and persons to develop biological and habitat goals and objectives to protect and restore salmonids on a basin or regional basis as soon as practicable
  - ⇒ Work cooperatively with landowners, local entities and other persons
  - ⇒ Minimize (to the maximum extent practicable) adverse effects on salmonids or their habitat
  - ⇒ Adopt a conservation benefit to restore sustainable salmonid populations as the goal of their actions
  - ⇒ Consider reorganization of state agency actions on a regional (i.e., watershed) scale
  - ⇒ Continue to work with the federal government and meet state requirements for ESA listed species
  - ⇒ Support efforts to evaluate watershed conditions
  - ⇒ Develop strategic plans to provide for flood management, water quality improvement and salmonid restoration
  - ⇒ Seek appropriate changes in regulations, policies, programs, measures and other areas of the Oregon Plan if information shows that existing strategies within state control are not achieving Oregon Plan objectives.
  - ⇒ Coordinate the use of geographic information system (GIS) data
  - ⇒ Continue the development of standardized watershed assessment protocols including cumulative effects
  - ⇒ Continue the development of habitat restoration guides to evaluate and direct habitat restoration efforts

1999 - IMST Forestry Report

- Technical report addressing adequacy of FPA rules and Oregon Plan measures in salmonid recovery
- Two recommendations for FPA that may require a modified policy framework
  - ⇒ Explicitly incorporate the objectives of the Oregon Plan and Executive Order 99-01 into the FPA
  - ⇒ Apply site-specific aspects and action-specific strategies in the FPA in the context of landscape management
- Thirteen recommendations consistent with the existing forest policy framework including:
  - ⇒ Treat non-fish bearing streams the same as fish bearing streams
  - ⇒ Provide increased riparian protection for the 100-year flood plains and islands
  - ⇒ Increase the conifer basal area requirement and the number of trees requirement for RMAs, with increases in these requirements for medium and small streams
  - ⇒ Complete the study of the effectiveness of the FPA rules in providing large wood for the short and long term
  - ⇒ Develop policy that requires roads in critical areas constructed prior to current standards to be at current standards
  - ⇒ Provide enhanced certainty of protection for "core areas"
  - ⇒ Four additional recommendations relating to road design, drainage and wet weather surfacing
  - ⇒ Two recommendations relating to high risk slopes for debris torrents and landslides
  - ⇒ Recommendation to modify culverts and other stream crossing structures to provide for juvenile fish passage
- Four recommendations for other agencies including
  - ⇒ ODF and ODFW develop a collaborative monitoring program to quantify ecosystem condition links to salmonids
  - ⇒ ODFW complete "core area" designation for all wild salmonids
  - ⇒ ODFW should consider consideration of forest, agriculture, urban and other land use practices on core areas
  - ⇒ The Oregon Forest Research Laboratory should develop road-stream crossing strategies that pass large wood

2000 - Report of the Forest Practices Advisory Committee (FPAC) on Salmon and Watersheds

- Determine to what extent changes in forest practices are needed to meet state water quality standards and to protect and restore salmonids per Governor Kitzhaber's 1999 Executive Oregon on the Oregon Plan
- Addressed Fish Passage, Forest Roads, Landslides and Riparian Functions
- Considered body of scientific information
  - ⇒ IMST report on role of forest practices and forest habitat in protecting
  - ⇒ Oregon Department of Forestry forest practices monitoring efforts
  - ⇒ Scientific information from National Marine Fisheries Service
  - ⇒ Other available scientific information
- Board of Forestry to determine most effective means to achieve any necessary changes in forest practices:
  - ⇒ Regulatory changes
  - ⇒ Statutory changes
  - ⇒ Other programs including programs to create incentives
- Twenty-four recommendations of either consensus or strong agreement
  - ⇒ Fish passage (4)
  - ⇒ Forest roads (10)
  - ⇒ Landslides (4)
  - ⇒ Riparian Functions (4)
  - ⇒ Landscapes (2)

2000 - DEQ/EPA Memorandum of Agreement (MOA) on Nonpoint Sources

- Result of NEDC and NEA lawsuits regarding 303(d) list and TMDLs
- Defined prioritization and schedule for developing and implementing TMDLs
- Defined process for listing and delisting water quality impaired water bodies from 303(d) list
- DEQ agreements with other agencies need to be consistent with DEQ/EPA MOA

2001 - Northwest Environmental Advocates (NEA) Sues EPA over Temperature Standard

- Alleged that EPA's approval of Oregon's temperature and dissolved oxygen standards was invalid
- NEA claims that:
  - ⇒ State needs antidegradation implementation plan
  - ⇒ Intergravel dissolved oxygen criterion is not protective

⇒ Lack of information regarding where and when the temperature criteria apply is a fatal flaw
⇒ NMFS's "no jeopardy" opinion is not supported by their record
⇒ EPA shall either adopt criteria or approve revised State criteria by March 2, 2004

2002 - ODF/DEQ Sufficiency Analysis Report

- Purpose is to meet statutory responsibility in ORS 527.765 to review best management practices
- Analysis to determine:
  - ⇒ If forest practices contribute to identified water quality problems
  - ⇒ If so, determine whether existing FPA provide sufficient control to assure water quality standards will be met.
- Not a direct test of effectiveness in meeting water quality standards with respect to measured achievement of standard
  - ⇒ Considered the multiple factors and functions of riparian areas by evaluating water quality standards primarily by evaluating effectiveness of forest practices with respect to FPA rule objectives
  - ⇒ Achieving FPA goals was the criteria used to determine achievement and maintenance of water quality standards
  - ⇒ Available data to direct cause-and-effect linkages between FPA and measured water quality conditions is limited
- Twelve recommendations
  - ⇒ FPA RMA basal area retention standards should be revised
  - ⇒ Revise forest practices so desirable large wood are available to debris torrent delivery to fish-bearing streams
  - ⇒ Actively place large wood in streams where it will provide greatest benefit to salmonids
  - ⇒ Reduce the delivery of fine sediment to streams by installing cross drains on roads
  - ⇒ Develop specific standards for roads that will actively be used during the wet season
  - ⇒ Develop specific guidance to reduce road length and placement within critical locations affecting water quality
  - ⇒ Construct stream crossings to pass gravel and large wood downstream
  - ⇒ Develop specific guidance or prior approval for ground skidding in high-erosion hazard locations
  - ⇒ Manage locations most prone to landslides to minimize impacts to soil and water resources
  - ⇒ Provide for riparian functions along stream reaches above impassable stream crossings
  - ⇒ Identify, prioritize and restore existing culverts that do not properly pass juvenile fish
  - ⇒ Revise FPA stream classification for fish and non-fish bearing streams using physical habitat approach
- Recommendations for Compliance and Effectiveness Monitoring
  - ⇒ Build understanding, acceptance and support for the monitoring strategy
  - ⇒ Use a random sample design to select all study sites.
  - ⇒ Combine compliance and effectiveness monitoring efforts at single study sites
  - ⇒ Increase coordination with Oregon Plan monitoring efforts, especially DEQ and ODFW
  - ⇒ Address issues at a watershed scale
  - ⇒ Improve communication of status of monitoring projects, both internally and externally
- Priorities for monitoring
  - ⇒ Effectiveness of riparian prescriptions and functions to ensure achievement of water quality goals
  - ⇒ Forest road improvement at a landscape level
  - ⇒ Road compliance and effectiveness monitoring
  - ⇒ Watershed-scale effects relative to current practices along small non-fish bearing streams
- Issues warranting future examination
  - ⇒ Blowdown within RMAs (consistency of blow-down events with achieving mature forest conditions
  - ⇒ Are FPA rules meeting water quality standard with respect to cold-water refugia
  - ⇒ Effects of FPA rules along small non-fish bearing streams on downstream sediment regimes

2002 – TMDL Administrative Rules - OAR Division 42

- Prior to 2002 rule, DEQ operated under MOA with EPA.
- Adopting rule provides more certainty to the TMDL process and strengthens the ability to meet TMDL schedule
- Includes Water Quality Management Plan describing strategies to achieve the target TMDL allocations

2002 – Hinkle Creek Paired Watershed Study and Research Demonstration Area

- Funded through Oregon State University's Watershed Research Cooperative
- Hosted by Roseburg Forest Products
- Investigates the effect of contemporary forest practices on water quality/fish habitat and develops methods to assess indirect and cumulative effects of timber harvest in headwater basins on fish populations downstream

2002 - Road, Landslide and Public Safety Rule Revisions to FPA

- Rules on forest roads and harvesting based on recommendations of Forest Practices Advisory Committee
- Rules addressed recommendations regarding roads and sediment in the ODF/DEQ sufficiency analysis
- Landslide and public safety rules based on 1997 (SB 1211) and 1999 (SB 12) legislative committee recommendations

2003 - Court Decision on 2001 Temperature Standard Lawsuit

- Flexibility in use of BMPs does not meet legal requirements of a water quality standard
- Standard is not protective of designated beneficial uses of salmonid spawning and rearing
- Found that EPA should have required a more detailed anti-degradation policy in concert with other water quality criteria for salmonids (e.g., temperature)
- Ordered EPA to rescind the Oregon standard and to prepare and publish a revised standard.

2003 - North Coast TMDL Approval by EPA

- Relates back to unresolved issues arising from 1990 Coastal Zone Act Reauthorization Amendments
- EPA and NOAA raised concerns that the North Coast TMDL does not address additional forestry management measures for water quality in:
  - ⇒ Harvest in high risk, landslide prone areas
  - ⇒ Riparian protection
  - ⇒ Cumulative effects

2003 - Legislative Amendments (HB 3264) Removes Prior Approval FPA Authority

- Passed to clarify that the State Forester through the FPA is not responsible for ensuring federal ESA compliance
- Affirmed original tenet that the FPA is not a "permitting" system
- Eliminates all State Forester authority to require prior approvals and approval of written plans
- Automatically voided prior approval requirements in administrative rules (OARs)
- Preserved all substantive resource protection standards contained in the affected rules

2003 Report of Eastside Riparian Functions Advisory Committee

- Need - FPAC report developed recommendations for riparian functions primarily from a westside perspective
- Purpose – Develop recommendations relating to forest practices and eastside riparian functions
- Thirteen recommendations achieving consensus or strong agreement
  - ⇒ Change the "Desired Future Condition" for eastside RMAs to reflect diversity of riparian forest conditions
  - ⇒ Retain current FPA RMA widths for eastside streams
  - ⇒ Use two site classes for basal area retention in RMAs to reflect variability in site capability
  - ⇒ Allow active management within first 20 feet of RMA to address allow for thinning to address forest health
  - ⇒ Develop rule language and guidance for stratifying riparian protection standards by site productivity
  - ⇒ Develop guidance on desirable level of protection for eastern Oregon Channel Migration Zones
  - ⇒ Modify FPA rules for non-fish bearing streams
    - Expand understory vegetation retention requirements 20 feet
    - Reduce risk of sediment delivery from skid trails
    - Apply same recommendations for small fish bearing streams to medium and large non-fish bearing streams
    - Monitor non-fish bearing stream prescriptions
  - ⇒ Develop a monitoring strategy for wetlands
  - ⇒ Modify FPA rules to provide a broad range of incentives to improve fish habitat
  - ⇒ Develop recommendations to Statewide Riparian Management Policy Group regarding impacts of livestock and big game on forested eastside RMAs
  - ⇒ Designate at least one Riparian Specialist for each ODF District in eastern Oregon
  - ⇒ Continue FPA training and education for landowners, operators and the public
  - ⇒ Provide training to Forest Practices Foresters to ensure consistency with FPA compliance

2003-4 -- ODF Develops 18 Water Protection Rule Concepts

- Eighteen Water Protection Rule Concepts based on recommendations in:
  - ⇒ IMST Forestry Report
  - ⇒ Forest Practices Advisory Committee
  - ⇒ DEQ/ODF Sufficiency Analysis
  - ⇒ Eastside Riparian Functions Advisory Committee
- Board of Forestry Directs ODF to develop draft rule language so as to better understand the rule concepts
- Non-regulatory paths approved for:
  - ⇒ Rule Concept 2 – Fish bearing RMA standards for large and medium non-fish bearing streams
  - ⇒ Rule Concept 5 – Monitor, evaluate channel migration zones
  - ⇒ Rule Concept 9 – 60% Basal Area Cap (western Oregon)
  - ⇒ Rule Concept 10 – No harvest within on-half of the RMA (western Oregon)
  - ⇒ Rule Concept 11 – Retain largest trees within the RMA (western Oregon)
- Draft Rule language approved, ORS 527.714 analysis not necessary
  - ⇒ Rule Concept 18 – Monitoring of small non-fish bearing streams
- Draft Rule language approved for ORS 527.714 analysis
  - ⇒ Rule Concept 3 – Riparian management areas above fish barriers (approved, pending revision)
  - ⇒ Rule Concept 4 – Wood from debris flows and landslides
  - ⇒ Rule Concept 7 – Large wood placement
  - ⇒ Rule Concept 8 – Increased basal area targets for medium and small fish bearing streams (western Oregon)
- Deferred for further monitoring because insufficient information to determine problem with current rules
  - ⇒ Rule Concept 14 – Basal area targets (eastern Oregon)
  - ⇒ Rule Concept 15 -- Active management within first 20 feet of RMA (eastern Oregon)
  - ⇒ Rule Concept 16 – Small non-fish bearing stream protection (eastern Oregon)
- Deferred for future discussion
  - ⇒ Rule Concept 13 -- Desired future condition (eastern Oregon)
- Action pending
  - ⇒ Rule Concept 1 – Water Protection Rules policy statement
  - ⇒ Rule Concept 2 – Small non-fish bearing stream protection (western Oregon)

2004 - EPA Approves Revised Temperature Water Quality Standard

- Revised standard:
  - ⇒ Includes DEQ initiated revisions to clarify the temperature criteria
  - ⇒ Incorporates 2003 EPA temperature criteria guidance
  - ⇒ Respond to the findings of the federal district court
  - ⇒ Streamlines DEQ administrative rules for Water Quality Standards
  - ⇒ Includes information regarding where & when the temperature criteria apply – use of maps

2004 – IMST Temperature Report

- The scientific basis for Oregon's temperature standard is credible and is consistent with scientific literature
- The temperature model, Heat Source, used by the state is scientifically sound
- Oregon's TMDL process is conducted at the basin scale, which is consistent with a landscape approach
- Human activities can affect stream temperature by modifying:
  - ⇒ Channel morphology
  - ⇒ Stream flow
  - ⇒ Surface/subsurface water interactions
  - ⇒ Riparian vegetation
- Riparian vegetation has direct and indirect impacts on stream temperatures

2004 – EPA Conditional Approval of CZMA Coastal Nonpoint Pollution Control Program

- Oregon needs to develop and implement additional management measures to comply with CZARA 6217
- EPA approval for forestry CNPCP management measures is pending current FPA Water Protection Rule revisions

Historical Perspective

Background Material

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: Mail Stop 446

[illegible] 1979

J. E. Shroeder, State Forester
Office of State Forester
2600 State Street
Salem, Oregon 97310

Dear Mr. Shroeder:

After an extensive period of public involvement, review and negotiation, I am approving the State and Private Land Forest Practices element of Oregon's Water Quality Management Plan (WQPM).

This is EPA's evaluation of the public reaction to the draft Regional Administrator's appraisal and proposal to approve with conditions that element of Oregon's WQMP. Formal review responses were received from the thirteen (13) listed sources. The issues discussed below were identified from the following respondents:

1. Oregon Environmental Council (OEC)
2. Oregon Student Public Interest Research Groups (OSPIRG)
3. Western Forestry and Conservation Association (WFCA)
4. Lane Council of Governments (LCOG)
5. John L. Frewing, Portland
6. Norma N. McMillin, Otis
7. State Department of Forestry (OSFD)
8. Marguerite N. Watkins, Coos Bay
9. State Conservationist, SCS, Portland
10. Stephen M. Levy, Portland
11. Oregon Forest Industries Council (OFIC)
12. Weyerhaeuser Company
13. Oregon Department of Environmental Quality (DEQ)

Recommendations on EPA's proposed action range from giving "prompt and unconditional approval of the Oregon Forest Practices Act as meeting the necessary control and best available technology of forest practices on state and private lands" (WFCA) to taking a position of total disapproval until such time as adequate protection and regulation of the State's water resources can be assured" (OEC).

During the months since we received your comments, EPA and Oregon's Department of Environmental Quality (DEQ) have been reconciling two of the issues in the original appraisal. Agreement has now been reached and the following discussion explains the basis for the Regional Administrator's approval action.

1. Oregon's forest practice rules are not BMP's and cannot be approved -- too non-specific; not clearly enforceable; alternatives have not been rationally examined. (OEC, OSPIRG, LCOG, N. N. McMillin, J. Frewing, M. N. Watkins, S. M. Levy):

The State has the authority and is required to establish and revise the technical/administrative BMP solutions to resolve identified NPS pollution problems and meet 1983 water quality goals. The State went through a technical, administrative, and regulatory evaluation on the adequacy of forest practice rules for accomplishing water pollution control objectives. The determination was made and certified by both DEQ and the Governor that the submitted rules and administrative program are generally adequate to protect water quality. EPA accepts this initial water quality management position. The State remains responsible for remedying any weaknesses demonstrated in plan implementation that may inhibit achievement of pollution control objectives.

Information supplied to EPA subsequent to preparation of its appraisal shows that the State Forest Practices Board adopted additional rule changes in December 1977, and September 1978. These revisions now total about 8 for the control of pesticides and 43 for other forestry operations. The overall thrust portends improvements for water quality management.

The determination of whether the State's forest practice rules and their application qualify as "Best Management Practices" must, in the final analysis, be based on their effectiveness in "preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals." This requires on-the-ground assessment of the administration of prescribed controls and their adequacy in resolving real problem situations. After review, EPA concluded Oregon's 208 plan for forest practices on State and private land was deficient in an on-land and instream evaluation. EPA has had considerable dialogue with DEQ over the past several months attempting to resolve this monitoring and evaluation issue. Recently, additional information was sent to EPA by DEQ establishing an annual evaluation process. This process involves formation of an interagency technical work group whose charge will be to evaluate the effectiveness of forest practices rules and their application as BMP's. The information will be developed from on-site observations of operations and will be used to make adjustments in BMP's, water quality standards, or the water quality management plan. In addition, this information can be coordinated with monitoring activities of other agencies.

With DEQ and the State of Oregon adopting this on-the-ground evaluation process, EPA feels the State has moved in the right direction and approves it as an acceptable procedure.

2. The OSFD administrative procedures for review and update are adequate. (DEQ)

EPA received new information that indicated significant followup by the Board of Forestry in response to suggestions during the review process. As stated above, a total of 8 changes pertaining to use of pesticides and 43 changes for other forestry operations were incorporated into the Forest Practice Rules in December 1977 and September 1978. This information resulted in removal of the administrative condition proposed in the original appraisal.

3. The Oregon State Department of Forestry cannot be designated as a management agency -- the agency does not have adequate enforcement authority to achieve the Clean Water Act's goals; membership of the Forest Practices Board and Regional Forest Practices Committees are not properly balanced; the EPA cannot make approval of a plan contingent upon the membership of a rule-making body such as the Oregon Board of Forestry. (OEC, N. N. McMillin, M. N. Watkins, S. M. Levy, OFIC, Weyerhaeuser Company).

The Oregon Forest Practice Act is a regulatory program with sufficient authority to comply with S208 requirements. Violation of any rule which is promulgated under the Act is punishable upon conviction as a misdemeanor (ORS 527.990). Each day of violation of an order issued by the State Forest Practices Board is deemed to be a separate offense.

The Forest Practices Board is legislatively empowered"... to promulgate and enforce regional rules...designed to assure the continuous growing and harvesting of forest tree species and to protect the soil, air and water resources, including but not limited to streams, lakes and estuaries..." (ORS 527.630). Membership of the Forest Practices Board and the Regional Forest Practices Committees also is legislatively defined. Any modification of memberships or redefinition of their roles and responsibilities has to be through and by the State legislature, again a political action that must be promulgated within the State. If subsequent events convince the EPA the Board is not doing a satisfactory job, approval of the WQMP can be withdrawn based upon the performance record.

4. EPA's proposed conditional approval is not in accordance with the law -- reliance is placed "on the specifications of a process" and the "Brown report" rather than providing "the specific revisions necessary." (OEC, OSPIRG, LCOG)

This presumes that (1) water quality requirements and necessary plan revisions are precisely known, (2) EPA has the information to design universal and reasonable technical or legal specificity for all geographic, climatological, and operational conditions, and (3) EPA should assume the State's responsibilities for determining and prescribing workable control program details. EPA's role is to secure from the State a total 208 water quality management plan for forest practices, i.e., a process which describes an intergovernmental arrangement for making water quality management decisions leading to 1983 goals. A monitoring and evaluation activity that will provide a qualitative and quantitative basis for knowing what effects initially established BMP's are having on the resolution of identified water quality problems and for making necessary changes is an essential part of this process. While EPA does not have statutory authority to directly promulgate BMP's for State silvicultural activities, it does have considerable flexibility to exercise discretion in requesting specific revisions to a S208 plan.

5. The public participation process was inadequate in the assessment and formulation of nonpoint source control measures and therefore cannot be approved -- little or no rationale was provided by forestry rule making entities to explain reasoning for rejecting or accepting public suggestions; public comment apparently not utilized in decision making based on the low percentage of responsive rule changes. (OEC, OSPIRG, LCOG, N. N. McMillin, J. Frewing, M. N. Watkins)

The basic problem appears to center on Board and Committee responsiveness to environmental concerns rather than on the opportunities provided for public input. As evidenced in our initial appraisal, there is reason to believe the 208 planning process has improved public involvement, particularly in the procedural area. The public must continue to document and press their water quality concerns to assure that this initial start becomes effective. The OSDF and DEQ must continue to develop their capability to communicate, provide meaningful information, and be responsive to public water quality needs and priorities. The public participation process, along with the monitoring and evaluation issue, was the other area in which EPA had expressed some concerns and indicated a deficiency. That deficiency centered on the documentation and adoption of a process as opposed to the public not participating in the planning and management process.

In early February, DEQ submitted to EPA information that satisfies our concerns. DEQ finalized the Public Participation Task Force Report and OSFD is acting on most of the recommendations of that report. They have (1) requested a citizen participation coordinator position for 1979-81; (2) prepared a citizen participation guide; (3) announced a method for obtaining input and concerns from citizens on proposed actions (this policy was announced in the January 1979 issue of Forest Log); and (4) have developed a computerized mailing system which should improve the public awareness and input to all issues of concern to particular citizens. The OSFD is in the process of drafting a directive for its department staff as well as planning training for that staff. These additional efforts should strengthen their program and alleviates EPA's original concern.

6. EPA has not made the required finding of consistency with the water quality plans of contiguous states (e.g., pursuant to 131.21(b)). (OEC)

An ongoing inter-state coordination activity has been an important part of the overall planning process to minimize inconsistencies and facilitate the development of effective and workable state WQMP's for forest practices. This has included providing guidance in an EPA policy paper entitled "Silvicultural Nonpoint Source Pollution Control Expectations and Requirements", inter-state coordination meetings, and circulation of plan development outputs - a process which has not surfaced any serious inter-state conflicts. However, since Oregon's is the first plan submitted, no final meaningful determination of consistency can be made.

7. "Request you not certify Oregon forest rules as BMP's. Oregon Forestry Board bias shows in consideration of alternatives. EPA EIA doesn't evaluate result of using Oregon rules. Request EIS." (J. Frewing)

The EPA action which is the subject of the Environmental Apraisal is approval of a portion of Oregon's Statewide 208 program dealing with silvicultural nonpoint source water pollution for State and private lands. We feel that Oregon's Statewide 208 program dealing with silvicultural nonpoint source water pollution for state and private lands fulfills the intent of NEPA and the Clean Water Act and applicable regulations.

The intent of the 208 program is to provide means for ongoing improvement of water quality. Recent improvements in the Oregon Forest Practice Rules indicate that significant achievement of this objective is taking place. We therefore find that preparation of an EPA EIS is not necessary.

Conclusion

EPA's review findings and recent followup with DEQ are judged to be consistent with prescribed authorities and responsibilities. We have arrived at the basic conclusion to approve the forest practices element of the Oregon Water Quality Management Plan.

I have enclosed a copy of my letter to the Governor of Oregon indicating approval. Thank you for your interest and response to this important issue affecting Oregon's water quality management.

Sincerely,

Donald P. Dubois
Regional Administrator

Enclosure

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 446

MAR 9 1979

Honorable Victor Atiyeh
Office of the Governor
State Capitol
Salem, OR 97310

Dear Governor Atiyeh:

I have completed my review of the Oregon Water Quality Management Plan (WQMP) for state and private forest lands which was transmitted with Oregon's letter of certification in May 1978.

The months that have passed since your original submission have been used to afford full public involvement in my decision and to reconcile some substantive issues with the Department of Environmental Quality (DEQ).

Having fully resolved those issues, I am pleased to approve the forestry element of the Oregon Plan. DEQ and the Oregon State Department of Forestry deserve recognition for establishing an interagency program for protecting water quality and improving forestry practices. I am convinced your plan is an excellent step forward in the difficult task of controlling silvicultural sources of water pollution.

In accord with our routine procedures, I expect to hold the first mid-year implementation review on this program with DEQ in the spring of 1980. At that time, we can bring in the Federal agencies and assess the progress of coordinated implementation of the WQMP for silvicultural activities.

Oregon is establishing a sound overall program for achieving water quality goals on state and private lands and we commend you for this effort. In addition, with OSDF taking the lead in communicating and coordinating with Federal land management agencies to assure similar BMP standards, I am sure a high level of water quality protection will be achieved on all forested lands in your state.

Sincerely,

Donald P. Dubois
Regional Administrator

Brown Report

Meeting Water Quality Objectives through the Oregon Forest Practices Act

a report prepared for the
State Forester
Oregon State Department of Forestry

MEETING WATER QUALITY OBJECTIVES ON STATE AND PRIVATE FOREST LANDS THROUGH THE OREGON FOREST PRACTICES ACT

A Report Prepared For The
State Forester
Oregon State Department of Forestry

By

The Forest Practices Act Technical Work Group

George Brown, Chairman
Darrell Carlson
Glen Carter
David Heckeroth
Mike Miller
Byron Thomas

In partial fulfillment of the provisions of Section 208, Public Law 92-500.

ACKNOWLEDGEMENTS

The Forest Practices Technical Work Group wishes to acknowledge the assistance provided by several organizations and individuals in the preparation of this review. The Technical Work Group members were permitted to serve by their parent organizations and their time and salaries were contributed to this review. These organizations include the Bureau of Land Management, the Oregon Department of Environmental Quality, the Oregon Department of Fish and Wildlife, the Oregon Department of Forestry, and Willamette Industries.

Many individuals contributed their time, experience, and expertise in identifying the relative effectiveness of the forest practice rules in achieving water quality goals. Included are field personnel of the governmental agencies mentioned above together with U.S. Forest Service scientists and timber operators of the forest industry.

The Technical Work Group wishes to thank the members of the Oregon 208 Policy Advisory Committee, and especially their Forestry Sub-Committee, for their review and counsel.

The members of the Technical Work Group are especially grateful to Mr. William A. Dryden, Forest Practices Evaluation Coordinator, Oregon Department of Forestry, for his assistance in obtaining basic statistical data used in this report and for arranging the field trips by the committee.

Without the assistance of the organizations and individuals mentioned above, this report would have been impossible to complete.

This report was preceeded by a draft, prepared and circulated for public review. About 800 copies were distributed to individuals and organizations in the state. Comments were received and included in this final copy as appropriate. A summary of these comments, prepared by Oregon Department of Forestry, is included in Appendix E. All comments on the draft were retained by the Department and are available at area offices for inspection. Comments not directly applicable to this report will be forwarded to regional rules committees for use in their continuing planning process. The Technical Work Group is appreciative of this public input and reminds readers that public participation is presently a part of Forest Practice rules development and will continue to play an important role in rule modification.

SUMMARY

Important questions remain to be answered about each category of forest practice. Those in the areas of soil, timber harvesting, and road construction are most pressing because of the level of activity and relative lack of knowledge in these areas. For each category, research must be directed toward development of method and procedures that are applicable in the field by field personnel and that will help them make better decisions about the management of our forest and aquatic resources.

VI. SUMMARY AND RECOMMENDATIONS

This detailed review of Oregon's Forest Practice Rules has shown that these rules, and their implementation by those working with them, have been moderately effective in helping to achieve the water quality goals of Oregon and PL 92-500. That is, the rules are recognized as being beneficial in meeting water quality objectives but additional improvements in the rules or their administration are necessary. These rules do, however, qualify as "best management practices." The rules are a practicable means of preventing or reducing the amount of silvicultural, nonpoint source pollution to a level compatible with the water quality goals of PL 92-500. They are consistent in every case with the finding of scientific studies.

Improvements necessary to raise the level of achievement for meeting water quality goals from "moderately effective" to "very effective" are primarily administrative and deal with the implementation of the rules on the ground rather than with the rules themselves. Three major categories of operational improvements were identified: training, supervision, and enforcement.

A field review of a road construction operation and two tractor harvesting operations provided illustration of the need for these operational improvements and emphasized the importance of soil in determining the impact of forest practices on water quality.

Better information is required to help forest practice officers and timber operators make better decisions in the field. Better fundamental knowledge about forest soil, forest streams, and aquatic organisms is required in order to predict the impact of management on water quality and water use. Better information about alternative harvesting and road construction methods methods is necessary to help field personnel match the proper method to the conditions encountered in the field.

Based on our review of published scientific studies, the Forest Practice Act Rules, the information gathered from those implementing and enforcing them in the field, visits to operations in the field, and our own professional experience with the rules, we recommend to the State Forester that:

Revision of the Rules

1. No major structural modification of the rules be made at this time. The rules are consistent with the present level of knowledge reported in the scientific literature and include the presently recognized "best management practices." Detailed suggestions for minor revision of specific rules or their administration are included in the text and Appendix D for consideration by regional rules committees.

2. Regional rules committees pay particular attention to the specificity of the rules and periodically review the rules to insure that wording is as specific as appropriate.

Administration of the Rules

1. The State Forester take immediate steps to improve the level of training of forest practice officers. Training in soils, stream protection, road location and design, and harvesting systems is particularly important.

2. The State Forester encourage development of educational programs for training timber operators in stream protection methods, recognition of potential landslide and erosion problems, and forest practice rules requirements.

3. The State Forester continue development of guidelines to provide field supplements for the Forest Practices Act Rules, similar to the stream clearance guidelines.

4. The turnover rate among forest practice officers (particularly those with college training) be reduced by whatever means deemed appropriate, in order to promote and encourage stability and build field experience.

5. The percentage of college-trained forest practice officers be increased to raise the level of technical expertise in the field. Minimum qualifications should be established for forest practice officers to insure a specified level of expertise and field experience when hiring college graduates or promoting those from within the organization.

6. The number of inspections be increased, particularly preoperation inspections on high priority operations. Road maintenance inspection should also be increased.

7. The system for identifying high priority areas by improved be requiring submission of a very brief operations plan.

8. Forest practice officers be provided with sufficient time to inspect high priority operations by specifying a minimum review period between notification and initiation of the operation.

9. Verbal notification of the operations starting date be required on all operations if other than that specified on the notification.

10. Technical support be provided for forest practice officers especially in soils, hydrology, and forest engineering.

11. The State Forester continue to emphasize the preventative goals of the Forest Practices Act by strengthening the "advisory" status of recommendations made by forest practice officers to timber operators as their training and technical support improves.

12. Uniformity of interpretation of the rules among forest practice officers be improved.

13. The State Forester continue the strong liason and cooperative working relationships with the Department of Fish and Wildlife and other agencies involved in forest operations.

14. Liason with district attorneys be improved at the local level. Help them and the courts better understand the forest practice rules and their implementation in the field.

Research

We recommend that the State Forester actively encourage applied research to provide better alternatives and better site-specific prescriptions for forest practice officers and timber operators. Research on timber harvesting methods applicable to steep terrain and fragile soil, on road construction methods in steep terrain, and on stream protection are most important.

OREGON DEPARTMENT OF FORESTRY
OREGON'S FORESTRY NPS CONTROL STRATEGY

Tualatin River Basin Policy Advisory Committee
October 9, 1997

FINDINGS AND CONCLUSIONS

1. Tualatin basin forest streams contain naturally-occurring phosphorus loadings determined by Department of Forestry monitoring to result from the geological parent material through which groundwater moves into the streams and by normal organic matter accumulations such as leaf fall.

2. Monitoring indicates phosphorus loadings in forested stream reaches in the Tualatin River basin are independent of the amount of the stream watershed that has been harvested using current forestry BMPs.

3. Forest fertilization uses nitrogen fertilizers, not phosphorus compounds that could contribute to the Tualatin River's phosphorus load.

4. Slash burning is a limited potential source of nutrient release in the Tualatin River basin because: 1) it is done primarily by burning piled slash away from watercourses; 2) burning is limited by air quality conditions; and 3) BMPs control its effects on retained vegetation.

5. Forest Management in the Tualatin River basin is successfully applying effective BMPs that prevent man-caused phosphorus pollution of the watershed's streams by limiting erosion of phosphorus-bearing soils into streams.

RECOMMENDATIONS:

A. Tualatin River basin NPS control strategy should rely upon the Forest Practices Program as the NPS control plan for forest management in the basin. The Department of Forestry has completed all the sequential steps for determining effectiveness of forest BMPs in its NPS plan. The Department will continue appropriate monitoring and will administer BMP implementation by forest operators along with responding to complaint investigations and continuing interagency coordination.

B. DMAs should report any turbid water conditions observed or suspected of being associated with commercial forest management to the Department of Forestry local office in Forest Grove for investigation and appropriate action.

C. In-stream monitoring in the forested reaches of the basin has sufficiently demonstrated the sources and levels of phosphorus loadings. This information can be used to coordinate forestry NPS control practices with other land uses. The Department of Forestry has now shifted its monitoring resources appropriately to other areas and other parameters.

D. Include the Department of Forestry in the Tualatin River Partnership for Clean Water planning and NPS control strategies.

E. Appropriate basin DMAs should plan for means of controlling erosion and other forms of water pollution caused by such forest land uses as residential roads, septic tanks, and off-road recreation effects because these are outside the authority of the Forest Practices Act.

F. The TMDL for the Tualatin River should be modified to be consistent with the river's historic condition. The TMDL-setting process should recognize that the low gradient of the valley floor reaches, combined with the low rainfall period in the Northwest's climate, constitutes a natural condition resulting in the river's failing to meet generalized pH and dissolved oxygen water quality standards. Consistent with the EQC's rules, these naturally-occurring conditions should dictate the standard for the Tualatin River.

FOREST MANAGEMENT OPTIONS TO CONTROL EXCESS NUTRIENTS FOR THE TUALATIN RIVER, OREGON

David Degenhardt, Oregon Department of Forestry
George Ice, NCASI

I INTRODUCTION

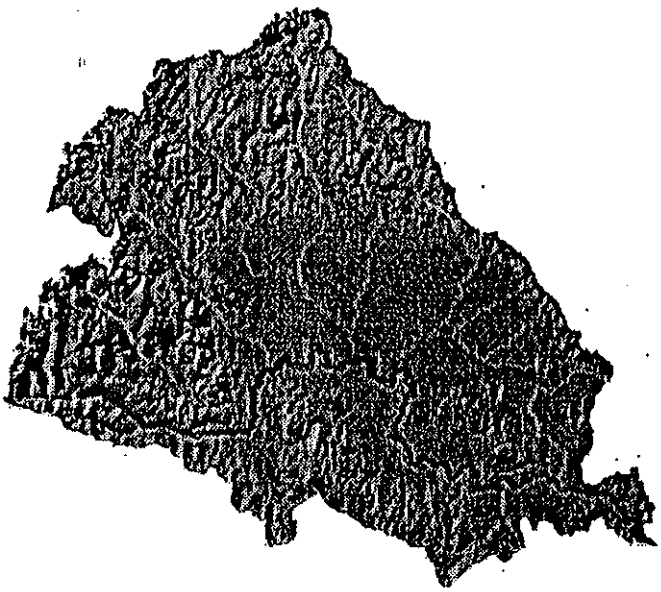
The Tualatin River in Oregon has been identified as water quality limited under section 303(d) of the Clean Water Act. Beginning in 1987, this 712 mi^2 watershed was the site of the first Total Maximum Daily Load (TMDL) allocation setting in Oregon. The focus of the TMDL has been on controlling phosphorus. Phosphorus limits are designed to reduce nuisance algae blooms, maintain dissolved oxygen concentrations, and avoid pH problems.

As one of many land uses in the basin, forest management practices were evaluated as part of the TMDL process. Figure 1 shows the watershed and forested areas of the basin. The forestry community felt special concerns about being involved in this process. Just under half the watershed area is forested, but nutrients are seldom raised as a water quality problem in forest stream reaches. Forest operations were already regulated more strictly, under the Oregon Forest Practices Act, than any other nonpoint source (NPS) to protect water quality. Research showed little or no phosphorus response to even intensive forest management. Phosphorus concentrations for the predominantly forested tributaries are the lowest in the watershed. Finally, natural inputs such as groundwater and needle and leaf fall were expected to contribute most to phosphorus loads.

As a result of these concerns the Board of Forestry resisted blanket acceptance of load allocations for predominantly forested subbasins without a critical review. Instead, they recommended that a Technical Specialists Panel assess the role of various sources in the basin and the suitability of proposed load modeling and regulatory methods. The Forestry Department also commissioned a literature review (1) of research on phosphorus in forest streams. The Board eventually adopted a nonpoint source (NPS) control plan, primarily based upon its Forest Practice rules/best management practices (BMPs) with additional in-stream monitoring. This plan contained sequential steps to ensure the effectiveness and implementation of sediment-controlling forest practice rules. It also committed the Oregon Department of Forestry to monitor water quality in forested tributaries for total phosphorus concentrations and related parameters.

Other agencies, including United Sewage Agency (USA), Oregon Department of Environmental Quality (DEQ), Oregon Department of Agriculture (ODA), the United States Geological Survey (USGS), Portland State University (PSU), and the Oregon Graduate Institute (OGI), established monitoring and research programs in the basin. Interagency coordination of phosphorus control measures, from BMPs to public awareness projects, has been critical to achieving progress on this complex NPS problem.

TUALATIN RIVER WATERSHED, WASHINGTON COUNTY, OREGON



Forest land in the Tualatin River basin (shown above) is concentrated on higher elevation lands (shown in relief map below) above the relatively flat gradient basin floor that is dedicated to agriculture and residential use.

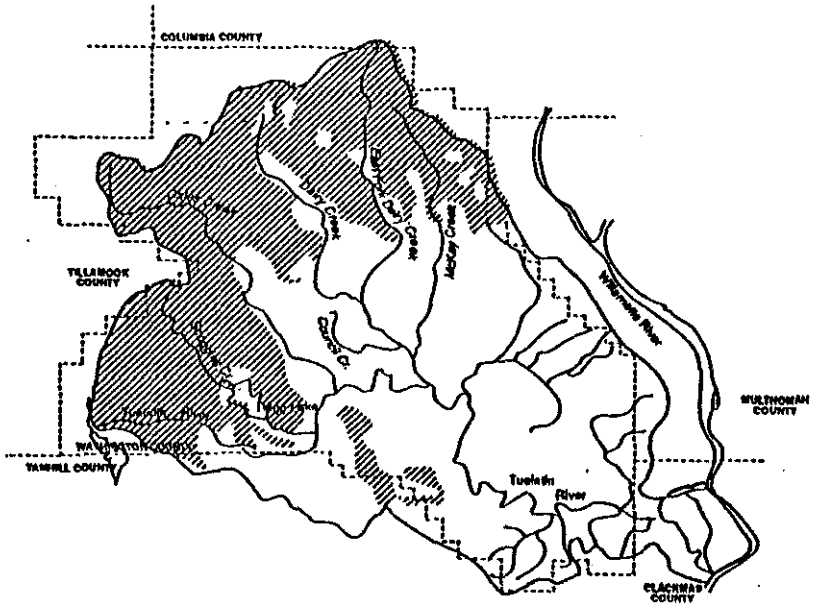


FIGURE 1 LOCATIONS OF PRESENT AND PROPOSED FOREST-AREA MONITORING SITES, TUALATIN RIVER BASIN (OREGON DEPARTMENT OF FORESTRY, 1991). FOREST AREAS ARE SHOWN IN CROSS-HATCH

This paper summarizes:

- The role of forest management in stream phosphorus chemistry.
- The conditions that cause the Tualatin River to be susceptible to water quality problems.
- Oregon's forestry NPS control strategy and BMPs.
- The results of monitoring in the basin dealing with forest management activities.

II PHOSPHORUS CHEMISTRY

Phosphorus (P) occurs in several forms in water (See Figure 2). These include dissolved and suspended phosphorus as:

- orthophosphate (H_2PO_4-, HPO_4-2, PO_4-3)
- polyphosphates
- organic phosphorus
- reactive phosphorus
- total phosphorus

Dissolved and particulate forms are separated by filtering (0.45 μm filter) (4). Phosphorus that responds to colorimetric tests without preliminary hydrolysis or oxidation is considered reactive phosphorus and is mostly orthophosphate. The portion of the sample that requires preliminary hydrolysis to respond to colorimetric tests is termed acid-hydrolyzable phosphorus. It is mostly condensed or polyphosphates. The sample portion requiring preliminary hydrolysis and oxidation to release orthophosphate produces what is termed organically-bound phosphorus (2).

Soluble, reactive phosphorus or orthophosphate is considered to be the only biologically available form of phosphorus (3). Phosphorus strongly associates with soil particles and is a part of organic material. Suspended phosphorus can represent as much as 95 percent of the phosphorus load in streams (2). But, for forested watersheds, Salminen and Beschta found that soluble orthophosphate represented an average of 40 percent of the total phosphorus (1). During critical summer months the orthophosphate from forested watersheds may represent 60 percent of total phosphorus.

McCutcheon et al. concluded that: "The origin of phosphorus in streams is the mineralization of phosphates from the soil and rocks, or drainage containing fertilizer or other industrial products." (3) Nitrogen and phosphorus are generally considered the critical nutrients for aquatic primary production. An N/P ratio of 5 to 10 (by weight) is considered

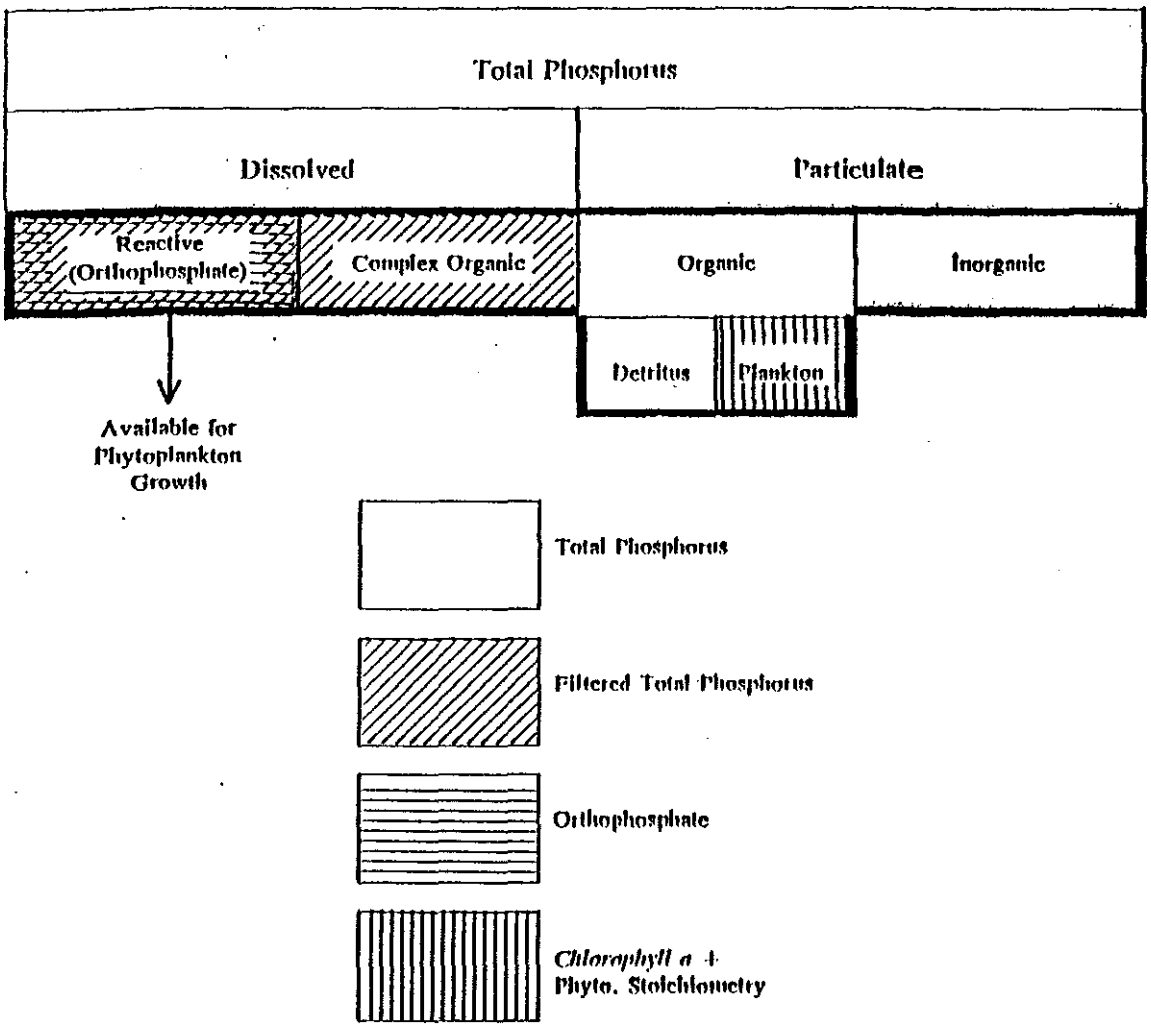


FIGURE 2 FORMS OF PHOSPHORUS PRESENT IN WATER AND THE MEASUREMENTS AVAILABLE

to be optimum for plant growth. Where phosphorus is growth-limiting, additions can stimulate growth of photosynthetic aquatic organism. Phosphorus is considered to be limiting when concentrations are between 5 and 50 μg/L-P (1).

Phosphorus dynamics in streams can be complex and involve both chemical and biological processes. Organic matter breakdown by bacteria or fungi can transform organic phosphorus to orthophosphate or condensed phosphorus. Algae can utilize orthophosphates, transforming them to particulate organic phosphorus (suspended or deposited). Phosphorus sorbed on the streambed or particles in suspension will adjust to the relative concentration in solution in the water column. At high pH, phosphates can precipitate. At low pH, phosphate moves back into solution. Aluminum and ferric iron concentrations can influence phosphorus. Figure 3 summarizes the phosphorus cycle for streams.

III SOURCES OF PHOSPHORUS FROM FORESTS

Phosphorus sources to the watershed come from dry deposition (dust), wet deposition (rain, snow, etc.), and geologic weathering. Dry and wet deposition show large variations between watersheds, years, and seasons. Research from the H.J. Andrews Experimental Forest suggests that maybe half the amount of phosphorus exported in streams is input as dry and wet deposition. About two-thirds of this atmospheric deposition occurred from precipitation.

Geology is a key factor in phosphorus loads from forests. Forest watersheds with more easily weathered rock (i.e., sedimentary or volcanic tuff and breccia) have higher in-stream phosphorus concentrations than watersheds with resistant rock (hard, intrusive igneous). This shows up clearly in the Tualatin River watershed as described below. Drainage density, often associated with geology, may also influence phosphorus concentrations.

Seasonal and stormflow changes in phosphorus concentrations differ between streams. In some streams dissolved phosphorus concentrations increase with discharge. The opposite is observed for other streams. One explanation for this difference is the relative richness of dissolved phosphorus sources between near-surface and deep seepage sources. Streams that have increases in dissolved phosphorus concentration with increasing discharge have relatively richer near-surface dissolved phosphorus concentration reservoirs. Streams that have decreases in dissolved phosphorus concentration with increasing discharge have relatively richer deep seepage sources.

The response of suspended and total phosphorus concentrations to increased discharge is varied. Increases in suspended sediment concentration are correlated to increased total phosphorus concentration.

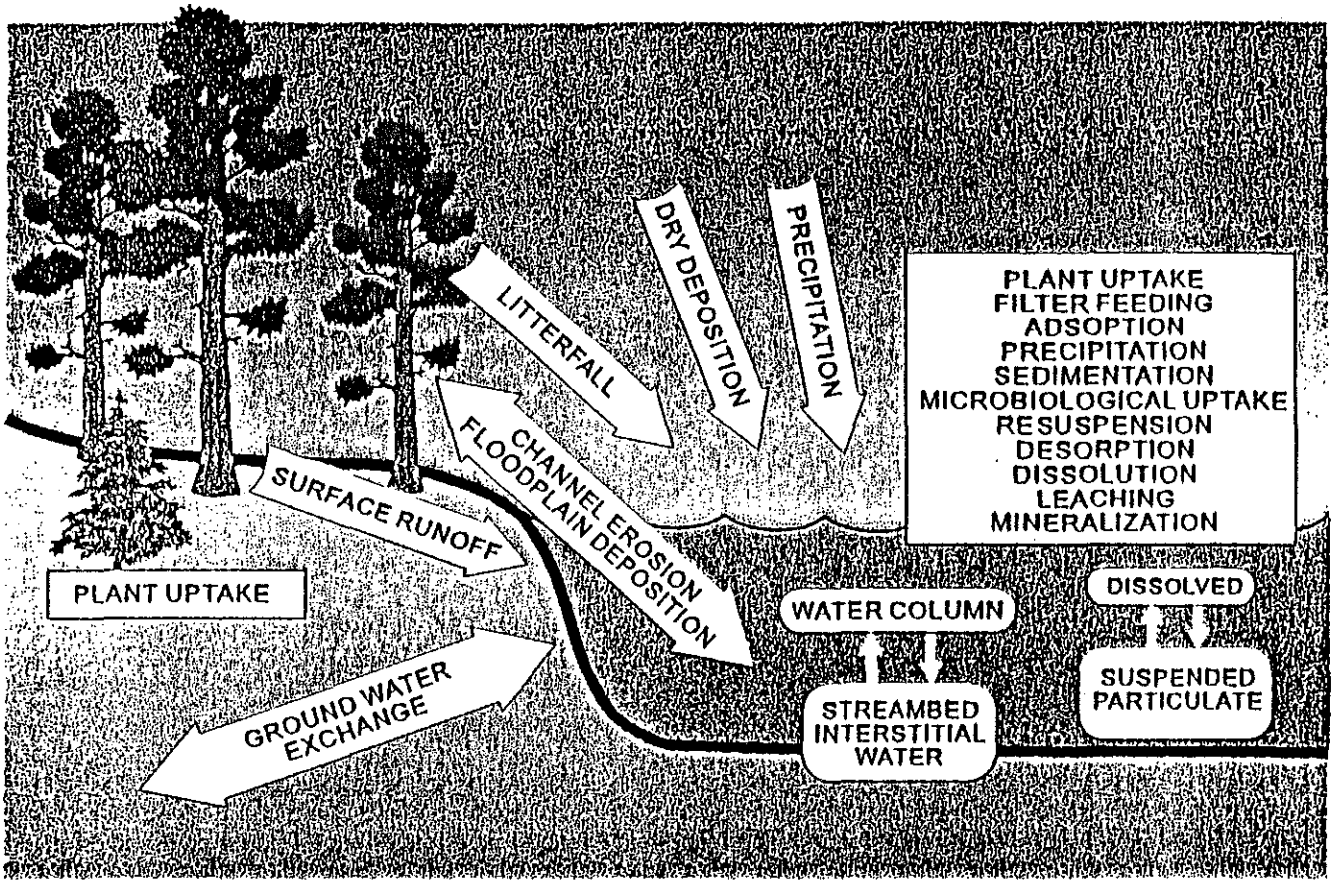


FIGURE 3 SURFACE EXCHANGE PATHWAYS OF PHOSPHORUS IN STREAM SYSTEMS (STREAM SOLUTE WORKSHOP, 1990)

IV RESEARCH ON CHANGES IN PHOSPHORUS LOADS TO STREAMS ASSOCIATED WITH FOREST MANAGEMENT ACTIVITIES

Forest Best Management Practices (BMPs) have been developed from three types of water quality information. These include:

- Process-based studies which investigate the basic hydrologic, chemical, and biological processes affecting water quality (i.e., the Brown equation for predicting stream temperature increases).

- Regional inventories and surveys which catalog widespread, generally visible processes (i.e., landslide inventories).

- Watershed studies which measure response to management using either a control watershed or upstream/downstream monitoring (e.g., Alsea Watershed Study).

There is little if any process-based research or inventory data on phosphorus specifically designed to address forest management impacts. Broad regional surveys (5) showed that the more of a watershed in forest (rather than urban or agriculture), the lower the phosphorus concentrations (See Figure 4).

Oregon has benefited from numerous small watershed studies. The Catalog of Watershed Demonstration Projects in Western States and Provinces lists over 40 watershed studies in Oregon dealing with forest or range management (1,6). While many of these watershed studies found that nitrogen concentrations in streams could be increased for a short time following disturbance, phosphorus concentrations generally were not measured or had modest if any response to management. For example:

- Alsea Watershed Study: Nitrate nitrogen increased for Needle Branch which was clearcut to the stream and intensively burned. No significant changes occurred in orthophosphate concentrations. Suspended phosphorus was not measured.

- Middle Santiam: Between 1971 to 1978, intensive harvesting in a 20,000 ha block of the Middle Santiam was monitored using upstream/downstream sampling. No significant difference was observed in mean summer phosphorus concentration between the intensively managed lower watershed and lightly managed upper watershed. Increases in phosphorus for both upper and lower sections were related to landslides.

- H.J. Andrews: The concentration of orthophosphorus was not apparently increased following logging but did increase following slash burning (pre-logging phosphorus concentrations not available). Following logging,

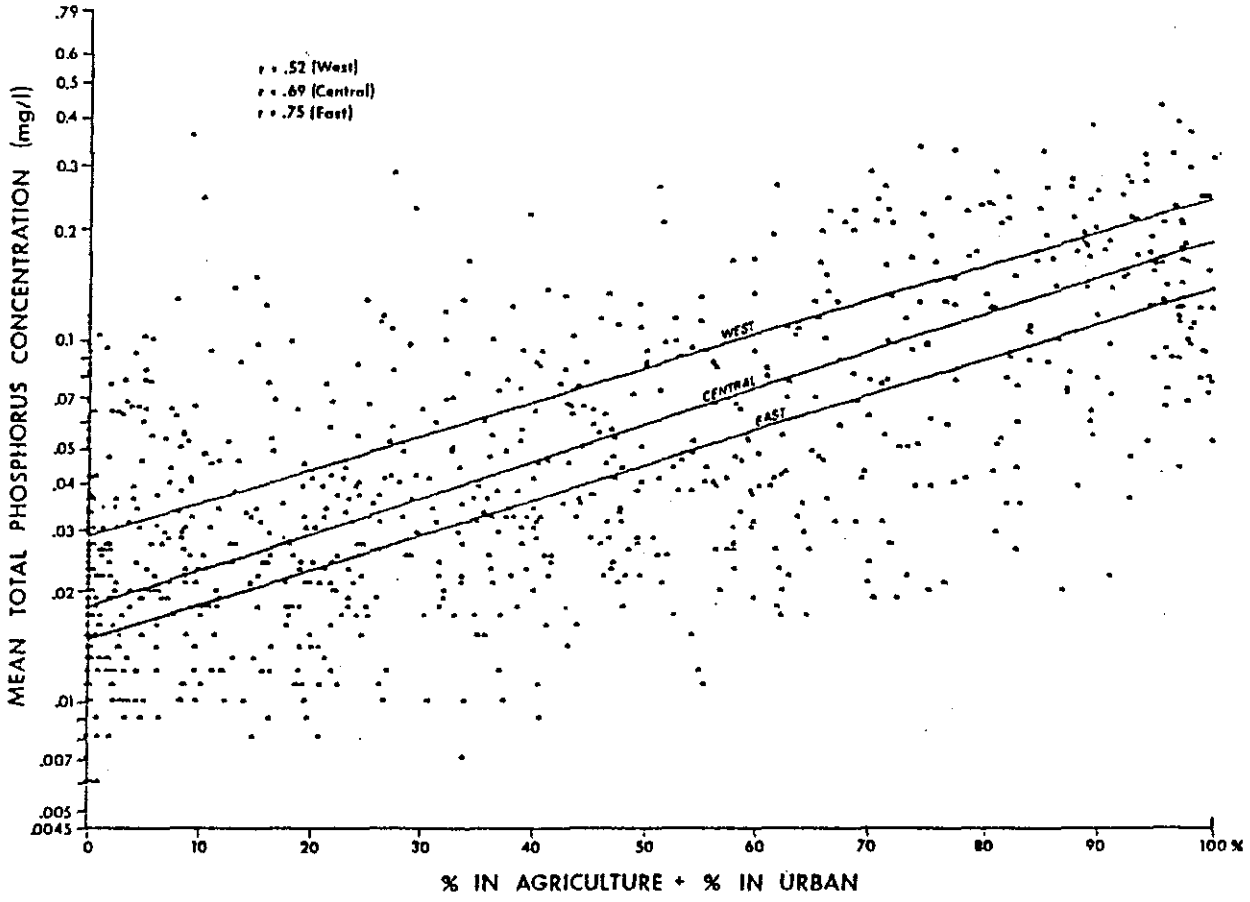


FIGURE 4 SCATTERGRAM OF "CONTRIBUTING" LAND USE TYPES RELATED TO TOTAL PHOSPHORUS CONCENTRATIONS IN STREAMS (5)

orthophosphate concentrations for the logged and control watersheds were 24 and 26 μg/L. After burning, the concentrations were 39 and 16 μg/L.

- Bull Run Watershed: No change in total dissolved phosphorus was detected for two watersheds, one that was 25 percent clearcut and the other 25 percent clearcut and broadcast burned. Monitoring in disturbed and undisturbed subbasins of the Bull Run Watershed showed no difference in phosphorus concentrations.

Based on these and other studies, the following general patterns appear.

- Fire: Wildfires and severe slash burns have been shown capable of increasing total phosphorus concentrations in streams. The pattern of response indicates that moderate fires, kept away from the riparian zone cause little or no increase of in-stream phosphorus concentrations although they may cause increases in on-site soil water concentrations. Erosion prevention practices were not described in these reports.

- Harvesting: Mechanisms for increased instream phosphorus concentrations include accelerated mineralization of organic matter, reduced plant uptake and recycling, increased runoff from the rooting zone due to decreased evapotranspiration, and erosion. Despite these hypothetical mechanisms, observed increases in phosphorus concentrations are rare without prescribed burning. Landslides can increase total phosphorus concentrations.

- Fertilization: Use of phosphorus fertilizers can cause instream phosphorus concentrations to increase but the response appears to be very small. This indicates how tightly phosphorus is conserved in forest ecosystems. Nitrogen fertilization can cause modest increases in soil water phosphorus concentrations but no research is available showing instream concentration increases.

- Site Preparation: The phosphorus supply mechanisms described for harvesting are also possible for various site preparation methods, including herbicides. There is little indication of major response to these practices if erosion is minimized.

The summary of these observations is that forest watersheds do not respond to management activities with dramatically elevated in-stream phosphorus concentrations. In many studies no changes have been observed. In other studies, any increase was temporary. Some studies have even found phosphorus concentrations decreasing in soil solutions following harvesting of mature forests (4).

V TUALATIN BASIN

Willey and LeSieur (7) describe the Tualatin River watershed's characteristics that make it prone to water quality problems.

> "...most of the time and most of the [stream] distance, the water runs slowly because of the very gradual drop in the river's elevation. In one, 24-mile stretch, the river drops only 12 in. In the summer, the Tualatin often looks and behaves more like a pond than a river. Flows in the river vary by season because it is fed by rainfall rather than snow melt. During the wet season (December through March), median stream flows range from 2000 to 3500 cu ft/sec, but during the summer and early fall, flows can drop below 50 cu ft/sec. Without reservoirs, the contrast between summer and winter flow characteristics would be even greater. Some long-time residents remember seeing the river a mere 'inch deep and a foot wide.'"

VI OREGON'S FORESTRY NPS CONTROL STRATEGY

In 1972, Oregon's Board of Forestry adopted its first NPS control BMPs, the Oregon Forest Practice rules. These rules implement the 1971 Oregon Forest Practices Act. Since then, the Forest Practices Program has responded with modified and new rules to new information about the effects of practices on water quality. In those 23 years an iterative process of BMP evolution has developed that is now comprised of these generalized steps.

- Identifying existing water quality impairment resulting from some pollutant.
- Identifying known sources of problem pollutants.
- Designing and implementing NPS control BMPs/rules to address the problem.
- Monitoring water quality to determine BMP effectiveness and identify emerging water quality impairment.
- Repeating the process as necessary to redesign BMPs to adequately control the problem pollutant.

This is a cooperative process involving interested agencies, organizations, and individuals both within and beyond the forestry community.

The Environmental Protection Agency is a major player with its responsibility for implementing the Clean Water Act and similar federal legislation. The Oregon Department of Environmental Quality (DEQ) is delegated the lead role among state agencies with water

quality responsibilities. DEQ employs the expertise and authority of other agencies as designated management agencies (DMAs) to develop and implement water quality management programs appropriate to their jurisdictions. The Oregon Department of Forestry (ODF) is the DMA for commercial state and private forest management activities. Thus ODF's Forest Practices Program, with its statute, BMPs/rules, and administrative structure is Oregon's primary NPS control program on nonfederal forest lands.

VII OREGON'S ON-SITE BMPS

In Oregon, the forest manager's on-site tools to deal with a watershed scale phosphorus problem are erosion control measures for roads and harvested areas. There is no stopping the natural supply of phosphorus from groundwater, leaf fall, and rainfall, but the entry of soil into drainageways and streams can be controlled. Oregon's forest practice BMPs are categorized by the section topics of the Forest Practice rules.

A. Roads

Roads get a great deal of attention in the forest practice rules. Road location BMPs address accommodations for natural features, particularly steep unstable slopes, streams, riparian areas, and wet areas. Road design BMPs require minimizing disturbance to existing drainages. Excavating for roads on steep slopes, minimizing road fill size, using stream crossing structures, providing road drainage systems, and disposing of end-haul materials in stable areas are key topics. Road construction BMPs stress keeping soil and debris out of waters during construction and ensuring road stability during and after the process. Road maintenance BMPs specify maintaining stable road surfaces and properly operating drainage systems on roads whether they are in active use or not. Vacated roads must be prepared for permanent drainage and soil stability.

B. Harvesting

Harvesting BMPs seek to limit the creation of compacted yarding trails that would conduct soil-bearing runoff water into streams. The practices address harvesting system selection, use of skidding equipment, landing location and stability, post-operation drainage control, and methods to maintain stability of steep slopes.

C. Slash Disposal

Slash disposal and site preparation BMPs specify that methods used maintain soil stability and protect waters from sedimentation. Treatments such as burning must be controlled to maintain vegetation in streamside areas while preparing the site for successful reforestation.

D. Water Protection

Water protection BMPs provide for riparian management area practices that specify corridors along streams. In these, activity is limited to ensure the stability of stream beds, banks, and streamside soil and vegetation. Waters, including streams, lakes, and wetlands are classified by size and beneficial use to fit riparian management area practices to their specific resource values.

E. Fertilizer Application

Chemical application BMPs include preventing direct application of fertilizers to streams, lakes, significant wetlands, or other open waters. In addition, domestic use streams are afforded a 100-foot unfertilized corridor on each side.

VIII EFFECTIVENESS MONITORING - RESULTS FROM THE TUALATIN RIVER WATERSHED

One of the Department of Forestry's first steps in dealing with the TMDLs for phosphorus was to determine possible sources from forest land. The Department and Tualatin River basin forest landowners funded a literature review by Oregon State University (1). With this background information, monitoring in the Tualatin River watershed started with three sites in 1989 and 1990. It expanded to 21 sites in 1991 and 1992. No sampling was funded in 1993. In 1994, a maintenance level of sampling was re-established using six sites that will be maintained for an extended period provided funding is available.

Sampling sites have been located to cover a cross-section of the watershed's major streams reaching the Tualatin River from predominantly forested reaches. The sites are high in the watershed to prevent confusion with effect of any other land uses in the tributaries they sample. Samples were tested for ammonia nitrogen, along with the other parameters in 1991 and 1992. That test was dropped in 1994, and tests are done for total phosphorus, soluble phosphorus, nitrate-nitrite, total suspended solids, turbidity, pH, dissolved oxygen, and temperature.

Sampling results in 1991 and 1992 produced a characteristic pattern in each stream's water that led to an investigation of the underlying geology upstream of each sample site. The outcome was an apparent correlation between the geology of a stream's watershed and total phosphorus concentrations in its water. Streams flowing through watersheds with igneous geology consistently carry lower phosphorus concentrations than streams flowing through sedimentary rock units. Figure 5 demonstrates this correlation graphically. The stream sites with higher total phosphorus concentrations are all in drainages with sedimentary geology (8). There is little precipitation during the May to October season when phosphorus is in excessive supply in the lower Tualatin. The evidence is that groundwater's interaction

with subsurface rock is a major factor in the phosphorus carried by these forested stream reaches.

In order to determine whether forest management affects phosphorus concentrations in streams, a measure of management activity levels was compared to the sampling results. The total acreage harvested during the ten years of 1980 to 1989 in the drainage above each sampling site was compiled. In Figure 6 the harvest levels in the sampled drainages are visibly random when compared to seasonal mean phosphorus concentrations at the sites arranged in order from low to high (8).

The contrast between Figures 5 and 6 is evidence that groundwater phosphorus supplies and not forest management activities are the major source of phosphorus from forested stream reaches in the watershed. It is then reasonable to conclude that current BMPs have been effective in controlling potential phosphorus contributions from forest management in the watershed.

Water samples continue to display the streams' characteristic phosphorus concentrations in the six major tributaries under long-term monitoring. The sampling program detected one abrupt rise in total phosphorus levels in the upper Tualatin River. Investigation led to a natural slide along the bank upstream as the cause. Detecting changes like this so that they can be investigated illustrates one value of long-term monitoring. It also creates a record of long-term trends in water quality.

IX SUMMARY AND CONCLUSIONS

- The concentration of phosphorus can influence biological activity in waterbodies; especially warm, exposed slow-moving streams and lakes prone to high levels of primary production by algae and other aquatic plants.
- Research and monitoring have shown little or no phosphorus response to even intensive forest management.
- Phosphorus from predominantly-forested watersheds is the lowest in the United States even when they are actively managed.
- Natural inputs such as groundwater interacting with subsurface rock formations and needle and leaf fall from riparian vegetation have been shown to contribute to phosphorus loads.
- NPS control is needed across all land uses in a watershed to restore water quality limited stream segments.

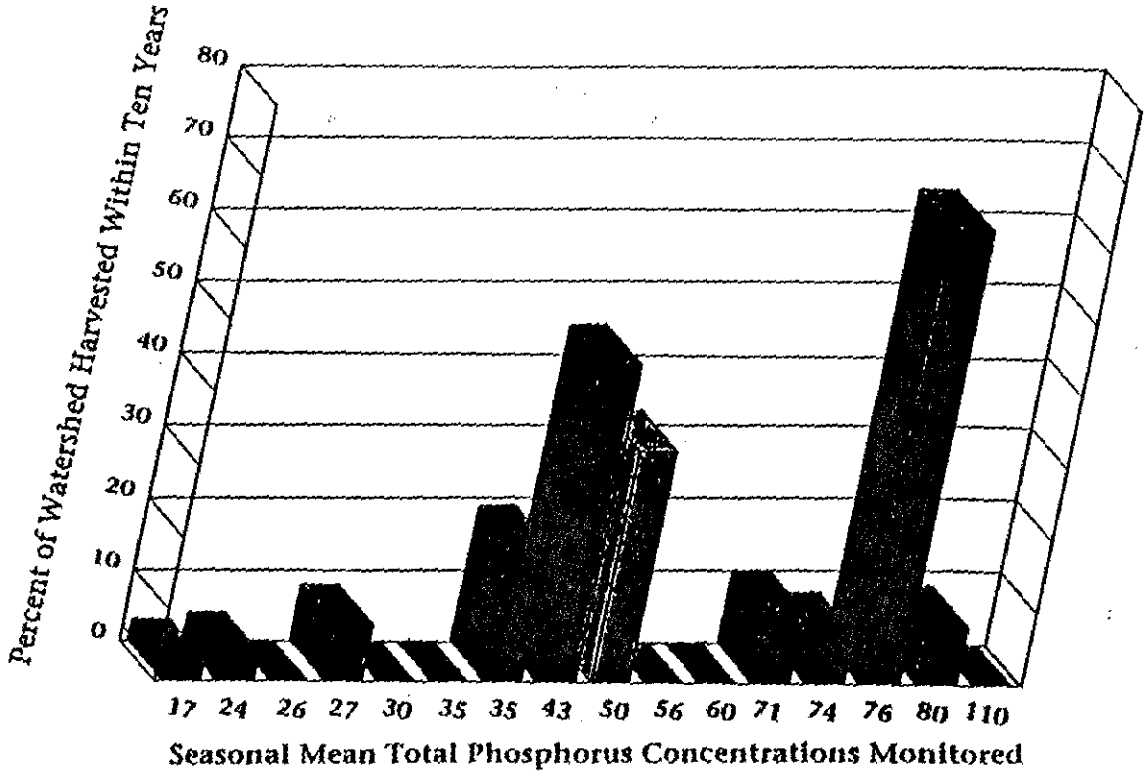


FIGURE 5 TOTAL PHOSPHORUS CONCENTRATIONS AND HARVEST HISTORY OF TUALATIN RIVER SUB-BASINS

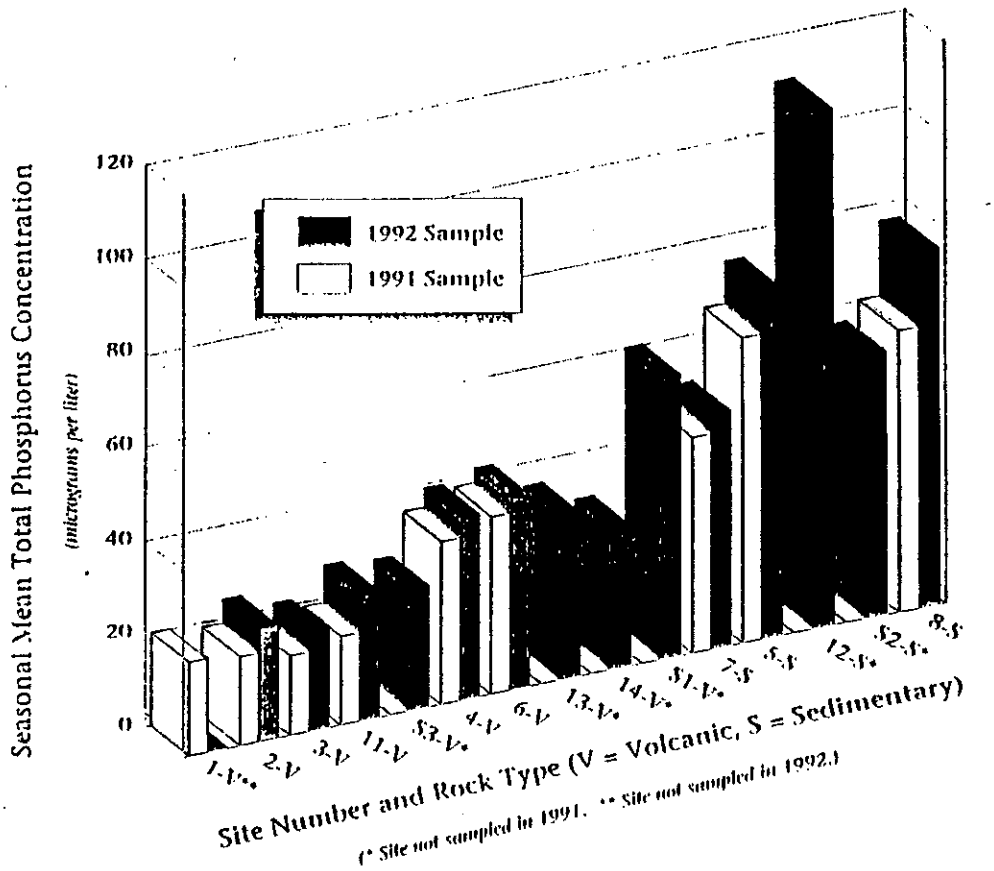


FIGURE 6 TOTAL PHOSPHORUS CONCENTRATIONS AND GEOLOGY OF TUALATIN RIVER BASIN

- Rigorous attention to on-site use of Best Management Practices (BMPs) is needed in a watershed like the Tualatin where water quality is naturally near the threshold of beneficial use impairment.

- BMPs, comprised primarily of erosion control, in a phosphorus-affected watershed like the Tualatin River, need to be aggressively implemented. The forest manager on-site has the key role in achieving forestry's contribution to the watershed's TMDL by using Oregon's rule-based BMPs. Results in the streams are the true measure of success.

- Public awareness and interagency coordination of appropriate forest land stewardship practices are as much a part of a successful strategy as on-site BMPs.

- Oregon's Forest Practices program provides for on-site BMPs, enforcement of rules, and effectiveness monitoring. The Nutrient Control Strategy adopted by the Board of Forestry provides certainty that the FPA rules will minimize phosphorus load increases associated with forest management. It also establishes a water monitoring program to ensure water quality protection goals are being met.

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Office of the Governor
State of Oregon

EXECUTIVE ORDER NO. EO 99-01

THE OREGON PLAN FOR SALMON AND WATERSHEDS

The purpose of the Oregon Plan for Salmon and Watersheds (the "Oregon Plan") as stated in the Plan and reaffirmed in this Executive Order is to restore Oregon's wild salmon and trout populations and fisheries to sustainable and productive levels that will provide substantial environmental, cultural, and economic benefits and to improve water quality. The Oregon Plan is a long-term, ongoing effort that began as a focused set of actions by state, local, tribal and private organizations and individuals in October of 1995. The Oregon Plan first addressed coho salmon on the Oregon Coast, was then broadened to include steelhead trout on the coast and in the Lower Columbia River, and is now expanding to all at-risk wild salmonids throughout the state. The Oregon Plan addresses all factors for decline of these species, including watershed conditions and fisheries, to the extent those factors can be affected by the state. The Oregon Plan was endorsed and funded by the Oregon Legislature in 1997 through Oregon Senate Bill 924 (1997 Or. Laws, ch. 7) and House Bill 3700 (1997 Or. Laws, ch. 8). The Oregon Plan is described in two principal documents: "The Oregon Plan," dated March 1997, and "The Oregon Plan for Salmon and Watersheds, Supplement I -- Steelhead," dated January 1998. As used in this Executive Order, the Oregon Plan also incorporates the Healthy Streams Partnership (Oregon Senate Bill 1010, 1993 Or. Laws, ch. 263).

The Oregon Plan is a cooperative effort of state, local, federal, tribal and private organizations and individuals. Although the Oregon Plan contains a strong foundation of protective regulations -- continuing existing regulatory programs and speeding the implementation of others -- an essential principle of the Plan is the need to move beyond prohibitions and to encourage efforts to improve conditions for salmon through non-regulatory means. Many of the most significant contributions to the Oregon Plan are private and quasi-governmental efforts to protect and restore salmon on working landscapes, including efforts by watershed councils.

Salmon and trout restoration requires action and sacrifice across the entire economic and geographic spectrum of Oregon. The commercial and sport fishing industries in Oregon have been heavily affected by complete or partial closures of fisheries. The forest industry operates under the Oregon Forest Practices Act, and has contributed substantially to salmon recovery through habitat restoration projects on private lands and by funding a large part of the state recovery efforts. The agriculture and mining industries are also taking actions that will protect and restore salmon and trout habitat and improve water quality (including financial support of restoration efforts by the mining industry). Urban areas are developing water conservation programs, spending funds for wastewater treatment improvements to reduce point source pollution, reducing non-point source pollution and reducing activities that degrade riparian areas.

All citizens of Oregon share responsibility for declining populations of wild salmon and trout, and it is important that there be both a broad commitment to reversing these historic trends and a sense that the burdens of restoration are being shared by all of society.

It is also important that there be independent scientific oversight of the Oregon Plan. This oversight is being provided by the Independent Mutidisciplinary Science Team (IMST), established under Oregon Senate Bill 924 (1997 Or. Laws, ch. 7). Additional legislative oversight for the Oregon Plan is being provided by the Joint Legislative Committee on Salmon and Stream Enhancement (the "Joint Committee").

Under the federal Endangered Species Act (ESA) the U.S. Fish & Wildlife Service (F&WS) and the National Marine Fisheries Service (NMFS) are responsible for identifying species that are threatened or endangered, and for developing programs to conserve and recover those species. F&WS and NMFS have now listed salmonids under the ESA on the entire Oregon Coast, the lower Columbia River (including most of the Portland metropolitan area), the Klamath River basin, and in the upper Columbia and Snake River basins. More listings are expected within the next year.

To date, the F&WS and NMFS generally have not had the resources to develop and implement effective recovery plans for fisheries. In addition, in many areas a large proportion of the habitat that listed salmonids depend on is located on private lands, where the regulatory tools under the ESA are relatively ill-defined and indirect. Finally, federal agencies alone, even if they take an active regulatory approach to recovery, will not restore listed salmonids. The federal ESA may work to prohibit certain actions, but there is simply too much habitat on private lands for restoration to succeed without pro-active involvement and incentives for individuals, groups, and local governments to take affirmative actions to restore habitat on working landscapes.

In April, 1997 the State of Oregon and NMFS entered into a Memorandum of Agreement (MOA) under which the State agreed to continue existing measures under the March 1997 Oregon Plan and to take certain additional actions to protect and restore coho salmon on the Oregon Coast. On May 6, 1997, NMFS determined that the Oregon Coast Evolutionarily Significant Unit (ESU) of coho salmon did not warrant listing as a threatened or endangered species under the ESA.

On June 2, 1998, the U.S. District Court for Oregon ordered NMFS to reconsider itsdecision without taking into account any parts of the Oregon Plan or MOA that are not "current enforceable measures." The U.S. District Court for Oregon also held that the MOA was speculative, due to the fact that it provided for termination by either party on thirty days notice, and that therefore the MOA could not be considered by NMFS in its listing decision.

Under court order, NMFS reconsidered its decision without taking into account the application in the future of the harvest and hatchery measures contained in the Oregon Plan, or the habitat improvement programs being undertaken under the Oregon Plan, or the commitments made by the State of Oregon in the MOA for improvement of applicable habitat measures. Accordingly, NMFS listed Oregon Coast coho as threatened under the ESA on or about October 2, 1998.

The MOA provided for the State of Oregon to take actions necessary to ensure that Oregon Coast coho did not warrant listing as a threatened or endangered species under the federal ESA. Now that Oregon Coast coho are listed as a threatened species as a result of the U.S. District Court's order, the central purpose of the MOA has been eliminated. Due to the uncertainties created by the District Court's decision and the increasing extent of salmonids listed or proposed for listing under the federal ESA, it is important that the status of the State of Oregon's substantive commitments under the MOA and the purpose of the Oregon Plan be clarified.

Through this Executive Order, the State of Oregon reaffirms its intent to play the leading role in protecting and restoring Oregon Coast coho and other salmonids through the implementation of the Oregon Plan. This Executive Order provides the framework and direction for state agencies to implement (to the extent of their authorities) the Oregon Plan in a timely and effective manner. This Executive Order also provides a framework for extending the state's efforts beyond a focus on Oregon Coast coho, to watersheds and fisheries statewide. Consistent with the principle of adaptive management, this Order applies the experience gained to date in implementing the Oregon Plan to provide additional detailed direction to state agencies. Finally, this Executive Order establishes a public involvement process to prioritize continuing efforts under the Oregon Plan.

NOW THEREFORE, IT IS HEREBY ORDERED AND DIRECTED:

(1) Overall Direction

(a) Agencies of the State of Oregon will, consistent with their authorities, fully implement the state agency efforts described in the Oregon Plan and in this Executive Order.

(b) The overall objective for state agencies under the Oregon Plan and this Executive Order is to protect and restore salmonids and to improve water quality.

(c) The Governor will, in cooperation with the Joint Committee, IMST, affected state agencies, watershed councils, and other affected local entities and persons develop and implement a process to set biological and habitat goals and objectives to protect and restore salmonids on a basin or regional basis as soon as practicable. Once these goals and objectives are established, they will be used by state agencies to evaluate their regulatory and non-

regulatory programs and measures relating to the protection and restoration of salmonids. Through this on-going evaluation, state agencies will determine any changes to their programs or measures that may be necessary to meet the biological and habitat goals and objectives. In the interim, the following objectives in subsections (d) and (e) shall apply to agencies' implementation of the Oregon Plan and this Executive Order.

(d) Actions that state agencies take, fund and/or authorize that are primarily for a purpose other than restoration of salmonids or the habitat they depend upon will, considering the anticipated duration and geographic scope of the actions:

(A) to the maximum extent practicable minimize and mitigate adverse effects of the actions on salmonids or the habitat they depend on; and

(B) not appreciably reduce the likelihood of the survival and recovery of salmonids in the wild.

(e) State agencies will take, fund and/or authorize actions that are primarily for the purpose of restoring salmonids or the habitat they depend upon, including actions implementing the Oregon Plan, with the goal of producing a conservation benefit that (if taken together with comparable and related actions by all persons and entities within the range of the species) is likely to result in sustainable population levels of salmonids in the foreseeable future, and in population levels of salmonids that provide substantial environmental, cultural and economic benefits to Oregonians in the long term.

(f) With the broadening of the Oregon Plan, prioritizing all agency actions according to coho core areas is no longer appropriate. Each state agency participating in the Oregon Plan, in consultation with ODFW and other partners involved in the implementation of the Plan and through a public involvement process, will modify their existing work programs in the Oregon Plan to prioritize agency measures to protect and restore salmonids in a timely and effective manner. The work programs will continue to identify key specific outcomes, refine and improve designations of priority areas, and establish completion dates. These modifications will be submitted to the Governor, the Joint Committee, and to the appropriate boards and commissions as soon as possible, but in no event later than June 1, 1999. Progress reports on action plans will be submitted to the Governor, the Joint Committee, and to the appropriate boards and commissions on an annual basis. In prioritizing their efforts, state agencies shall consider how to maximize conservation benefits for salmonids and the habitat they depend on within limited resources and whether their actions are likely to increase populations of salmonids in the foreseeable future.

(g) State agencies will work cooperatively with landowners, local entities and other persons taking actions to protect or restore salmonids.

(h) As the Oregon Plan grows in geographic scope and in intensity of activity, there is a growing need to streamline and prioritize state agency activity at the regional level. One proposal has been to organize state natural resource agency field operations along hydrologic units. Therefore, state agencies will consider this proposal and, through the collective efforts of state agency directors, develop an organization plan that focuses state agency field effort on the activities and areas of highest priority under the Oregon Plan.

(i) State agencies will continue to encourage and work with agencies of the U.S. government to implement the federal measures described in the Oregon Plan. In addition, the state agencies will work with the federal government to develop additional means of protecting and restoring salmonids. Where appropriate, state agencies will request that federal agencies obtain incidental take permits under Section 7 of the federal ESA for state actions that are funded or authorized by a federal agency.

(j) State agencies will help support efforts to evaluate watershed conditions, and to develop specific strategic plans to provide for flood management, water quality improvement, and salmonid restoration in basins around the state, including the Willamette basin through the Willamette Restoration Initiative.

(k) The IMST will continue to provide oversight to ensure the use of the best scientific information available as the basis for implementation of and for adaptive changes to the Oregon Plan. State agencies will ensure that the IMST receives data and other information reasonably required for its functions in a timely manner. The Governor's Natural Resources Office (GNRO) has requested that the IMST's initial priority be review of the freshwater habitat needs of coho and the relationship between population levels, escapement levels, and habitat characteristics. The GNRO also will continue to request that the IMST annually review monitoring results and identify where the Oregon Plan warrants change for scientific or technical reasons and make recommendations to the appropriate agency on those adjustments that appear necessary. Agencies will report their responses to any recommendations by the IMST to the Governor and to the Joint Committee. Any other changes identified by the IMST as necessary to achieve properly functioning riparian and aquatic habitat conditions required to protect and restore salmonids will be forwarded to the appropriate governmental entity for its consideration of the adoption of new, changed, or supplemental measures as rapidly as possible while providing for public involvement. Each state agency, by June 1, 1999, will ratify a monitoring team charter through an interagency memorandum. A draft of the charter is contained in the 1998 Oregon Plan Annual Report.

(l) Monitoring is a key element of the Oregon Plan. Each state agency will actively support the monitoring strategy described in the Oregon Plan. Each affected agency will participate on the monitoring team to coordinate activities and integrate analyses. Each agency will implement an appropriate monitoring program to assess the effectiveness of their programs and measures in meeting the objectives set forth in the Oregon Plan on an annual basis. In addition, agencies with regulatory programs that are included in the Oregon Plan will determine levels of compliance with regulatory standards and identify and act on opportunities to improve compliance levels.

(m) If information gathered regarding the effectiveness of measures in the Oregon Plan shows that existing strategies within state control are not achieving expected improvements and objectives, the agency(ies) responsible for those measures will seek appropriate changes in their regulations, policies, programs, measures and other areas of the Oregon Plan, as required to protect and restore coho and other salmonids. Such modification or supplementation will be done as rapidly as possible, consistent with public involvement.

(n) Agencies are using geographically-referenced data in their efforts under the Oregon Plan, and will be using Geographic Information Systems (GIS) in the analysis of these data. In doing so, the State GIS Plan, developed by the Oregon Geographic Information Council (OGIC) (see Executive Order 96-40) will be followed, with specific adherence to the Plan guidance on data documentation, coordination and data sharing. The agency with primary responsibility for gathering and updating the specific data will be responsible for meeting the requirements of the Plan, and to ensure coordination with OGIC, the State Service Center for GIS and other cooperating agencies. In addition, state agencies will cooperate with the Governor's Watershed Enhancement Board (GWEB), Soil and Water Conservation Districts (SWCDs), local watershed councils, landowners and others in making these essential data available.

(o) Geographically-based strategies to assess and achieve habitat needs and adequate escapement levels will be used, and the state agencies will continue with the development of standardized watershed assessment protocols, including a cumulative effects assessment. State agencies will also continue with the development of habitat restoration guides to evaluate and direct habitat restoration efforts.

(2) Continuation and Expansion of Existing Efforts. Without limiting the generality of section (1)(a) of this Executive Order, the following subsections of this Executive Order describe some of the many efforts in the Oregon Plan where the initial phase of work has been completed, and where efforts will be continued.

(a) The Oregon Fish & Wildlife Commission (OFWC), the Oregon Department of Fish & Wildlife (ODFW), and the Pacific Fishery Management Council (PFMC) are managing ocean

and terminal fisheries according to the measures set forth in the Oregon Plan (ODFW I-A.1 and III-A.1). These measures set a maximum mortality rate (resulting from other fisheries) for any of four disaggregated stocks of coho of fifteen percent (15%) under poor ocean conditions. In 1997, the mortality rate from harvest is estimated to have been between nine and eleven percent (9-11%). ODFW and OFWC will continue these measures in state waters, and will actively support continued implementation of the ocean harvest measures by the PFMC (Amendment 13 to the Council's salmon management plan) until and unless a different management regime agreeable to NMFS is adopted.

(b) The OFWC and ODFW will ensure that the fish hatchery measures set forth in the Oregon Plan are continued by the OFWC and ODFW. ODFW is marking all hatchery coho on the Oregon Coast. This marking will allow increased certainty in estimating hatchery stray rates beginning in 1999. Available data on hatchery stray rates for coho and steelhead are being provided to NMFS on an annual basis. The number of hatchery coho released is estimated to have been 1.7 million in 1998 -- substantially below the level called for in the Oregon Plan. This number will be reduced to 1.2 million in 1999. In addition, ODFW has, and will continue to provide annual reports regarding: (i) the number of juvenile hatchery coho that are released by brood year, locations and dates of release, life stage, and broodstock origin; (ii) the number of adult coho taken for broodstock for each hatchery, the location and date of collection, and the origin (hatchery or natural); (iii) the number of hatchery coho estimated to have spawned in natural habitat by basin; (iv) the estimated percentage of hatchery coho in the total natural spawning population; and (v) the mortality of naturally-spawning coho resulting from each fishery. NMFS may provide comments about hatchery programs affecting coho to ODFW, with any concerns to be resolved between NMFS and ODFW.

(c) In addition to recent modifications to hatchery practices and programs, a new vision is needed for how Oregon will utilize hatcheries in the best and most effective manner. Therefore, the ODFW and the OFWC shall engage in a process to create a strategic plan for fish hatcheries in Oregon over the next decade (including state and federally-funded hatcheries, private hatcheries, and the STEP program). The essential elements of this process are as follows: (i) Impartial analysis -- conduct an impartial analysis of the scientific bases, and the social and economic effects of Oregon hatchery programs utilizing existing analyses and review where feasible, but conducting new analyses if necessary; (ii) Review the Wild Fish Management Policy (WFMP) -- because the future plan for hatcheries in Oregon is dependent on implementation of the WFMP, ODFW shall conduct a science and stakeholder review to determine if this significant policy should be revised and shall make any revision by July 2000; (iii) Frame alternative strategies -- convene a group of stockholders to frame alternative strategies, including outcomes and descriptions, of how hatcheries will be used in Oregon over the next decade (these strategies will address the use of hatcheries for wild fish population recovery including supplementation, research and monitoring, public education, and sport and

commercial fishing opportunities); (iv) Public review and selection of a strategy -- the OFWC shall, after public review and comment, adopt a strategic plan to guide development of future hatchery programs, incorporating the strategy developed and adopted in accordance with subpart (iii) of this paragraph.

(d) Criteria and guidelines directing the design of projects that may affect fish passage have been established in a Memorandum of Understanding (MOU) between the Oregon Department of Transportation (ODOT), ODFW, the Oregon Department of Forestry (ODF), the Oregon Department of Agriculture (ODA), the Division of State Lands (DSL) and the Federal Highway Administration. These guidelines apply to the design, construction and consultations of projects affecting fish passage. Under the MOU, projects requiring regulatory approvals that follow these criteria and guidelines are expedited. Oregon agencies will continue to provide technical assistance to ensure that the criteria and guidelines are applied appropriately in restoration projects, as well as any other projects that may affect fish passage through road crossings and similar structures. ODFW will work with state agencies, local governments, and watershed councils to ensure that Oregon's standards for fish passage set forth in Exhibit A to the MOU are understood and are implemented.

(e) Fish presence, stream habitat, road and culvert surveys have been conducted for roads within ODOT jurisdiction and county roads in coastal basins, the Lower Columbia basin, the Willamette basin, and the Grande Ronde/Imnaha basins. Among the results of these surveys is the finding that culvert barriers to fish passage affect a substantial quantity of salmonid habitat. For example, surveys of county and state highways in western Oregon found over 1,200 culverts that are barriers to passage. As a result, ODOT is placing additional priority on restoring fish access. For 1998, ODOT repaired or replaced 35 culverts restoring access to 101 miles of salmonid habitat. For 1999, the Oregon Transportation Commission will be asked to fund approximately $4.0 million for culvert modification. ODOT and the Commission will continue to examine means to speed restoration of fish passage and to coordinate priorities with ODFW.

(f) Draft watershed assessment protocols have been developed and are being field tested. Beginning in 1999, SWCDs, watershed councils and others will be able to use the protocols as the basis for action plans to identify and prioritize opportunities to protect and restore salmonids. Watershed action plans have already been completed in a number of basins including the Rogue, Coos, Coquille and Grande Ronde. State agencies will work to support these watershed assessments and plans to the maximum extent practicable. Where watershed action plans have been developed under the protocols, GWEB will ensure that projects funded through the Watershed Improvement Grant Fund are consistent with watershed action plans, and other state agencies will work with SWCDs and watershed councils to ensure that activities they authorize, fund or undertake are consistent with watershed action plans to the maximum extent practicable.

(g) The State of Oregon has developed interim aquatic habitat restoration and enhancement guidelines for 1998. State agencies involved with restoration activities (ODFW, ODF, DSL, ODA, DEQ, and GWEB) will continue to develop and refine the interim guidelines for final publication in April 1999. The guidelines will be applied in restoration activities funded or authorized by state agencies. The purpose of the guidelines will be to define aquatic restoration and to identify and encourage aquatic habitat restoration techniques to restore salmonids.

(h) ODA and ODF have each entered into a Memorandum of Understanding with the Oregon Department of Environmental Quality relating to the development of Total Maximum Daily Loads (TMDLs) and Water Quality Management Area Plans (WQMAPs). ODA will adopt and implement WQMAPs (through the Healthy Streams Partnership) and ODF will review the adequacy of forest practices rules to meet water quality standards. ODF and ODA will evaluate the effectiveness of these measures in achieving water quality standards on a regular basis and implement any changes required to meet the standards.

(i) Agencies are implementing a coordinated monitoring program, as described in the Oregon Plan. This program includes technical support and standardized protocols for watershed councils, stream habitat surveys, forest practice effectiveness monitoring, water withdrawal monitoring, ambient water quality monitoring, and biotic index studies, as well as fish presence surveys and salmonid abundance and survival monitoring in selected subbasins. State agencies are also working to coordinate monitoring efforts by state, federal, and local entities, including watershed councils. State agencies will work actively to ensure that the monitoring measures in the Oregon Plan are continued.

(j) GWEB has put into place new processes for identifying and coordinating the delivery of financial and technical assistance to individuals, agencies, watershed councils and soil and water conservation districts as they implement watershed restoration projects to improve water quality and restore aquatic resources. Over $25 million has been distributed for watershed restoration projects in the last ten years. During the present (1997-99 biennium) GWEB has awarded over $12 million dollars in state and federal funds for technical assistance and watershed restoration activities to implement the Oregon Plan. GWEB and state agencies will continue to seek financial resources to be allocated by GWEB for watershed restoration activities at the local and statewide levels.

(k) State agencies will continue to encourage, support and work to provide incentives for local, tribal, and private efforts to implement the Oregon Plan. In addition, state agencies will continue to provide financial assistance to local entities for projects to protect and restore salmonids to the extent consistent with their budgetary and legal authorities, and consistent with their work programs in the Oregon Plan. To the maximum extent practicable, state agencies will

also provide technical assistance and planning tools to provide local conservation groups to assist in and target watershed restoration efforts. These efforts (during 1996 and 1997) are reported in "The Oregon Plan for Salmon and Watersheds: Watershed Restoration Inventory, 1998." Just a few of the important efforts that have been completed include:

(A) Eighty-two watershed councils have joined with forty-five Soil and Water Conservation Districts as well as private and public landowners to implement on-the-ground projects to protect and restore salmonids. During 1996 and 1997, a reported $27.4 million was spent on 1,234 watershed restoration projects on non-federal lands. Both the amount spent and the number of projects represent significant increases (of over 300 percent) over prior years. In 1996-97, watershed councils, SWCDs and other organizations and individuals completed: (i) 138 stream fencing projects, involving at least 301 miles of streambank; (ii) 196 riparian area planting projects, involving at least 111 miles of streams; and (iii) 458 instream habitat improvement projects.

(B) Private and state forest landowners are implementing key efforts under the Oregon Plan, including the road risk and remediation program (ODF-1 and 2). Under this effort in 1996 and 1997, close to 4,000 miles of roads have been surveyed to identify risks that the roads may pose to salmonid habitat. As the risks are identified, they are then prioritized for remediation following an established protocol. Already, 52 miles of forest roads have been closed, 843 miles of road repair and reconstruction projects to protect salmonid habitat have been completed, and an additional 14 miles of roads have been decommissioned or relocated. In addition, 530 culverts have been replaced, upgraded or installed for fish passage purposes, improving access to a reported 146 stream miles.

(C) Organizations working in Tillamook County have developed the Tillamook County Performance Partnership. The Partnership is implementing the Tillamook Bay National Estuary Program by addressing water quality, fisheries, floodplain management and economic development in the county. Among the actions that the Partnership has already accomplished are: (i) the closure of seven miles of degraded forest roads and the rehabilitation of 469 miles of roads to meet current standards, at a cost of $18 million; (ii) the fencing of 53 miles of streambank, and the construction of three cattle bridges and 100 alternative cattle watering sites, at a cost of $214,000; and (iii) the completion of 24 instream restoration projects and 34 barbs protecting 4,200 feet of streambank, at a cost of $1.3 million dollars.

(D) The Confederated Tribes of the Grande Ronde Community of Oregon have completed a forest management plan that establishes standards for the protection of aquatic resources that are comparable to those found in the Aquatic Conservation Strategy of the Northwest Forest Plan.

(E) A combination of funding from the Oregon Wildlife Heritage Foundation and the National Fish and Wildlife Heritage Foundation (private, non-profit organizations) is providing support for seven biologists to design restoration projects. These projects are prioritized based on stream surveys, and are carried out with the voluntary participation and support of landowners. A ten-year monitoring plan has been funded and implemented to determine project effectiveness.

(F) The Oregon Cattlemen's Association has implemented its WESt Program that is designed to help landowners better understand their watersheds and stream functions through assessments and monitoring. The WESt Program brings landowners together along stream reaches, and offers a series of workshops, conducted on a site specific basis, free of charge. The workshops include riparian ecology, setting goals and objectives, Proper Functioning Condition (PFC), data collection and monitoring. Over 25 workshops have been held, with attendance ranging from 5 to 30 landowners per workshop. The WESt Program is sponsored by the Oregon Cattlemen's Association, DEQ, Oregon State University, and GWEB.

(G) Within the Tillamook State Forest road network 1,902 culverts have been replaced or added to improve road drainage and to disconnect storm water runoff from roads reducing stream sediment impacts. Additionally, some of these culverts also improved fish passage at stream crossings. In this process, ODF has also replaced six culverts with bridges improving fish passage to approximately four miles of stream. The Tillamook State Forest in conjunction with many partners, such as the Association of Northwest Steelheaders, GWEB, Simpson Timber Company, Tillamook County, the FishAmerica Foundation, Hardrock Construction Company, the Oregon Wildlife Heritage Foundation, the F&WS, the Oregon Youth Conservation Corps, Columbia Helicopters and Terra Helicopters, has also recently completed instream placement of over 400 rootwads, trees and boulders at a cost of $300,000 for habitat enhancement.

(3) Key Agency Efforts. Continuation and completion of the following state agency efforts is critical to the success of the Oregon Plan. State agencies will make continuation or completion (as appropriate) of the following efforts a high priority.

(a) The State of Oregon and the U.S. Department of Agriculture have entered into a Conservation Reserve Enhancement Program (CREP). This cost-share program, one of the first of its kind, will be used to reduce the impacts of agricultural practices through water quality and habitat improvement. The objectives of the CREP are to: (i) provide incentives for farmers and ranchers to establish riparian buffers; (ii) protect and restore at least 4,000 miles of stream habitat by providing up to 95,000 acres of riparian buffers; (iii) restore up to 5,000 acres of wetlands that will benefit salmonids; and (iv) provide a mechanism for farmers and ranchers to comply with Oregon's Senate Bill 1010 (1993 Or. Laws, ch. 263).

(b) ODF will work with non-industrial forest landowners to administer the Stewardship Incentive Program and the Forest Resources Trust programs to protect and restore riparian and wetland areas that benefit salmonids.

(c) The Oregon Board of Forestry will determine, with the assistance of an advisory committee, to what extent changes to forest practices are needed to meet state water quality standards and to protect and restore salmonids. A substantial body of information regarding the effectiveness of current practices is being developed. This information includes: (i) the IMST report regarding the role of forest practices and forest habitat in protecting and restoring salmonids; and (ii) a series of monitoring projects that include the Storms of 1996 study, a riparian areas study, a stream temperature study, and a road drainage study. Using this information, as well as other available scientific information including scientific information from NMFS, the advisory committee will make recommendations to the Board at both site and watershed scales on threats to salmonid habitat relating to sediment, water temperature, freshwater habitat needs, roads and fish passage. Based on the advisory committee's recommendations and other scientific information, the Board will make every effort to make its determinations by June 1999. The Board may determine that the most effective means of achieving any necessary changes to forest practices is through regulatory changes, statutory changes or through other programs including programs to create incentives for forest landowners. In the event that the Board determines that legislative changes are necessary to carry out its determinations, the Board will transmit any recommendations for such changes to the Governor and to the Joint Committee at the earliest possible date.

(d) Consistent with administrative rule, and statutory and constitutional mandates for the management of state forests, ODF State Forest management plans will include an aquatic conservation strategy that has a high likelihood of protecting and restoring properly functioning aquatic habitat for salmonids on state forest lands.

(e) ODF will present to NMFS a Habitat Conservation Plan (HCP) under Section 10 of the federal ESA that includes the Clatsop and Tillamook State Forests. ODF has already completed scientific review and has public review underway for this draft HCP. The scientific and public review comments will be considered by ODF in completing the draft HCP. The draft HCP will be presented to NMFS by June 1999. An HCP for the Elliott State Forest was approved by the U.S. Fish & Wildlife Service in 1995. In October of 1997, ODF and DSL forwarded the Elliott State Forest HCP to NMFS with the request that it be reviewed to determine whether it has a high likelihood of protecting and restoring properly functioning aquatic habitat conditions on state forest lands necessary to protect and restore salmonids. Based on discussions surrounding the NMFS review, ODF and DSL will determine what revisions, if

any, are required to the Elliott HCP and/or Forest Management Plan to ensure a high likelihood of protecting and restoring properly functioning aquatic habitat for salmonids.

(f) Before the OFWC adopts and implements fishery regulations that may result in taking of coho, ODFW will provide NMFS with all available scientific information and analyses pertinent to the proposed regulation where the harvest measures are not under the jurisdiction of the PFMC, including results of the Oregon Plan monitoring and evaluation program. This information, together with the proposed regulation and supporting analysis, will be provided at least two weeks prior to the OFWC's action, to give NMFS time to review and comment on the proposed regulations.

(g) ODFW will evaluate the effects of predation on salmonids, and will work with affected federal agencies to determine whether changes to programs and law relating to predation are warranted in order to protect and restore salmonids.

(h) Under Oregon Senate Bill 1010 (1993 Or. Laws, ch. 263), ODA will adopt Agricultural Water Quality Management Area Plans (AWQMAPs) for Tier I and Tier II watersheds by the end of 2002. The AWQMAPs will be designed and implemented to meet load allocations for agriculture needed to achieve state water quality standards. In addition, ODA will work with ODFW, DEQ, GWEB, SWCDs, federal agencies and watershed councils to determine to what extent additional measures related to achieving properly functioning riparian and aquatic habitat on agricultural lands are needed to protect and restore salmonids, giving attention first to priority areas identified in the Oregon Plan. In the event ODA is unable to reach a consensus regarding such measures, ODA will ask the IMST to review areas of substantive scientific disagreement and to make recommendations to ODA regarding how they should be resolved. In the event that legislative changes are needed to implement such measures, ODA will transmit any recommendations for such changes to the Governor and to the Joint Committee at the earliest possible date. In addition, any measures identified as needed by ODA will be implemented at the earliest practicable time.

(i) ODFW will expedite its applications for instream water rights and OWRD will process such applications promptly where flow deficits are identified as adversely affecting salmonids, and where such rights are not already in place. The Oregon Water Resources Department (OWRD) and the Oregon Water Resources Commission (OWRC) will also seek to facilitate flow restoration targeted to streams identified by OWRD and ODFW as posing the most critical low-flow barriers to salmonids. In addition, where necessary, OWRD will continue to work with the Oregon State Police to provide enforcement of water use. Where illegal water uses are identified, OWRD will ensure outcomes consistent with maintenance and restoration of flows.

(j) The Oregon Environmental Quality Commission (EQC) and DEQ will evaluate and will make every effort to utilize their authorities to continue to provide additional protection to priority areas (as determined under section 1(f) of this Executive Order), including in-stream flow protection under state law, and antidegradation policy under the federal Clean Water Act (including Outstanding Resource Waters designations and high quality waters designations).

(k) DSL has proposed to adopt changes to its Essential Salmonid Habitat rules that will provide additional protection for spawning and rearing areas of anadromous salmonids. In addition, ODFW and DSL will consult with the OWRC to determine where it is necessary to administratively close priority areas (including work under General Authorizations) to fill and removal activities in order to protect salmonids. DSL, ODFW, ODF and ODA also will work together to identify means of regulating the removal of organic material (such as large woody debris) from streams where such removal would adversely affect salmonids and would not be contrary to other agency mandates.

(l) DSL will seek the advice of the IMST regarding whether gravel removal affects gravel and/or sediment budgets in a manner that adversely affects salmonids.

(m) The Department of Land Conservation and Development (DLCD), and the Land Conservation and Development Commission (LCDC) will evaluate and, to the extent feasible, speed implementation of existing Goal 5 requirements for riparian corridors.

(n) DLCD, DEQ, ODF, ODA, ODFW, and DSL and their respective boards and commissions will evaluate and implement programs to protect and restore riparian vegetation for the purposes of achieving statewide water quality standards and protecting and restoring aquatic habitat for salmonids.

(o) DLCD, with the assistance of DSL and ODFW, and in consultation with coastal cities and counties, shall review the requirements of Statewide Planning Goal 16 as they pertain to estuarine resources important to the restoration of salmonids, and shall, report its findings to LCDC for its consideration.

(p) The Oregon State Police will work to facilitate the existing cooperative relationship with the NMFS Office of Law Enforcement, as well as to maintain cooperation with other enforcement entities, in order to enhance law enforcement, public awareness and voluntary compliance related to harvest, habitat and other issues addressed in the Oregon Plan.

(q) The Oregon Parks and Recreation Department will continue to work to provide information and education to the public on salmon and steelhead needs through park programs and interpretive aids.

(r) The Oregon Marine Board will work to ensure fish friendly boating and to develop boating facilities that protect salmonids.

(s) State natural resource agencies will continue, to the extent feasible, to support watershed councils by providing technical assistance to develop watershed assessments, restoration plans and to develop watershed priorities to benefit salmonids. In addition, state natural resource agencies will work on a larger watershed scale to develop basin-wide restoration priorities.

(4) Future Modifications; Public Involvement for the Oregon Plan Generally. The GNRO will solicit public comments and input from participants in the Oregon Plan regarding whether there are refinements or changes to the Plan and/or the organizational framework for implementing the Plan that are necessary or desirable based on the experience gained over the past three years, or resulting from the widespread listings and proposed listings of salmon and trout under the federal ESA. Based on this public involvement, the GNRO will provide a report and recommendations to the Governor and the Joint Committee regarding whether modifications are necessary to the Oregon Plan in order to protect and restore coho and other salmonids.

(5) Definitions. For purposes of this Executive Order:

(a) The "Oregon Plan" means the Oregon Coastal Salmon Recovery Initiative, dated March 1997, and the Steelhead Supplement, dated January 1998. "Oregon Plan," as used in this Order, is intended to be consistent with the definition of the Oregon Coastal Salmon Recovery Initiative in Oregon Senate Bill 924 (1997 Or. Laws, ch. 7), and to include the Healthy Streams Partnership (1993 Or. Laws, ch. 263).

(b) "Protect" has the meaning given in section (1)(d) of this Executive Order.

(c) "Restore" has the meaning given in section (1)(e) of this Executive Order. Restore necessarily includes actions to manage salmonids to provide for adequate escapement levels, and actions to increase the quantity and improve the quality of properly functioning habitat upon which salmonids depend.

(d) "Coho" means native wild coho salmon found in rivers and lakes along the Oregon Coast.

(e) "Salmonids" means native wild salmon, char and trout in the State of Oregon.

(6) Effective Date; Relation to Federal ESA. This Executive Order will take effect on the date that it is filed with the Secretary of State. The State of Oregon will continue to work with NMFS to determine the appropriate relationship between the Oregon Plan and NMFS's efforts under the federal ESA.

Done at Salem, Oregon, this 8th day of January, 1999.

/S/_____
John A. Kitzhaber, M.D.
GOVERNOR

ATTEST:

/S/_____
Suzanne Townsend
DEPUTY SECRETARY OF STATE

Legal & Administrative Framework

Presentation

Regulation of Water Quality and Forest Practices

Briefing for the Oregon Board of Forestry
September 7, 2004

Ian Whitlock, Senior Assistant Attorney General
Larry Knudsen, Senior Assistant Attorney General

I. Introduction

This paper outlines the roles of the Environmental Quality Commission and Board of Forestry in protecting Oregon's water quality. The legislature has established a partnership between these bodies, and their respective Departments, to achieve the goals of federal and state law.

The Board of Forestry (Board) is charged with responsibility to "supervise all matters of forest policy and management under the jurisdiction of the state ..." ORS 526.016. Under the Forest Practices Act (FPA), the Board is given exclusive authority to adopt and enforce rules governing forest practices. ORS 527.610 to 527.770, 527.990(1) and 527.992. The Environmental Quality Commission (EQC) is responsible for establishing the policies for the operation of the Department of Environmental Quality in executing a wide variety of environmental programs, including the state's solid and hazardous waste programs, air and water pollution control programs, sewage treatment operations, and prosecution of environmental crimes. ORS 468.015; ORS chapters 465 and 466.

The regulation of forest practices on private and state lands is almost entirely a matter of state law. Although operations on forestlands may give rise to liability under such federal laws as the Endangered Species Act and the Clean Water Act, there is no federal law governing forest practices on state and private lands, and no mandate that states adopt such laws.

In contrast, the water quality programs under the EQC's jurisdiction are the product of both longstanding state statutes and more recent federal delegations of regulatory authority. With respect to the latter, the most important legislation is the Clean Water Act (CWA).[1] Congress intended the Act to be implemented by the states. However, to the extent that states fail to take necessary implementing measures, or if the Environmental Protection Agency (EPA) finds state action insufficient to protect water quality, the federal government retains ultimate authority to administer and enforce the CWA. The legislature also has established a goal of retaining state control over water quality regulation by giving the EQC broad authority to take any actions "necessary ... to implement" the CWA. ORS 468B.035(1)[2].

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[1] 33 USC § 1251-1387.

[2] That authority is shared with the Board and the Department of Agriculture for certain purposes. ORS 468B.110(2), 468B.200-468B230, 568.900-568.933.

II. Water Quality Regulation

Under Oregon law, water is a public resource and pollution of the public waters has been prohibited for many decades. Furthermore, other statutes affecting water quality must be construed so that water quality is protected and in the case of conflict, the EQC's authority is controlling. See ORS 468B.010[3].

Added on to this longstanding state authority, Congress adopted the Federal Water Pollution Control Act in 1948. The FWPCA was substantially amended, however, in 1972 and again in 1987. As amended, it is often now referred to as the Clean Water Act. Congress intended that states be delegated the principal role in administering the Act, with EPA being responsible for oversight[4]. With respect to many key provisions of the Act, EPA must step in and take over if the State fails to accept the delegation or fails to operate the delegated program properly. In other situations, if a state fails to fulfill its obligations, EPA is authorized to withhold federal funds. With respect to some provisions of the Act, citizens are also authorized to ask federal courts to require EPA to act or to impose penalties on persons who fail to comply with the Act.

The core CWA provisions relevant to this outline are:

1. States are required to adopt **Water Quality Standards**. If a state fails to adopt standards or EPA determines the standards are insufficient, EPA must adopt standards for the state. Water Quality Standards are:

    a. A determination of what the beneficial uses are or should be for each water body. This must include protection of all fisheries that are present or were present in the streams in 1974.

    b. The criteria that need to be applied to pollutants or pollution to protect the most sensitive of the designated or actual beneficial uses. These criteria ordinarily must be numeric, but narrative criteria can be used when it is not possible to develop numeric criteria.

    c. Provisions that protect existing high quality water from being degraded and prohibit new sources of pollution in waters that already fail to meet standards.

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[3] The later and more specific provisions in ORS 468B.110 and 527 control over the general statements found in ORS 468B.015, 020, and 025, and DEQ rules, but only to the extent that they are express and unambiguous.

[4] The Corps of Engineers plays a significant role in the permitting of dredged and fill material placed in "navigable waters," including wetlands, under Section 404 of the CWA. 33 USC § 1344. The State of Oregon also administers a regulatory program governing the placement and removal of fill material in waters of the state, through the Oregon Department of State Lands (DSL). *See* ORS 196.800 – 196.905 (DSL removal/fill permits).

2. Point sources are required to obtain discharge permits (known as **NPDES or Section 402 permits**) before adding pollutants to waters of the U.S.[5]

   a. Generally, any discrete conveyance, such as a pipe, a ditch, or truck, is a point source.

   b. Pollutants are broadly defined and include sediment and turbidity, and in some contexts, heat.

   c. Waters of the U.S. include all navigable rivers and lakes and the tributaries to those rivers and lakes. This includes intermittent natural and artificial ditches or streams that feed the rivers. Adjacent wetlands are also included, although the precise coverage is currently being litigated and also is the subject of draft regulations.

   d. The NPDES permits must include effluent limits. These are permit conditions that require the use of appropriate pollution control technology and conditions that prohibit discharges that would cause or contribute to a violation of water quality standards.

   e. Traditionally, most silvicultural activities, including ditches and culverts have not been treated as point sources. The regulatory status of these sources is currently the subject of litigation in federal courts.

3. Section 319 of the CWA requires states to adopt and implement **Nonpoint Source Management Programs** that ensure, to the maximum extent practicable, nonpoint source pollution does not cause or contribute to violations of water quality standards[6]. Unlike the Section 402 permit programs, states have a considerable degree of flexibility in developing and implementing such programs and EPA has only indirect authorities to enforce state compliance. Failure to secure approval of a 319 plan, or to implement identified BMPs, can result in loss of federal grant funds.[7]

4. States are also required to determine which water bodies fail to meet water quality standards. This is known as the **Section 303(d) List**[8]. A **Total Daily Maximum Load** (TMDL) must be developed for the listed water bodies[9]. The TMDL is essentially an equation wherein the state or EPA determines how much assimilative capacity exists in a water body and then allocates portions of that capacity to point sources, non-points sources, and reservations for future growth. States are required to

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5 33 USC § 1362(14) (definition); § 1311(a) (prohibition of discharges without permits).

6 33 USC § 1329.

7 The Coastal Zone Management ACT (CZMA), 16 USC §§ 1451-1465, also links federal funding to approved state management plans.

8 33 USC § 1313(c)(2)(A).

9 33 USC § 1313(d).

implement TMDL allocations. Allocations are a matter of policy, subject to the usual administrative law requirement of reasoned decisionmaking. Point source allocations are implemented directly through permits. Nonpoint source allocations are implemented through planning, non-regulatory and regulatory activities such as the Forest Practices Act, and Agricultural Water Quality Management Plans under SB 1010. If a state fails to implement a TMDL, EPA will require implementation, but since it lacks direct authority over most nonpoint sources it is required to further reduce loads given to point sources if the state fails to implement nonpoint source allocations.

III. Forest Practices Regulation

The Forest Practices Act (FPA) gives the Board authority to adopt rules governing forest practices. ORS 527.610 to 527.770, 527.990(1) and 527.992. Responsibility for enforcement falls to the State Forester and Department of Forestry. For the present discussion, the FPA's key elements can be summarized as follows:

1. Forest practice rules must encourage "economically efficient" forest practices that "ensure the continuous growing and harvesting of forest tree species" as the leading use of private forestlands. ORS 527.710(2). Consistent with the Act's general statements of policy, the rules must "provide for the overall maintenance of the following resources: (a) air quality; (b) water resources, including but not limited to sources of domestic drinking water; (c) soil productivity; and (d) fish and wildlife." ORS 527.710(2).

2. The forest practice rules include Water Protection Rules governing activities in or adjacent to water bodies, wetlands, and riparian areas. OAR 629-635-0000 to 629-660-0060. The rules are intended to serve the FPA's resource protection goals for water, fish, and wildlife:

> "The overall goal of the water protection rules is to provide resource protection during operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met.
>
> (a) The protection goal for water quality (as prescribed in ORS 527.765) is to ensure through the described forest practices that, to the maximum extent practicable, non-point source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of the water quality standards.
>
> (b) The protection goal for fish is to establish and retain vegetation consistent ... that will maintain water quality and provide aquatic habitat components and functions such as shade, large woody debris, and nutrients.

(c) The protection goal for wildlife is to establish and retain vegetation ... that will maintain water quality and habitat components ... . For wildlife species not necessarily reliant upon riparian areas, habitat in riparian management areas is also emphasized in order to capitalize on the multiple benefits of vegetation retained along waters for a variety of purposes." OAR 629-035-0100(7)(a)-(c).

3. The FPA contains important substantive limitations on new rules which directly affect forest practice standards. ORS 527.714. Rules which implement the FPA's resource-protection objectives and which would "provide new or increased standards for forest practices" must meet stringent evidentiary criteria. ORS 527.714(1)(c), (5). For example, evidence must show that existing practices are likely to cause degradation of protected resources, and the proposed rule must reflect available scientific information, relevant monitoring, and, as appropriate, adequate field evaluation at representative locations in Oregon. ORS 527.714(5)(a)-(c). Proposed rules must be drafted with precision to prevent the harm or provide the benefits for the resource requiring protection. Rules must directly relate to, and substantially advance, their underlying objective. ORS 527.714(5)(d). New rules must undergo an alternatives analysis, non-regulatory approaches must be considered, and the "least burdensome" alternative must be chosen. ORS 527.714(5)(e). The benefits to the resource achieved by the rule must be proportional to the harm cause by forest practices. ORS 527.714(5)(f). New rules must also be accompanied by a detailed economic impact analysis. ORS 527.714(7).

4. Subject to ORS 527.765 and 527.770 (the BMP provisions discussed below), forest operations must comply with EQC rules and standards relating to air and water pollution control, and violations are subject to DEQ and EQC regulations and sanctions. ORS 527.724.

IV. Relationship Between the Commission and Board

The legislature has given the Commission primary responsibility for complying with the mandates of the federal CWA[10] and has given the Board exclusive responsibility for regulating forest practices. However, the potential for regulatory conflict or overlap arises from the fact that forest operations can affect whether a water body meets water quality standards. The legislature has dealt with this issue by exempting forest practices from certain aspects of the EQC's jurisdiction, providing the Board with limited water quality regulatory authority, and providing each body with a process to request that the other consider its concerns.

1. Forestry exemption from effluent limitations. Although the EQC has full authority to use TMDLs and related load allocations to protect water quality standards (ORS 468B.110(1)), that authority is limited in the following manner:

"Unless required to do so by the provisions of the [CWA], neither the [EQC nor the DEQ] shall promulgate or enforce any effluent

[10] As noted above, this authority is shared with the Department of Agriculture for certain purposes. *See* footnote 3.

> limitation upon nonpoint source discharges of pollutants resulting from forest operations on forestlands in this state. Implementation of any limitations or controls applying to nonpoint source discharges or pollutants resulting from forest operations are subject to ORS 527.765 and 527.770. ..." ORS 468B.110(2).

This exemption withdraws "forest operations on forestlands" from EQC's regulatory jurisdiction (at least as far as "effluent limitations," "limitations" or "controls" are concerned) and places jurisdiction in the Board's hands, through the best management practice provisions of ORS 527.765 and 527.770.

The precise meaning of ORS 468B.110(2) has not been explored by the courts and it contains several ambiguities. Technically it prohibits the EQC and DEQ from imposing "effluent limitations" on nonpoint source forest operations. The term is not defined in state law, but under federal law an effluent limitation is a condition imposed on a NPDES permit to require use of specified technology or ensure compliance with water quality standards. We therefore assume that the legislature meant something more, particularly in light of the broader terms "limitations or controls" used in the second sentence.

2. *Best Management Practices.* As a substitute for EQC "limitations or controls," the legislature directed the Board to adopt best management practices (BMPs), i.e. "forest practices rules adopted to prevent or reduce pollution of waters of the state." ORS 527.765(1).

> "The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state."

3. BMP enforcement shield. The FPA provides that forest operations conducted in accordance with BMPs "shall not be considered in violation of any water quality standards." ORS 527.770.

4. Enforcement savings clause. The forestry exemption, BMP rules, and BMP shield, are narrowly drawn. Apart from these provisions, the EQC retains full enforcement authority:

> "Subject to ORS 527.765 and 527.770, any forest operations on forestlands within this state shall be conducted in full compliance with the rules and standards of the Environmental Quality Commission relating to air and water pollution control. In addition to all other remedies provided by law, any violation of those rules or standards shall be subject to all remedies and sanctions available

under statute or rule to the Department of Environmental Quality or the Environmental Quality Commission." ORS 527.724.

V. Cooperation and Collaboration

We have described how the legislature has divided responsibility for water quality regulation between the EQC and Board. Despite the relative clarity of this division, possibility of conflict remains because the agencies might disagree over the appropriate level of regulation. (In this connection, "the agencies" includes the federal EPA, which has ultimate authority under the CWA with respect to water quality standards and TMDLs and the authority to cut off federal funds if it determines that the state does not have an adequate nonpoint source management plan.) The EQC might believe that the Board has not appropriately applied its BMP authority (ORS 527.765); conversely, the Board might take issue with the EQC's water quality standards as they affect forest operations (ORS 468B.105). The legislature anticipated disagreement and created cooperative mechanisms for the review of water quality rules governing forest operations.

The scope of potential disagreement includes BMPs established under ORS 527.765 and WQSs and TMDLs adopted under ORS Chapter 468B. As noted above, significant portions of EQC's water quality program are subject to EPA oversight, including WQSs and TMDLs. By the terms of the forestry exemption, the EQC is prevented from imposing effluent limitations, but not if the EQC is "required to do so by the provisions of the [CWA]." ORS 468B.110(2). As a consequence, some water quality disputes implicate the EPA as well as the Board and EQC.

The legislature has established reciprocal processes by which the Board and EQC may bring disagreement over water quality standards and BMPs to each other's attention. Under ORS 468B.105, upon the Board's request, the EQC "shall review any water quality standard that affects direct operations on forestlands." Conversely, under ORS 527.765, the EQC may petition the Board to review BMPs.

ORS 527.765 requires the Board to adopt BMPs and other rules "as necessary to insure that to the maximum extent practicable nonpoint source discharges ... do not impair the achievement and maintenance of water quality standards established by the [EQC]." When developing BMPs, the Board must consider five factors, among others:

(a) Beneficial uses of waters potentially impacted;

(b) The effects of past forest practices on beneficial uses of water;

(c) Appropriate practices employed by other forest managers;

(d) Technical, economic and institutional feasibility; and

(e) Natural variations in geomorphology and hydrology.

In addition to these factors, the Board applies the FPA's strict rule-setting standards, found in ORS 527.714. ORS 527.710(2), 527.714(1)(c). The Board must also consult with the EQC in adopting and reviewing BMPs and other rules to address nonpoint source pollution. ORS 527.765(2).

Special procedures govern review of existing BMPs. The Board is required to consider petitions seeking review of BMPs, so long as the petitions meet certain minimum criteria. ORS 527.765(3)(a). Having initiated review, the Board *must* dismiss a petition if it finds "that forest operations being conducted in accordance with the best management practices are neither significantly responsible for particular water quality standards not being met nor are a significant contributor to violations of such standards." ORS 527.765(3)(b). Dismissal must be by an order that includes findings regarding allegations in the petition, and the Board's reasons and conclusions. ORS 527.765(3)(d). If the EQC is the entity petitioning for review, the Board has two options: terminate review with the EQC concurrence, or begin rulemaking. ORS 527.765(3)(c).

If the Board determines that BMPs should be reviewed, rulemaking must begin. "Rules specifying the revised best management practices must be adopted not later than two years from the filing date of the petition for review, unless the board, with concurrence of the [EQC], finds that special circumstances require additional time." ORS 527.765(3)(e). Upon EQC's request, the Board is required to take interim action "to prevent significant damage to beneficial uses" while the BMPs are being reviewed. ORS 527.756(3)(f).

It is apparent from the structure of the BMP and WQS adoption and revision process that the legislature has given the matter considerable thought. With respect to WQSs, the process anticipates dialog between the Board and EQC. With respect to BMPs, the process anticipates significant public involvement in Board decision making. Interested parties have a specific burden of proof, and the Board must justify a decision not to revise a BMP in a manner unlike routine petitions for rulemaking under the Administrative Procedures Act.[11] *Compare* ORS 183.390. The EQC is given a special role in each stage of the process. Finally, the legislature included a disincentive to discourage Board inaction: the "BMP shield" is lost if the Board fails to complete BMP revisions, or make a finding that revisions are not required, within the statutory deadline. ORS 527.770. In sum, although the legislature has not mandated agreement between EQC and the Board on all aspects of water quality regulation, it has provided the agencies with a process and incentives to reach agreement.

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[11] As noted above, a decision to revise a BMP is also subject to specific statutory criteria. ORS 527.714, 527.765(1).

Legal & Administrative Framework

Background Material

DEQ's Mission: To be an active leader in restoring, enhancing, and maintaining the quality of Oregon's air, water, and land.

Water Quality Standards

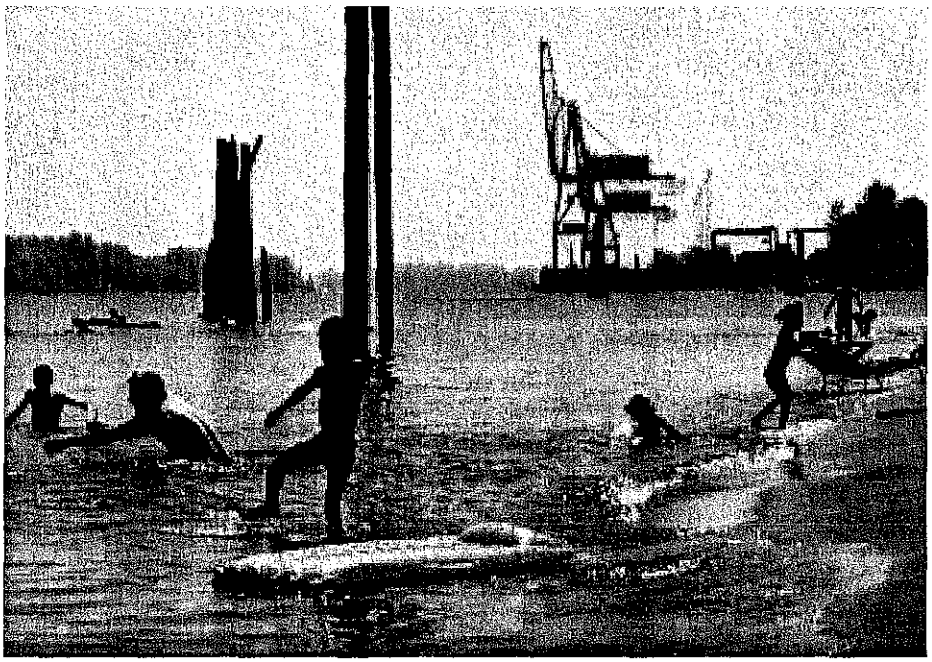


Photo courtesy of Port of Portland

Water. If there is one thing all Oregonians agree on, it's that water is one of our most precious natural resources. In fact, with over 100,000 miles of streams and rivers, 360 miles of coastline and some of the cleanest lakes and reservoirs in the world, you could say that water defines Oregon. Our rivers, streams and lakes not only provide great natural beauty, they supply the water necessary for drinking, recreation, industry, agriculture and aquatic life.

"DEQ scientists monitor hundreds of rivers, streams, lakes, groundwater areas and estuaries in Oregon."

Why we need water quality standards

Standards are the benchmarks we use to know if we're doing our job to protect Oregon's water. When a river or stream meets the standards, the activities the water is used for are protected. Standards tell us if we can allow more growth (and the water pollution that comes with growth) in a given area and still maintain safe, healthy, aesthetically pleasing waters.

The elements of water quality standards

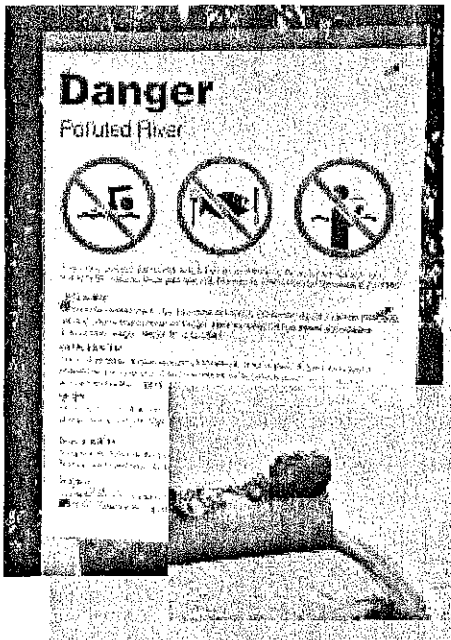
The first element identifies the existing or potential uses of the water. This might include supporting activities like recreation, fishing, and irrigation. The second element identifies specific benchmarks that describe the quality of water needed to be able to use the water for those purposes. These guidelines can be either narrative or numeric. Narrative guidelines describe what Oregon's waters will be "free from", like oil and scum, color and odor, and other substances that can harm people and fish. Numeric guidelines assign numbers that represent limits and/or ranges of chemical concentrations, like oxygen, or physical conditions like water temperature.

A denuded stream bank makes water quality vulnerable to increases in stream turbidity and temperature as well as excessive erosion and runoff.

Adequate stream side vegetation plays a vital role protecting water quality. It provides shade, stablizes banks preventing erosion and filters runoff, which can contain a wide variety of pollutants like fertilizers, sediment and toxic chemicals.

A water body often has to support several uses, including cold-water fish like salmon and trout, industrial processes and agriculture. Federal law requires that DEQ protect the most *sensitive* of these uses. So while exceeding the temperature standard might have little impact on industry or agriculture, salmon and trout are profoundly affected by water temperature and must still be protected.

Water quality standards are not established to protect against detrimental effects of all water pollution 100% of the time - a



When it rains - even just a little - combined sewer overflows, or CSOs, carry untreated human wastes and storm water runoff directly into the river. DEQ has water quality standards that limit how much ***fecal coliform bacteria*** *can be present in water. When bacteria are from human sources, such as sewage, there is a particular concern from a human health standpoint.*

Photos courtesy of City of Portland, Bureau of Environmental Services

certain level of risk is allowed. For example, standards for human carcinogens in water – things like arsenic and PCBs – are set using a risk estimate of 1 in one million.

How are water quality standards established?

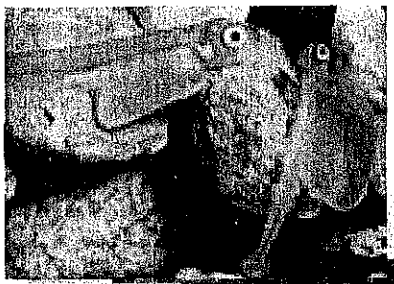
The most important thing DEQ does is look at all of the information available from scientists in Oregon, at EPA, and across the nation. All of the written scientific information is reviewed. Additional studies are completed if necessary.

This information is taken to a technical/scientific advisory committee. This committee is made up of experts from universities, industry, state and federal agencies, Indian tribes and environmental groups. The technical group typically develops a range of possible standards which is forwarded to a second group, a policy advisory committee, which reviews the alternatives and selects one. The Oregon Environmental Quality Commission actually adopts the standards, after extensive public review.

DEQ examines its standards every three years to make sure they are up to date scientifically.

Although a certain amount of ***algae*** *is essential in a healthy aquatic ecosystem, too much is a problem. Algal blooms (excessive amounts of algae) are commonly caused by fertilizers entering streams from agriculture and urban sources like lawns and gardens. Algal blooms can turn water green and murky and can increase the pH, causing eye irritation in humans. When blooms die off, the bacteria that consumes the dead algae can severely deplete oxygen in the water, harming fish and other aquatic organisms.*

Photo courtesy of Oregon Department of Fish and Wildlife



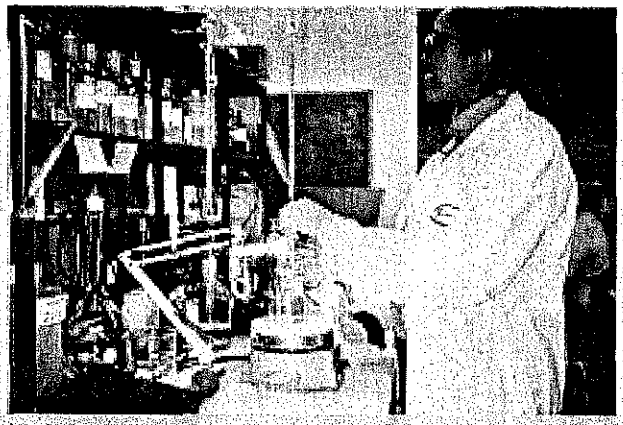
The ***temperature standard*** *protects Oregon's native "cold-water" species like salmon, trout, and amphibians. When water temperature becomes too high, cold-water species suffer a variety of ill effects ranging from decreased spawning success to death.*

Turbidity *is caused by fine particles of soil, clay and sand being carried into lakes, streams and rivers by stormwater runoff. Excessive turbidity can clog the gills of fish, promote excessive algae growth, and reduce oxygen in water. It also fills in gravel beds, destroying salmon spawning habitat.*

Photos courtesy of Oregon Department of Fish and Wildlife

How are water quality standards measured and applied?

DEQ scientists monitor hundreds of rivers, streams, lakes, groundwater areas and estuaries in Oregon. The monitoring process involves many techniques ranging from on-the-spot measurement of things like pH and alkalinity to taking water samples for later laboratory analysis for things like heavy metals or bacteria. DEQ also has computerized equipment that continuously monitors and records conditions including temperature and oxygen in a stream over a period of days, weeks or months. All data is reviewed for precision and accuracy using strict, scientifically sound protocols and EPA approved quality assurance methods. A report is prepared every two years showing which waters in Oregon don't meet standards.



All data is reviewed for precision and accuracy using strict, scientifically sound protocols.

Water Quality Standards

- Serve as benchmarks to protect human and aquatic health
- Indicate condition of a given water body
- Protect the most sensitive of multiple uses
- Serve as planning tools for setting water quality goals
- Estimate a certain level of risk from pollution

For more information contact:

DEQ Water Quality Division
811 SW Sixth Avenue
Portland, Oregon 97204-1390
(503) 229-5279 or (800) 452-4011
www.deq.state.or.us
www.epa.gov

DEQ is a partner in the Oregon Plan for Salmon and Watersheds.

Fact Sheet

Improving Water Quality: TMDLs in Oregon

Background

Oregon's rivers, streams and lakes are a valuable resource for the State. Not only do they provide great natural beauty to Oregon, but they also supply the water necessary for drinking water, aquatic life, recreation, industry, and agriculture. With these demands in mind, the Oregon Department of Environmental Quality (DEQ) uses a comprehensive approach to maintaining and improving water quality.

Using a comprehensive approach

Water quality problems in Oregon's waterways are nothing new. In 1938, the State Sanitary Authority (now known as the DEQ) was created to clean up pollution in the Willamette River with a focus on regulating end-of-pipe or "point source" discharges from cities and industry. This focus continued with passage of the federal Clean Water Act in 1972. During the last 25 years, as point source discharges have been regulated, it became more evident that there are other sources of pollution other than from pipes. These "nonpoint" sources come from diffuse runoff and habitat destruction, and originate both in urban and rural areas.

Water quality improvement now requires a comprehensive watershed approach to solving pollution problems. This reflects the cumulative effect any activity in a watershed has on overall water quality. To solve water quality problems in a stream, river, lake or estuary, we need to consider the cumulative impact from all upstream sources including groundwater.

Total Maximum Daily Loads (TMDLs)

Under this new comprehensive strategy to addressing water quality problems, DEQ looks at the water quality of the entire river and watershed rather than whether or not a specific discharge meets its permit requirements. DEQ calculates pollution load limits, known as **Total Maximum Daily Loads (TMDLs),** for each pollutant entering a body of water. TMDLs describe the amount of each pollutant a waterway can receive and still not violate water quality standards. TMDLs take into account the pollution from all sources, including discharges from industry and sewage treatment facilities; runoff from farms, forests and urban areas; and natural sources such as decaying organic matter or nutrients in soil. TMDLs include a safety margin for uncertainty and growth that allows for future discharges to a river or stream without exceeding water quality standards.

In the past, rivers and streams may have had several different TMDLs, each one determining the limit for a different pollutant. With its new comprehensive approach, DEQ takes into account all pollutants entering a waterbody and develops TMDLs that will control all pollutants in a particular geographic area, such as a watershed or sub-basin.

The process for establishing a plan to improve water quality begins when the waterbody appears on DEQ's 303(d) list, which lists waterbodies that do not meet water quality standards.

Developing water quality plans

Federal law requires that streams, rivers, lakes and estuaries that appear on the 303(d) list be managed to meet state water quality standards. In most cases, rivers and streams receive discharges from both point and nonpoint sources of pollution.

DEQ's comprehensive watershed approach for protecting water quality includes developing TMDLs for both point and nonpoint sources. DEQ is committed to having federally approved TMDLs on all waterbodies listed on the 1998 303(d) list by the end of the year 2007. This time frame takes into account the urgency to save declining salmon runs, the desire of landowners to begin working on restoration efforts, and the desire of communities to safeguard their drinking water sources.

Sediment from eroding banks is carried downstream and can impact fish habitat and agriculture.

State of Oregon
Department of Environmental Quality

Water Quality Division
Watershed Management Section
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-6345
(800) 452-4011
Fax: (503) 229-6037
Contact: Greg Aldrich
www.deq.state.or.us

Last Updated: January 2003
By: Dianne Eaton

When **establishing TMDL limits**, DEQ:

- Reviews existing data and monitors to determine what pollutant is causing water quality problems and in what amounts it is entering the water. The review and monitoring also attempts to determine how much of the pollution comes from point sources, nonpoint pollution, such as surface runoff, and how much is naturally occurring.
- Uses techniques such as computer modeling to determine what affect the pollution is having on the stream or river, and how much of the pollutant can be discharged without exceeding water quality standards in the watershed.
- Uses this information to establish permit limits on the amount of pollutant each pipe can discharge and limits on nonpoint sources that are controlled through various water quality management plans.

This comprehensive approach focuses on watershed plans developed locally.

How plans are developed

Management plans to restore streams and rivers to water quality standards will be developed by government agencies in cooperation with landowners.

- If the land adjacent to a waterbody is agricultural, then the Oregon Department of Agriculture would work with the landowners in the watershed to devise and implement a management plan (as stipulated by Senate Bill 1010).
- If the land is private or state forest, then the Oregon Department of Forestry implements the Forest Practices Act.
- Federal agencies (such the U.S. Forest Service or the Bureau of Land Management) would have responsibility to develop watershed management plans for federal lands.
- In urban and rural areas not covered by other state or federal agencies, cities and counties would develop management plans, working closely with local watershed councils.

These plans are sent to DEQ for inclusion in an overall water quality management plan, which DEQ then submits to the U.S. Environmental Protection Agency (EPA) along with the TMDL. EPA has the responsibility for approving the TMDL.

Not all basins will have TMDLs developed at once. DEQ has prioritized the order for allocating resources to develop TMDLs through the year 2007.

Protecting our future

Through careful planning and through such approaches as the Total Maximum Daily Load, we can not only address pollution today but also maintain the quality of Oregon's waterways for the future.

For more information about TMDLs, or about how you can help prevent water pollution, write the Oregon Department of Environmental Quality, Water Quality Division, 811 SW Sixth Ave., Portland, OR, 97204. You may also contact Greg Aldrich, Watershed Management Section Manager, at (503) 229-6345.

Further information on TMDLs and other programs can be found at DEQ's Web site at www.deq.state.or.us

This document is available in an alternative format (e.g. large type or Braille) by calling DEQ's Office of Communications & Outreach at (503) 229-5766 or (toll-free within Oregon) 1-800-452-4011. People with hearing impairments may call DEQ's TTY line at (503) 229-6993.

Riparian shade is an important component for maintaining cool stream temperatures.

Fact Sheet

The 2002 303(d) List of Impaired Waters in Oregon

State of Oregon
Department of Environmental Quality

Water Quality Program Policy and Project Assistance
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-6804
(800) 452-4011
Fax: (503) 229-6037
Contact: Marilyn Fonseca
www.deq.state.or.us

The Clean Water Act and the "303(d)" List

The Oregon Department of Environmental Quality (DEQ) has the responsibility for developing water quality standards that protect *beneficial uses* of rivers, streams, lakes and estuaries. Beneficial uses include drinking water, cold water fisheries, industrial water supply, recreation and agricultural uses. Once standards are established, the state monitors water quality and reviews available data and information to determine if these standards are being met and water is protected.

Section 303(d) of the federal Clean Water Act requires each state to develop a list of water bodies that do not meet standards, and to submit this list to the U.S. Environmental Protection Agency (EPA) every two years. The "303(d) list" provides a way for Oregonians to identify and prioritize water quality problems. The list also serves as a guide for developing and implementing watershed pollution reduction plans to achieve water quality standards and protect beneficial uses.

Gathering the 2002 data

DEQ recently completed the 2002 303(d) list. Beginning in July 2001, DEQ requested data indicating whether Oregon's surface water is exceeding water quality standards. The 303(d) list includes data submitted by individuals, organizations and government agencies as well as DEQ's own monitoring data. DEQ developed a draft list and presented the list for public comment from Aug. 5 through Nov. 1, 2002. All public comments were reviewed and a final list was developed. The final list is accompanied by a list of priorities that target resources for correcting water quality problems.

The 2002 303(d) List

The 2002 303(d) list includes more than 13,300 stream miles that are listed for at least one water quality pollutant. Exceedances of temperature and bacteria are the most prevalent, followed by dissolved oxygen. The 1998 303(d) list included more than 13,700 stream miles that were listed for at least one pollutant. About 5,000 miles have been added since the 1998 303(d) list for at least one pollutant.

Since 1998, DEQ has "de-listed" or removed more than 6,000 miles for at least one pollutant. Water bodies are de-listed because:

- EPA has approved water quality management plans and Total Maximum Daily Load (TMDL) determinations for listed segments of rivers and streams. TMDLs outline how much pollution a water body can safely handle to support beneficial uses.
- New data indicates the water body meets water quality standards.
- The assessment methodology has changed since the previous 303(d) list.

DEQ, since 1998, has completed TMDLs for several major basins as well as for the Columbia River and Grande Ronde River. New listings will be incorporated into TMDLs being developed in 2003 or later. By 2004, DEQ will complete TMDLs in more than 40 additional basins, including the North Coast and Rogue River basin.

Streams and rivers are not placed on the 303(d) list until sufficient data are available that indicate an exceedance of *water quality standards* has occurred. Currently, DEQ does not have information on all Oregon water bodies due to insufficient data and/or the quality of the data. Those waters lacking information are not included on the 303 (d) list. Streams and rivers with suspected problems are identified as "Water Bodies of Potential Concern."

DEQ anticipates EPA approval of the 2002 303 (d) list 30 to 60 days after submission.

For more information

For more information on the 303(d) list, contact Marilyn Fonseca, Portland, at (503) 229-6804 or via e-mail at: fonseca.marilyn@deq.state.or.us.

The complete 2002 303 (d) list of impaired water bodies in Oregon is available by accessing DEQ's Web site at:
http://www.deq.state.or.us/wq/303dlist/303dpage.htm

Alternative formats

Alternative formats (such as Braille or large type) of this document can be made available by contacting DEQ's Office of Communications & Outreach, Portland, at (503) 229-5317.

Last updated: 2/7/03
By: M. Fonseca

Fact Sheet

DEQ's Temperature Standards

State of Oregon
Department of Environmental Quality

Water Quality
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5696
(800) 452-4011
Fax: (503) 229-5850
www.deq.state.or.us

Why Is Water temperature Considered So Important?

Water temperature has a profound effect on organisms that live or reproduce in the water. This is particularly true of Oregon's native "cold-water" fish such as salmon, Bull Trout, Steelhead and some amphibians (frogs and salamanders). When water temperature becomes too high, salmon and trout suffer a variety of ill effects ranging from decreased spawning success to death. For these reasons it is important to protect the state's water from unnecessary warming.

How Did Oregon Develop The Water Temperature Standards?

DEQ protects water quality by establishing standards to protect beneficial uses such recreation, aquatic life, fisheries, irrigation, and drinking water. While there may be competing beneficial uses in a river or stream, federal law requires DEQ to protect the most sensitive of these beneficial uses. The temperature standard is designed to protect cold water fish such as salmon and trout.

The temperature "standard" is a very flexible and important set of criteria. There is no one number that dictates how the temperature issue will be applied on every single stream or river. The goal of the criterion is to protect fish and aquatic life.

Specifically, it's based on a scientific analysis of the needs of cold-water aquatic species. The standard sets a criterion at 64 degrees unless there is cold-water fish spawning or bull trout habitat. These special habitat areas have standards of 55 degrees and 50 degrees respectively. In the lower Columbia and Willamette rivers it is set at 68 degrees.

DEQ's previous temperature standard was very rigid. To develop a new standard that offered more flexibility DEQ formed a committee of scientific experts from Oregon State University, industry, tribes, and state agency scientists from the Oregon departments of Agriculture, Forestry and Fish and Wildlife to develop a better standard. This group studied the temperature issue for more than a year before making its recommendations to DEQ.

DEQ incorporated the recommendations into a proposed rule that addressed all reviewed standards options, and then held a public comment period with a series of public workshops and hearings to solicit suggestions and comments prior to submitting it to the Environmental Quality Commission (EQC) for adoption. After the EQC adopted the rule, it was sent to the U.S. Environmental Protection Agency (EPA) for approval.

How Can The Same Standard Be Applied Statewide When Temperatures Naturally Vary Across The State?

The temperature standard is designed to protect cold-water aquatic species such as trout and salmon throughout their lifecycles. These needs are the same regardless of where the fish live. Scientific evidence has shown that these species have existed in all 19 basins of the state, and that they begin to show negative physiological effects beginning at about 58 degrees Fahrenheit. Based on this requirement there is no reason for setting separate standards based on geography or climate.

How Will Stream Temperature Be Measured To See If It Meets Standards?

To get stream temperature information, continuous recording temperature sensors are placed at well mixed water locations in streams during the seasons when maximum temperatures are expected. The monitoring locations must be representative of the waterbody, have presence or passage of salmon, trout or other fish species, and be accessible. Quality assurance requires calibration and periodic auditing of sensors. People overseeing the monitors download from the sensors to a portable computer, then format and send to an electronic database used to determine instream compliance with the temperature standards.

Determining whether the stream temperature is above or below the temperature standard is based on the average of the maximum daily water temperatures for the stream's warmest, consecutive seven-day period during the year. A one time measurement above the standard will NOT be considered a violation of the standard. When stream flow is exceptionally low or air temperature is exceptionally high the emperature standard is waived (an example is when the

Last Updated: 10/02/00

flow is less than the expected ten year low flow or the air temperature is above the 90th percentile of a seven day average).

Are There Exceptions To The Standard When The Weather Is Unusually Hot?

Yes. If stream temperatures are above the standard during a time when the air temperatures are exceptionally hot, it is not considered a violation. Exceptionally hot air temperatures are measured against the average maximum temperature that would be expected to occur over a seven-day period once every ten years. Water temperature information collected on these hot days aren't used for 303(d) listing purposes even if they exceed the standard.

Doesn't The Sun On Hot Summer Days Make Streams Naturally Hot?

Yes, streams are warmer in summer and in direct sun than in winter. But, most aren't usually hotter than the standard unless changes have occurred in the landscape from human activities that affect shading and the width and depth of the stream.

Some streams in Oregon likely always reached a summer maximum temperature greater than the temperature criteria. The number of such streams is unknown. The standard recognizes that not all streams will be able to comply. It says that if all feasible efforts to improve the temperature have been taken then, the temperature achieved can become the criteria for that specific stream as long as beneficial uses are protected.

Does Shade Cool Streams?

No. Instead, shade will reduce the rate of heating. A slower rate of heating, however, results in a cooler stream temperature at any given time.

What Happens If The Water Upstream Of My Property Is Over The Standard?

Water temperature is cumulative, and typically becomes warmer as it goes downstream, so people at the bottom of a watershed may find stream temperatures are already high because of what happened upstream from them. An individual land owner will not be expected to make the stream comply with the temperature standard as it goes past his/her land. But, all those who contribute to warming of the streams will be asked to work to reduce their contributions to the warming of the water.

What Happens To Businesses And Cities Who Discharge To Rivers And Streams If The Temperature Is Over The Standard?

Businesses and cities that are already discharging to the river or stream will be monitored to ensure that their discharges are not contributing to an increase in temperature.

- Dischargers who are contributing to a temperature increase will have their permits modified when they come up for renewal (every five years) to ensure that the discharge does not contribute to the problem.
- New or increased discharges will not be allowed if the discharge contributes to the temperature problem until a TMDL is approved for that watershed. Temperature limits set in the TMDL will be written into the dischargers permit.

Will People Be Expected To Plant Trees Along Their Streambanks?

Not necessarily. Tree planting will be requested only where it's feasible and where it would make sense because of stream size, depth, soil type, and other factors that indicate that stream shading will reduce the warming of the stream. While shade along a river that is 100 feet wide may not prevent warming, that same shade along smaller tributaries will significantly reduce stream warming and allow cooler water to enter the larger waterbody.

Do Agricultural Or Past Forest Practices Increase Stream Temperature?

Yes. Many increases in stream temperatures were caused by past forest practices that removed streamside vegetation. A study in the Alsea watershed using one stream from a clear cut area and one as a control area with no change (1966-67), showed that the stream temperature increased by 14 degrees F during the first summer after being logged. (Forest practices no longer occur in this manner.)

A 20 year record of stream temperature on Cedar Creek, a tributary of Steamboat Creek in the Umpqua Basin, showed that immediately after clear-cut in 1969, the temperature during the warmest 14 measurements averaged 78 degrees F. By 1995, after more than 20 years of re-growth of trees, the temperature on the warmest 14 days was between 64-65 degrees F.

In one case, the average stream temperature of the Deschutes River through an enclosure that was ungrazed for 10 years was 12 degrees F lower than stream temperatures in grazed sections where riparian vegetation had not been allowed to re-grow.

If A Stream or River Is Listed On The 303(d) List For Temperature How Can It be Removed?

A stream, river, lake or estuary is removed from the list when there is evidence that:

- it is meeting water quality standards;
- it is violating water quality standards due only to natural conditions (meaning that there is no human-caused influence);
- a TMDL has been approved (TMDLs describe the maximum amount of pollutants from pipes and surface runoff sources, including natural background, that may enter
- the river or stream without exceeding water quality standards.); or
- was placed on the list in error.

What Can I Do?

Landowners are encouraged to continue using their best efforts to reduce temperatures on streams and rivers. A landowner can seek help from agencies such as the Oregon Department of Agriculture, the Natural Resource Conservation Service, the Oregon State Extension Service and the Oregon Department of Fish and Wildlife to devise methods for reducing temperatures and protecting fish and aquatic life.

Urban residents can help by protecting streamside vegetation that provides shade. This includes not mowing lawns to the waters' edge and supporting local programs to restore streamside grasses, bushes and trees. Urban residents are encouraged to contact their local watershed council, city or county government for advice on reducing temperatures in urban streams and protecting fish and wildlife.

This document is available in alternate format (e.g. large type or Braille) by calling DEQ Public Affairs (503) 229-5766 or toll free within Oregon (800) 452-4011. People with hearing impairments may call DEQ's TTY at (503) 229-6993

- 303(d) List
- §401 Certs
- Drinking Water
- Fact Sheets
- Groundwater
- Links
- Loans/Grants
- Nonpoint
- Notices
- Septic Systems (Onsite)
- Permits
- Rules
- Standards
- Storm Water
- TMDLs
- UIC
- Willamette

Oregon TMDLs Approved by USEPA - May 2000 through July 2004

Total TMDL Segments completed to date: **421**

TMDLs approved prior to 2000

Waterbody (Basin/TMDL Segments)	Water Quality Concern Addressed	TMDL Parameters	USEPA Approval Date	Completed TMDL Segments (cumulative)
Upper Grande Ronde Sub-basin (Grande Ronde/73)	Temperature, pH, Algae, DO, Sedimentation	Temperature, Sediment, Nitrogen, Phosphorous	05/03/2000	**73**
Upper South Fork Coquille River (South Coast/4)	Temperature	Temperature	03/23/2001	**77**
Umatilla River Basin (Umatilla/45)	Temperature, pH, Sedimentation, Turbidity, Aquatic Weeds, Algae	Temperature, pH, Sedimentation, Turbidity, Aquatic Weeds, Algae	05/09/2001	**122**
Tillamook (North Coast/40)	Temperature, Bacteria	Temperature, Bacteria	07/31/2001	**162**
Tualatin (Willamette/101)	Temperature, Bacteria, DO, Algae, pH	Temperature, Bacteria, DO, Settleable Volatile Solids, Ammonia, Chlorophyll a, pH, Phosphorus	08/07/2001	**263**
Little River (North Umpqua/16)	Temperature, pH, Sedimentation	Temperature, pH, Sediment	01/29/2002	**279**
Western Hood (Hood/7)	Temperature	Temperature	01/30/2002	**286**
Nestucca Bay (North Coast/6)	Temperature, Bacteria, Sediment	Temperature, Bacteria, Sediment	05/13/2002	**292**
Lower Sucker Creek Watershed (Illinois/3)	Temperature	Temperature	05/30/2002	**295**
Lobster Creek Watershed (Rogue/3)	Temperature	Temperature	06/13/2002	**298**
Upper Klamath Lake Drainage (Klamath/32)	Temperature, pH, DO, Chlorophyll a	Temperature, pH, DO, Chlorophyll a	08/07/2002	**330**

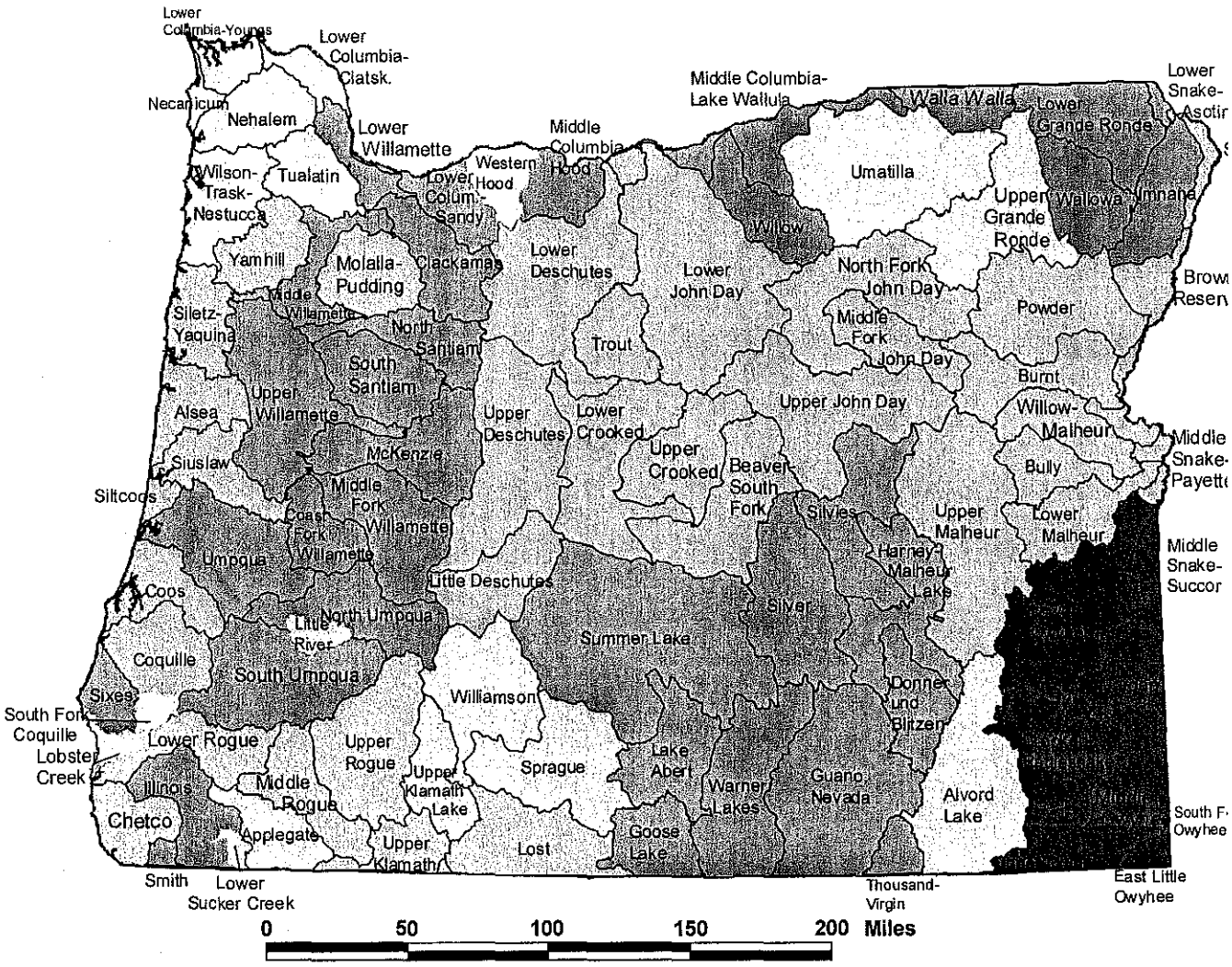
Lower Columbia River (Lower Columbia/7)	Total Dissolved Gas	Total Dissolved Gas	11/18/2002	**337**
North Coast Subbasins (North Coast/56)	Temperature, Bacteria	Temperature, Bacteria	08/20/2003	**393**
Alvord Lake Subbasin (Malheur Lake/7)	Temperature, Dissolved Oxygen	Temperature, Dissolved Oxygen	02/11/2004	**400**
Applegate Subbasin (Rogue/17)	Temperature, Sediment	Temperature, Sediment	02/11/2004	**417**
Snake River-Hells Canyon Reach (Snake River/4)	Temperature, Total Dissolved Gas, DDT, DDE, DDD, Dieldrin	Temperature, Total Dissolved Gas, DDT, DDE, DDD, Dieldrin	03/01/2004	**421**

For more information contact Greg Aldrich at (503) 229-6345.

Last updated: Wednesday June 09 2004

Oregon Department of Environmental Quality

Target Dates for Completion of TMDLs for 303(d) Listed Wat



APPENDIX D: ODF/DEQ MOU

MEMORANDUM OF UNDERSTANDING BETWEEN THE OREGON STATE DEPARTMENT OF ENVIRONMENTAL QUALITY AND THE OREGON STATE DEPARTMENT OF FORESTRY

I. Introduction and Statement of Purpose

A. Introduction

1. The Environmental Quality Commission (EQC) and the Oregon Department of Environmental Quality (DEQ) are responsible for implementing the Federal Clean Water Act in Oregon, ORS 468B.035, including adoption of water quality standards. The DEQ has adopted and the U.S. Environmental Protection Agency (EPA) has approved Oregon's water quality standards and its 1994/1996 303(d) list. DEQ intends to update and resubmit its 303(d) list to EPA in 1998 and subsequent years as required by federal regulations. DEQ is setting priorities for TMDL preparation.

2. Subsection 303(d) of the Federal Clean Water Act (the Act), 33 U.S.C. §1313(d), requires states to identify waters for which effluent limitations or other pollution control requirements required by local, State, or Federal authority are not stringent enough to implement applicable water quality standards, 40 C.F.R. §130.7 (b). These water bodies are referred to as "water quality limited." For each water on the 303(d) list that is not removed from the list by findings of water quality impairment due to natural conditions or best management practice (BMP) effectiveness, the state must establish a total maximum daily load (TMDL) allocation at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. A TMDL is the sum of the individual wasteload allocations for point sources and load allocations for non-point sources and natural background, 40 C.F.R. §130.2(i).

3. TMDLs must be incorporated into the continuing planning process required by Section 303(e) of the Act and the continuing planning process must be included in the state's water quality management plan. Sections 208 and 319 of the Act, 33 U.S.C. §1288 and §1329, require the state to prepare non-point source management plans.

4. ORS 527.765 requires the Oregon Board of Forestry (the Board), in consultation with the EQC, to establish Best Management Practices (BMPs) and other rules applying to forest practices to ensure that to the maximum extent practicable non-point source discharges of pollutants resulting from forest operations do not impair the achievement and maintenance of water quality standards established by the EQC. The Oregon Department of Forestry (ODF) is the Designated Management Agency (DMA) by DEQ for regulation of water

quality on nonfederal forestlands. Forest operators conducting operations in accordance with ODF BMPs are considered to be in compliance with Oregon's water quality standards.

5. The Board in consultation and with the participation and support of DEQ, has adopted water protection rules in the form of BMPs for forest operations, including, but not limited to, OAR Chapter 629, Divisions 635-660. These rules are implemented and enforced by ODF and monitored to assure their effectiveness. DEQ participates in the design and implementation of these monitoring efforts. The EQC, DEQ, the Board and ODF determined that pollution control measures required as BMPs under ORS 527.765 will be relied upon to result in achievement of state water quality standards.

6. The EQC, DEQ, the Board, and ODF are all committed to restoring salmon and meeting water quality through the Healthy Streams Partnership and Oregon Plan for Salmon and Watersheds, 1997 Oregon Laws, Ch. 7.

B. Purposes of MOU

The purposes of this memorandum of understanding:

1. To further define the respective roles and responsibilities of the EQC, the DEQ, the Board, and ODF in preventing, controlling and reducing non-point source discharges to achieve and maintain water quality standards;

2. To explain the process for determining whether (a) forest practices contribute to identified water quality problems in listed water quality limited streams; (b) if so, to determine whether existing forest practice rules provide sufficient control to assure that water quality standards will be met so that waters can be removed from the 303(d) list;

3. To describe the process for interagency coordination in revising forest practice rules, if necessary, to assure the achievement of water quality standards; and

4. To encourage the use of voluntary and incentive-based regulatory solutions to achieve and maintain water quality.

II. Forest Practice BMPs and Water Quality Standards

Since ODF is the DMA for water quality management on nonfederal forestlands and ODF's BMP's are designed to protect water quality, ODF and DEQ will jointly demonstrate how the Forest Practices Act (FPA), forest practice rules (including the rule amendment process), and BMP's are adequate protection pursuant to ORS 527.765. This demonstration of the ODF BMP program adequacy will be done at the statewide scale with due consideration to regional and local variation in effects including non-anthropogenic factors that can lead to water quality standard violations.

Water quality impairment related to aquatic weeds, bacteria, chlorophyll a, dissolved oxygen, flow modification, many nutrients, total dissolved gas, or toxins are generally not attributable to forest management practices as regulated by the EPA. However, it is generally accepted that forest management practices have in some cases caused documented changes in temperature, habitat modification, sedimentation, turbidity, and bio-criteria. Therefore, this statewide demonstration of FPA effectiveness in protection of water quality will address these specific parameters and will be conducted in the following order:

a. temperature (draft report target completion date Spring, 1999),
b. sedimentation and turbidity (draft report target completion date Summer, 1999),
c. aquatic habitat modification (draft report target completion date fall 1999),
e. bio-criteria (draft report target completion date end 1999), and
f. other parameters (draft report target completion date spring 2000).

The analyses will be presented in a format compatible with EPA region 10 guidance (pages 4-6, dated November 1995) regarding BMP effectiveness determinations, and will include:

a. "Data analysis of the effectiveness of controls relative to the problem": analyze relevant data and studies on the parameter and known control methods,
b. "Mechanisms requiring implementation of pollution controls": give a clear exposition of the rules/programs that are designed to provide for protection,
c. "Reasonable time frame for attaining water quality standards": discuss expected recovery times which may be long for some parameters because the ecological processes that bring recovery are long-term, and
d. "Monitoring to track implementation and effectiveness of controls": describe the scope and extent the effectiveness and implementation monitoring program and how they tie back to program changes for adaptive management.

In addition, these analyses will address attainment of state anti-degradation policy. These demonstrations will be reviewed by peers and other interested parties prior to final release. While analysis is being conducted and unless or until changes are made in accordance with ORS527.765, the EPA and implementing rules will constitute the water quality BMP program for forestlands. These sufficiency analyses will be designed to provide background information and techniques for watershed based assessments of BMP effectiveness and water quality assessments for watersheds with forest and mixed land uses.

III. ODF and DEQ coordination for listed waterbodies (i.e., 303(d) list)

A. Waterbody Specific Coordination

The following coordination will occur between ODF and DEQ regarding the TMDL process and water quality management plans:

1. For basins where agreement is reached that water quality impairment is not attributable to forest management practices (Figure 1), the forest practice rules will constitute the water quality compliance mechanism for forest management practices on nonfederal forestland. ODF will not participate in the development of the TMDL or water quality management plan except as requested to assist DEQ as ODF budgeted resources permit. If the basin associated with a listed waterbody is entirely or almost entirely on federal land or non-forestland ODF will have little or no involvement (Figure 1).

2. For basins where water quality impairment is attributed to the long-term legacy of historic forest management and/or other practices, but ODF and DEQ jointly agree that the forest practice BMP's are now adequately regulating forest management activities and not adding to further degradation of water quality, the forest practice rules will be designated in the water quality management plan as the mechanism to achieve water quality compliance for forest operations. ODF will participate with the other DMAs in developing the water quality management plan as necessary.

3. For basins where water quality impairment may be attributable to forest management practices and ODF and DEQ cannot agree that the current BMPs are adequately regulating forest management activities (Figure 1), the current forest practice rules will be designated in the water quality management plan as the mechanism to achieve water quality compliance for forest operations. However, ODF will design and implement a specific monitoring program as part of the basin plan to document the adequacy of the best management practices. The schedule and scope of the monitoring program will be jointly agreed to by DEQ and ODF. During the interim, while monitoring is being conducted, the current rules will constitute the water quality compliance mechanism. If the monitoring results indicate that changes in practices are needed in a basin, the DEQ and the Board will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

4. For basins where both ODF and DEQ agree that there are water quality impairments due to forest management activities even with FPA rules and BMP's, the DEQ and the BOF will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

In deciding between conditions (a)-(d) above, the statewide rule sufficiency analysis (described in II) will be critical in determining which situation exists. If the practices and impairments are found by DEQ and ODF to be regional or statewide in nature the BOF will create or modify statewide or regional rules or design other effective measures to address the impairment.

B. Removal or Reclassification of Waterbodies

DEQ will propose removal of waterbodies (Figure 1) on the 303(d) list when:

1. additional data indicates that the waterbody is not in violation,

2. water quality parameters are found to be in violation for reasons other than human activities,

3. TMDL's, or water quality management plans or their equivalents, have been established in compliance with the Clean Water Act §303, or

4. the FPA, forest practice rules and BMP's are found to be adequate for a given water quality parameter in a given basin via the statewide demonstration or watershed based demonstration (see section n above) and all land affecting the listed waterbody is deemed forestland that is regulated under the FPA. Forest basins that have water quality impairment due to legacy conditions that will not be corrected by the current BMPs alone, remain listed with their present status until voluntary or incentive based actions are implemented that are intended to restore watershed conditions such that water quality standards can be met.

IV. Voluntary and Incentive-Based Approaches

DEQ and ODF will work jointly with landowners and watershed councils, as resources permit, to use innovative approaches to resolving water quality problems. DEQ and ODF will use other pollution control requirements when appropriate to restore watershed conditions such that water quality standards can be met in waterbodies listed under Section 303(d) of the Clean Water Act. These pollution programs include but are not limited to the following:

1. Oregon Laws 1997, ch. 553, The Green Permits Act,;

2. Oregon Laws 1995, ch. 413, The Forest Stewardship Act,;

3. Oregon Laws 1997, ch. 7, Healthy Streams Partnership and the Oregon Plan for Salmon and Watersheds;

4. DEQ's Environmental Management Systems Incentives Project;

5. Habitat Conservation Plans adopted and approved under the Endangered Species Act;

6. Project XL agreements with the EPA; and

7. Pollution Prevention Partnership agreements with the EPA Some of these alternative approaches will become critical and complementary to the forest practices program when attempting to restore water quality in streams with significant legacy conditions caused by past actions such as channel simplification from splash damming and stream cleaning.

V. Other key coordination points for DEQ and ODF

There are two other issues that will require special coordination between DEQ and ODF. These coordination issues regard:

1. Outstanding Resource Water designations and management measures, and
2. Coordination between the two agencies when there is a land use conversion.

Both agencies agree to open discussion on how to coordinate on these issues but they are separate issues that are not covered by this particular MOU.

VI. Signatures

Signed:_____
James E. Brown, State Forester
Oregon Department of Forestry

Signed:_____
Langdon Marsh, Director
Oregon Department of
Environmental Quality

Date:_____

Date:_____

Oregon
John A. Kitzhaber, M.D., Governor

Department of Forestry
State Forester's Office
2600 State Street
Salem, OR 97310
(503) 945-7200
FAX (503) 945-7212
TTY (503) 945-7213/800-437-4490
http:/ /www.odf.state.or.us

"STEWARDSHIP IN FORESTRY"

DEQ

Memorandum

Date: October 17, 2002

To: Interested Parties

Subject: **Oregon Department of Forestry and Department of Environmental Quality Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality**

The Oregon Department of Forestry (ODF) and Department of Environmental Quality (DEQ) are pleased to present this joint evaluation of the sufficiency of the Forest Practices Act (FPA) to protect water quality. In recent years increased attention has been given to the development of Total Maximum Daily Loads (TMDLs) and the listing of 303(d) water quality limited streams in the state of Oregon under the Clean Water Act. This presented new opportunities for the ODF and DEQ to move forward together to address water quality issues on nonfederal forestlands. This report represents the culmination of four years of work by our departments, pursuant to an April 1998 Memorandum of Understanding.

The ODF is the designated management agency by statute for regulation of water quality due to nonpoint source discharges or pollutants resulting from forest operations on forestlands. The Board of Forestry, in consultation and with the participation and support of the Environmental Quality Commission, has adopted water protection rules for forest operations (ORS 527.765). Forest operators conducting operations in accordance with the FPA are considered to be in compliance with Oregon's water quality standards (ORS 527.770).

This report draws on available research and monitoring data relevant to current forest practices, and demonstrates overall program adequacy at the statewide scale with due consideration to regional and local variation in effects. This analysis is based on the premise that achieving the goals and objectives of the Forest Practices Act will ensure the achievement and maintenance of water quality goals. Conclusions include the

finding that there is some risk current protection may not be sufficient at a site-specific scale for some small and medium streams, however, the significance and scope of this risk is uncertain.

The purpose of the recommendations included in this report is to ensure that the FPA goals and objectives, and thus water quality standards, are being met. The Board of Forestry will consider the recommendations in light of the relevant social, economic, and environmental context of the FPA. Accordingly, the recommendations are offered to highlight general areas where current practices are either sufficient or could be improved in order to better meet the FPA goals and objectives and in turn provide added assurance of meeting water quality standards.

James E. Brown, State Forester
Oregon Department of Forestry

Stephanie Hallock, Director
Oregon Department of Environmental Quality

British Columbia's Environmental Forestry Policy Record in Perspective

Benjamin Cashore and Graeme Auld

ABSTRACT

Some environmental groups and US forest companies, each for their own reasons, have criticized forest policy in British Columbia as lax, and the US Congress and media have taken up the call for stricter regulations in Canada. A comparison of BC forest policy with the policies of the USDA Forest Service and six major softwood-harvesting states reveals that British Columbia has more stringent regulations than has been supposed. Focusing on clearcutting, riparian zone management, and protected areas, we find that BC policy in spring 2001 was generally comparable to that of Washington State and Oregon; only the Forest Service had stricter rules. State practices in Texas, Alabama, Mississippi, and Georgia were less stringent.

Keywords: Canada; conservation; industry; regulation

Forest policies in British Columbia, Canada, have come under increasing international scrutiny from two fundamentally different sources: US, European, and transnational environmental groups that wish to protect and preserve the unique ecological character of British Columbia's rainforests (Bernstein and Cashore 2000; Stanbury 2000) and the Coalition for Fair Lumber Imports, a group of US companies that say BC forest policies constitute an unfair subsidy to their Canadian competitors (Cashore 1997a, 2001). By the early 1990s, some members of both groups had developed an informal "bootleggers and Baptists" relationship through their shared interest in increasing the cost of harvesting British Columbia's publicly owned timber. They asserted in the US media and in the US Congress that British Columbia's environmental regulations were lax compared with those in the United States (Balmer 1993; Canadian Press 1994; *Vancouver Sun* 1994; Saunders 1995; Cashore 1997a; Vogel and Rugman 1997; Olsen 1998; Coalition for Fair Lumber Imports 2000; Price 2000). Such claims resonated with some senators. Max Baucus (D-MT) argued on the Senate floor in 1999 that in an era of globalization, "One continuing issue is Canada's relatively weak environmental standards for timber harvesting" (Baucus 1999).

Following the expiration of the Canada-US softwood lumber agreement in spring 2001, these arguments became particularly pronounced. Some environmental groups charged that the absence of "costly" environmental protections was, in effect, a subsidy for BC and other Canadian companies (Environmental Media Services 2001), because unlike their US competitors, they were not burdened with rules to protect threatened species and sensitive habitats and were allowed to clearcut their forests (Associated Press 2001). Senator Baucus and then-House Majority Leader Dick Gephardt (D-MO) wrote to President Bush to ask that he "make environmental protections a priority in any new [softwood lumber trade] agreement" with Canada (Associated Press 2001). In the *New York Times*, former President Jimmy Carter (2001) criticized Canadian forest policy for causing overharvesting and contributing to global warming. These charges strained US-Canada relations, with the Canadian and BC governments vehemently denying a lack of environmental protection.

Were the assertions about the BC environmental record true? Could it be legitimate to say, in spring 2001, that British Columbia was lax in its environmental regulations compared with the United States? This article asks just how the BC record compared with the US record at that time. Our purpose is not to address the *dynamic* nature of forest policy change that other studies have explored (Cashore 1997b; Cashore et al. 2001), but rather, to ascertain whether the assertions about BC forest management were accurate.

Methods

Conducting such a comparison is fraught with methodological challenges. Do we compare jurisdictions'

explicit policy goals? Do we study the various policy instruments used to create and implement forest policies? Do we study enforcement mechanisms? Existing analyses have often avoided these issues by presenting the BC environmental forestry record in isolation from other jurisdictions (Tollefson 1998; Wilson 1998; Cashore et al. 2001) or selectively comparing it with rules governing US national forest lands in the Pacific Northwest (Hoberg 1993). (For two important exceptions, see Haddock 1995 and Westland Resource Group 1995.) Yet data from 1996 (the latest available) tell us that the national forests in the Pacific Northwest accounted for 1.3 percent of total US forests and that the entire harvest from all US national forests accounted for only 6 percent of the timber harvest (USDA Forest Service 2000) *(fig. 1)*. As Hoberg (1997) has noted, "BC rules are more stringent than the state government rules that regulate private lands in [Oregon and Washington], and private lands comprise both more area and a higher percentage of the harvest level than [Forest Service] lands. [Forest Service] rules would almost certainly not be as stringent if the forest economy in the US northwest was not so reliant on less regulated private lands."

Likewise, environmental groups (Rowland 1994) and former Forest Service Chief Dale Robertson (1990) have noted that increased forest preservation on US national forests could be offset by continued supply from private lands. Cashore's (1999) analysis of the development of forest practices and protection rules in the US Pacific Northwest empirically confirmed these assertions, revealing fundamentally different approaches to forestry regulations on federal land compared with private land regulations.

What regions to compare? In the United States, both the federal and the state governments are important arenas of policy authority, creating a fundamental problem for a comparison of this type: Just which states' regulations do we compare? An analysis of all 50 states is beyond the scope of this article, and an analysis of only federal or private policy would present misleading comparative data. We have addressed this problem by taking the top softwood-harvesting states whose combined share of the US softwood harvest roughly amounts to 50 percent—the same general share that British Columbia has of the total Canadian softwood harvest (Council of Forest Industries 2001). These states are Georgia, Alabama, Oregon, Washington, Mississippi, and Texas (see USDA Forest Service 2000).

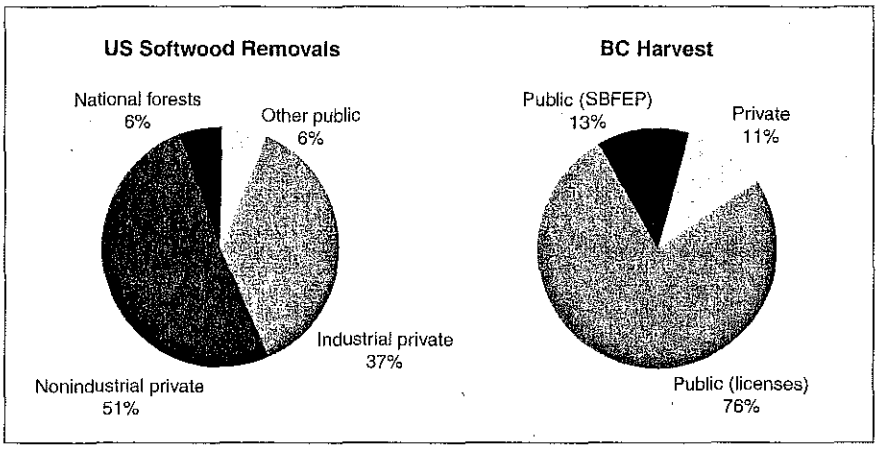


Figure 1. **Proportion of total US softwood removals by ownership for 1996 (left) and proportion of total BC annual harvest by ownership for 2000–01. *Notes:* BC data include waste and firm wood rejects (~1,440,000 m^3) and hardwood harvest volume billed (3,071,000 m^3, or 4 percent of total harvest). SBFEP = Small Business Forest Enterprise Programme. *Sources:* USDA Forest Service (2000); British Columbia Ministry of Forests (2002).**

We have also decided to include rules governing US national forests, for three reasons. First, national forests contribute 10 percent of the commercial softwood extraction on the West Coast. Second, many groups have made national forests their point of comparison with BC practices. Third, as noted above, there appears to be an (inverse) relationship between the federal rules governing forest practices on national forests and the primarily state rules governing forest practices on private forestlands—that is, because most commercial harvesting comes from privately owned forestlands, stringent regulations on federal lands do not have the same effect as they would have on the forest sector if they provided the bulk of the fiber supply (as is the case with publicly owned forests in British Columbia). We have excluded BC private lands from this analysis because they play a limited role in the province *(fig. 1)* and because they were not the focus of the US timber lobby's criticisms of BC forest policy.

What rules to compare? Forest management is incredibly complex, and the rules and procedures have resulted in volumes of field guides and instructions for policy implementation in both Canada and the United States. We have chosen to focus on three of the most scrutinized rules in British Columbia that have come to represent measures of sustainable forest management: (1) maximum clearcut sizes, (2) streamside buffer zone rules, and (3) the amount of land off limits to harvesting and other forms of industrial activity, commonly referred to as "protected areas policy." We encourage future comparisons to cover other important arenas. We do not seek to explain why these policies have arisen or justify their existence but instead intend to show where, and to what degree, differences exist.

Results

Clearcutting. One of the most controversial and highly scrutinized forest harvesting practices in even-aged silvicultural management is clearcutting (Kimmins 1992). Concerns about clearcutting arise from the impacts of this method on forest ecosystems

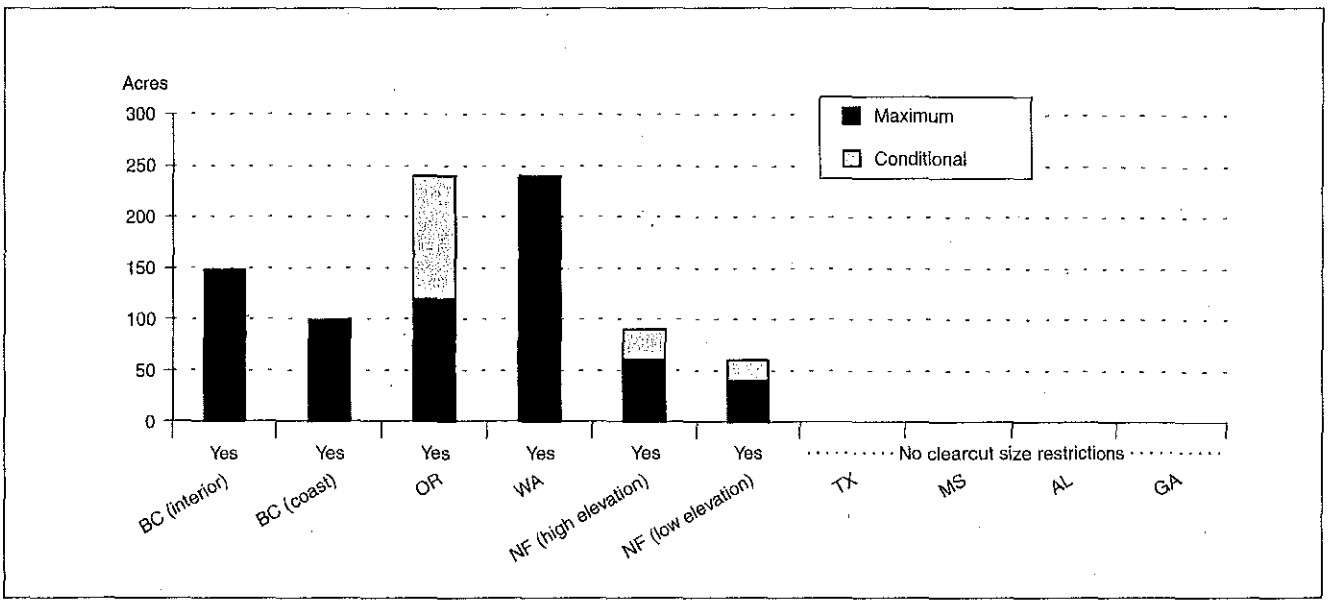


Figure 2. **Clearcut size restrictions (expressed in acres) for British Columbia; the US states of Washington (WA), Oregon (OR), Texas (TX), Alabama (AL), Mississippi (MS), and Georgia (GA); and the US national forests (NF).** ***Note:*** **The conditional category refers to situations in which written justification is required for gaining approval for increasing clearcut size. In British Columbia the district manager does have discretion to allow for larger clearcuts based on written justification presented by the forest manager.** ***Sources:*** **Robertson (1992); British Columbia Ministry of Forests (1994).**

(Franklin and Forman 1987; Kimmins 1992), the visual impacts of clearcutting, and the resulting public criticisms (Bliss 2000).

Clearcut sizes are most restricted on US national forest lands *(fig. 2)*, and a 1992 directive permits them only when "essential" for meeting forest plan objectives (Robertson 1992; Haddock 1995). British Columbia had the second most stringent rules. Since the implementation of its Forest Practices Code in 1995, British Columbia's maximum clearcut has been 98.8 acres (40 ha) for coastal areas and 148.2 acres (60 ha) for its interior region. Georgia, Mississippi, Alabama, and Texas have no rules governing maximum clearcut size. And, although Oregon and Washington State have developed such rules, British Columbia's coastal clearcutting rules are stricter.

There are exceptions, however. BC law permits exceptions to its clearcut size rules when the district manager concludes that "the larger cutblock is designed to be consistent with the structural characteristics and the temporal and spatial distribution of natural openings" (BC Forest Practices Act, Section 11 (3) (b) (ii), see www.for.gov.bc.ca/tasb/legsregs/fpc/fpcaregs/oplanreg/opr-3.htm). Oregon regulations permit up to 240-acre clearcuts if approved by a state forester (Oregon State Legislature 1999).

Streamside riparian rules. Forest management practices in riparian zones have been a major concern to forest sector stakeholders and have been subject to numerous studies in the United States and Canada. The issue gained particular attention following the northern spotted owl controversy (Yaffee 1994) and the ultimate adoption of an ecosystem management approach for national forests (Committee of Scientists 1999). Interest in riparian management on private and state-owned forests spiked in the late 1990s in Oregon and Washington because of considerable reductions in coho and other salmon stocks (Northwest Renewable Resources Center 1998). Likewise, environmental groups focusing on British Columbia have argued that achieving sustainable forest management means better enforcement of existing practices and expansion of rules to small fish-bearing and nonfish-bearing streams (Sierra Legal Defence Fund 1997).

A multifaceted regulatory approach to streamside harvesting rules in British Columbia, Washington State, and Oregon and US national forest lands makes comparisons challenging. In the other states under review, less complex guidelines for best management practices (BMP) have emerged as the dominant approach to address riparian management. Establishing BMPs allows state and private landowners to avoid direct regulation under the Clean Water Act (Aust et al. 1996). British Columbia represents a hybrid case of legally binding rules and guidelines. Rules governing fish-bearing streams with an average channel width of less than 4.9 feet (1.5 meters) fall under BMP guidelines rather than legal requirements. BC environmental groups have criticized such a voluntary approach because, they argue, it leads to poor compliance rates (Sierra Legal Defence Fund 1997). Such a critique suggests the need for a rigorous comparison of compliance and enforcement across the jurisdictions.

A review of riparian zone policies among our cases reveals a distinction between buffer zones in which harvesting is forbidden altogether and those in which harvesting is limited (e.g., clearcutting is not permitted but other types of harvesting are). For a broad review of what types of harvesting are permissible within these zones, see Blinn et al. (2000).

Figure 3 (see "Requirements for Streamside Management") reveals that when the US Congress was being told

Requirements for Streamside Management

The data in *figure 3* represent guidelines or rules governing all stream categories in the jurisdictions under review. In most jurisdictions, the typical distinction is between fish- and nonfish-bearing streams (for more detailed information on BMPs for each state, including the effects of federal and state legislation, see usabmp.net). However, some states classify streams into additional categories, with increasingly complex rules governing buffer strips. This is particularly the case for Oregon and Washington but also for British Columbia (Blinn et al. 2000). As of spring 2001, for the four fish-bearing stream classifications in BC (S1–S4), only large S1 streams (>1 km in length, >100 m wide, and >100 m wide flood plain) and S4 streams had no "no harvest reserve" zones; the other three classifications have "no harvest reserves" exceeding all those required in all the US states under review. In Washington, riparian management as of spring 2001 was based on both the type of stream, as well as the site class, in determining how "inner" and "outer" management zones are to be managed. For streams classed as fish-bearing, the size of "core" management zone (no harvest reserve) remains constant across site classes: In western and eastern Washington, respectively, the core zone is 50 feet and 30 feet either side of the bank full width or the channel migration zone, whichever is greater (Washington Department of Natural Resources 2001). Oregon takes a similar approach, excluding the consideration for site class. Three stream types and three stream sizes (large = annual flow >10 cubic feet; medium = annual flow 2–10 cubic feet; and small = annual flow <2 cubic feet) combined to create nine different possible riparian management prescriptions.

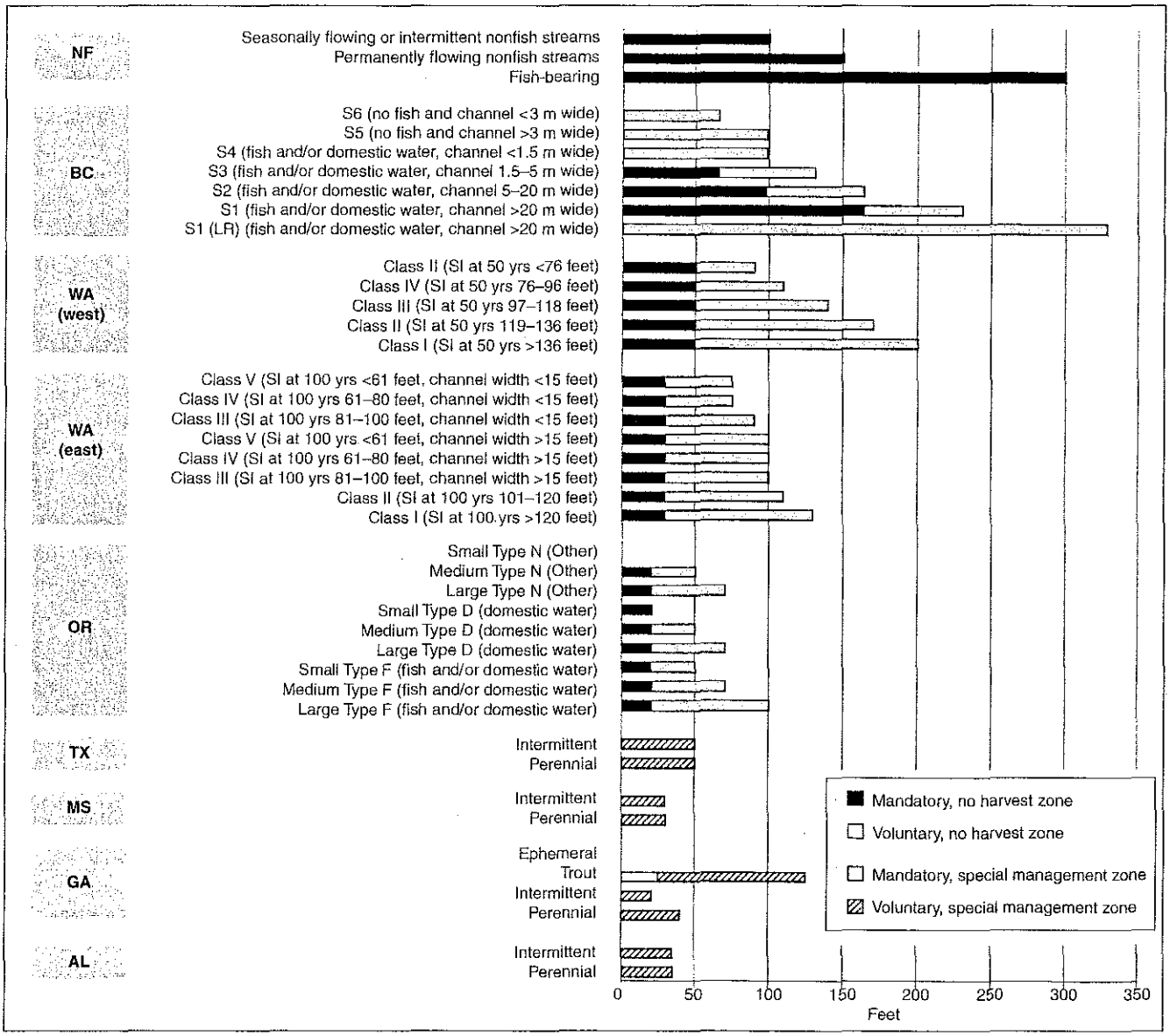


Figure 3. **Mandatory and voluntary requirements for streamside management for categories of forest streams in BC and the US states of Washington (WA), Oregon (OR), Texas (TX), Alabama (AL), Mississippi (MS), and Georgia (GA).** ***Sources:*** **Alabama Forestry Commission (1993); Georgia Forestry Commission (1999); Blinn et al. (2000); Mississippi Forestry Commission (2000); Texas Forest Service (2000).**

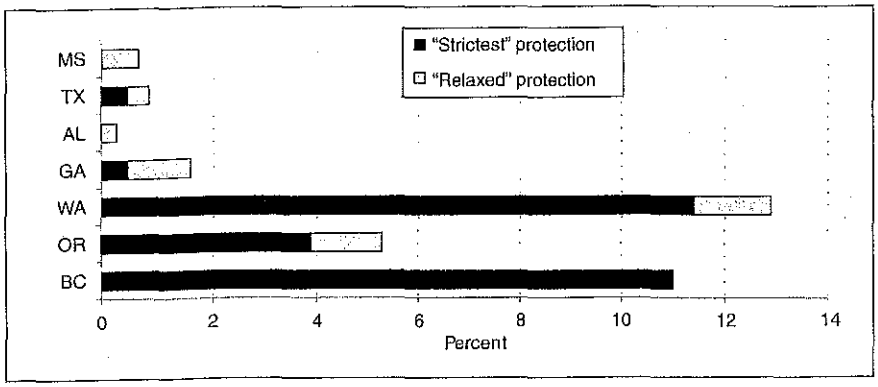


Figure 4. **Protected areas as a proportion of total land area in British Columbia and the US states of Oregon (OR), Washington (WA), Georgia (GA), Alabama (AL), Texas (TX), and Mississippi (MS).** ***Note:*** **"Strictest" protection refers to areas where no commercial and/or development activity is permitted. "Relaxed" protection refers to areas where limited types of development are permitted.** ***Source:*** **DellaSala et al. (2001).**

in spring 2001 that BC environmental forestry regulations were relatively lax, this province had in place streamside riparian rules comparable to those governing forest practices in western Washington and slightly stricter than those in Oregon and eastern Washington. Rules in Oregon, Washington, and British Columbia required wider riparian zones and more stringent legal requirements than did the BMP approaches in Alabama, Mississippi, Texas, and Georgia. The Forest Service, with its ecosystem management approach, had the most stringent rules in this comparison, with no harvesting at all permitted within 300 feet of fish-bearing streams and smaller no-harvesting zones for nonfish-bearing streams.

Protected areas record. In 1987, the World Commission on Environment and Development (1987) (the "Brundtland report") recommended a tripling of the world's protected land from its then–4 percent level. Environmental groups and other parties have pressured governments to commit to protecting additional land under their jurisdiction (World Wildlife Fund 1998). A lack of "standardized protected areas inventories" (DellaSala et al. 2001) prompted the World Wildlife Fund and the Conservation Biology Institute to develop a protected area database that distinguishes between Gap status 1 protection (where no economic development occurs) and Gap status 2 (where only limited economic development is permitted). Applying this dataset to our cases and including all forest owner types—federal, state, and private—we find that British Columbia's 11 percent Gap status 1 protection in spring 2001 was surpassed only by that of Washington State *(fig. 4)*. The other five states fell well short. In Mississippi and Alabama no lands are reported to fall under strict Gap status 1 protection, and all four of the southern states set aside less than 2 percent of their land base for either Gap status 1 or Gap status 2 protection.

Additional and related work indicates that the data on protected areas present an overly optimistic picture in all regions. Many of the protected areas are small, occur in nonforested ecosystems, and do not adequately capture the most globally significant North American ecoregions. For instance, British Columbia has been criticized for protecting a greater share of "rocks and ice" than commercially productive low-elevation forest ecosystems (World Wildlife Fund 1999). And in the US South, only 0.8 percent of the southeastern conifer forest ecoregion receives strict protection (DellaSala et al. 2001)—an area deemed globally significant (Olson and Dinerstein 1998). Despite the caveats, what is clear is that the northwestern US states and the province of British Columbia have set aside a far greater share of their lands for protection than their southern US counterparts, and there is no large gap in BC rules about protected areas, as critics contend.

Conclusion

This analysis has not found support for the contention made in spring 2001 in the US media and US Congress that British Columbia's environmental forestry rules were more lax than those governing harvesting in the United States. Exploring this claim was important because the assertion was made to bolster efforts by the US Coalition for Fair Lumber Imports to seek administered trade protection from their Canadian competitors. What our review has revealed is that British Columbia's rules regarding clearcutting, riparian zones, and protected areas were either comparable to or more stringent than rules developed by the top five softwood-harvesting US states. Our study also makes clear that riparian and clearcutting rules governing the relatively small commercial harvest on US national forests are the most stringent of any jurisdiction under review.

This review does not address the old-growth and other unique environmental qualities of the British Columbia forest environment that have made its forest resource management such a hotly contested issue. Clearly, those wishing to preserve some of the world's remaining intact ancient forests will necessarily turn to British Columbia which, unlike the United States, has considerable remaining old-growth (BC Ministry of Forests 2001). Those who support more stringent forest practice rules in British Columbia might be well advised to focus on the uniqueness of the BC forest environment rather than advance arguments that BC harvesting rules are comparatively lax.

This article does not address the dynamic nature of forest policy regulations, which continue to change as elections on both sides of the border produce administrations that appear to place different weight on environmental and economic goals. Indeed, we believe that if we are to move toward mutual understanding and achieve sustainable forest management that transcends a single region or country, Canada and the United States would do well to develop a binational North American Forestry Commission. Such a commission

could become a center for binational collaborative research among industry, environmental groups, governments, and other parties interested in developing the forest resource in a way that better addresses ecological functions of the forest and the social and economic impacts of doing so.

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Benjamin Cashore (benjamin.cashore@yale.edu) is assistant professor and Graeme Auld is PhD student, Yale School of Forestry and Environmental Studies, 230 Prospect Street, New Haven, CT 06511-2189.

Funding: Alabama Agriculture Experimental Station; Auburn University's Forest Policy Center; American Coalition for Affordable Homes.

Science Foundation

Presentations

Watershed Processes

Vegetation, Stream Temperature, Flow and Solar Radiation

Arne Skaugset

Oregon State University

Stream Temperature

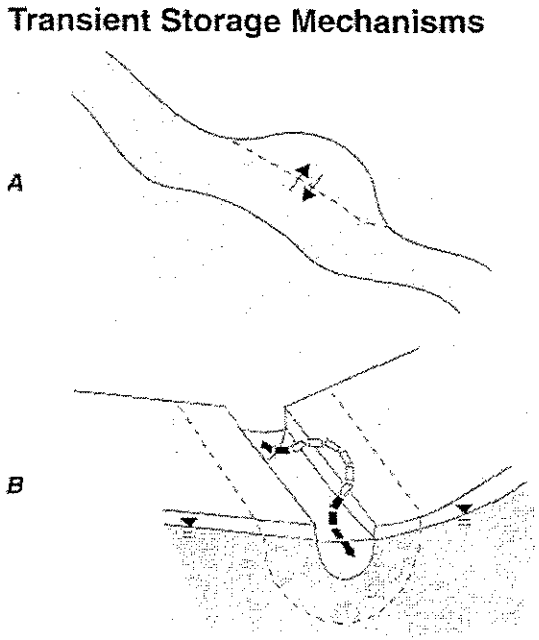
- What's wrong with warm stream water?
  - Salmon & trout are coldwater animals, body temp similar to their environment
    - Fish die directly from heat exposure (77-78°F) or
      - Decrease immunity to disease
      - Provide favorable habitat for competitors (dace & suckers)
      - Inhibit spawning activity
      - Affect food quality & quantity
      - Alter feeding activity and metabolism
    - Reduce dissolved oxygen
  - Water Quality Criteria:
    - Bull trout 50°F (10.0°C)
    - Salmonids 55°F (12.8°C)

How is stream temperature increased?

- Biggest cause: removal of riparian shading vegetation
- Time of Year = mid-July to end of August
  - Q is lower and solar angle
- Water withdraws (decreases Q)
- Sediment (Q)
- Scour
- Others?

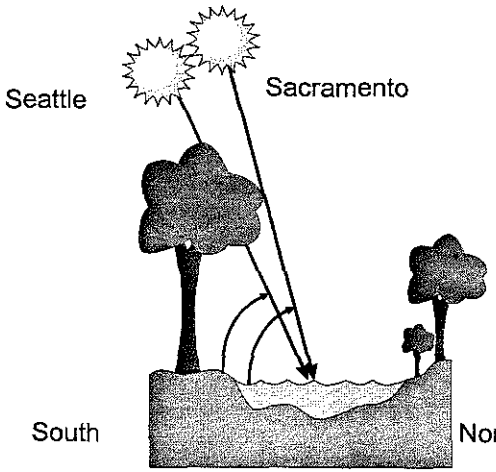
How can we cool stream water?

- Shade (retention of riparian vegetation)
- Groundwater input
  - Hyporheic exchange
  - Structure?
- Increase Q
- Reduce surface area exposed



Stream Energy Balance

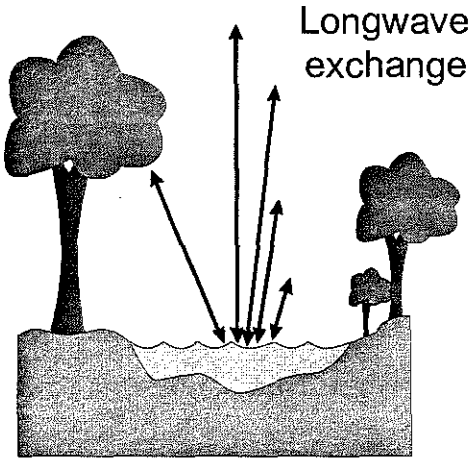
Shortwave



Riparian vegetation to the North does not block direct solar radiation

Longwave

Longwave radiation exchange with riparian vegetation

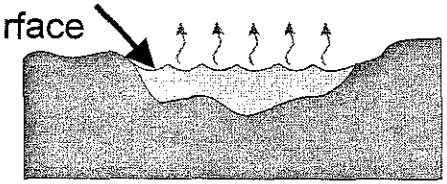


Longwave radiation exchange with atm

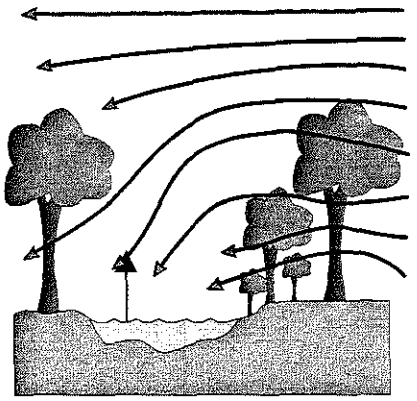
Latent Heat Flux

Sat. Vapor pressure at water surface

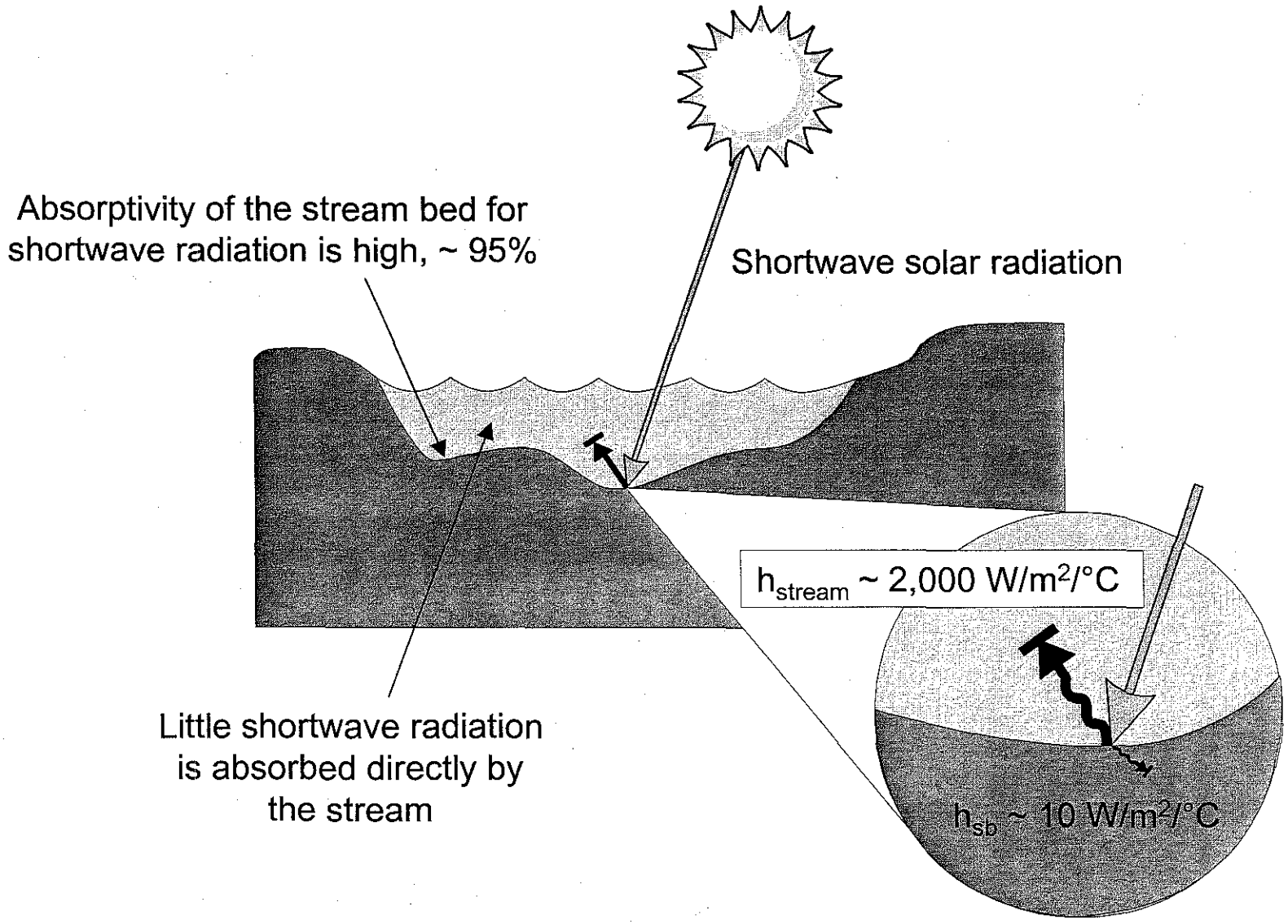
Vapor pressure of air



Convection



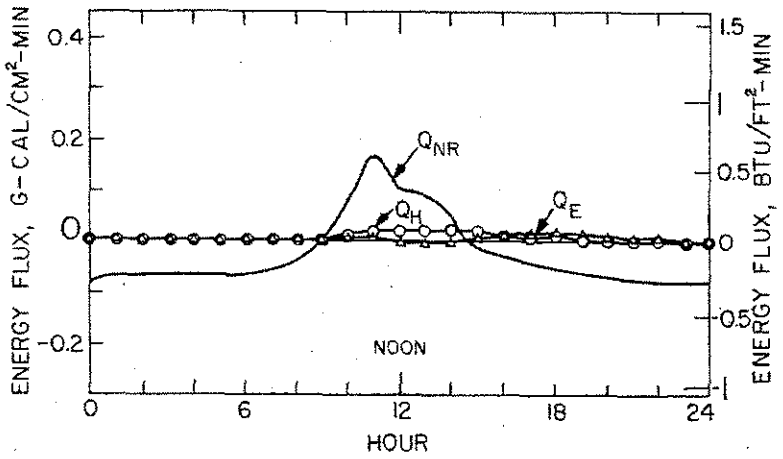
Solar Radiation Transfer to the Stream bed: Conduction

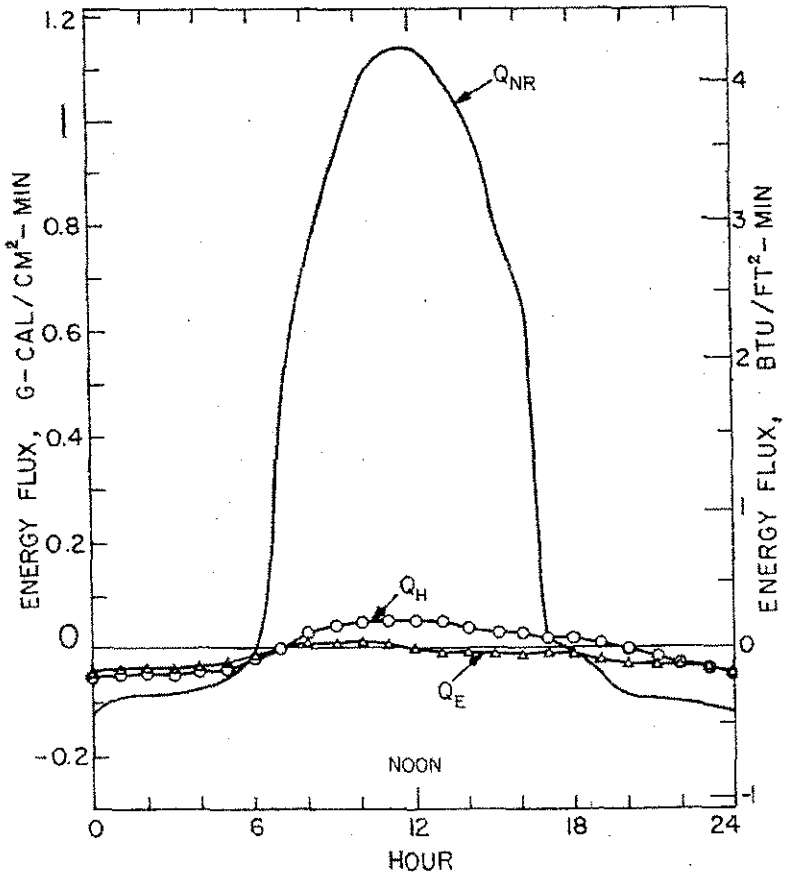


The Stream Energy Balance

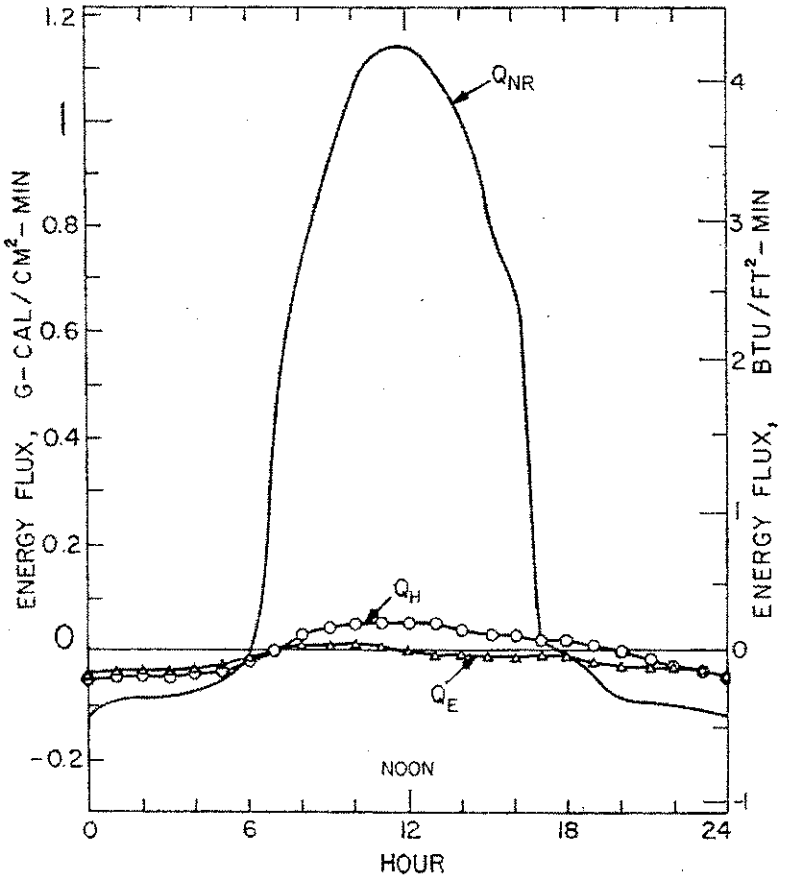
- $\Sigma H = R_n + Q_a + H + E + G$
  - ΣH = increase in stored heat energy,
  - R_n = net radiation into the water [*radiation*],
    = [incident shortwave - reflected shortwave]- [incident longwave - reflected longwave – emitted longwave]
  - Q_a = net advected energy into the water body [*advection*]
    - Water flowing in or out of stream (mixing)
  - H = sensible heat flux [*convection*]
    = energy transfer driven by temperature difference between water surface and air
  - E = latent heat input [evaporation/condensation]
    = latent heat of condensation - latent heat of evaporation
  - G = heat exchanged with the stream bed substrate [*conduction*].

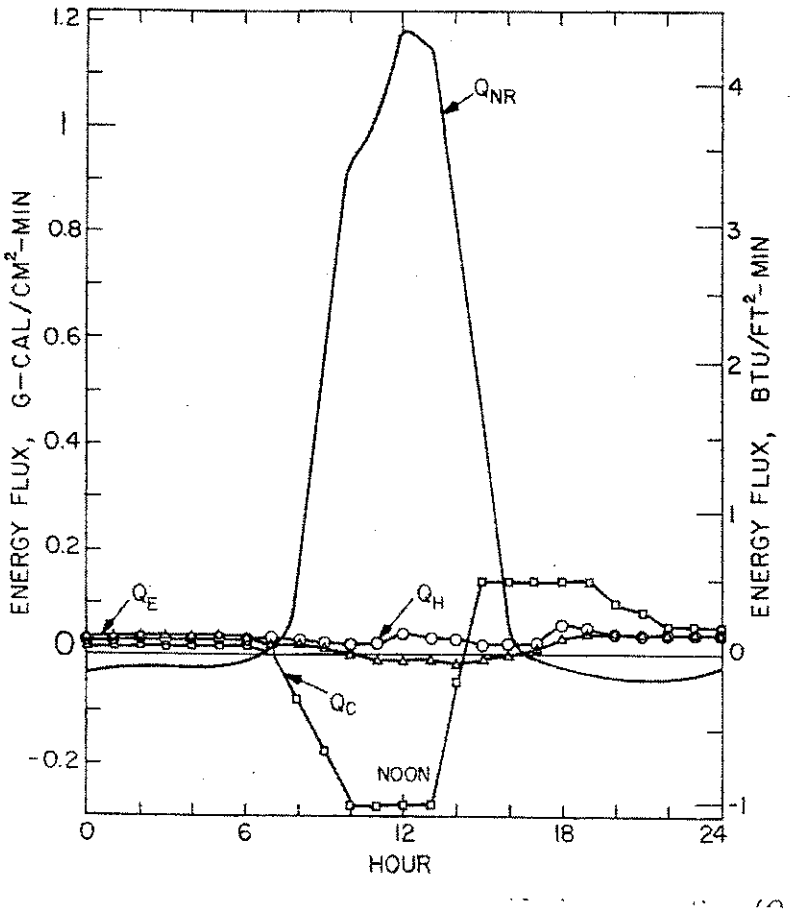
Diurnal Energy Balance



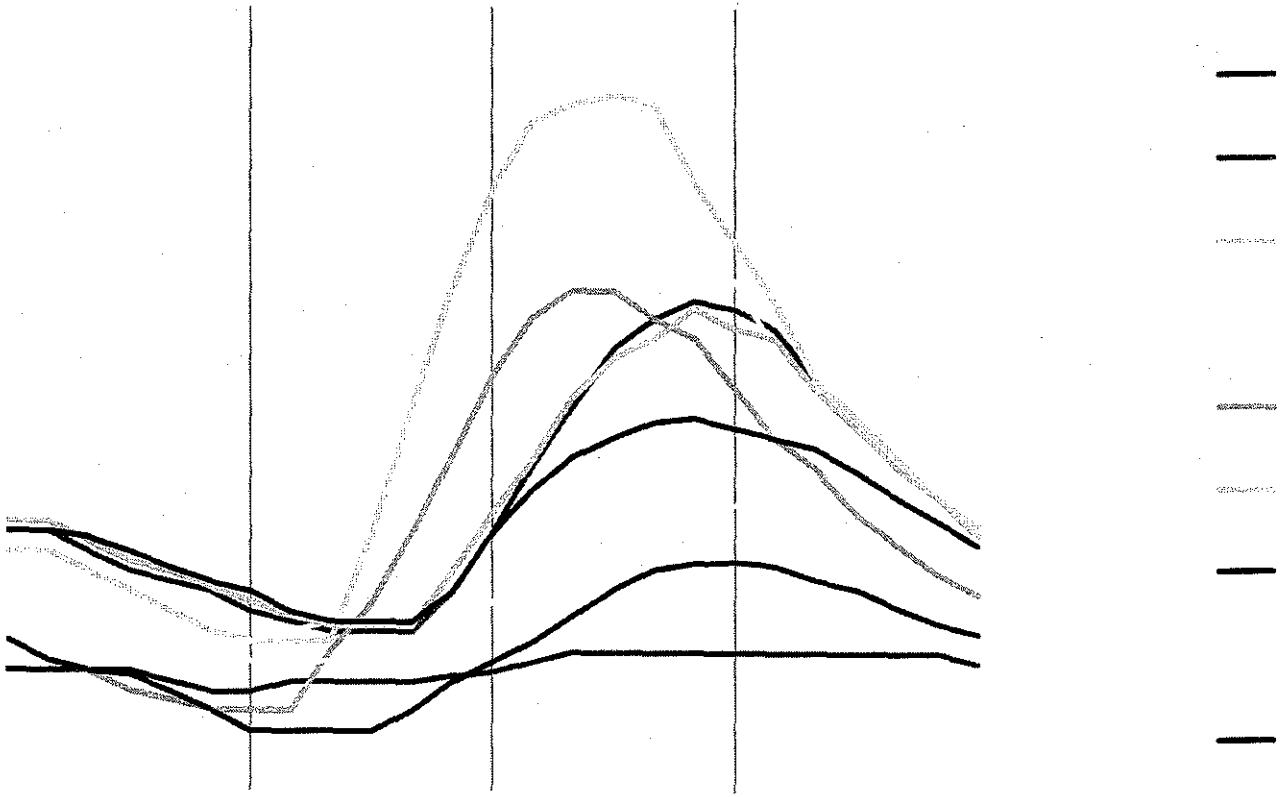


Diurnal Energy Balance





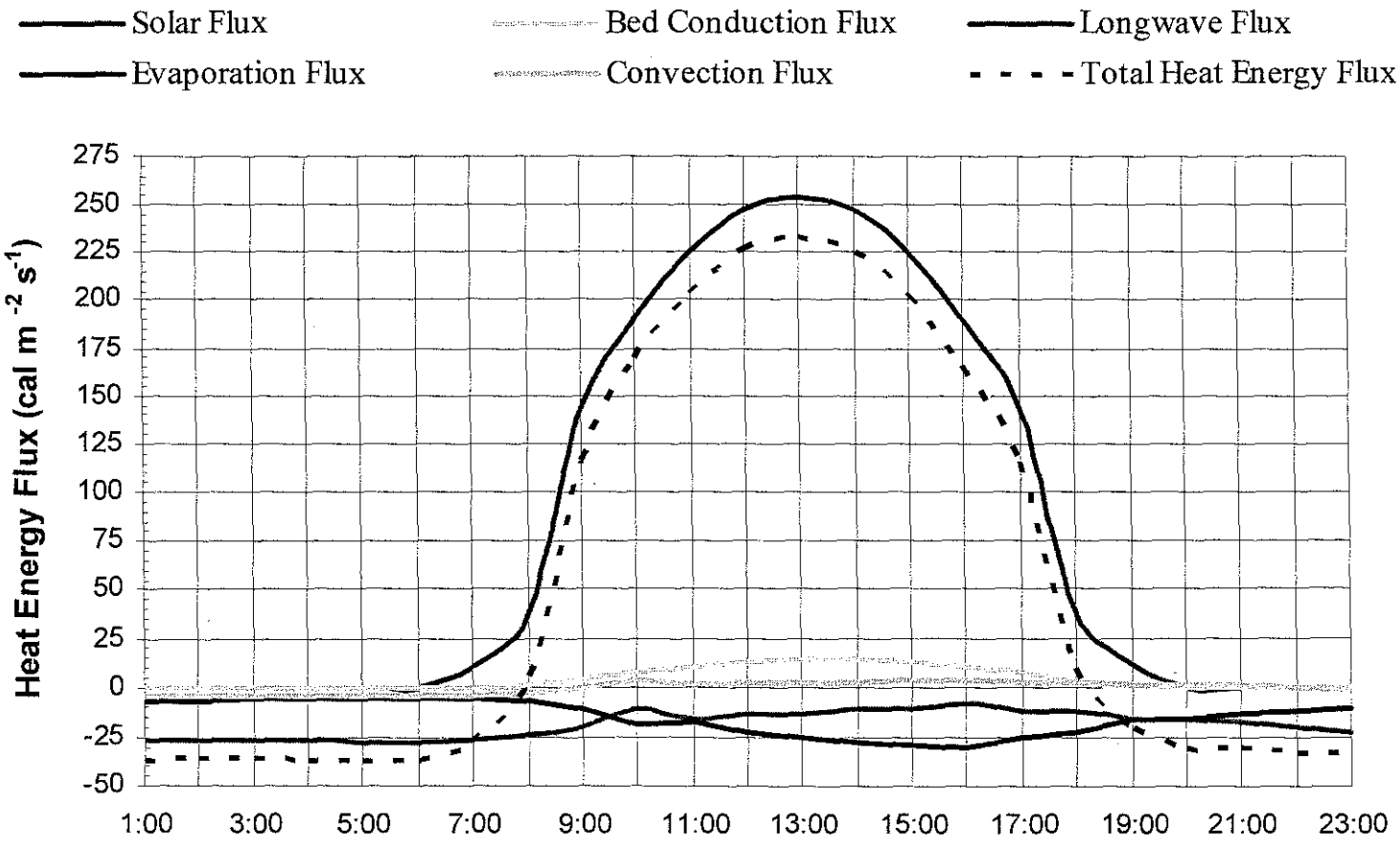
Needle Branch: Annual Max



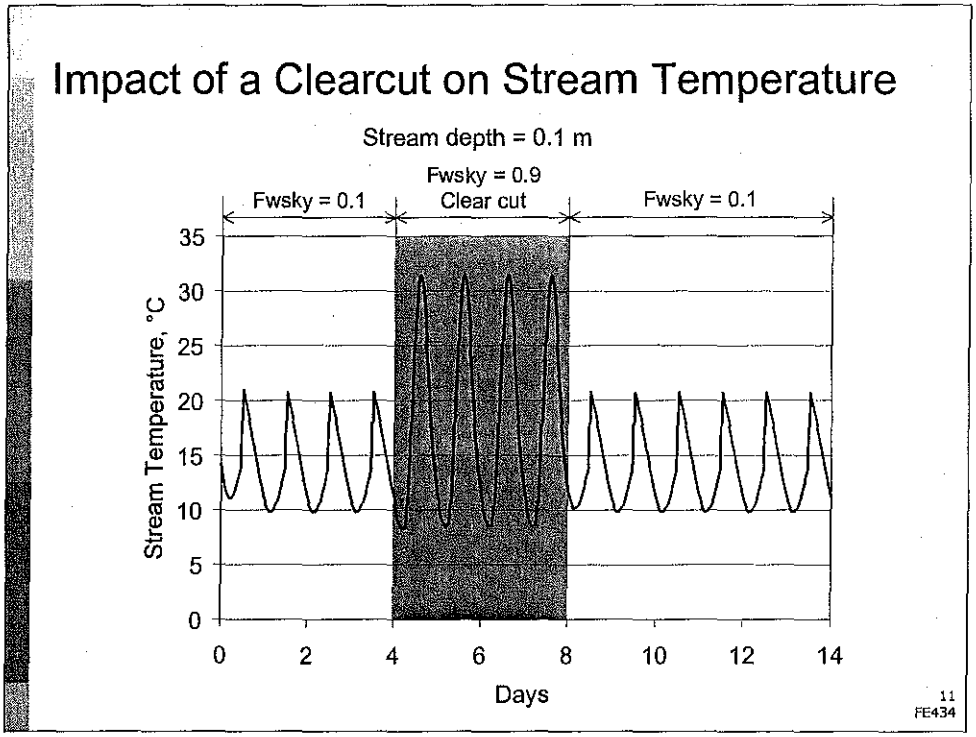
Stream Heating Processes

Typical Summer Energy Balance for an Unshaded Stream

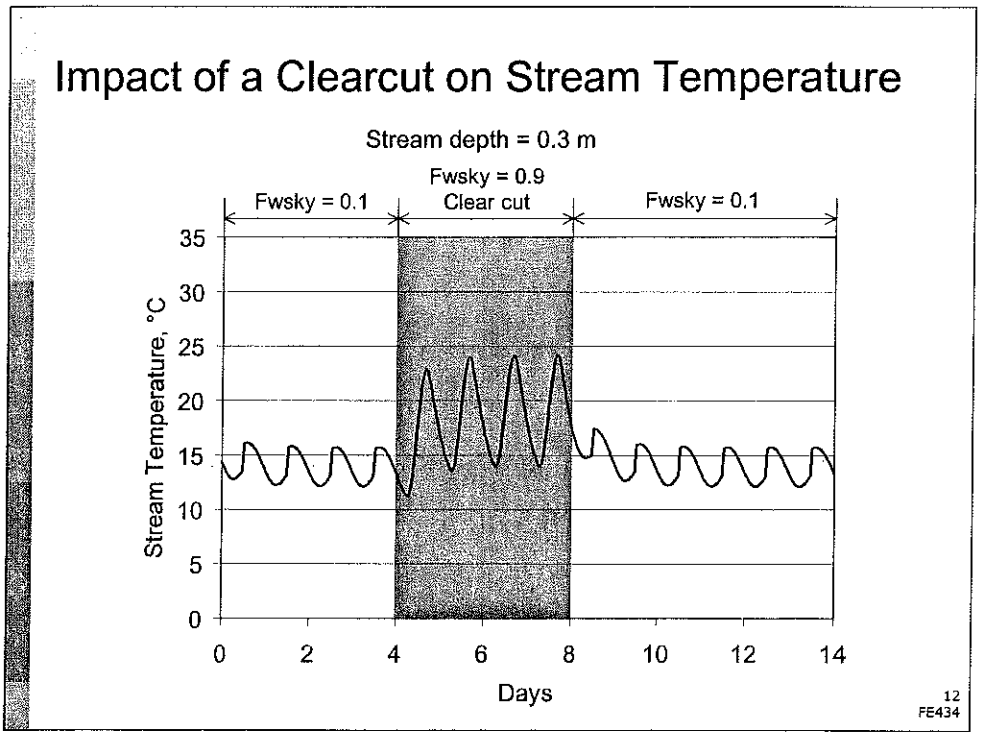
(Data from Boyd, 1997)



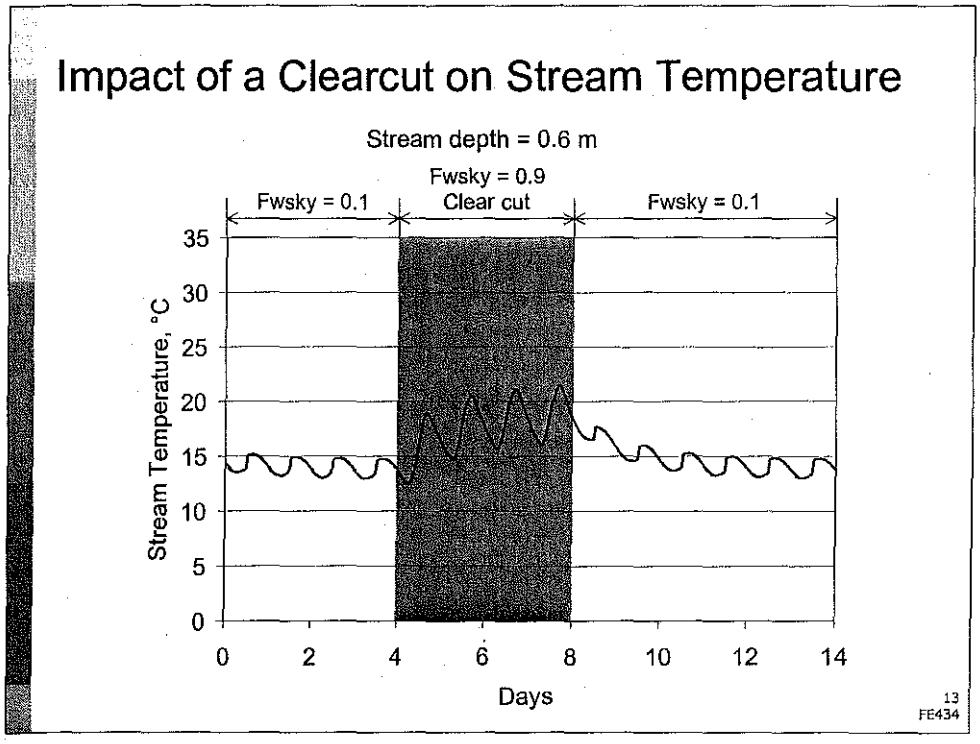
Solar Radiation is the Dominant Heat Energy Process



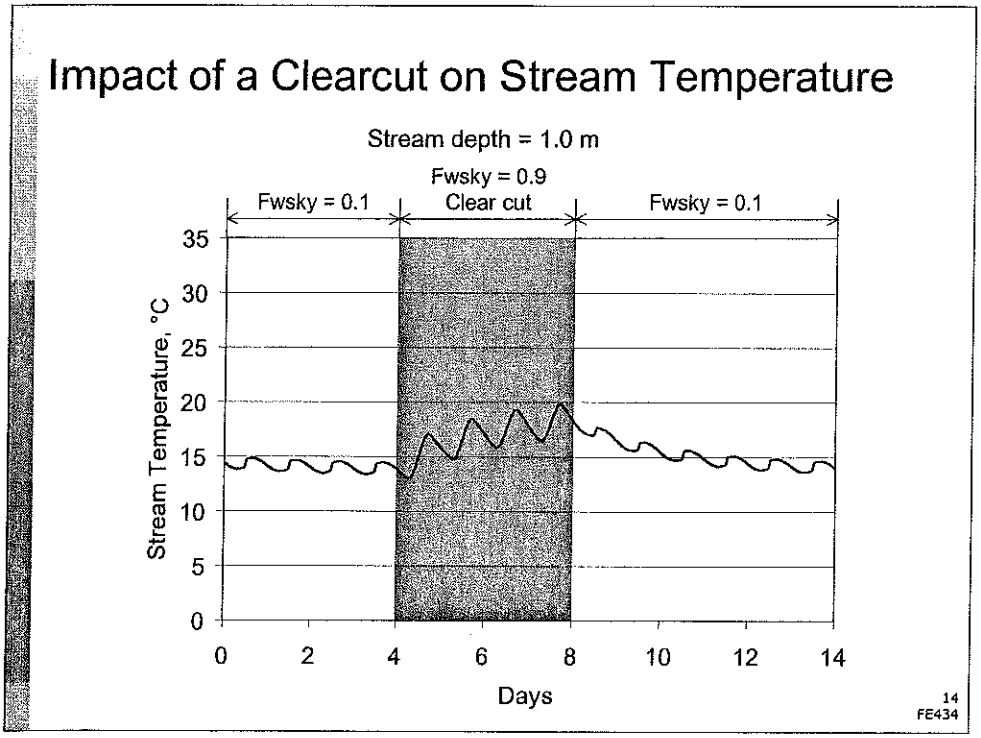
The tendency for a stream to try to maintain an equilibrium with its surroundings is shown in the diagrams. Here a very long stream reach of constant surrounding conditions has been simulated. This situation probably never occurs in the field, but it is easy to simulate with an energy budget model. This has the advantage of showing the result for all stream depths; they always try to achieve an equilibrium with their surroundings. In each of the cases shown here and below a very long section of stream that requires four days to traverse results in an equilibrium with the same daily average temperature and the same daily fluctuations in temperature. This is followed by a section of clearcut where the view of the sky is nearly wide open. Both the average stream temperature and daily fluctuations increase due to the increased solar input. At eight days, when the stream reenters a section identical to the first section before the clearcut, the stream temperature pattern returns quickly to its pre-clearcut pattern, i.e. it returns to equilibrium with its surroundings after establishing a different equilibrium in the clearcut.



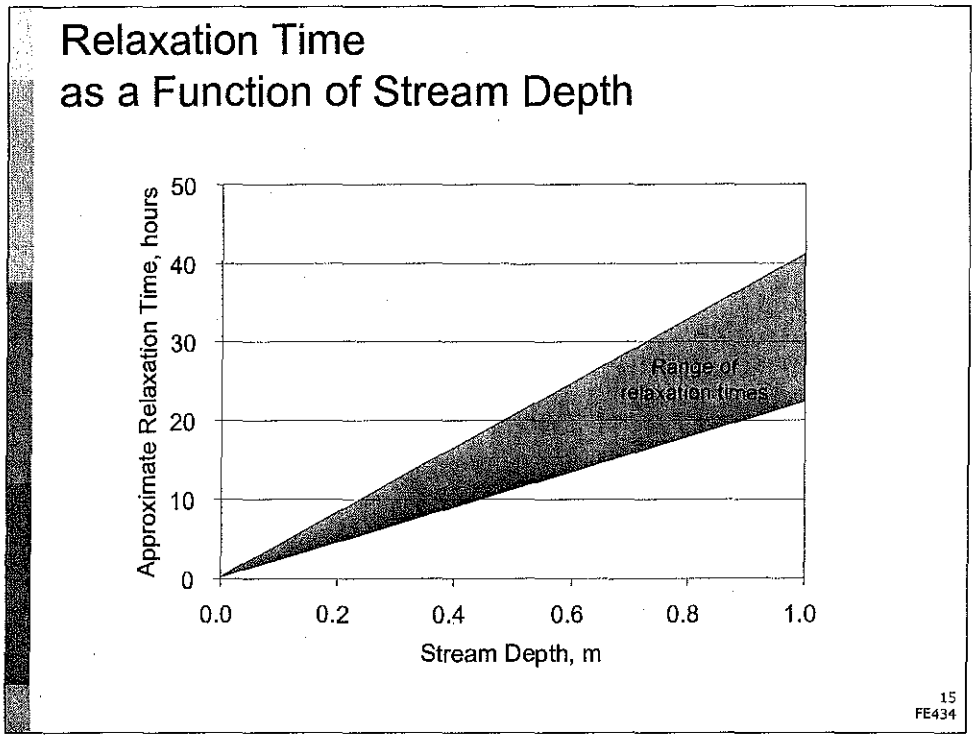
The same general pattern is shown for this larger stream: initial equilibrium with one condition, a new equilibrium is established after a short period in the clearcut, and a return to the original equilibrium when the stream leaves the clearcut. The response time for this larger stream is longer. This is the pattern in the next two diagrams. Larger streams take longer to equilibrate. Note that the equilibration for the diurnal variations is very rapid, but the equilibrium for the average temperature takes longer.



Again, very rapid equilibration of the diurnal variations followed by slower equilibration of the average temperature.



With this very large stream the impact of the clearcut is very modest, but the pattern of the previous examples hold.



The temperature of forest streams changes in response to changing environmental conditions. The temperature always tries to "relax" toward the local equilibrium temperature. This equilibrium temperature is a function of groundwater input, shade, wind conditions, etc. as well as the time of day. As the water passes through sections with different conditions the stream water changes temperature in the direction of the local equilibrium.

The response (or relaxation) time depends on the depth of the stream, which also dictates the stream's response to diurnal variations. The graph above shows an approximate range of response times as a function of stream depth.

Geomorphic Processes: Patterns and Interactions with Aquatic Habitat

Gordon Reeves
USDA Forest Service
Pacific Northwest Research Station
Corvallis, Oregon

SATURDAY

The Oregonian

THE FLOOD OF '96

WRATH AND AFTERMATH

PORTLAND

■ The Willamette River crests, and OMSI and the harbor wall escape the worst

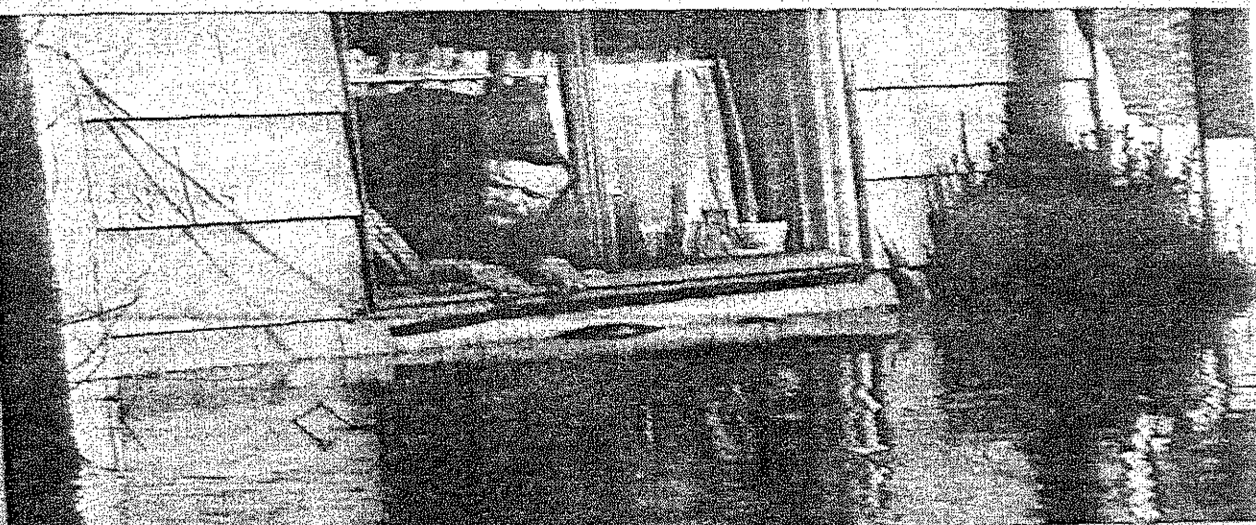
THE SUBURBS

■ Clackamas and Washington counties see major trouble along the Tualatin River

THE REGION

■ Some Oregon evacuees return, but problems plague Southwest Washington

TODAY'S DEVELOPMENTS



Floodwaters may stage slow retreat

The Tualatin River basin becomes a major concern

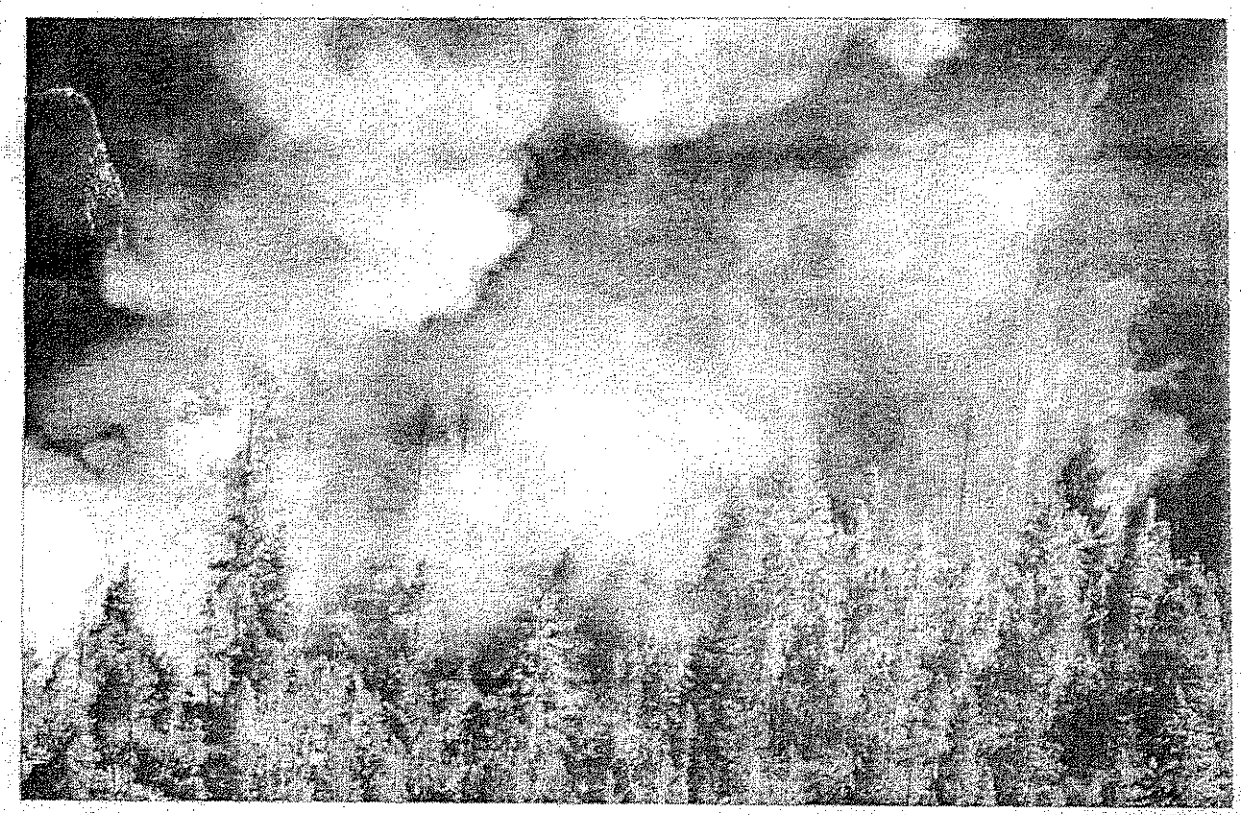
Raging rivers play havoc with water systems

The Sunday Oregonian

NOVEMBER 3, 2002 — 2001 PULITZER PRIZE WINNER FOR PUBLIC SERVICE ★ FIRST EDITION — PORTLAND, OREGON $1.50

First of a three-part series

THE MONSTER IN THE WOODS



The Florence fire surges through the Siskiyou National Forest in Southwest Oregon this

Decades of misguided forest management policy set the stage for an inferno that challenged the old rules of fighting wildfires

ANALYSIS

Hopefuls offer clear difference to voters

The philosophies of the candidates for governor diverge on issues from taxes to abortion.

By JEFF MAPES
THE OREGONIAN

VOTE 2002

KULONGOSKI
Don't borrow to balance budget

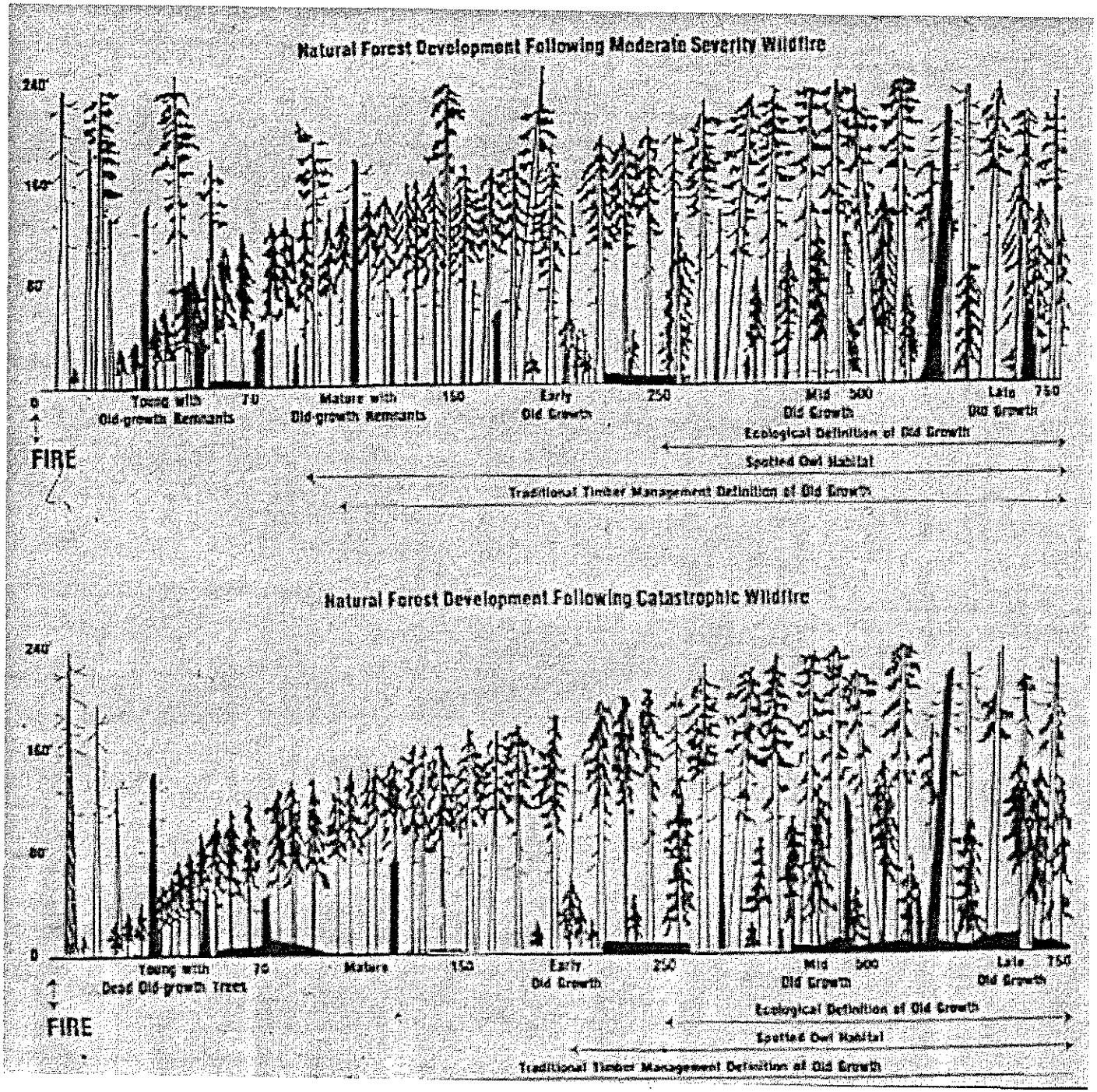
MANNIX
Keep existing

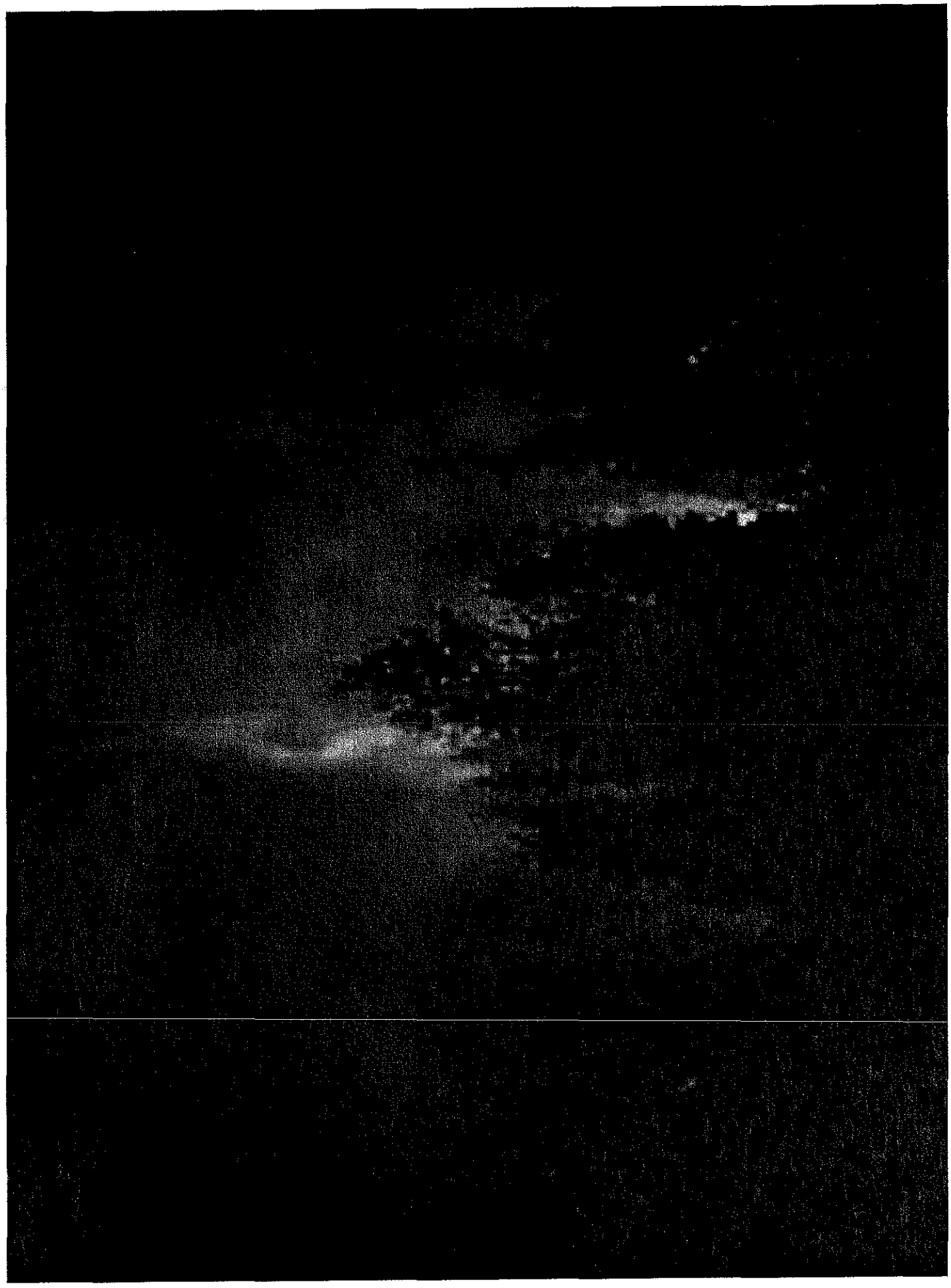
For the first time in 12 years, Oregon has a competitive race for governor — and this time it isn't hard to find big differences in the candidates.

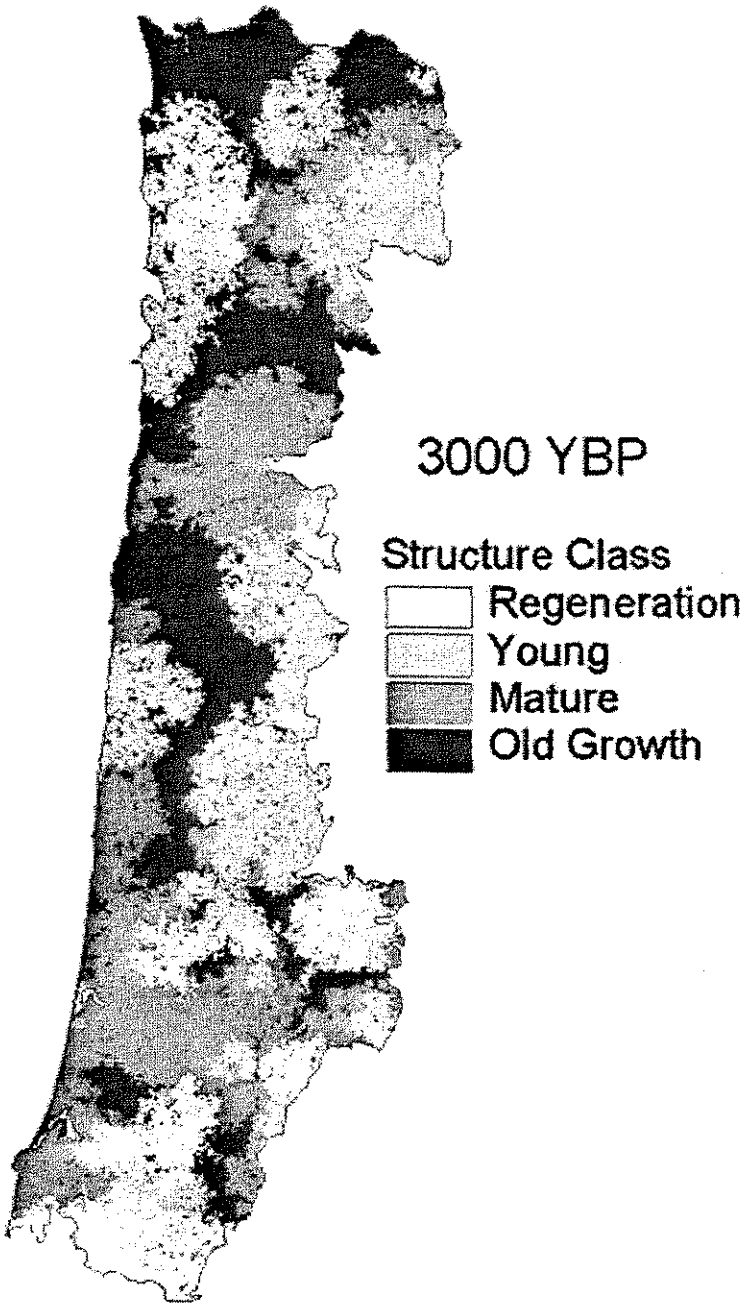
In 1990, when Democrat Barbara Roberts won an upset victory over Republican Dave Frohnmayer, many voters complained they had trouble distinguishing between the two on issues. Both were veteran state officeholders who campaigned in favor of a sales tax and against the Measure 5 property tax limit and supported abortion rights.

No such problem this year.

Democrat Ted Kulongoski and Republican Kevin Mannix noisily disagree on taxes, spending, the economy, education, the environment, abortion, crime, government regulation and who has the best

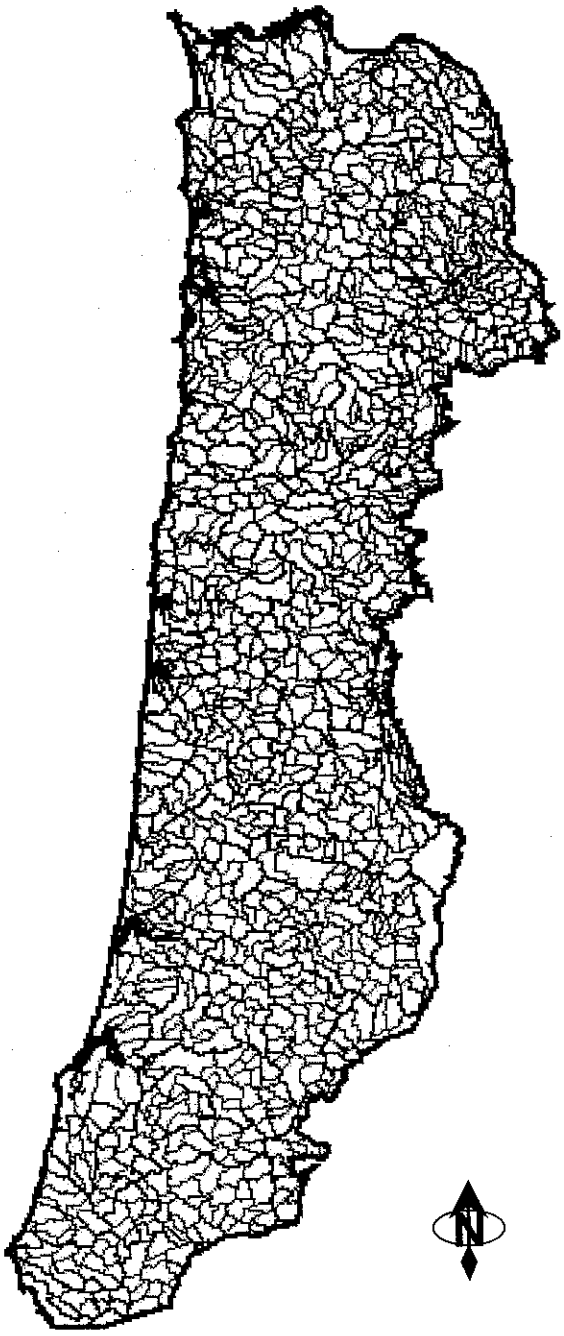

Natural Forest Development Following Moderate Severity Wildfire
240'
160'
80'
0
FIRE
Young with Old-growth Remnants
70
Mature with Old-growth Remnants
150
Early Old Growth
250
Mid Old Growth
500
Late Old Growth
750
Ecological Definition of Old Growth
Spotted Owl Habitat
Traditional Timber Management Definition of Old Growth
Natural Forest Development Following Catastrophic Wildfire
240'
160'
80'
0
FIRE
Young with Dead Old-growth Trees
70
Mature
150
Early Old Growth
250
Mid Old Growth
500
Late Old Growth
750
Ecological Definition of Old Growth
Spotted Owl Habitat
Traditional Timber Management Definition of Old Growth

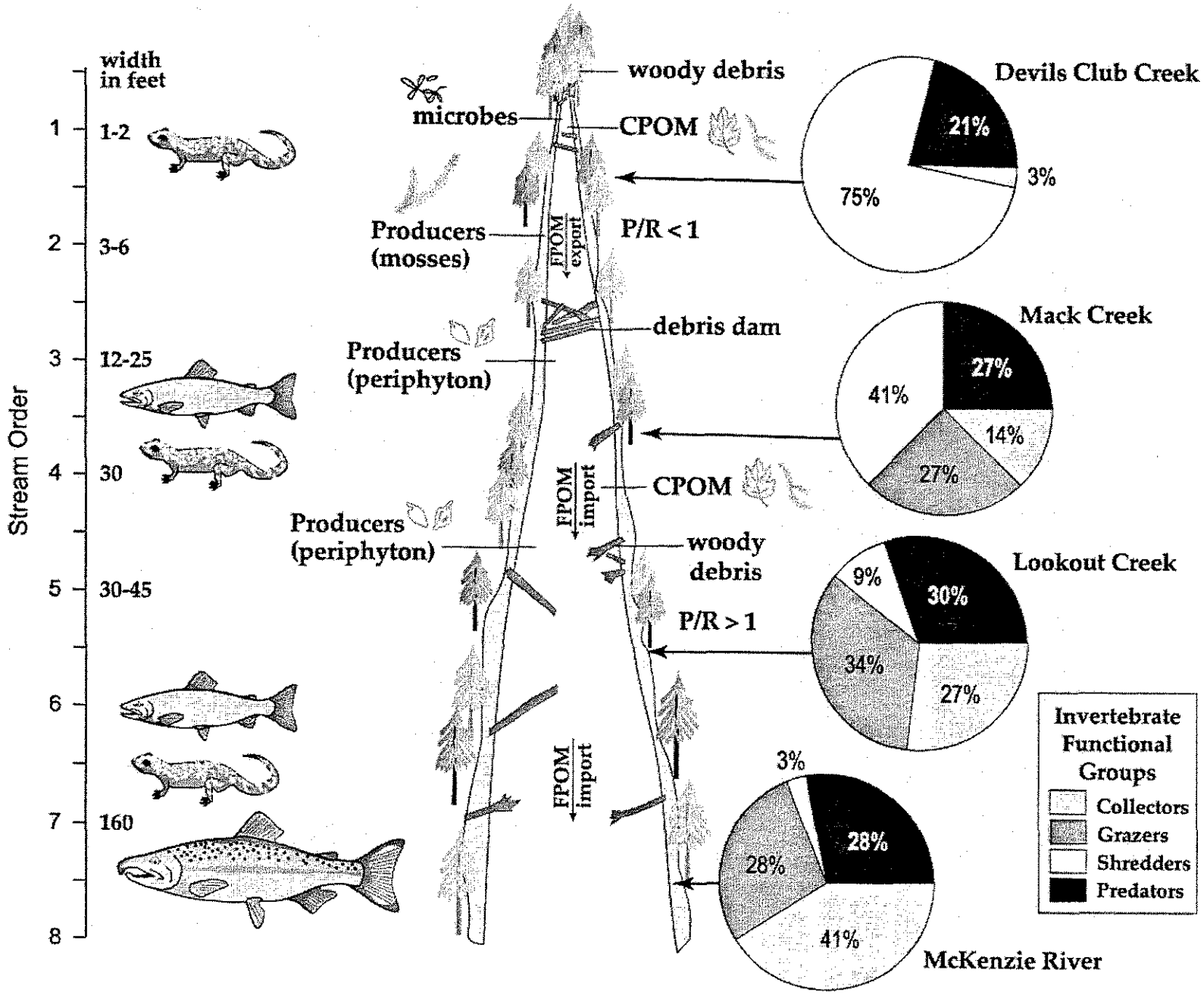




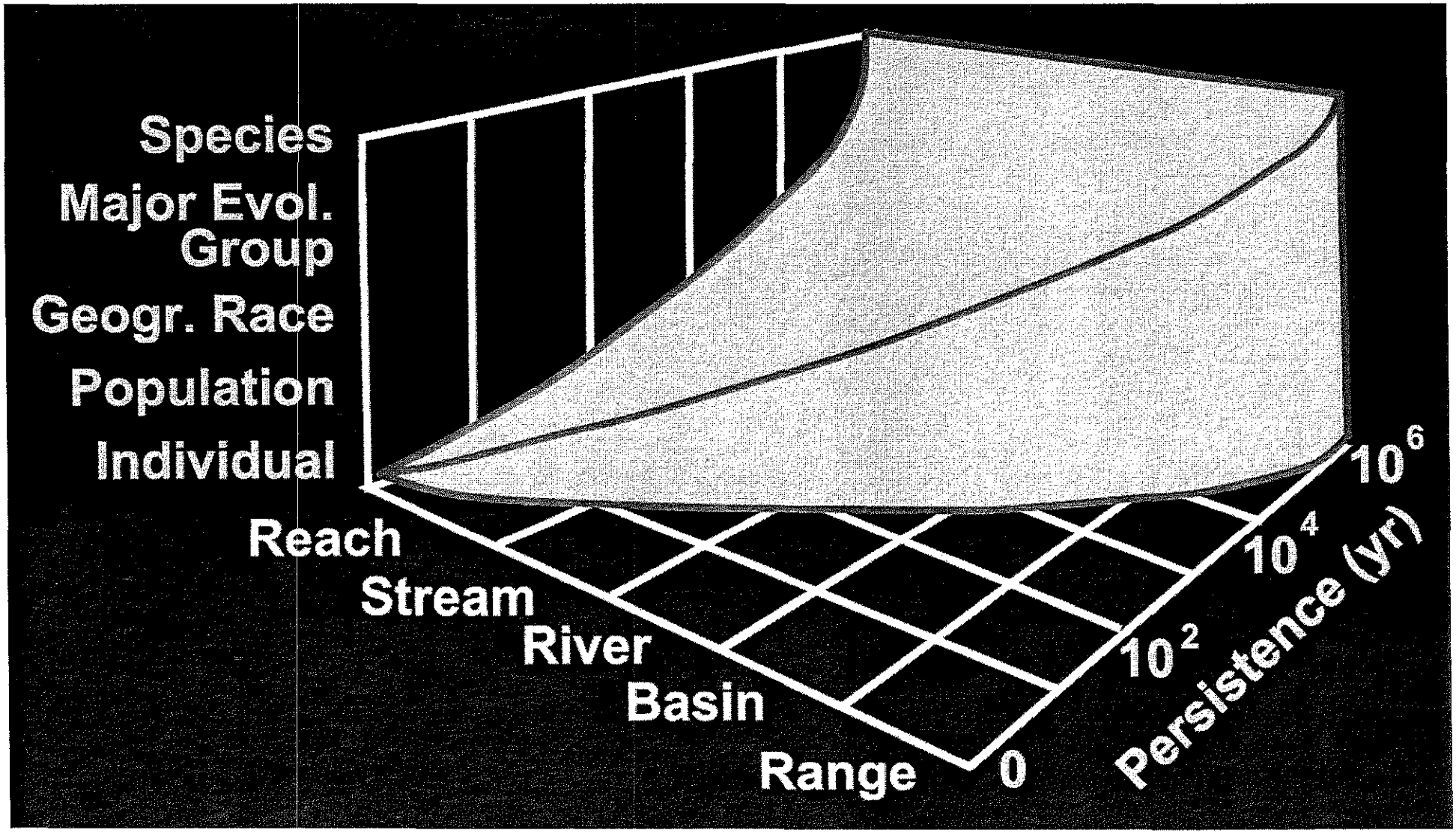
3000-year simulation of pre-settlement landscape dynamics generated with the LADS model

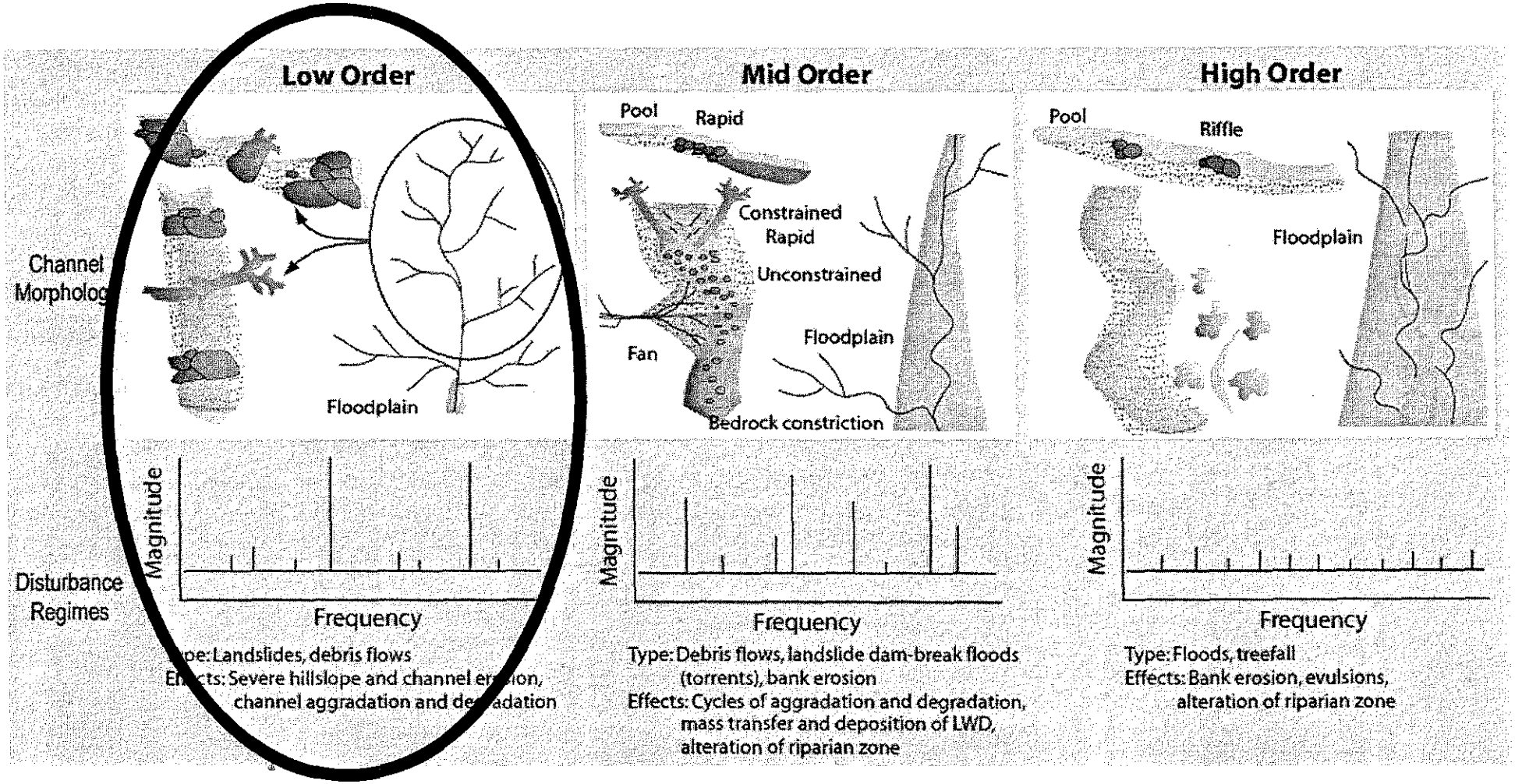
The Aquatic View?

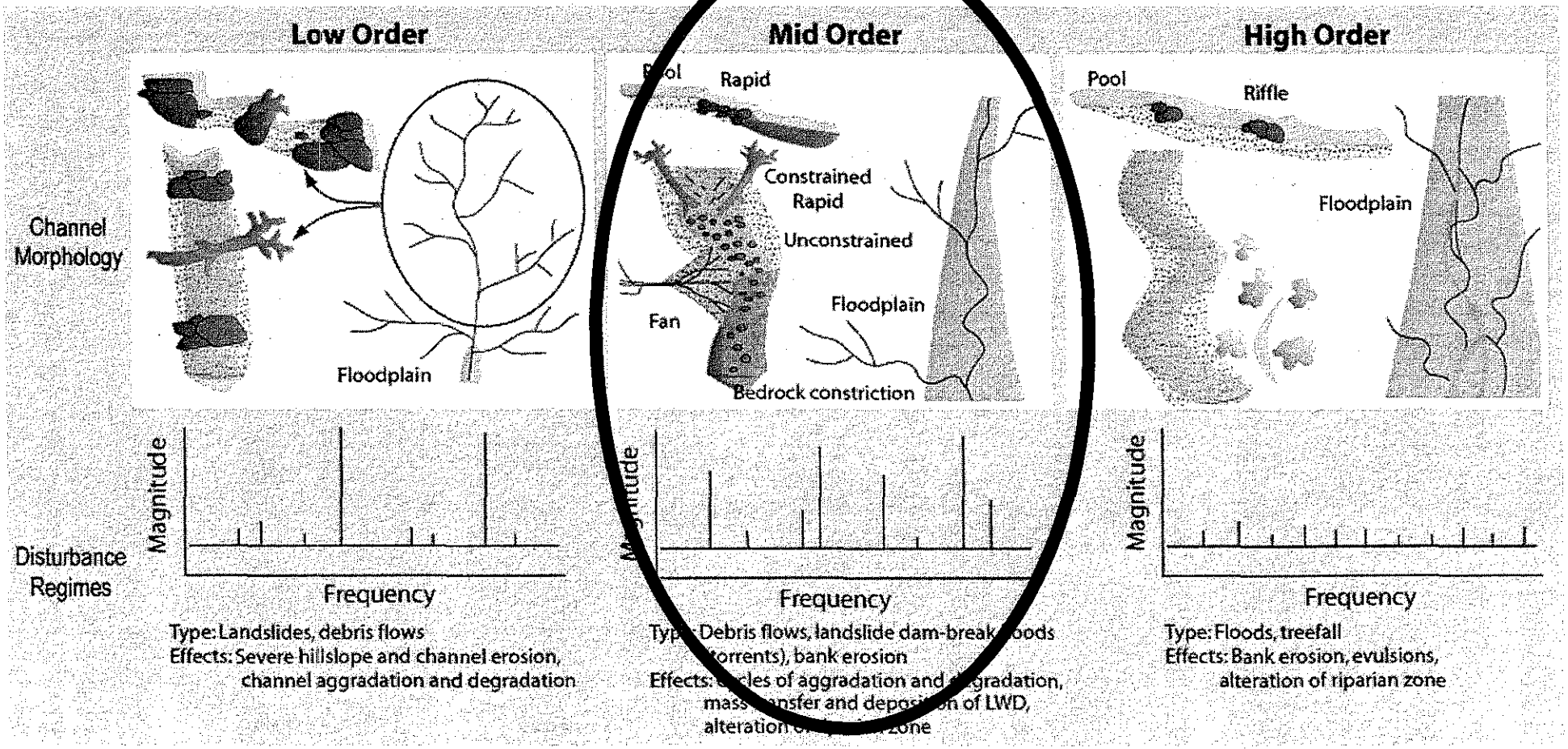


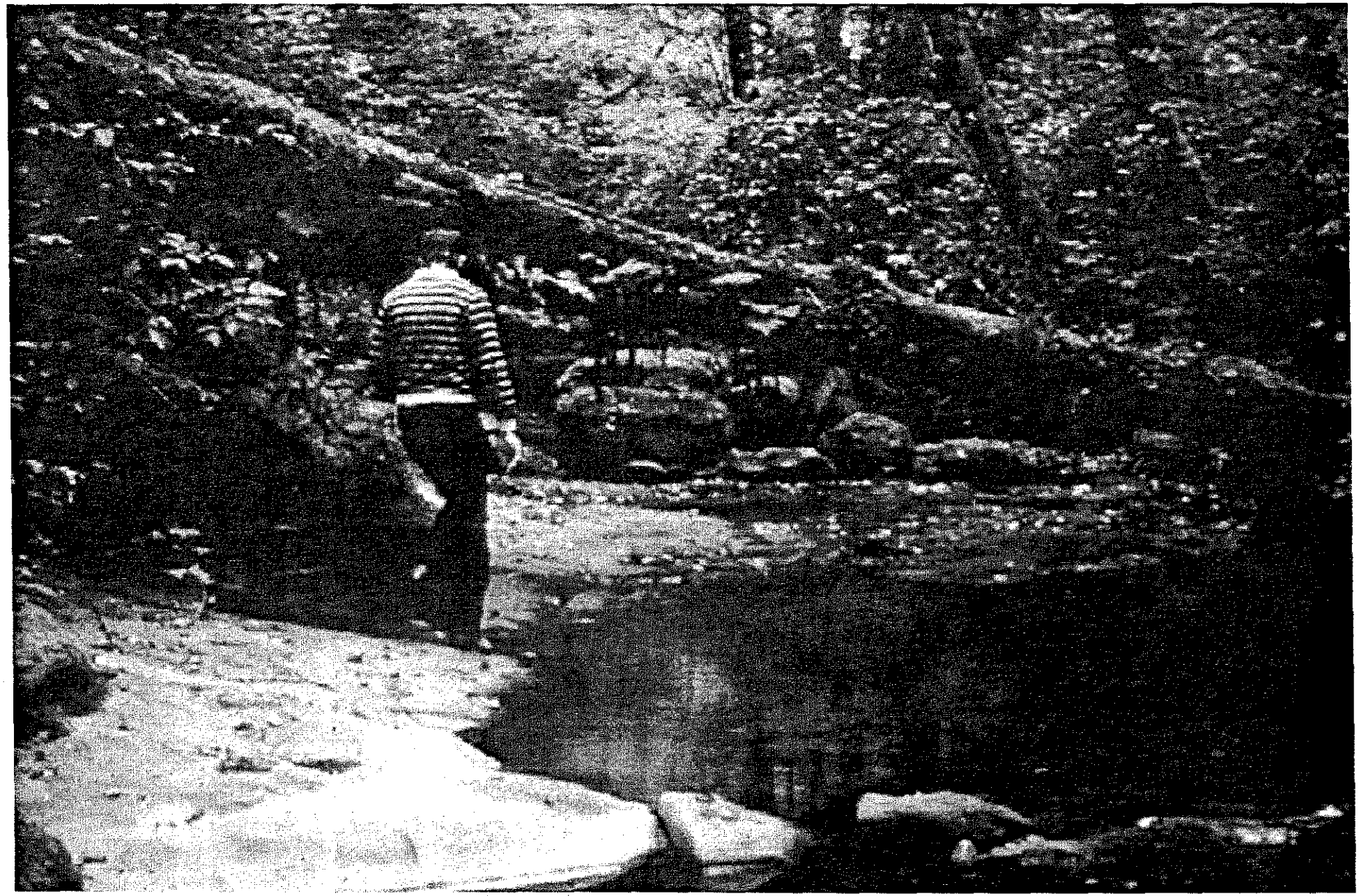


FPOM is fine particulate organic matter; CPOM is coarse particulate organic matter; P/R is the production/respiration


Species
Major Evol. Group
Geogr. Race
Population
Individual
Reach
Stream
River
Basin
Range
0
10^2
10^4
10^6
Persistence (yr)


Low Order
Mid Order
High Order
Channel Morphology
Pool
Rapid
Constrained Rapid
Unconstrained
Fan
Floodplain
Bedrock constriction
Pool
Riffle
Floodplain
Floodplain
Disturbance Regimes
Magnitude
Frequency
Magnitude
Frequency
Magnitude
Frequency
pe: Landslides, debris flows
cts: Severe hillslope and channel er ion, channel aggradation and de adation
Type: Debris flows, landslide dam-break floods (torrents), bank erosion
Effects: Cycles of aggradation and degradation, mass transfer and deposition of LWD, alteration of riparian zone
Type: Floods, treefall
Effects: Bank erosion, evulsions, alteration of riparian zone


Low Order
Mid Order
High Order
Channel Morphology
Pool
Rapid
Constrained Rapid
Unconstrained
Floodplain
Fan
Bedrock constriction
Pool
Riffle
Floodplain
Floodplain
Disturbance Regimes
Magnitude
Frequency
Magnitude
Frequency
Magnitude
Frequency
Type: Landslides, debris flows
Effects: Severe hillslope and channel erosion, channel aggradation and degradation
Type: Debris flows, landslide dam-break floods (torrents), bank erosion
Effects: cycles of aggradation and degradation, mass transfer and deposition of LWD, alteration of riparian zone
Type: Floods, treefall
Effects: Bank erosion, evulsions, alteration of riparian zone

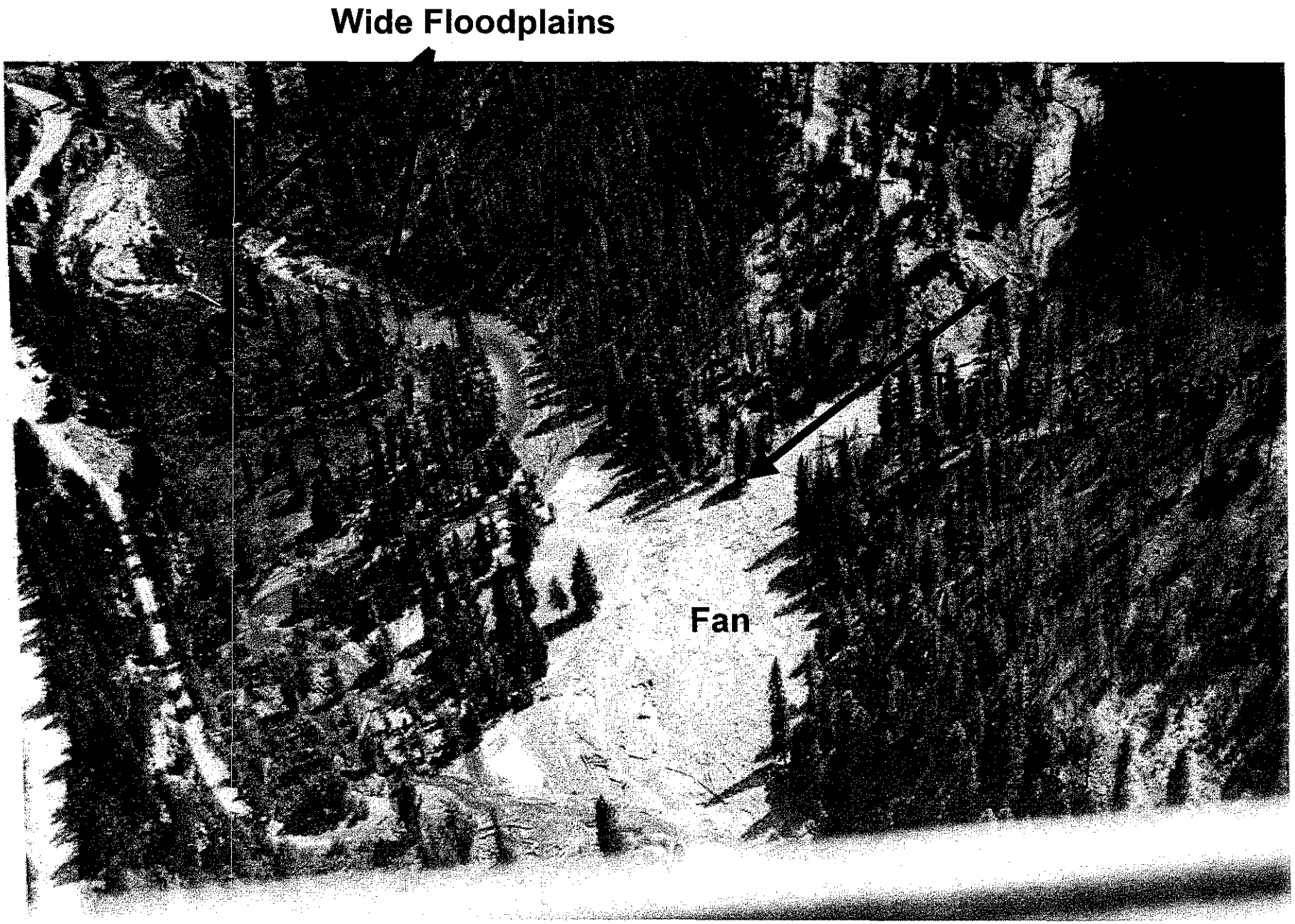


Adaptations to Dynamic Ecosystems

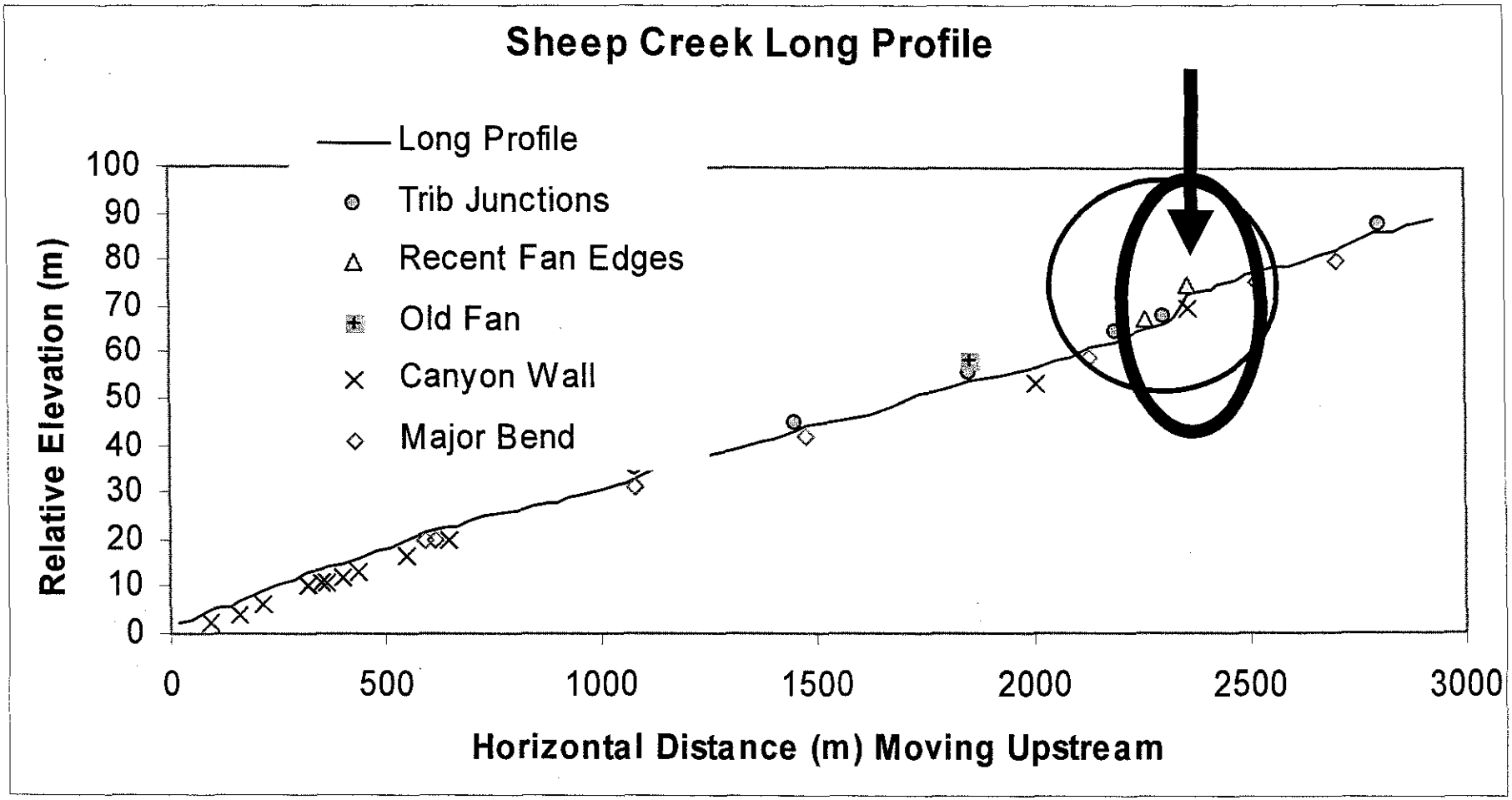
- Persist throughout all ecological stages
- Exist in refugia and move among patches

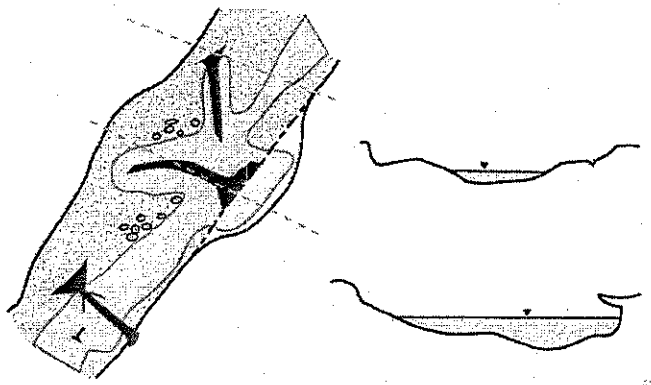
Adaptations of Anadromous Salmonids to Dynamic Environments

- Straying of adults
- High fecundity
- Mobility of juveniles


Wide Floodplains
Fan

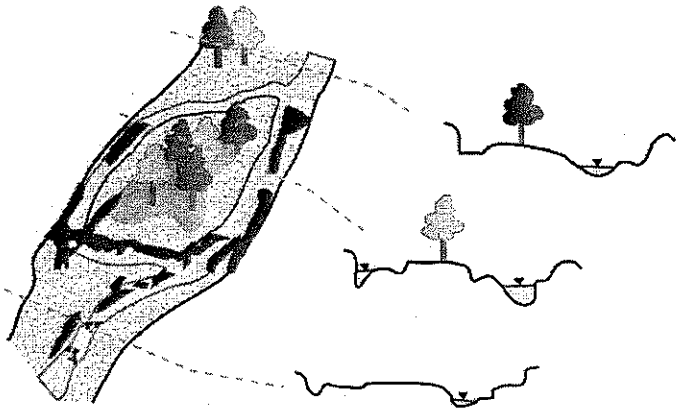
Fan – Specific Effects





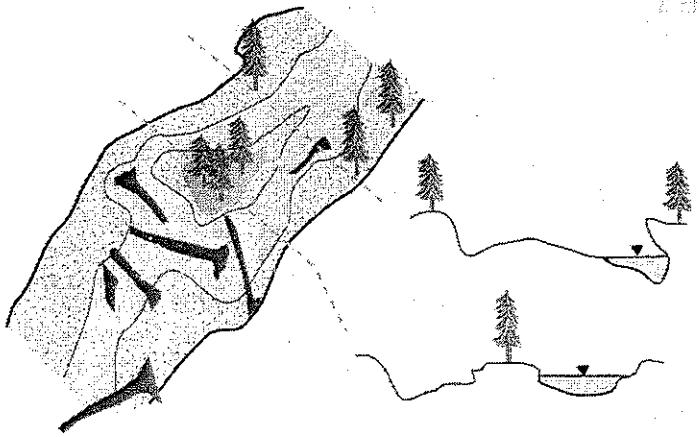
No direct evidence of a LWD jam

Channel complex; width, depth and sediment texture highly variable; LWD diagonal to flows; lateral scour pools and diagonal riffles dominate; banks undercut; small LWD steps frequent



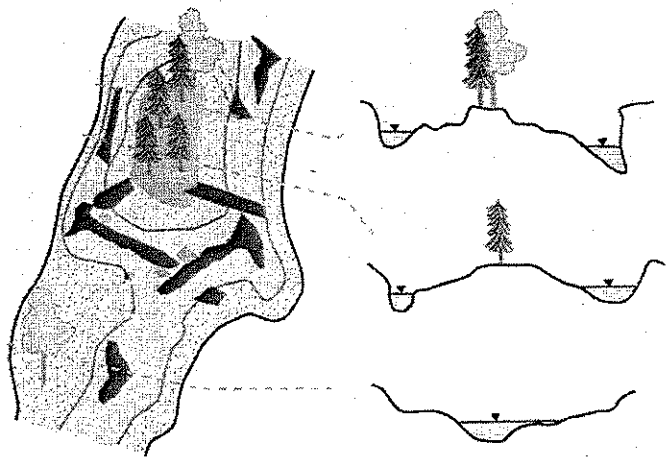
10 to 20 years since LWD jam formation

Upstream: number of channels reduced; sinuosity and gradient increased; bed texture coarser; pools associated with LWD.
Downstream: single main channel with mid-channel bar development; bed sediment texture reduced; pools associated with LWD.



More than 50 years since LWD jam formation

Channel morphology complex; bedform diverse; side-channel development; resembles channel with "no direct evidence of a LWD jam"



30 to 50 years since LWD jam formation

Downcutting through retained sediment wedge; pool types diverse and stable; diagonal riffles; buried LWD exhumed and functioning

Based on Hogan et al.1998

Sources of Large Wood in Cummins Creek

Source	% of Total Volume
Stream Adjacent Riparian	52
Upslope	48

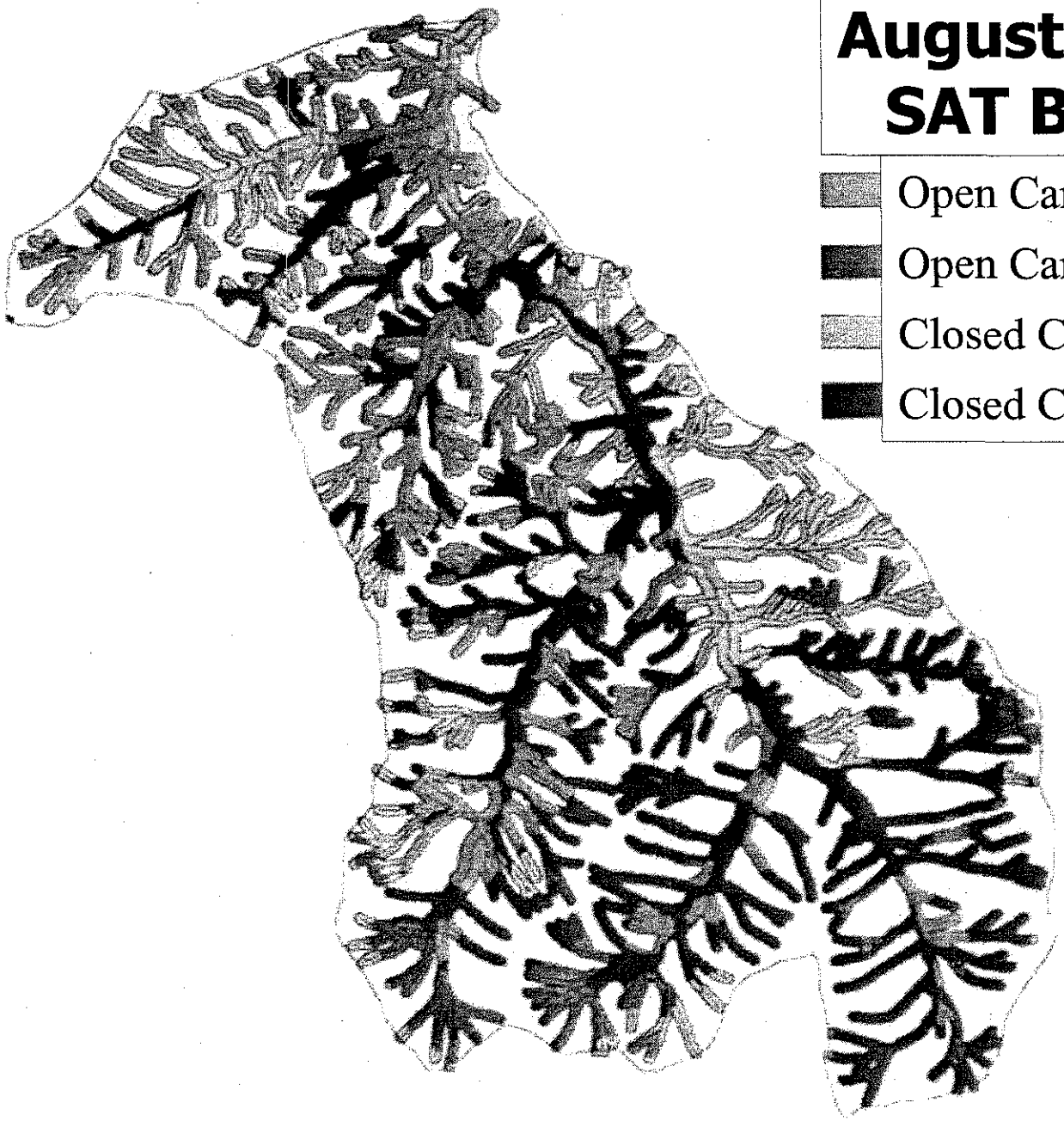
Primary Studies About Source of Large Wood from Stream Adjacent Riparian Areas

Murphy & Koski	1989	AK
Robison & Beschta	1990	AK
McDade et al.	1990	OR
Lienkaemper & Swanson	1987	OR
Van Sickle & Gregory	1990	Model

Consideration of Upslope Sources of Large Wood

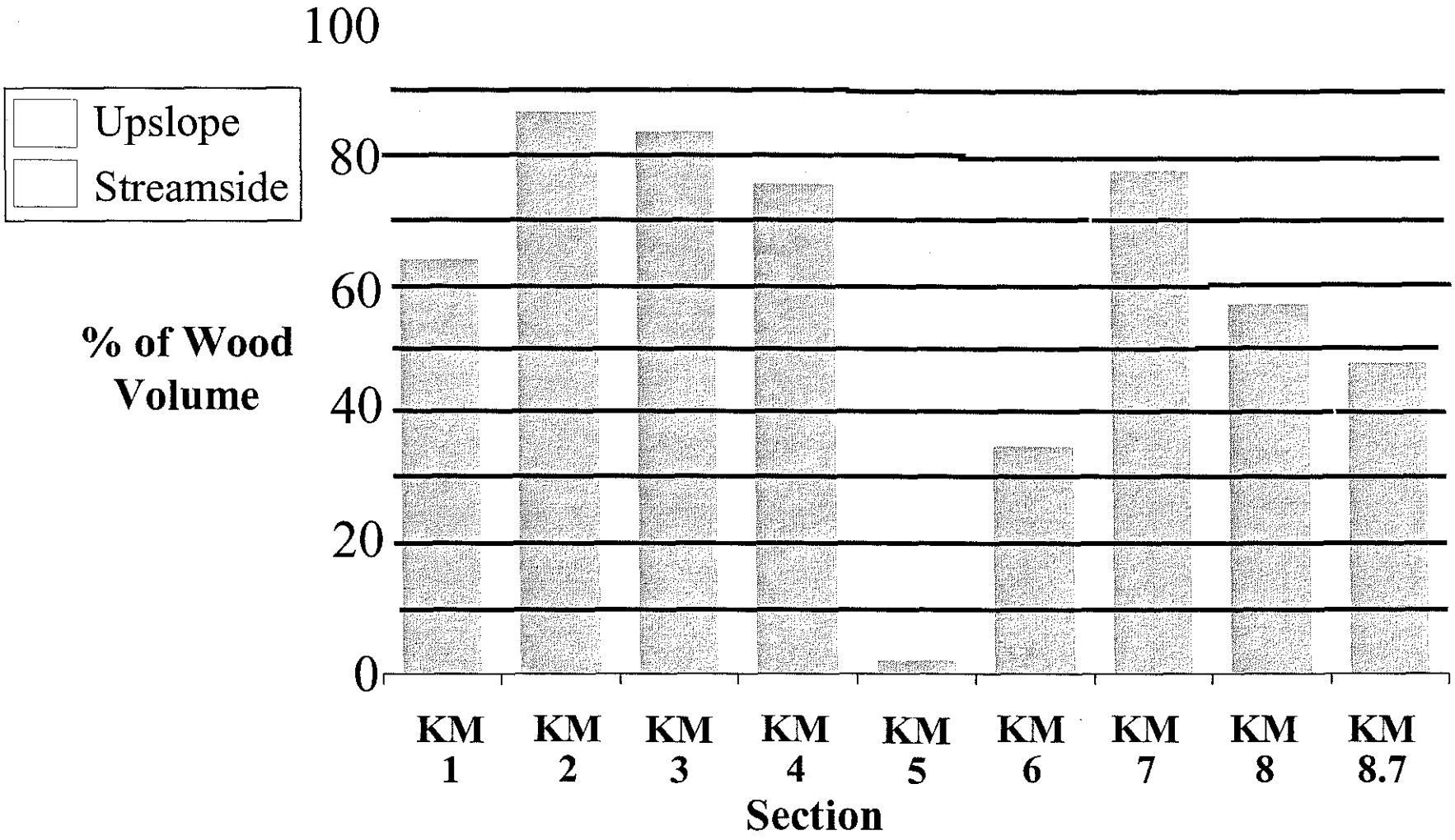
Murphy & Koski	1989	AK	14% of total amount
Robison & Beschta	1990	AK	Not considered
McDade et al.	1990	OR	Not considered
Lienkaemper & Swanson	1987	OR	Not considered
Van Sickle & Gregory	1990	Model	Not considered

Augusta Creek SAT Buffers



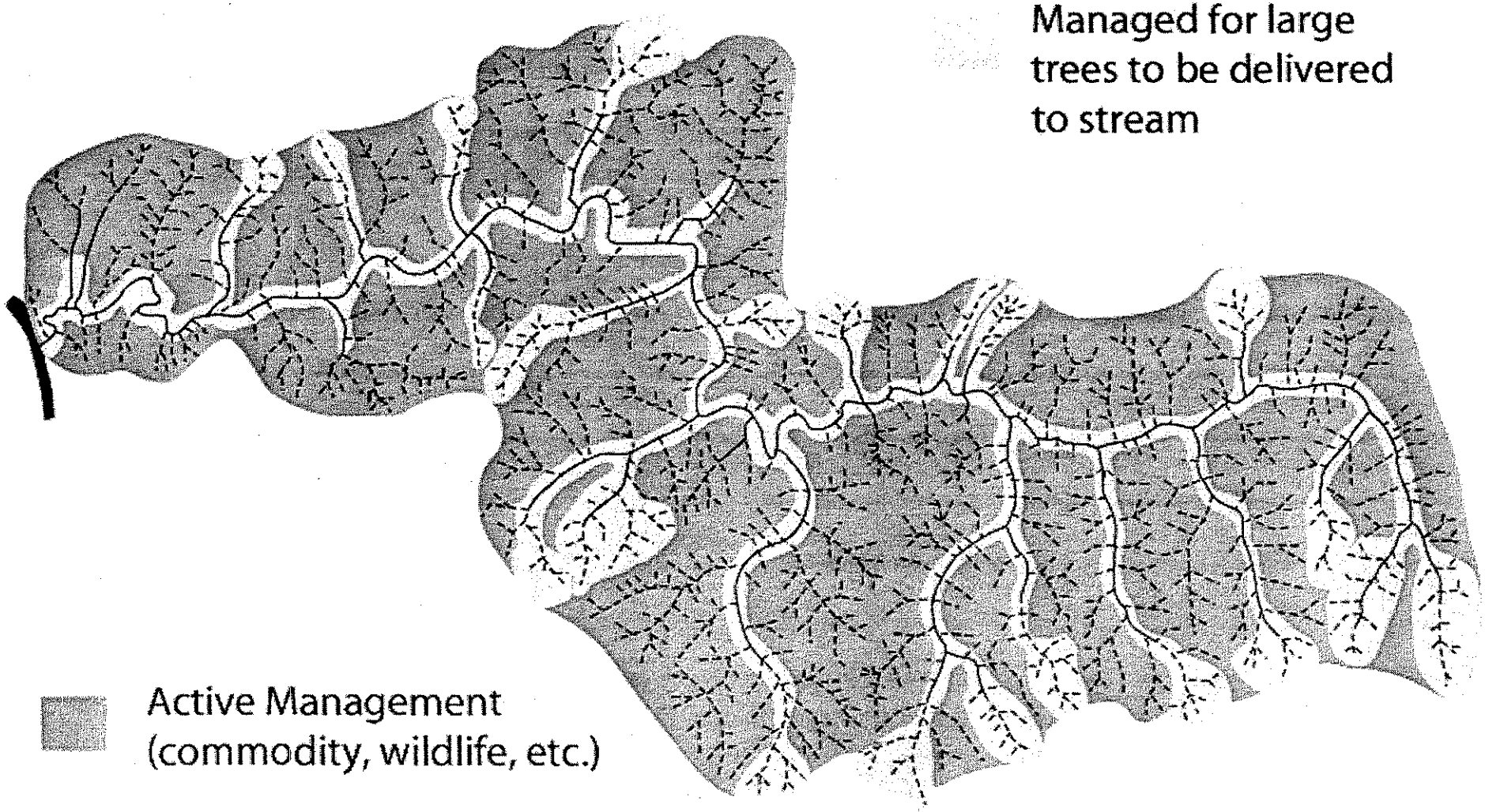
- Open Canopy – Plantations
- Open Canopy – Natural
- Closed Canopy – Young & Mature
- Closed Canopy – Old

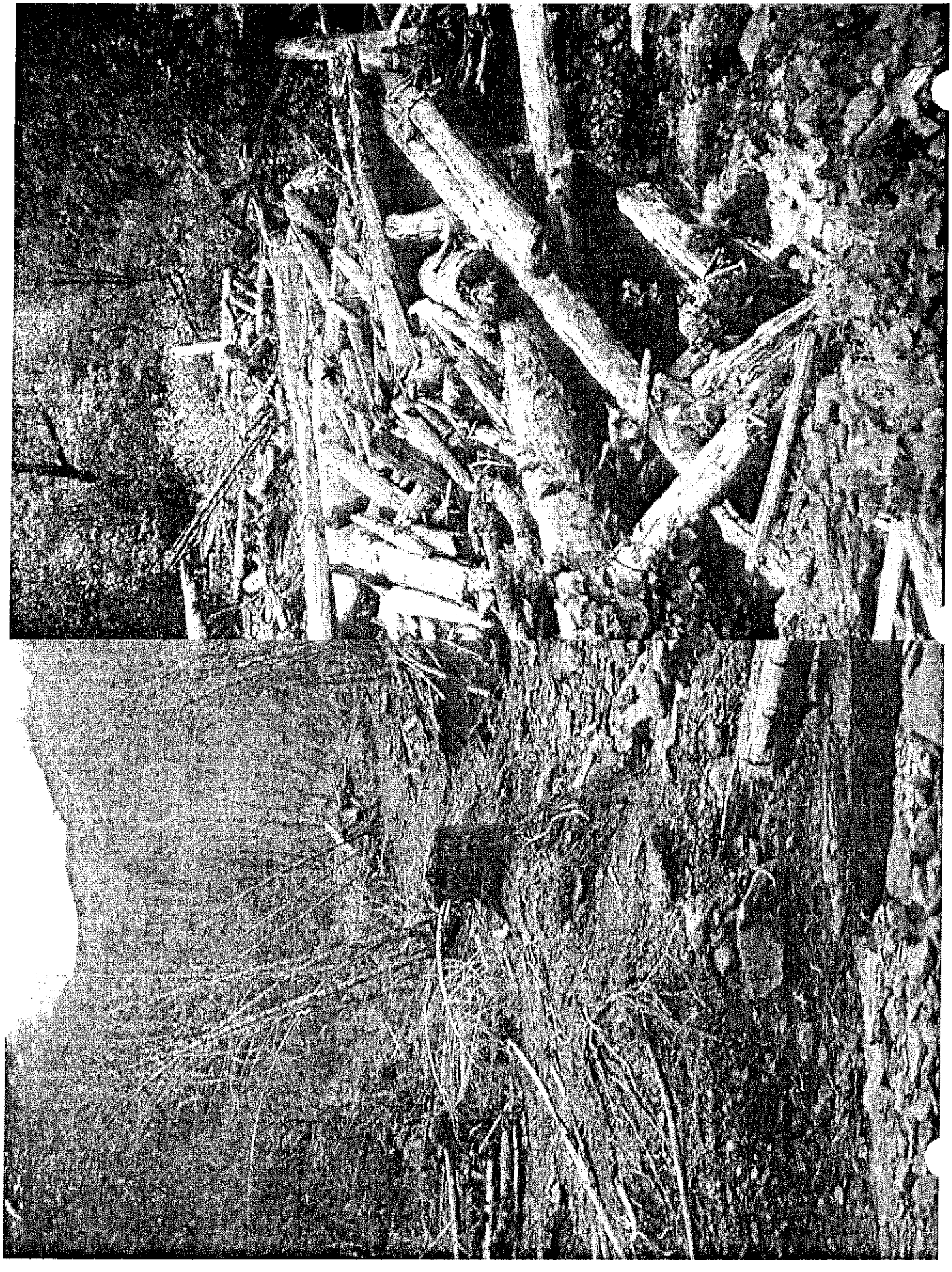
Percent of Wood Volume Delivered from Streamside and Upslope Sources in Different Sections of Cummins Creek, OR

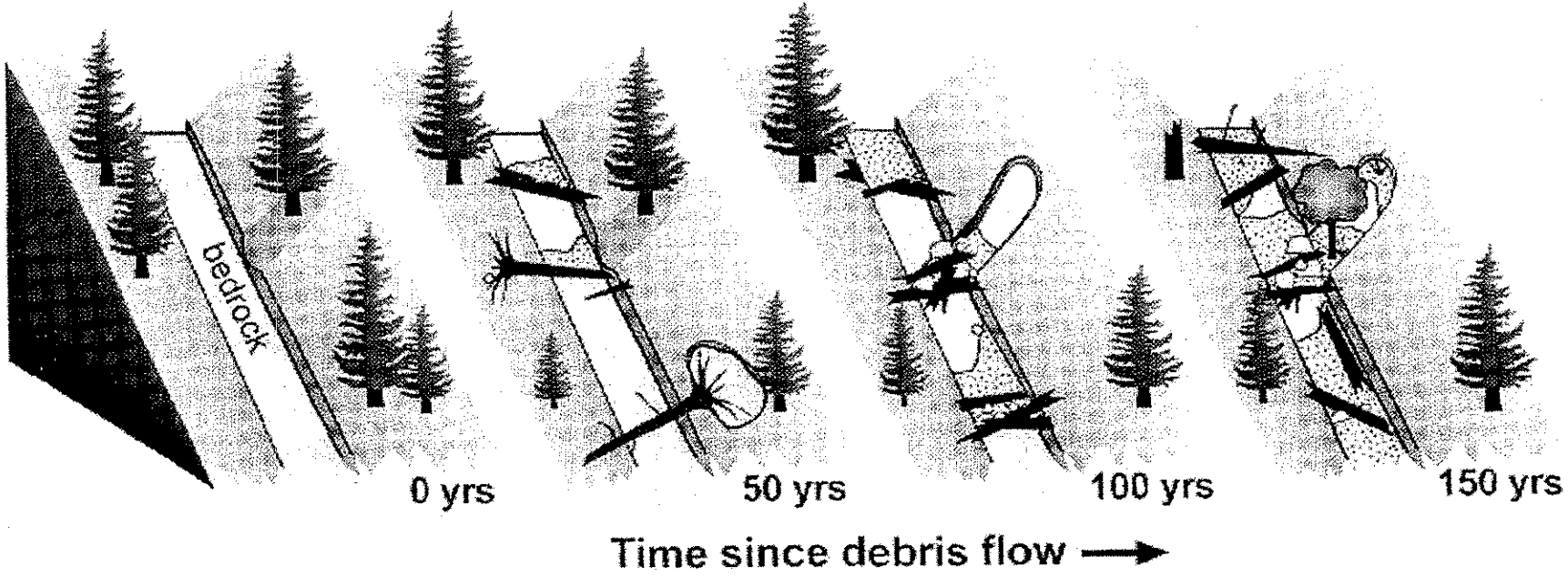


From: Reeves et al. in press. Sources of wood in a fourth order watershed in coastal Oregon. Canadian Journal of Forest Research..

Suggested Riparian Management Scheme



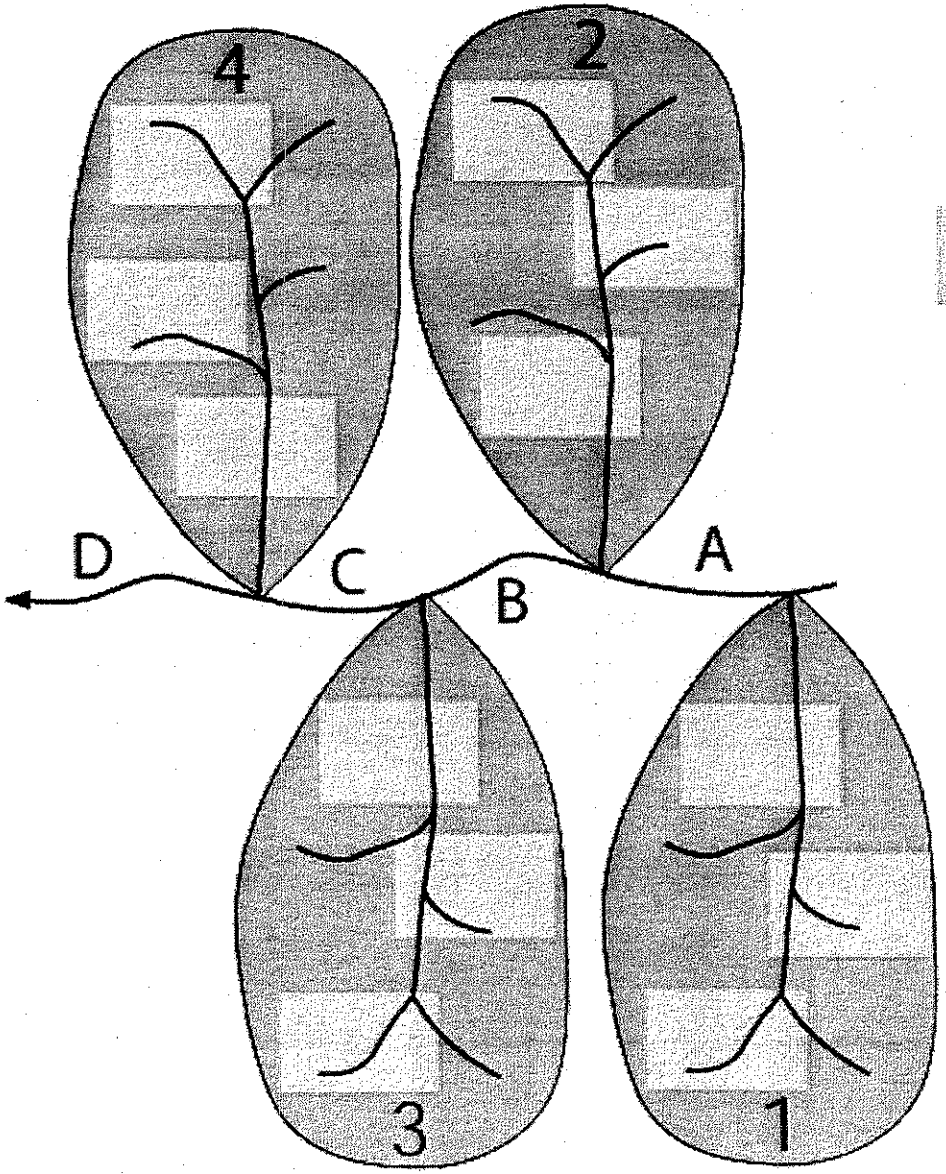




From: May and Gresswell 2003

	Natural Disturbance	Human Disturbance
Magnitude	High	Low
Frequency	Low	High
Coupling of System	Maintained	Decoupled
Legacy	Sediment Wood	Sediment

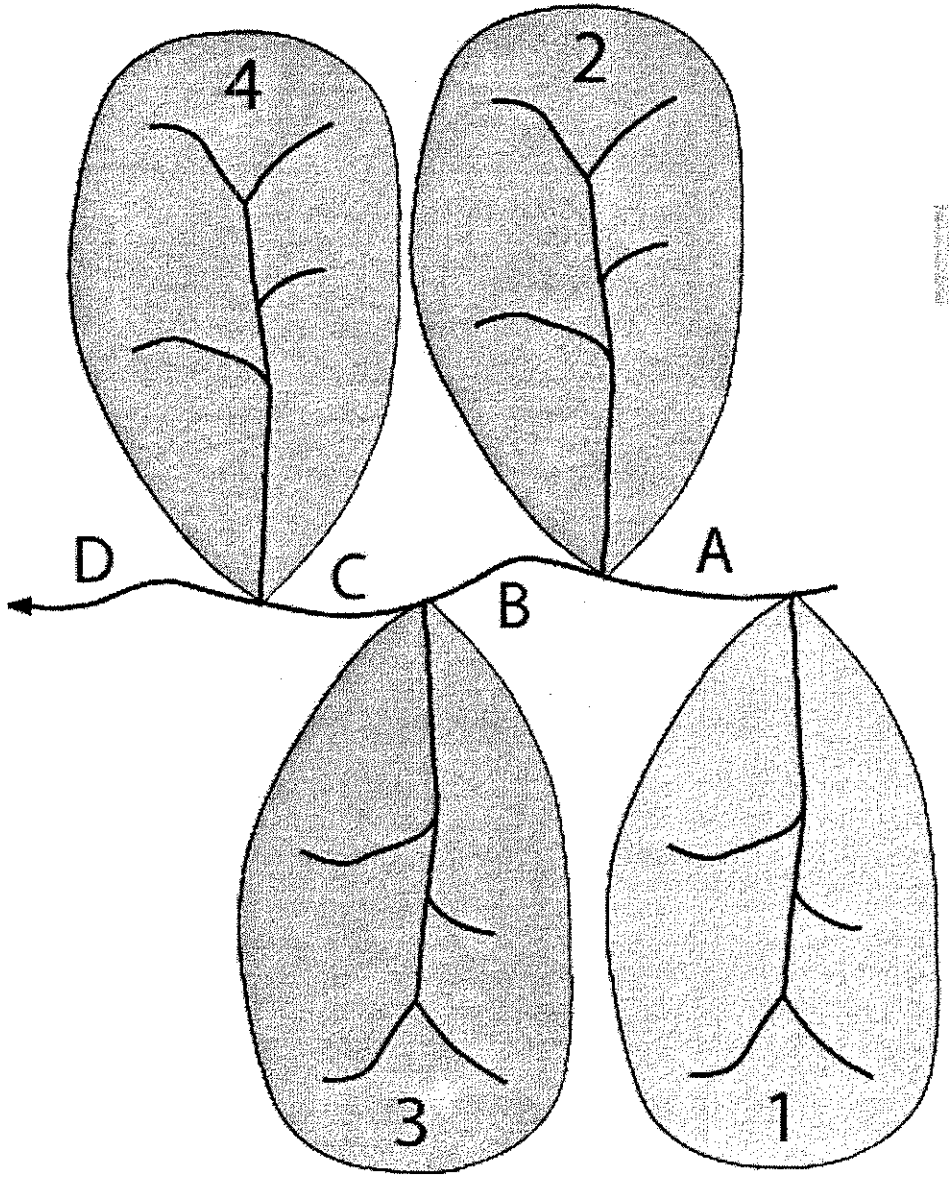
Staggered Setting Scenario



Active Management

25 % of total basin area

Minimum Fragmentation Scenario

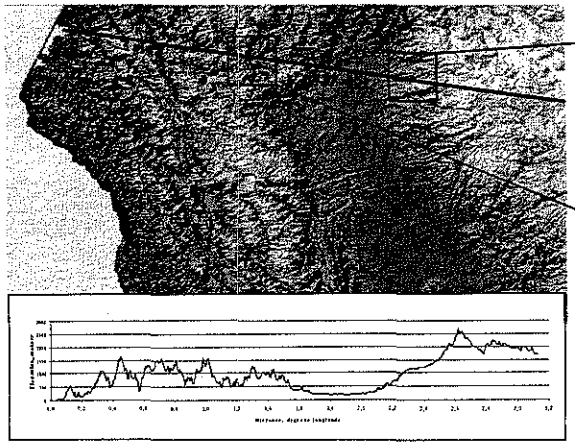


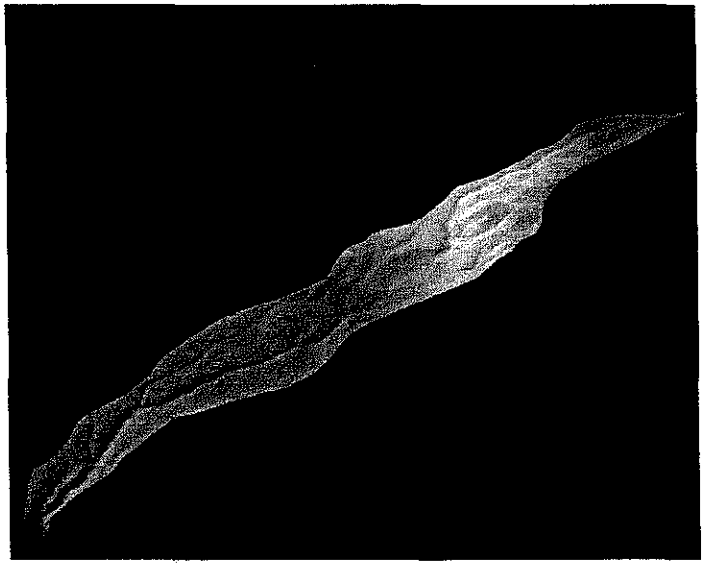
Active Management

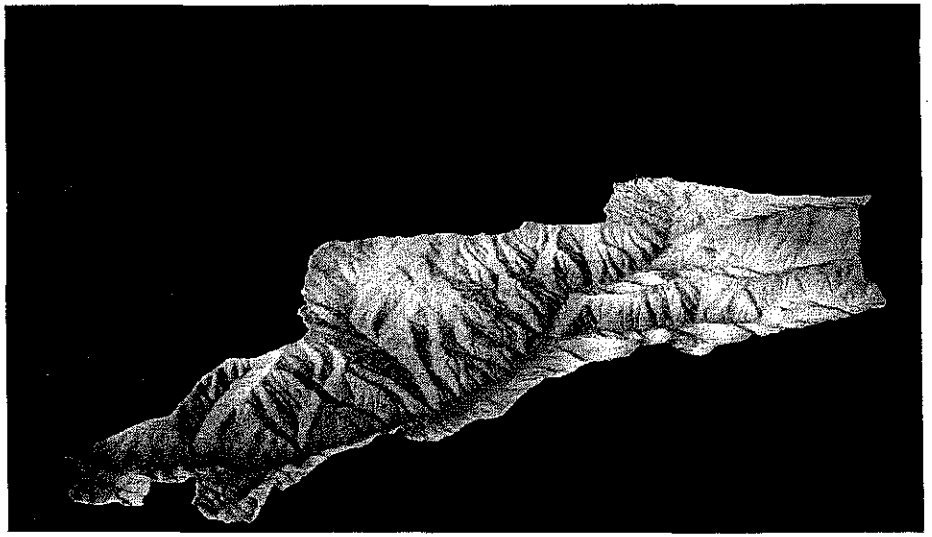
25 % of total basin area

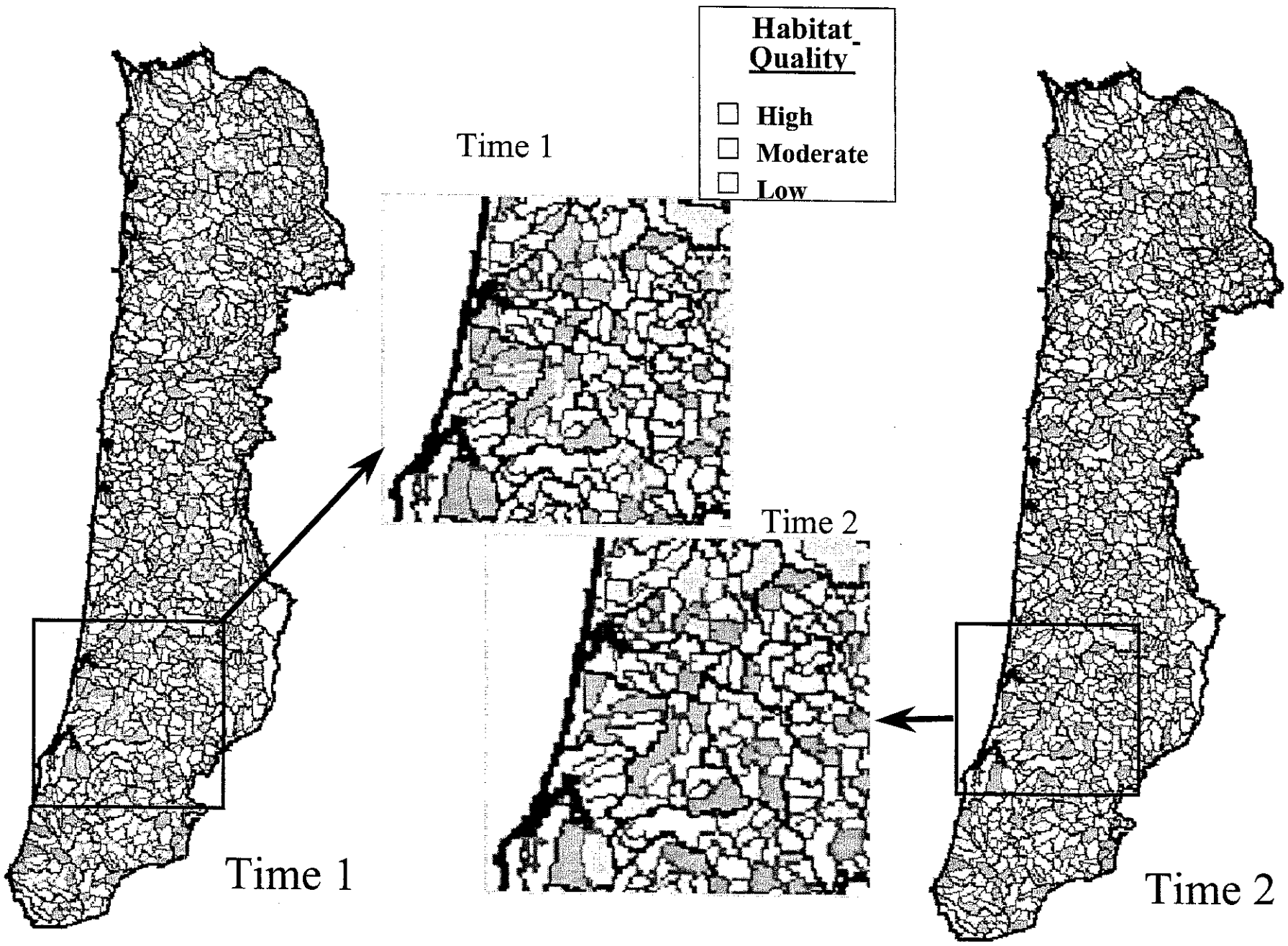
Landscape Organization of Environmental Variance

Gradients of topographic roughness (i.e., variance in erosion and topography)

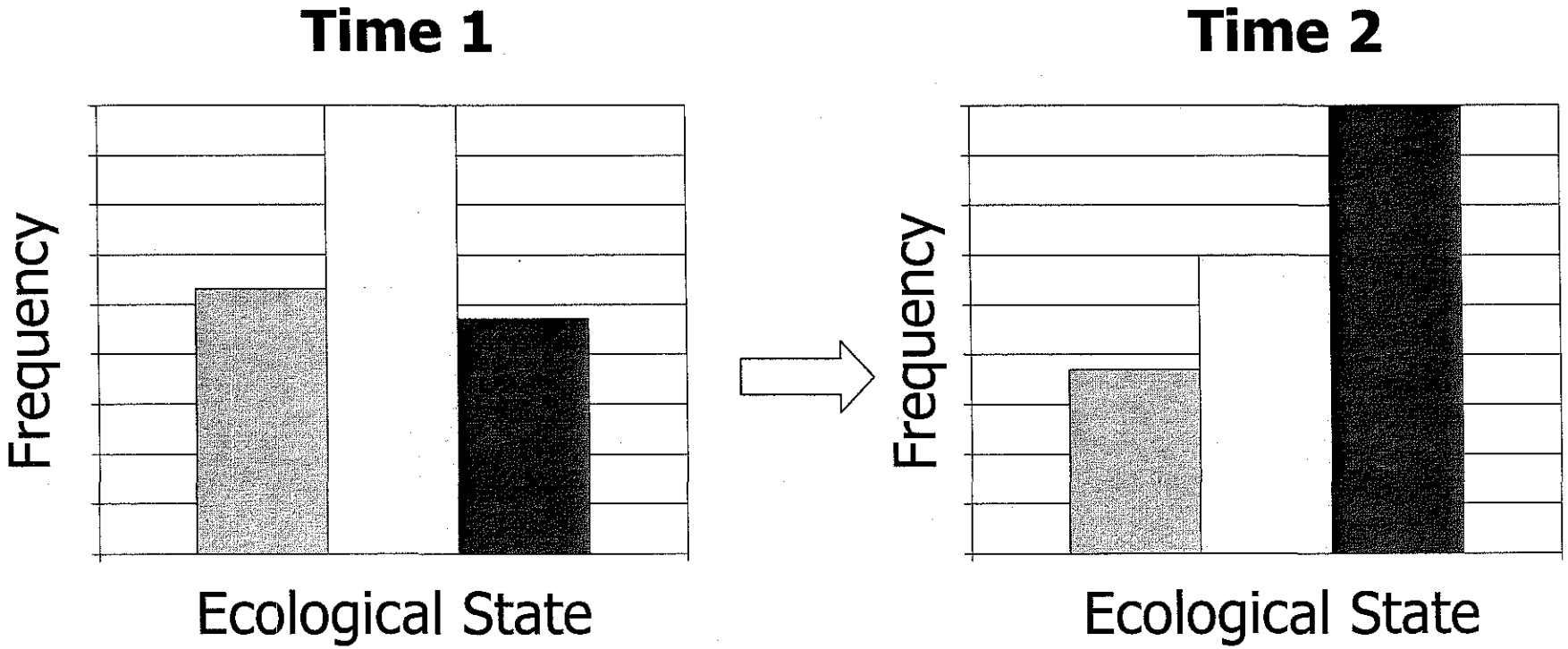







Habitat Quality
High
Moderate
Low
Time 1
Time 2
Time 1
Time 2

Landscape Condition



"The significant problems we face today cannot be solved with the same level of thinking that were at when we created them."

Albert Einstein

Interrelationships and Limiting Factors

Stan Gregory, Carl Yee

Independent Multidisciplinary Science Team

IMST Reports Relevant to the Board of Forestry Workshop

Representative of the Independent Multidisciplinary Science Team will present an overview of major IMST findings that are relevant to riparian management on state and private lands. The IMST was formed by the Oregon Legislature in cooperation with the Governor's Office to evaluate the scientific basis for the implementation of the Oregon Plan for Salmon and Watersheds. Technical reports of the IMST can be obtained from the IMST website (http://oregonstate.edu/fsl/imst/technical.html).

The IMST released a major report on forestry in Oregon in September 1999. The report focused on topics involving the management of (a) riparian areas, (b) large wood, (c) sedimentation from roads and landslides and (d) fish passage at road-stream crossings. The geographic scope of our report was forested lands west of the Cascades and in the Siskiyous. We excluded forest lands on the east side in part because grazing and forestry are so strongly intermingled on these lands and in many instances it will be difficult to segregate the effects on aquatic habitat of one land use from the other. IMST will address this intermixed land use on the eastside and their different policies in a report to be released this coming fall or early winter. The Forestry Report noted that the concepts articulated for the westside forestlands can likely be extended by ODF, ODFW and the FRL to the eastside forests.

The IMST found that some specific aspects the Oregon Forest Practices Rules and the Measures of the Oregon Plan need improvement in dealing with riparian buffers, large wood management, sedimentation and fish passage at road-stream crossings. We believed that these changes could be accommodated within the existing policy framework. However, even with these changes, we felt that the current site-specific approach of regulation and voluntary actions is not sufficient to accomplish the recovery of wild salmonids. A landscape scale approach with flexible or adaptive management will be needed. Our report recommended this approach for forestlands. We also felt that the forest policy framework of the State would need to be changed before it would be feasible, equitable and attractive.

In reading our reports, it is important to realize that there are two levels of resolution and two general time scales involved. One level of resolution is at the operational level involving changes to existing Rules and Measures and their implementation. This level of resolution can be accomplished in the near-term future. The second level of resolution is at the policy level, which will require a longer period of time.

Overview of Findings

The IMST has provided the following summaries of our conclusions from three important reports—the Forestry Report, the Temperature Report, and the Lowlands Report.—to assist the Board in our workshop presentation. We will be happy to explain any of these findings, the recommendations related to these findings, or the scientific literature on which these conclusions were based.

IMST Forestry Report 1999-1 (http://oregonstate.edu/fsl/imst/technicalreports.html)
Science Questions and IMST Conclusions

Question 1. What is the scientific basis for maintaining fish habitat/water quality in forested ecosystems with respect to riparian buffers, large wood, sedimentation, and fish passage at road-stream crossings?

Riparian Protection

1. Managing riparian areas differently than upslope areas as a strategy for protecting fish habitat is scientifically valid only if it is done with the goal of maintaining the dynamics of landscape structure and function. Sharp demarcations between riparian forest and upslope forest, and between fish-bearing and nonfish-bearing streams are not consistent with the historic pattern.

Large Wood Management

2. Large wood is a key structural and functional component of aquatic systems. Most models of large wood recruitment focus on riparian areas as the source, ignoring the important contributions made by upslope sources, especially from landslides. There is a critical need to restore the ecological processes that produce and deliver large wood to the streams from riparian as well as upslope areas.

Sedimentation

3. Sediment is a natural part of forest stream systems, as are the more coarse elements of stream structure, such as large wood, boulders, and gravel. Roads and landslides increase the amount of fine sediment in streams, but do not always add the more coarse elements. In addition, fine sediment production from roads is chronic rather than episodic. Management of sedimentation from roads and landslides at the watershed level is more difficult, and the scientific basis for it is less well developed, although the concepts are known and provide a basis for reasonable conjecture on how to proceed. In essence, the concept is to vary the extent and intensity of disturbance in a watershed over space and time, emulating the historical pattern of disturbance.

Fish Passage at Stream Crossings

4. The road-stream crossing guidelines developed by ODFW (ODFW 1996) are based on science, although often not the result of explicit experimentation. They provide a scientifically sound basis for management of such crossings, although better information should result from monitoring.

Question 2. Are current forest practice Rules and Measures with regard to riparian buffers, large wood, sedimentation, and fish passage at road-stream crossings adequate to achieve the mission of the Oregon Plan?

1. IMST concludes that current rules for riparian protection, large wood management, sedimentation, and fish passage are not adequate to reserve depressed stocks of wild salmonids. They are not adequate because they are dominated by site- and action-specific

strategies. While these are important as an initial step in accomplishing the mission of the Oregon Plan, they are not sufficient for the recovery of critical habitat for wild salmonids.

Question 3. What strategies are needed in the management of forest resources to achieve the mission of the Oregon Plan?

1. Recovery of wild salmonids requires, among other things, habitat that is functional across the landscape. This means that policy, management, regulation, and voluntary actions must also work across the landscape. Current State forest policy focuses on specific actions occurring within defined periods of time at specific sites. As an example, the rules provide for riparian protection on a site-by-site basis, rather than at the landscape level. Sharp distinctions in the management of riparian zones (as compared to upslope forests), based on the size of the stream and the presence or absence of fish, will result in a failure to maintain the dynamics of structure and function of riparian zones across the landscape. In other cases, hazardous sites on forest roads and railroad grades are exempt from current OFPA Rules because the actions occurred before the Rules were in effect. Mechanisms are needed to solve these problems on critical sites that are exempted from current rules. Similar examples can be drawn from conclusions about the recruitment of large wood and the management of sediment and fish passage. A policy framework that incorporates landscape perspectives and makes regulation, management, and voluntary actions possible at this scale is needed.

2. There are three major areas in which shifts in policy are needed:
    a. Incorporate the objectives of the Oregon Plan and Executive Order 99-01 into the OFPA. This will place an emphasis of regulation on the protection and enhancement of habitat needed for the recovery of wild salmonids.
    b. Develop policy that extends the management of forest resources to the landscape level. This does not delete the site-specific aspects of current rules, but applies them in a different context. It will entail a shift from prescriptive rules applied uniformly across the landscape to site-by-site regulations that take into account cumulative disturbance in the watershed, landscape features, and climatic variation.
    c. Develop policy that brings roads not constructed to current standards and other hazardous settings in critical locations into compliance with current standards. This means having the current OFPA Rules applied to actions taken before the current Rules were in force. In many cases, the operator acted in good faith and within the rules of the day, but the outcome is not scientifically consistent with the mission of the Oregon Plan; thus, a provision by which remediation is accomplished is needed.

3. Evaluating policy options within the complexity of contemporary forestry is a challenge. Extending these options to the landscape level and over time makes the job enormously more difficult. Fortunately, there are analytical approaches and models that can help. Examples of these are in the CLAMS research project, the Umpqua Land Exchange Project, and others.

IMST Temperature Report 2004-1 (http://oregonstate.edu/fsl/imst/technicalreports.html)
Science Questions and IMST Conclusions

Science Question 1. Are the Oregon temperature standards for salmonids technically sound?

1. IMST concludes that the scientific basis for Oregon's temperature standards is credible.
2. Cool temperatures are vital to salmonids, which evolved in cold-water, oxygen-rich systems. Warm streams (in combination with other human impacts) are likely to hinder recovery of salmonid stocks.
3. IMST concurs with EPA and DEQ that the seven day moving average of daily maximum temperatures (7DADM) has a sound scientific rationale, and is an appropriate unit of measurement for stream temperature criteria.
4. Redband trout and Lahontan cutthroat trout exhibit higher thermal tolerances than the salmonid species examined in the 1995 Issue Paper (DEQ 1995). IMST concludes that it is appropriate for the State of Oregon to consider recent data on the physiological performance of Lahontan cutthroat trout & redband trout when setting stream temperature criteria.

Science Question 2. How can salmonids occur in streams that are warmer than criteria in Oregon temperature standards? Does this indicate a weakness in the standards?

1. There are numerous reasons why salmonids may be present in waters that exceed the temperature criteria in Oregon's water quality standards:
   - Physiological or genetic adaptations allow some individuals or populations to survive exposures to high temperatures;
   - Fish observed could be transients, not members of healthy populations resident in a warm stream reach;
   - Performance could be impaired (e.g., earlier emergence, faster growth, changes in migration timing, increased susceptibility to disease, altered response to competition and predation), the effects of which could be cumulative and not apparent until later life stages;
   - Variation in stream temperature over the course of a day or week might allow fish to survive unexpectedly hot conditions;
   - Fish are utilizing coldwater refugia in these warm streams;
   - Range of temperatures that fish populations can tolerate may be wider than scientists realized when Oregon's temperature standards were written.
2. Salmonids have physiological and behavioral mechanisms that allow them to survive high temperatures, up to some maximum temperature and over a maximum duration. Therefore, duration and magnitude of temperature extremes are relevant to setting temperature standards.
3. There is no evidence indicating that salmonids thrive in waters that exceed criteria in Oregon's temperature standards for prolonged periods of time.
4. Presence of individual fish in a stream does not necessarily indicate a population of healthy, reproducing fish. There are relatively few data on the response of fish populations to waters of different temperature in Oregon.
5. Temperatures affect salmonids differently at different life stages; therefore, requirements and optimal temperature ranges vary with life history stage. Temperature regulation must satisfy the most sensitive of these life stages.

6. In the future revision and application of temperature standards, the State of Oregon should consider recent data on coldwater refugia. Oregon's standard for coldwater refugia is difficult to implement when these habitats are difficult to identify and their distributions are not documented.

Science Question 3. How do land use activities influence stream temperatures?

1. Stream temperatures are affected by many environmental factors including, but not limited to, direct and indirect solar radiation, watershed elevation, aspect and topography, regional and seasonal climate, local climate (air temperature, vapor pressure, humidity, wind, etc.), precipitation amounts and timing, channel dimension, streamflow (water quantity), groundwater inputs, and riparian vegetation.
2. Riparian vegetation can reduce stream heating, can regulate temperatures by blocking incoming solar radiation, and maintain channel morphology and functioning floodplains. Riparian vegetation has direct and indirect effects on stream temperatures.
3. Human activities can affect stream temperature by modifying channel morphology, streamflow, surface/subsurface water interactions, and riparian vegetation.

Science Question 4. Is the temperature model used by the State of Oregon based on sound scientific principles? How can temperature models be used effectively in water quality actions under the Clean Water Act?

1. Heat Source, the temperature model used by the State of Oregon, is scientifically sound. The direct and indirect influences of climate, topography, elevation, riparian vegetation, channel morphology, hydrology, and point sources are accounted for in Heat Source, which can predict patterns of stream temperature at river network scales.
2. Further sensitivity analyses should be conducted on the current version of Heat Source (7.0) to evaluate the performance of this version of the model. In addition, the model should be compared with the output from several major stream temperature models to assess the performance of Heat Source. Other approaches to evaluating the consistency of model output with observed stream temperatures should be conducted by DEQ.
3. Temperature models, such as Heat Source, should not be used to set basin-specific temperature standards, but can be used to develop basin-specific total maximum daily loads for heat.
4. Oregon's TMDL process (public process, analysis of sources of elevated stream temperature, and Water Quality Management Plans) is conducted at the basin scale, which is consistent with a landscape approach. Therefore, the IMST concludes that the State's application of the TMDL process and Water Quality Management Plans is appropriate for implementation of the water temperature standards at a landscape scale.

Science Question 5. What are the benefits of alternative watershed and stream evaluation methods to 1) identify appropriate actions or 2) effectively involve the public?

1. When restoring aquatic and riparian conditions, including stream temperature regimes, each watershed and stream reach is unique (based on soil, climate, topography, etc.). Accounting for these site-specific differences can greatly benefit restoration programs.
2. Site-specific assessment techniques are a means to evaluate the unique characteristics of a site relevant to restoration.

3. Many site-specific assessment techniques are dependent on understanding the expected vegetation and hydrology at a site. To determine expected conditions, scientists and managers often turn to local reference sites with minimal human impacts. When these reference sites are not available, conditions can be defined by groups of regional experts.
4. We are currently limited to case studies to determine the effects of channel restoration on temperature regimes. However, based on the well-documented relationship between riparian and channel degradation and elevated stream temperature, IMST concludes that restoring stream and riparian characteristics will often improve stream temperature.
5. Where water temperature limit salmonid recovery, restoration activities or changes in land uses that lead to reestablishing natural flow regimes, erosion rates, and riparian plant communities should be promoted.
6. Oregon Plan monitoring presents the opportunity to examine the effects of channel restoration on temperature regimes. Individual restoration projects could provide replication in studies evaluating the effectiveness of restoration practices on restoring stream temperature regimes.
7. Given the long time frame and large spatial extent necessary for restoring stream temperature regimes, participation of landowners, community groups, and state & federal partners is essential to minimize the non-point sources of elevated stream temperature across the landscape.
8. IMST agrees with NRC (2002) that confidence in the application of Proper Functioning Condition would be strengthened if the approach was validated.

IMST Lowlands Report 2002-1 (http://oregonstate.edu/fsl/imst/technicalreports.html)
Selected Science Questions and IMST Conclusions

Question 2. How have conditions in western Oregon lowlands changed from conditions prior to EuroAmerican settlement?

The quality and quantity of native salmonid habitat in lowland rivers, streams, and estuaries has been significantly reduced since EuroAmerican settlement. Recovery of wild salmonids requires habitat that is functional across the landscape. For example, management of lowland riparian zones in conjunction with those on adjacent uplands is needed to maintain the dynamics of riparian structure and function across the landscape. Other areas that need to be addressed both within and beyond the boundaries of the western Oregon lowlands include roads and sediment, large wood, fish passage, pesticides, and nutrient inputs to streams. We conclude that management practices must be considered on a large spatial scale, among agencies, and across different land uses.

Riparian vegetation provides many important ecological functions to aquatic systems: habitat diversity, organic matter inputs, large wood input, regulation of channel morphology and streamflow, hydrologic connectivity, temperature mediation, sediment interception, and nutrient uptake.

Lowland ecosystems of western Oregon have been greatly altered during the past 150 years by human disturbances resulting from a variety of land uses. The basic processes by which water and sediment move from uplands – via streams, rivers, and estuaries – to the ocean have been highly altered.

Question 4. What is the scientific evidence for the importance of vegetation within riparian areas in enhancing ecological processes and functions critical to salmonid recovery in western Oregon lowland ecosystems?

Protection of intact, functional aquatic habitats should be the first priority for salmonid recovery efforts. Many land use practices in lowlands can be changed to halt and reverse the degradation of streams, floodplains, and salmonid habitat. Restoration of structure and function of lowland systems – including the geomorphic, hydrologic, and biological processes that create and maintain salmonid habitat – can have beneficial effects on salmonids and on lowland ecosystems in general. Because vegetation and large wood within riparian areas contribute important hydrologic and biologic functions to lowland rivers and estuaries, they should receive protection and be restored toward their historic level of function within river networks.

Question 5. What general actions are needed in the western Oregon lowlands to facilitate recovery of salmonid populations?

Addressing salmonid recovery in western Oregon lowlands presents tremendous challenges for a number of reasons, including high human population density, diverse land ownership, and significant reduction in salmonid habitat quality. Creative thinking is needed to move forward in the face of these challenges. In particular, solutions that will work across boundaries of land ownership, agencies, and ecosystems are needed.

Science Foundation

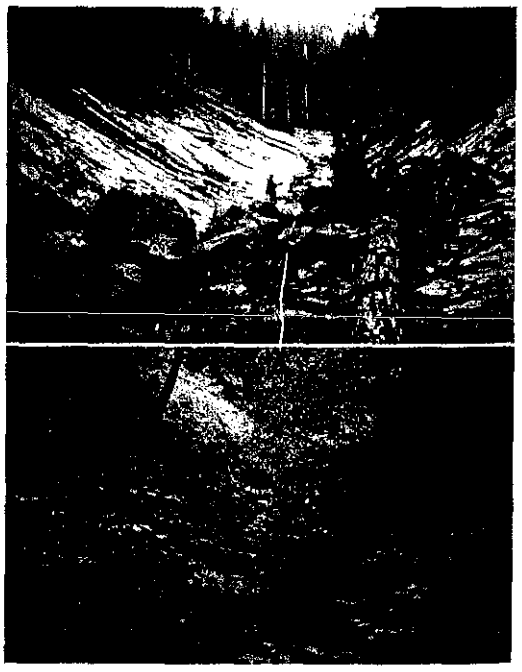
Background Material

The Importance of Wood in Headwater Streams of the Oregon Coast Range

Although headwater streams comprise the majority of stream length in mountainous regions, little is known about their form and function in comparison to higher-order rivers. A better understanding of the role of headwater streams in routing water, wood, and sediment is needed to clarify the physical and biological connections among uplands, riparian zones, and downstream reaches.

Debris flows in steep, **headwater streams** often convey sediment and wood to downstream reaches, leaving behind a channel that has been **scoured** to bedrock. The erosion of a channel to bedrock provides a unique opportunity to measure the rate at which wood and sediment accumulate, and to gain insight into the processes that refill a channel and rebuild channel structure. As part of the Cooperative Forest Ecosystem Research (CFER) program, USGS scientists Christine May and Robert Gresswell examined the processes and rates of sediment and wood replenishment to headwater streams in the Oregon Coast Range. Their objectives were to: (1) quantify the rate of wood and sediment accumulation in **low-order streams** that were prone to erosion by debris flows; (2) identify the mechanisms for sediment storage in these steep, low-order channels; and (3) assess the potential of low-order streams to serve as storage sites for hillslope-derived sediment.

In the Oregon Coast Range, debris flows are one of the dominant sediment transport processes in headwater catchments. These episodic disturbances have the potential to scour sediment and wood that have been stored in small streams for decades to centuries and deliver this material downstream to larger rivers. Because the quality of downstream habitats is determined, in part, by how often such disturbances occur and how much material is delivered downstream, it is important to understand the dynamics of sediment and wood accumulation in headwater streams during the interval between debris flows. To gain a better understanding of the role of headwater streams in routing wood and sediment throughout the stream network, May and Gresswell used **dendrochronology** to estimate the time since the previous debris flow in two unlogged, third-order basins, Skate and Bear creeks, in the central Oregon Coast Range (Figure 1). Within these two basins they examined sediment and wood accumulation in 13 tributaries that ranged from 4 to 144 years post disturbance. All wood in contact with the channel or valley floor with an average diameter >20 cm and length >2 m was measured. The volume of sediment in the channel network was also measured, including the proportion of sediment that was directly stored behind wood and boulders.



Although a high degree of variability of in-stream wood abundance was observed, the volume of wood was found to be strongly correlated with the time since the previous debris flow (Figure 2). Sediment accumulation rates had less variation; however, the sediment volume increased out of proportion to time. Lower accumulation rates were observed immediately following a debris flow, whereas higher accumulation rates were observed as the time since the previous debris flow increased (Figure 3). May and Gresswell interpreted this pattern as an increased ability of the channel to store sediment over time. After a channel is scoured by a debris flow, newly acquired sediment is quickly transported downstream. However,

CFER Cooperative Forest Ecosystem Research

U.S. Department of the Interior
U.S. Geological Survey

FS 2004-3055
April 2004

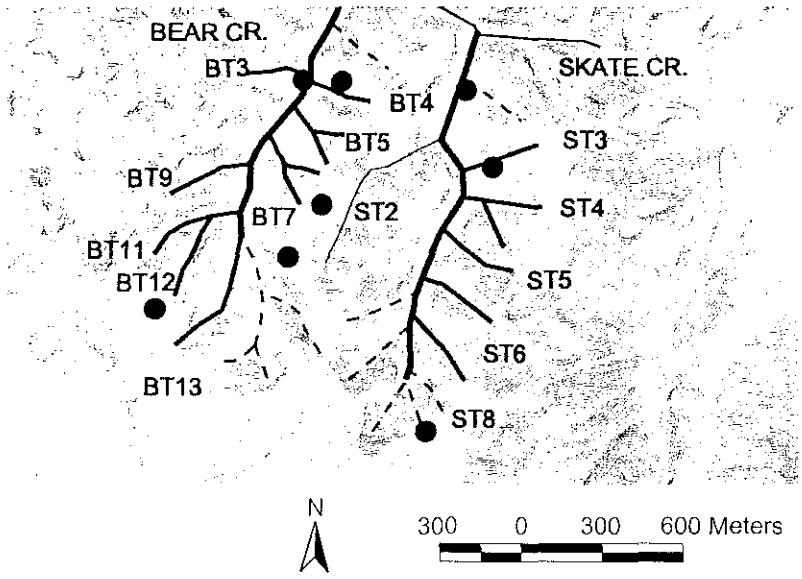


Figure 1. Site map of Skate and Bear creeks, Siuslaw River drainage in the central Oregon Coast Range. Dark solid lines represent channels investigated for wood and sediment storage. Dashed lines represent tributaries impacted by timber harvest and not investigated. Thin solid line (ST2) is only tributary with no evidence of delivering debris flows to the mainstem. Solid circles represent sample sites for the dendrochronology-based fire history reconstruction. Contour interval = 10m.

as wood begins to accumulate in the channel, the capacity of the channel to store sediment increases and a series of positive feedbacks are initated. Sediment that accumulates behind wood in the channel increases the streambed **roughness**, decreases the local slope of the channel, and further reduces the capacity for sediment transport. On average, 73% of the sediment in these steep, debris flow prone channels is stored directly behind wood. Because headwater streams occupy the majority of the channel length, they have the potential to store large volumes of hillslope-derived sediment. In an intensive investigation of Skate Creek, May and Gresswell found that 72% of sediment in the entire drainage network was stored in debris flow prone tributaries.

Based on their observations, the researchers created a conceptual diagram that depicts the changes in channel morphology that occur in headwater streams following a debris flow (Figure 4). Immediately following the disturbance, the channel is predominantly bedrock, with almost sediment or wood in storage. During the following 50 years, small discrete patches of sediment are stored behind individual logs, but the channel remains predominantly bedrock. One hundred years after the debris flow almost half of the channel length is still exposed bedrock. By 144 years, the maximum age of channels investigated by May and Gresswell, discrete patches of sediment had coalesced to form larger, more contiguous patches. These changes in channel morphology are largely attributable to wood accumulation, which provides the cornerstone for sediment storage in channels that would otherwise remain in a bedrock state.

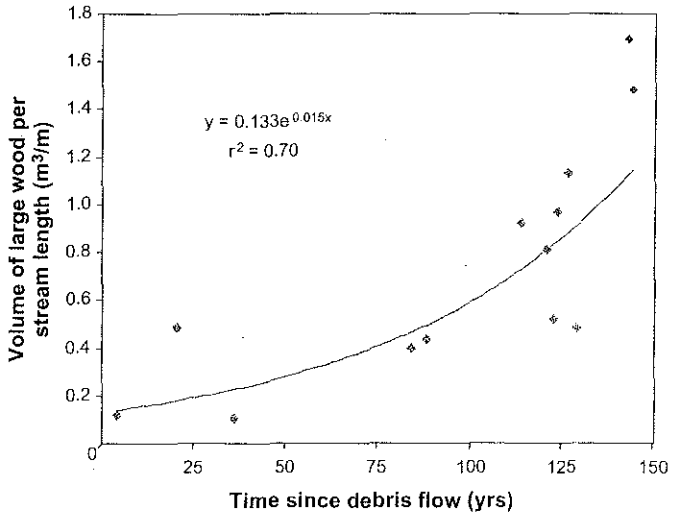


Figure 2. Volume of large wood in the study streams based on the time since the previous debris flow as estimated by dendrochronology.

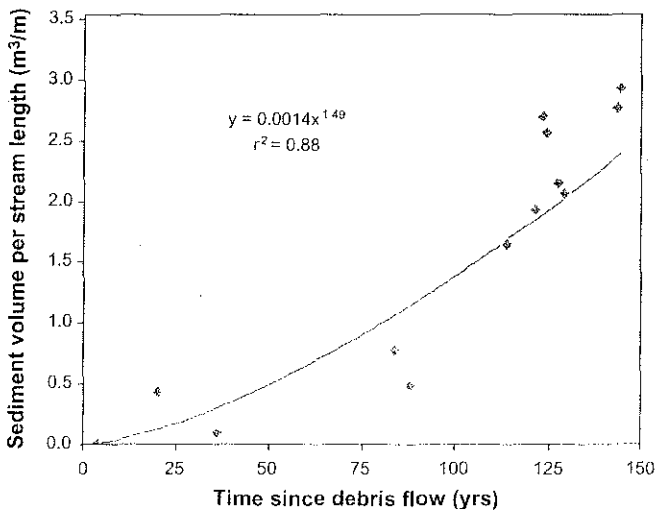


Figure 3. Sediment accumulation in the study streams based on the time since the previous debris flow as estimated by dendrochronology.

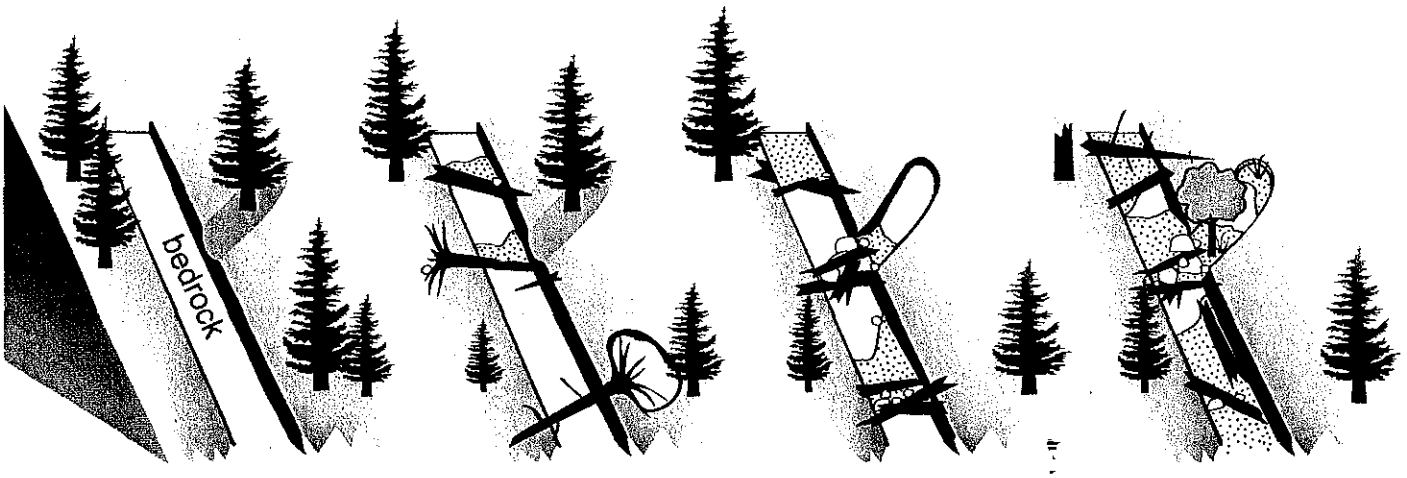


Figure 4. Conceptual illustration of the changes in channel morphology in steep headwater streams, based on the time since the previous debris flow.

With an adequate supply of in-stream wood, small streams have the potential to store large volumes of sediment in the interval between debris flows and can function as one of the dominant storage reservoirs for sediment in mountainous terrain. May and Gresswell warn that if these low-order streams are depleted of present or future sources of wood, the sediment storage capacity of the basin may be drastically reduced. Without the input of wood, channels that have been scoured to bedrock by a debris flow may persist in a bedrock state for a greater length of time. Because there is no sediment storage in bedrock channels, these channels become an effective conveyor of sediment delivered from the adjacent hillslopes. This continual sediment transport would represent a major shift in processes, with headwater streams becoming a chronic source of sediment to downstream areas instead of an episodic source.

In a companion study, May and Gresswell (2003b) investigated the processes associated with wood recruitment to channels of different size and topographic position. They found that landslides contributed the majority of wood to small headwater streams. In contrast, larger channels received the majority of wood from wind throw in the adjacent forest stands. Consequently, small headwater streams received wood from farther upslope than larger streams that flowed through alluvial valleys. This information may be useful for developing forest management strategies that aim to protect the sources of wood to streams.

Glossary

Debris flow	A channelized mass movement where there is a rapid downslope flow of a saturated mass of sediment and wood.
Dendrochronology	The science of dating events and variations in the environment in former time periods by comparative study of growth rings in trees and aged wood.
Headwaters	First- and second-order stream channels that drain steep hillsides. These streams include permanently flowing non-fish-bearing streams and seasonally flowing (intermittent) streams.
Low-order streams	Small streams with no or few tributaries (i.e., first- and second-order streams).
Roughness	The unevenness of streambed material (i.e., gravel, cobbles) that contributes resistance to stream flow.
Scour	A concentrated erosive action that mobilizes material from the bed or banks of a channel.

Research Highlights

- Wood and sediment accumulation rates in the channel were strongly correlated with the time since the previous debris flow.
- Large wood was the focal point for sediment accumulation because it provided a physical obstruction to sediment transport.
- Sediment that was stored behind wood in the channel increased the streambed roughness, decreased the local slope of the channel, and further reduced the capacity for sediment transport.
- With an adequate supply of wood, small streams have potential to store large volumes of sediment and can function as one of the dominant storage reservoirs for sediment in mountainous terrain.

This fact sheet is one in a series of information products developed by the Cooperative Forest Ecosystem Research (CFER) program on the production and function of large wood in the riparian zone. Funding for this research was provided to the CFER program by the Bureau of Land Management, USGS Forest and Rangeland Ecosystem Science Center, the Oregon Department of Forestry, and Oregon State University.

Scientists who Contributed to this Fact Sheet

Christine May received her doctoral degree from Oregon State University in December of 2001. Currently she is a post-doctoral researcher in the Department of Earth and Planetary Sciences at the University of California, Berkeley.

Robert E. Gresswell is an aquatic ecologist with the USGS Forest and Rangeland Ecosystem Science Center and a scientist on the CFER research team.

For Further Reading

May, C.L. 2001. Spatial and Temporal Dynamics of Sediment and Wood in Headwater Streams in the Central Coast Range. PhD dissertation. Corvallis, OR: Oregon State University.

May, C.L. 2002. Debris flows through different forest age classes in the central Oregon Coast Range. Journal of the American Water Resources Association 38:1097-1113.

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May, C.L. and R.E. Gresswell. 2003b. Large wood recruitment and redistribution in headwater streams in the southern Oregon Coast Range, USA. Canadian Journal of Forest Research 33:1352-1362.

May, C.L. and R.E. Gresswell. 2004. Spatial and temporal patterns of debris flow deposition in the Oregon Coast Range, USA. Geomorphology 57:135-149.

For more information contact:
CFER
301M Richardson Hall, OSU
Corvallis, OR 97331-5752
541-737-7612
cfer@fsl.orst.edu
http://www.fsl.orst.edu/cfer

or

Information and Outreach
USGS Forest and Rangeland Ecosystem Science Center
777 NW 9th St., Suite 400
Corvallis, OR 97330-6169
541-750-1047
http://fresc.usgs.gov

Authored by Christine May, Robert Gresswell, and Janet Erickson. Graphics and layout by Gretchen Bracher. Shannon Hayes provided graphical assistance on Figure 4.

Fish and Aquatic Ecosystems of the Oregon Coast Range

Gordon H. Reeves, Kelly M. Burnett, and Stanley V. Gregory

Introduction

As in other parts of the Pacific Northwest (PNW), (Stouder et al. 1997), fish are important elements of human cultural, social, and economic systems and of natural ecosystems of the Oregon Coast Range. Many species provide sources of income, recreation, and food as well as having cultural significance to a variety of people (Schoonmaker and von Hagen 1996). Several species are integral components of aquatic and terrestrial ecosystems. Some, particularly the anadromous salmonids, are considered indicators of environmental conditions in marine and freshwater ecosystems. Certain anadromous species also may be food sources for a large suite of aquatic and terrestrial vertebrates and invertebrates (Cederholm et al. 1989; Willson and Halupka 1995; Bilby et al. 1996), as well as nutrient sources for riparian vegetation (Bilby et al. 1996).

This chapter will review the general ecology and biology of fishes in Coast Range streams and rivers, examine patterns of distribution and abundance, and discuss impacts of land management activities on fish and their habitats. We then consider restoration and future management directions for these populations and their freshwater ecosystems.

The Fish Fauna of the Oregon Coast Range

Streams in the Coast Range have only a fraction of the fish species that are found in similar-sized streams elsewhere. This pattern is similar to that seen in other parts of the PNW and western United States, which have about half as many fish families and one quarter of the fish species found in the eastern United States (Smith 1981; Minckley et al. 1986). Primary reasons for the low number of fish species in the Coast Range are relatively recent tectonic activity, the inability of species to move across the Continental Divide, and lack of direct faunal connections with other continents.

The primary types of fishes found in Coast Range streams and lakes are lampreys (Petromyzontidae), salmon and trout (Salmonidae), minnows (Cyprinidae), and sculpins (Cottidae). Suckers (Catostomidae) and sticklebacks (Gasterosteidae) occur in a number of river systems, but they are not as widely distributed as those fish mentioned above. Fish occupy the full range of habitats available in Coast Range river systems; however, not all fish are found in all parts of the stream network. Community composition varies depending on location in the stream network (Reeves et al. 1998).

Although the number of species is low, there is a wide variation in phenotypic (physical attributes), genetic, and life-history features within and among populations of many fish in the Coast Range. Species or populations can exhibit multiple life-history patterns. Reimers (1973) identified five distinct life-history variations within a population of ocean-type chinook salmon (*Oncorhynchus tshawytscha*) in Sixes River; ocean-type juveniles rear in streams and estuaries for a relatively short period before entering the ocean. Individuals spend from one month, to five to six months, to one year in freshwater before moving to the estuary, where residence time also is variable. Cutthroat trout (*O. clarkii*) may have

resident forms, which spend their entire life in freshwater, and anadromous forms, which make repeated trips to large rivers or to the marine environment. Resident forms often reside above migration barriers and are reproductively isolated from anadromous forms. However, in some situations resident populations may produce anadromous individuals (Griswold 1996). Non-salmonids, such as the Pacific lamprey (*Lampetra tridentata*), also have wide variation in life histories. Individuals may spend two to more than five years in freshwater before moving to the ocean (van de Wetering 1998).

Fish populations in coastal Oregon streams may also exhibit variation among populations. Nicholas and Hankin (1988) documented the variation in size and age of return to freshwater and in fecundity among coastal Oregon chinook populations. T. H. Williams (personal communication) found large genetic and morphological variation among populations of coastal cutthroat trout populations in Oregon. Locally variable populations have also been reported for speckled dace (*Rhinichthys osculus*; Zirges 1973), longnose dace (*R. cataractae*; Bisson and Reimers 1977), and sculpins (*Cottus* spp.; Bond 1963) in coastal Oregon streams. This diversity within and among populations is a response to varying environmental conditions (Healey and Prince 1995) and likely has genetic and environmental components. Such variation within and among populations is also common in other parts of the PNW (Snyder and Dingle 1989; Swain and Holtby 1989) but does not appear to be as extensive in other parts of the United States (Smith 1981; Mahon 1984).

Anadromous fish are the dominant component of the fish fauna in the streams and rivers of the Coast Range, particularly coastal systems. These are fish that begin life in freshwater, move to the marine environment to grow and mature, and then return to freshwater to reproduce. Native species with anadromous life histories include lampreys, Pacific salmon and trout (*Oncorhynchus* spp.), and candle fish (*Thaleichthys pacificus*). Introduced anadromous species include striped bass (*Morone saxatalis*) and American shad (*Alosa sapidissima*).

The predominance of anadromous life histories in this region is likely attributable to two factors. Gross and others (1988) argued that in areas where freshwater productivity is less than marine productivity, such as along the Oregon coast, anadromous life histories predominate. Oregon is in the transition zone between changes in relative productivity of the marine and freshwater environment. Moving to the more productive marine environment allows individuals to grow to a larger size sooner than if they had remained in freshwater. Larger fish have a greater chance of reproducing successfully and can produce more offspring than smaller individuals.

Pacific salmon and trout (*Oncorhynchus* spp.) are the best known of the anadromous fishes in Coast Range rivers and streams (Table 4-1). Their general life cycle is shown in Figure 4-1 (in color section following page 84). All Pacific salmon and trout begin life as eggs deposited in the freshwater gravel.

Table 4-1. Life history characteristics of Pacific salmon and trout (*Oncorhynchus* spp.) found in coastal Oregon.

Common name/species	*Other names*	*Anadromous*	*Resident/non-anadromous*	*Years in fresh water*	*Years in salt water*	*Repeat spawners*
Pink salmon/*O. gorbuscha*	Humpback salmon	X		0	2	No
Chum salmon/*O. keta*	Dog salmon	X		0 (but 1-3 mo. estuary)	2 - 4	No
Coho salmon/*O. kisutch*	Silver salmon	X	X	1	2	No
Chinook salmon/ *O. tshawytscha*	King salmon Tyee salmon Spring salmon Blackmouth	X	X	<1 ("ocean type") 1 - 2 ("freshwater type")	2 - 5	No
Steelhead/*O. mykiss*	Rainbow trout	X	X	1 - 3	2 - 3	Yes
Sea-run cutthroat trout *O. clarki*	Harvest trout Blueback	X	X	2 - 3	<1 - 2	Yes

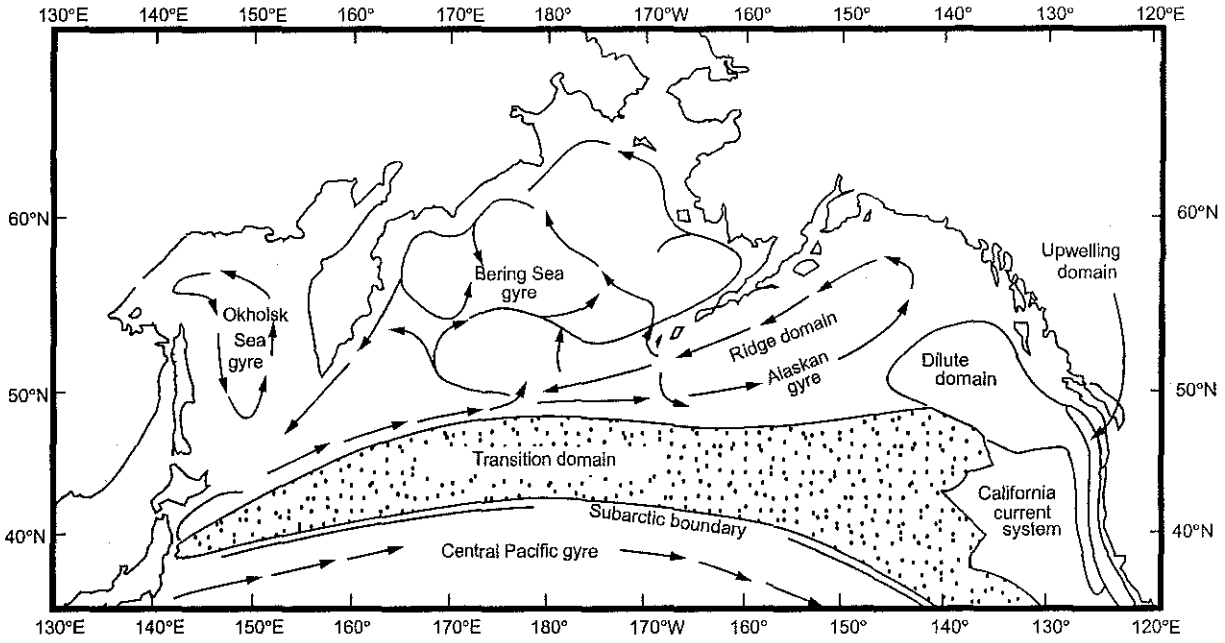

Figure 4-2. Location of Oregon relative to ocean transition zone between northern cool, nutrient-rich currents and southern warm, nutrient-poor currents (Fulton and LaBrasseur 1985). (Reprinted by permission from Washington Sea Grant Program, University of Washington.)

Alevins are the developing embryos. Upon emergence from the gravel, the small fish are known as fry or fingerlings. These fish are identified as "0+" individuals. Juveniles are older fry. Juveniles that have spent a winter in freshwater are identified as "1+" individuals. Smolts are individuals in the process of transitioning from freshwater to the ocean. This entails changes in such things as behavior (from defending territories to swimming in schools), body color (from various colors to silvery), and kidney operation (from retaining salt to excreting salt).

Each species has a unique life history (Table 4-1). Some, like pink (*O. gorbuscha*) and chum (*O. keta*) salmon, spend very little time in freshwater before moving to the ocean. In contrast, cutthroat trout and steelhead (*O. mykiss*) may spend two years or more in freshwater before migrating to the ocean. Time spent in the ocean also varies among species. Some, like pink salmon, spend a fixed amount of time (two years) in the ocean before returning to freshwater; for others, like chinook salmon, the time is quite variable (two to six years).

Ocean conditions for anadromous salmonids in Oregon are variable. Oregon is at the oceanic boundary between cool, nutrient-rich currents and warm, nutrient-poor currents (Figure 4-2) and productivity of the ocean off the Oregon coast depends on the location of these currents. During productive years, which are generally associated with a weak winter Aleutian low-pressure system (Hare et al. 1999), nutrient-rich currents move south towards the Oregon coast. Conversely, nutrient-rich currents move north, away from the Oregon coast, during a strong winter Aleutian low-pressure system and ocean productivity declines. This pattern generally occurs on a 20- to 30-year cycle (Mantua et al. 1997). The last productive period off the Oregon coast was from 1947 to 1976 (Miller et al. 1994); less productive conditions had occurred from 1925 to 1946 and have been prevalent since 1976. Survival rates of wild and hatchery populations of coho salmon (*O. kisutch*) are similar during more favorable conditions (Nickelson 1986; Coronado and Hilborn 1998). However, survival rates of wild populations are two to four times greater than hatchery stocks during times of poor ocean conditions (Nickelson 1986).

Estuaries are sites of early marine growth for anadromous salmonids, an important determinant of ocean survival (Pearcy 1992). They may be particularly important during times of low ocean productivity. However, there are few well-developed estuaries along the Oregon coast. The

combination of sparse near-shore habitats and variable ocean conditions makes freshwater habitat more crucial for the survival and persistence of anadromous salmonid populations in Oregon than in more northerly areas.

Distribution of Fish in Coast Range Rivers and Streams

Organization of rivers and stream systems

River and stream systems consist of distinct spatial units that are organized hierarchically (Frissell et al. 1986). The units of organization dealt with in this chapter (from finest to coarsest spatial scale) are the habitat unit, the reach, and the watershed. The two primary types of habitat units are riffles and pools. Riffles, at base flow, are fast water units that are shallow and have a steep water-surface gradient. In contrast, pools are deeper and generally have a gentle surface slope with slow flow (O'Neil and Abrahams 1987). These units can be further classified into several types (Hawkins et al. 1993), which can be useful in some situations. They range in size from a few yards to 200 or more yards.

Habitat units may not always have clear physical boundaries, but they are distinct ecologically. Fish inhabiting them differ markedly in taxonomic composition and morphological, physiological, and behavioral traits. For example, pool dwellers, such as cutthroat trout and coho and chinook salmon, are often found in aggregations and are more active swimmers with more slender bodies and smaller paired fins (Figure 4-3a).

Fish that inhabit riffles, such as dace, are bottom-oriented fish, often possessing large pectoral fins to help maintain position (Figure 4-3b). Some, such as sculpins (Figure 4-3c), lack an air bladder or can adjust the air in the swim bladder to reduce buoyancy. Riffle dwellers are solitary or part of small, loose-knit groups.

A reach is an integrated series of habitat units that share a common landform pattern (Grant et al. 1990; Montgomery and Buffington 1997). Reaches are influenced by variation in channel slope, local side slopes, valley floor width, and riparian vegetation (Frissell et al. 1986). Gregory and others (1989) classified reaches as constrained (active channel to valley floor width ratio < 2; Figure 4-4a) and unconstrained (active channel to valley floor width ratio > 2; Figure 4-4b). Reaches vary in length from

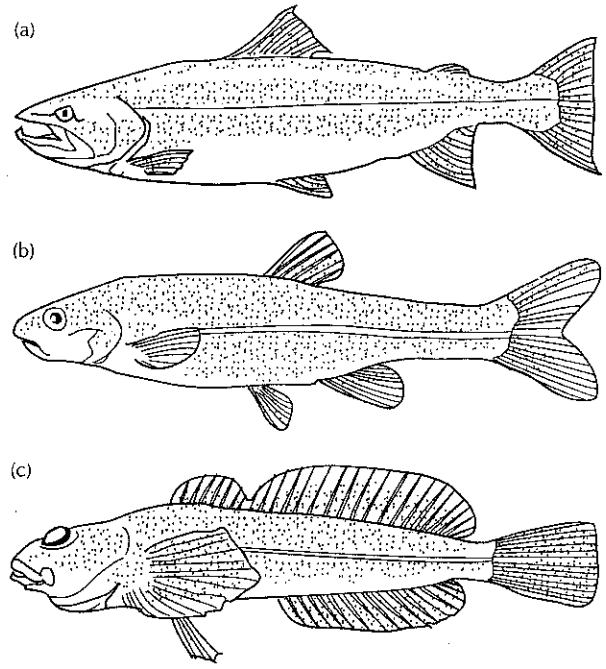

Figure 4-3. Fishes commonly found in coastal Oregon headwater streams: (a) cutthroat trout; (b) speckled dace; and (c) riffle sculpin (Reeves et al. 1998).

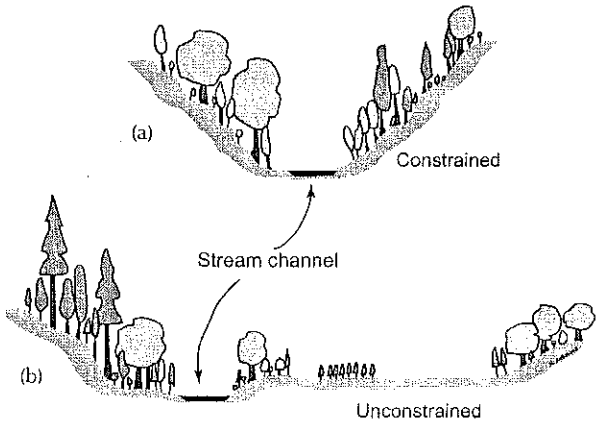

Figure 4-4. Reach types found in streams in the Oregon Coast Range: (a) constrained and (b) unconstrained (Reeves et al. 1998).

(Figures 4-3 and 4-4 reprinted from G. H. Reeves, P.A. Bisson, and J.M. Dambacher. 1998. Fish communities, pp. 200-234 in *River Ecology and Management: Lessons from the Pacific Coastal Ecoregion*, R.J. Naiman and R.E. Bilby, eds. Springer-Verlag, New York. By permission of the publisher.)

10^2 to 10^3 yards. A watershed contains a collection of reaches and the surrounding upslope areas to the drainage divide. The physical and biological characteristics of the watershed are determined to a large extent by the aggregate features of the reaches within it.

Sizes of watersheds can vary widely. For purposes of this chapter, we define watersheds as either being 4th or 5th order (Strahler 1957), or 6th or 7th field hydrologic units (HU). The size of watersheds, as used in this chapter, averages 4,500 to 5,000 acres. Understanding and explaining patterns of fish distribution and abundance and the factors influencing them are difficult, in part because of the hierarchical organization of streams and rivers. The pattern at a given level is influenced by factors at that level as well as factors at higher and lower organizational levels. For example, the assemblage of fishes in a reach varies with reach type. Abundance and distribution of fish within the reach are determined, in part, by these types, the condition of the habitat units, the position of the reach in the watershed, and the watershed condition.

Watersheds

Fish can be found throughout a watershed, and the structure and composition of the species assemblage change with location in the network (Figure 4-5 in color section following page 84). Generally, the number of fish species increases from the headwaters to lower portions of river systems in the Coast Range. As one moves downstream, some species are lost from the assemblage, while others are added; the latter process generally exceeds the former, resulting an overall increase in the number of species present. Reeves and others (1998) found a significant increase in the number of species moving from headwaters downstream in a northern and a southern coastal Oregon river system. This pattern has been observed in other parts of the PNW (Li et al. 1987) and the United States (Sheldon 1968; Horowitz 1978; Boschung 1987; Schlosser 1987).

Few fish species, primarily trout, sculpins, and dace, are present in headwater streams in the Coast Range. The trout are generally cutthroat and may include resident and anadromous forms. Resident fish do not move to the marine environment and often reside above migratory barriers. Such populations are generally small but nonetheless are ecologically important. Resident populations can in some circumstances produce offspring that can become anadromous, and some may contain very unique genetic information (Griswold 1996).

Reeves and others (1998) argued that physical conditions and not biological processes may be more important in determining the structure and composition of headwater assemblages in the PNW. Schlosser (1987) suggested that competition is generally the dominant process influencing the diversity of fishes in headwater streams. He reasoned that physical conditions are less influential because of the relatively low diversity of habitat types and environmental conditions in headwater streams. However, headwater streams, including those in the Coast Range, are very dynamic over multiple time scales. During the course of a year, stream flow fluctuates dramatically. Over longer periods (decades to centuries), stream channels may alter between bedrock following a debris torrent to large accumulations of sediment and wood. Also, the diversity of habitats (number of types) is relatively low. As a result of these variable conditions, the species pool is somewhat limited in these streams.

Many headwater streams may not contain fish, but they are important ecologically nonetheless. Fish may be precluded from these parts of the network because of geological barriers, such as waterfalls, or because they are too steep (> 10 percent slope). These streams, however, can be important habitats for several amphibians. Headwater streams also are sites where materials such as leaves and twigs, which form the food base for a myriad of aquatic insects, are stored behind pieces of large wood or large rocks and boulders. These materials and insects can be carried downstream to areas inhabited by fish, where they enter into the food chain.

Headwater streams are influenced by riparian and upslope vegetation (Naiman et al. 1992). These streams generally have relatively narrow riparian zones and they are strongly influenced by nearby upslope vegetation and surrounding topography. Headwater streams are generally in constrained reaches so the surrounding vegetation hillslopes shade the stream. Therefore, a relatively narrow riparian zone may effectively maintain water temperatures.

The reduction of light reaching headwater channels as a result of surrounding vegetation and steep canyon walls limits primary production, and production of fish is limited by this combination of

Fish community diversity and productivity of lower trophic levels are positively correlated at the reach scale. Trophic production is composed of primary production and secondary production. Primary production is the production of biomass by plants, which in Coast Range streams are algae and diatoms. Secondary production is production of biomass by organisms that feed on plants and other food sources. Secondary production in mid-order streams is supported by organic material produced in the channel, termed autochthonous, and organic matter derived either from the surrounding riparian zone and forest or from upstream areas, termed allochthonous (Vannote et al. 1980). Autochthonous production is primarily from algae, diatoms, and other plants that occur in the stream. These materials are eaten by aquatic insects, which in turn are eaten by fish. Allochthonous production is derived from materials such as leaves and needles that are colonized by fungi and bacteria. The bacteria and fungi in turn are eaten by aquatic insects that are eaten by fish.

Primary and secondary production are generally greater in unconstrained reaches than in constrained reaches. Unconstrained reaches are open and receive more light than constrained reaches, thus primary production is greater (Zucker 1993). The low gradient and wide floodplains of unconstrained reaches also result in the deposition and storage of allochthonous materials (Lamberti et al. 1989). The combination of high primary production and large amounts of allochthonous materials results in greater densities of aquatic insects and other organisms that are important food resources for fish (Zucker 1993).

Unconstrained reaches are also areas of greater hyporheic zone exchange (subsurface exchange of water between the floodplain and the stream channel) (Grimm and Fisher 1984; Triska et al. 1989; Edwards 1998). Hyporheic zones provide sites for storing and processing nutrients, insect production, and cool water, which contribute to the productivity of unconstrained reaches.

The presence of spawning anadromous fish can also contribute to the productivity of unconstrained reaches. Spawning, particularly by salmon, is generally greater in unconstrained reaches than constrained reaches (Frissell 1992). Juvenile salmonids and other fish may feed on eggs that drift in the water column during spawning activities. Eggs are nutrient rich and provide large amounts of energy. When salmon die after spawning, the carcasses are both colonized by fungi and bacteria and eaten directly by aquatic insects and fish (Bilby et al. 1996; Wipfli et al. 1999). Carcasses also provide food for a suite of mammals and birds (Cederholm et al. 1989; Willson and Halupka 1995) and nutrients for riparian vegetation (Bilby et al. 1996). Juvenile salmonids in streams with larger returning adult runs grow faster than do juveniles in streams with smaller runs (Bilby et al. 1998).

Unconstrained reaches are particularly susceptible to impacts from land management activities. These reaches are natural deposition zones because of their low gradient and wide valley. Accelerated erosion from activities such as timber harvest and road building in areas above unconstrained reaches can aggrade channels in these reaches, which can fill in, causing a reduction in complexity or loss of a pool. Roads and improperly constructed culverts located in valley bottoms reduce connectivity between channels and their floodplains. The consequence is the reduction or elimination of access to areas of habitat that may be particularly important during high flows.

Constrained reaches are sources of cool water for unconstrained reaches. Cooler water from upstream constrained reaches helps maintain water temperatures in unconstrained reaches in the range favorable to fish and other organisms. Increases in the temperature of water entering unconstrained reaches can affect the biota and have significant impacts on watershed productivity.

Constrained reaches provide several other important ecological functions. They are the transport portion of the stream network. Large wood in constrained reaches often forms temporary jams that often break during high flows; the wood, sediment, and organic material from them then move through these reaches to unconstrained reaches. Sediment and wood form the fundamental materials that create and maintain habitat for fish and other aquatic biota.

The influence of riparian zones differs with reach type. The zone of influence is generally narrower in constrained reaches than in unconstrained reaches. In constrained reaches, the ecological functions provided by riparian zones, such as sources of wood, shade, and allochthonous materials, comes from within the height of one site potential tree (i.e., the mean size of a 200-year-old tree that can be grown at the site) from the channel (Figure 4-8). The

cool waters and low primary production. Creating openings in the riparian vegetation may increase fish production (Murphy and Hall 1980). However, these increases may be offset by losses of production in downstream areas because of the cumulative effects of resulting temperature increases. Elevated temperatures in headwater streams can lead to higher temperatures in downstream areas, which may reduce habitat suitability and thus fish production.

Wood from surrounding riparian zones is important in headwater streams. Wood creates collection areas for sediment and organic materials, the latter providing the energy base for the food chain. Wood also creates pools, an important habitat for fish in these streams. Bilby and Ward (1989) found that relatively small pieces of wood could serve these functions.

Headwater streams and small tributaries may also be important sources of wood for mid-order channels. Headwater channels are frequently subjected to landslides and debris torrents that can deposit wood and sediment in fish-bearing headwater or middle-order streams. McGarry (1994) found that 49 percent of the wood volume in fish-bearing sections of Cummins Creek, a stream in a small wilderness area near Yachats, Oregon, was derived from landslides in headwater streams. Benda (unpublished data) examined some coastal streams following the 1996 floods and found up to 80 percent of the wood in a roadless watershed to be derived from landslides. May (1998) reported that landslides in managed streams may also be important sources of wood.

Not all headwater streams have the same potential to deliver wood to fish-bearing channels, however. Benda and Cundy (1990) identified the attributes of first- and second-order streams in the central Oregon coast that have the greatest potential for delivering desirable material to fish-bearing streams via debris torrents (Figure 4-6 in color section following page 84). These channels generally have gradients of 8 to 10 percent, depending on stream size, and junction angles of less than 45°. Leaving trees along potential debris-torrent routes obviously increases the potential for delivery of wood to higher-order, fish-bearing streams.

The number of fish species increases in the middle portion of the stream network (Figure 4-5). Species commonly found here include those found in headwaters as well as additional species that are morphologically and behaviorally similar to them. In coastal streams, this includes coho and chinook salmon and steelhead, along with other species, primarily minnows (Cyprinids) such as the red-side shiner (*Richardsonius balteatus*). Valley Coast Range streams draining to the Willamette River generally lack anadromous salmon and trout. Resident cutthroat trout and native minnows, such as the northern pike minnow (*Ptychocheilus oregonsis*), are found in these streams.

Reaches

One reason that the number of fish species increases in the middle portion of the stream network is that there are more types of reaches and habitats here than in headwaters. In Coast Range streams, salmonid assemblages differ in composition between the two reach types, constrained and unconstrained (Reeves et al. 1998). Coho and chinook salmon and age 1+ trout are generally more abundant in unconstrained than in constrained reaches (Figure 4-7a in color section following page 84). Age 1+ cutthroat trout and steelhead are numerically dominant in constrained reaches (Figure 4-7b in color section following page 84).

Unconstrained reaches generally have higher total numbers of fish than constrained reaches. In upper Elk River on the southern Oregon Coast, unconstrained reaches contain only about 15 percent of the total available habitat but account for 30 to 50 percent of the estimated number of juvenile anadromous salmonids (G. Reeves, unpublished data). Similar patterns have been observed in streams in southwestern Washington (Cupp 1989). Densities of cutthroat and rainbow trout (*O. mykiss*) in unconstrained reaches were more than twice those in constrained reaches of the McKenzie River in Oregon (Gregory et al. 1989).

The difference in the composition of the salmonid communities between the two reach types is attributable to two factors. Unconstrained reaches contain a greater diversity of habitat types than constrained reaches (Gregory et al. 1989; Schwartz 1990). Constrained reaches are typically dominated by fast-water habitats, such as rapids and cascades, whereas unconstrained reaches contain a variety of pool and riffle habitats and provide lateral refuges in backwaters and overflow areas of floodplains during floods. A greater variety of niches, which support more species, is created by more habitat types.

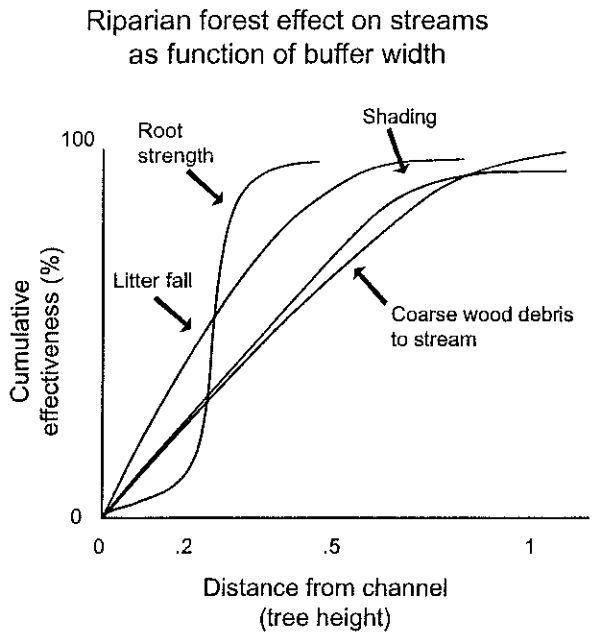

Figure 4-8. Zone of influence of selected ecological processes within riparian zones (FEMAT 1993).

role of riparian vegetation in providing shade may be reduced in constrained reaches with steep side walls that reduce the amount of solar radiation reaching the channel.

The riparian zone in unconstrained reaches is larger than in constrained reaches because it includes the valley floor as well as immediately adjacent side slopes. In intact unconstrained reaches, the stream channel often consists of multiple channels that migrate periodically across the valley floor. As it moves, the channel will interact with, and be influenced by, vegetation in all parts of the valley floor as well as on the adjacent hillsides. The extent of influence of the side-slope riparian zone is similar to that in constrained reaches (Figure 4-8).

Habitat units

The greater variety and production of fish in middle portions of the stream network compared with upper portions is due, in part, to the greater diversity of habitat types. Habitat types in headwater streams generally are restricted to pools, riffles, or cascades. Middle portions of the watershed have a greater variety of each habitat type. Units are also larger and deeper. There are, as a result, a greater number and variety of niches available. For example, deeper units allow species to partition habitat vertically, which cannot occur in shallower units. Within a habitat unit, structural features such as the amount of wood or boulders, substrate composition, flow velocity, and depth influence the number and biomass of species present (Sheldon 1968; Evans and Noble 1979; Angermeier 1987). Different combinations of these factors create an array of microhabitats.

Habitat complexity is directly related to the number and variety of microhabitats present in a unit, but it is difficult to explicitly quantify. It is usually determined by the amount of structural elements, such as wood or boulders, and the depth of a unit, and as a result, habitat complexity is usually expressed in relative terms.

Increased habitat complexity provides protection from predators, alters foraging efficiency (Wilzbach 1985), and influences social interactions (Fausch and White 1981; Glova 1986). In a Washington stream, Lonzarich and Quinn (1995) observed a general increase in the number of fish species and the abundance of each with increasing complexity of pools, measured by pool depth and amount of wood. However, each species responded to habitat features differently. Numbers of juvenile coho salmon, age 1+ steelhead, and cutthroat trout were directly correlated with pool depth. Numbers of Coast Range sculpin (*Cottus aleuticus*) did not respond to alteration of any habitat features. D. H. Olson (USDA Forest Service, Pacific Northwest Research Station, Corvallis, Oregon) found that numbers of salmonid species in a small coastal Oregon stream increased with maximum pool depth, pool surface area, and volume of wood. Cederholm and others (1997) found an increase in coho salmon smolt numbers with increased wood levels in a Washington stream, but steelhead showed no response.

The relative biomass of fish in Coast Range streams is also influenced by habitat complexity. More complex habitats result in more even distribution of biomass among species. Biomass of speckled dace, reticulate sculpin (*C. perplexus*), riffle sculpin (*C. gulosus*), and juvenile cutthroat trout increased with increasing levels of habitat complexity in a small Alsea River tributary (Fieth and Gregory 1993). In contrast, biomass of coho salmon showed no response to changes in habitat complexity in the summer, even though habitat complexity may influence coho salmon density at

other seasons (Nickelson et al. 1992a; Quinn and Peterson 1996) and life history stages (McMahon and Holtby 1992). Densities of fish also decreased in southeastern Alaska streams (Dolloff 1986; Elliott 1986) and a midwestern stream (Berkman and Rabeni 1987) when habitat structure was reduced by the removal of wood and increased sediment deposition, respectively.

Stream fishes partition habitat by interactive and selective segregation (Nilsson 1967). In interactive segregation, species are capable of using the same niche, but one species is dominant and precludes the subordinate species from preferred habitats. The dominant species is generally more aggressive or more efficient at exploiting a particular resource. Therefore, the subordinate species will move into preferred habitat only if the dominant species is absent. Habitat use by juvenile coho salmon and age 1+ trout is influenced, in part, by interactions among species. Juvenile coho salmon are aggressive and preclude steelhead (Hartman 1965) and cutthroat trout (Glova 1978) from the heads of pools, where food resources are highest. Steelhead in turn dominate cutthroat trout and generally preclude them from habitats in larger stream systems (> 15 square kilometers) in British Columbia (Hartman and Gill 1968). Similar patterns of segregation have been observed between rainbow trout and cutthroat trout (Nilsson and Northcote 1981) and cutthroat trout and Dolly Varden (*Salvelinus malma*; Andrusak and Northcote 1971) in lakes. Reeves and others (1987) found that habitat use by redside shiner (*Richardsonius balteatus*) and juvenile steelhead was determined by interactive segregation. In cool water (< 20°C), steelhead excluded shiners from riffles, where food was most abundant, by aggressively driving the shiners away. Shiners then formed loose aggregations in pools in the presence of trout. When steelhead were absent, shiners moved to riffles.

Selective segregation involves differential use of available resources (Nilsson 1967). Each species uses different habitat for other resources such as food and occupies the same habitats whether alone or in the presence of the other species. Differences in habitat use arise from differences in behavior or body morphology. For example, selective segregation between juvenile summer steelhead and spring chinook salmon reduced interaction for space in Idaho streams (Everest and Chapman 1972). The fish use similar habitats when they are a given size, but because chinook salmon spawn in the fall and steelhead in the spring, chinook salmon emerge earlier and tend to be larger than co-occurring 0+ steelhead at all times. Consequently, interactions between juveniles for food and space are minimal. Similar patterns of segregation were observed between juvenile coho and chinook salmon (Lister and Genoe 1970). Differences in life history features or behavior, such as those described above, which lead to selective segregation are genetically encoded over time (Nilsson 1967).

Both types of segregation, particularly with regard to salmon and trout, may occur in streams in the Coast Range. Having knowledge of how fish partition habitat and other resources provides insight into how fish communities are organized and provides a basis for evaluating proposed management actions. For example, juvenile coho salmon and steelhead portion habitat by interactive segregation. The potential to increase numbers of one species, either through natural means or through supplementation, may be reduced if the other species currently occupies available habitat (Reeves et al. 1993). Conversely, if two species segregate selectively, as coho and chinook salmon do, the potential to increase numbers of one species may be greater. Understanding the type of segregation also provides insights in evaluating the response of the community to environmental alterations.

Seasonal distribution

Distribution of fish species and age classes throughout a watershed and within habitat units varies seasonally, particularly for anadromous salmonids. We will illustrate seasonal changes in distribution using the work of Sleeper (1993), who described this pattern for the portion of the watershed used by juvenile anadromous salmonids in Cummins Creek, a small watershed near Yachats, Oregon. Several other sources are used to describe seasonal changes in habitat use by the various species and age classes. Understanding these patterns is important for managing freshwater habitats, projecting potential impacts of land management activities, and developing restoration efforts.

Spring

In the spring, age 1+ coho salmon and age 2+ steelhead (a fish that has spent two or more winters in freshwater) are found primarily in the lower portions of the system (Figure 4-9 in color section following page 84). Many of these are pre-smolts, older fish that are preparing to move to the ocean. Larger cutthroat trout (> 20 centimeters) are most abundant in the lowest portion of the network, which is where these fish spend the winter. Larger, older cutthroat trout (1+) and steelhead also will be in the main channel during the spring (Figure 4-10 in color section following page 84). These fish are found in pools and are generally oriented to the bottom (Hartman 1965). Pools with the most complexity will have higher densities of 1+ steelhead (Lonzarich and Quinn 1995). Complexity, usually in the form of boulders and/or large wood, reduces current velocities and provides cover (Bisson et al. 1987). This is particularly important in the spring because the metabolic performance of the fish is reduced at lower water temperatures. Few fish are found in riffles and other fast water units at this time of year. Some age 1+ steelhead may use these units, but the high velocities associated with higher flow make these areas unfavorable for growth.

Recently emerged coho salmon in Coast Range streams are concentrated near spawning areas, which in Cummins Creek are in the upper portions of the watershed. The swimming abilities of recently emerged salmonid fry are limited because of their small size and, therefore, they use off-channel areas and quiet areas along stream margins (Figure 4-10). These areas provide low-velocity habitat and are created by boulders and pieces of large wood on and along stream margins (Moore and Gregory 1988). Small debris and detritus accumulate in these areas and, as a result, production of smaller invertebrates, such as midges (Chironomidae) and early life stages of other aquatic invertebrates, is high. These organisms are important food items for smaller salmonids. Loss of these off-channel and margin habitats will negatively impact the growth and survival of recently emerged fish. Species of recently emerged fish found in off-channel and stream-margin habitats will vary over the spring. In most coastal streams, coho and chinook salmon fry will be the first to emerge from redds. There may be little overlap of these two species, however, because they spawn in different parts of the watersheds (Figure 4-11 in color section following page 84) and at different times (Figure 4-12). Recently emerged steelhead will be found in these same habitats but later in the spring or in early summer because steelhead spawn after the salmon.

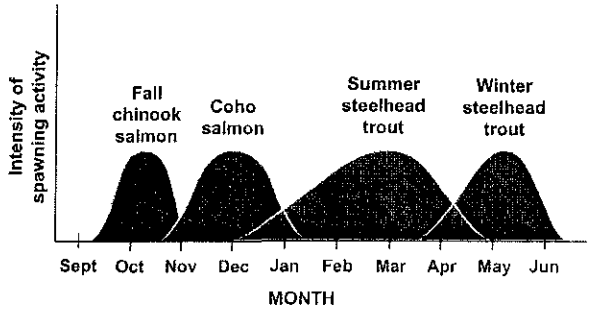

Figure 4-12. Spawning time of selected species of Pacific salmon (*Oncorhynchus* spp.) in coastal Oregon streams.

Summer

In early summer, the relative distribution pattern varies with species and age-classes. Coho that emerged this year are in the middle and parts of the upper portions of the system (Figure 4-13 in color section following page 84); recently emerged steelhead are more evenly distributed throughout the watershed. These differences are attributable, in part, to differences in spawning habitats. Coho salmon spawn in lower-gradient areas of the stream system, reaches 5 to 7 (these reaches are based in distance from mouth, not geomorphic settings). Steelhead spawn in a wider range of gradients and as a result spawn over a wider area. Numbers of larger cutthroat trout are also proportionately higher around coho spawning areas because they are likely preying on recently emerged coho salmon and steelhead. Both age-classes of steelhead are relatively evenly distributed throughout the watershed. There are no pre-smolts because these fish have migrated to salt water by this time. As summer flows decrease in Coast Range streams, so does the amount of off-channel habitat. Recently emerged steelhead use available off-channel habitat as well as stream margins (Figure 4-14 in color section following page 84).

Fish in backwater habitats can grow relatively rapidly at this time because of the large number of invertebrates present (Moore and Gregory 1988). As age 0+ steelhead grow, they shift to riffles in the main channels (Figure 4-15 in color section following page 84). Here food availability is high, consisting

primarily of aquatic insects drifting in the current. However, the energetic cost to obtain food is also high because of the increased water velocities. Thus, fish hold in lower-velocity pockets, which are formed by larger substrates or wood in fast water units, and dart into the water column to capture drifting invertebrate prey. This strategy minimizes energy expenditure and maximizes growth potential. Age 0+ steelhead are territorial at this time.

Territory size is dependent on habitat complexity and food availability (Chapman 1966; Dill et al. 1981; Scrivener and Anderson 1982); the more complex the habitat and the greater the amount of food, the smaller the territories will be, and the greater the number of fish that can occupy a given area.

Coho salmon in coastal streams move from backwaters and stream margins into pools in summer (Figure 4-15). They tend to occupy the upper portions of the water column in the upstream portion of the pool (Hartman 1965), where they feed on a combination of aquatic and terrestrial insects (Chapman 1965). Coho salmon form dominance hierarchies within the pool (Mundie 1969). In this social system, the largest fish dominates all other individuals, the second-largest dominates all individuals except the largest, etc. Interactions among individuals are either through direct contact or through rather elaborate behavioral displays (Hartman 1965). The large, colorful fins of coho salmon are used extensively in these displays. Habitat complexity and food availability determine the strength of the hierarchy and the number of fish that a habitat unit can hold. The more complex the habitat and the greater the amount of food, the fewer interactions there will be among individuals. Older (≥ 1+) cutthroat trout and steelhead occupy the bottom of pools (Hartman 1965). Partitioning the habitat this way minimizes interactions with coho salmon. Lonzarich and Quinn (1995) found that trout numbers were directly related to the depth of pools.

Fall

The distribution patterns of fish shift downstream in early fall (Figure 4-16 in color section following page 84), primarily as a result of declining flows, which reduce available habitat, particularly in the upper portions of the watershed. Elevated water temperatures in Coast Range streams also may reduce habitat availability and suitability at this time. Fish may concentrate in areas of cool water, frequently in pools at or near cool-water tributaries. This situation is especially true for streams in the eastern part of the Coast Range. Habitat use will generally be similar to that seen in the summer. The primary difference is that larger 0+ steelhead will move from riffles into pools and occupy habitats similar to age 1+ steelhead (Hartman 1965; Figure 4-17 in color section following page 84). Pools, especially deeper ones, are more abundant in lower reaches. Additionally, channels in lower parts of the network may have less variable streamflows than those in upper areas, potentially providing better overwintering conditions.

Winter

Because of difficult working conditions, such as high water and turbidity, little research has been done in Coast Range streams at this time of year. As a result, little is known about the winter distribution of juvenile anadromous salmonids in the Coast Range. We believe that the winter distribution is probably similar to those observed in late fall and early spring. Fish, especially older age-classes, are in the middle to lower portions of the watershed. Nickelson and others (1992a) found the highest densities of coho salmon in off-channel habitats, which suggests that areas of the watershed with wide floodplains are probably the most heavily used in winter. The stream network, and with it the amount of habitat, expands with the onset of winter in Coast Range streams.

Small streams that are dry during other times of the year begin to flow. Intermittent valley-bottom streams that have water in them may provide overwintering habitat for juvenile salmonids. Studies in the Rogue River in southern Oregon (Everest 1977) and in northern California (Kralick and Sowerwine 1977) found that juvenile cutthroat trout and steelhead moved into small, low-gradient, intermittent streams when flows increased in late fall and early winter and remained there until flows dropped in the spring.

Juvenile salmonids also move from main channels to off-channel habitats in the winter (Tschaplinski and Hartman 1983; Nickelson et al. 1992a). Winter off-channel habitats include alcoves and side-channels, which may only be present during high flows, as well as permanent floodplain habitats, such as beaver ponds, which become connected to the main channel at high flows. Peterson (1982) found that juvenile coho salmon

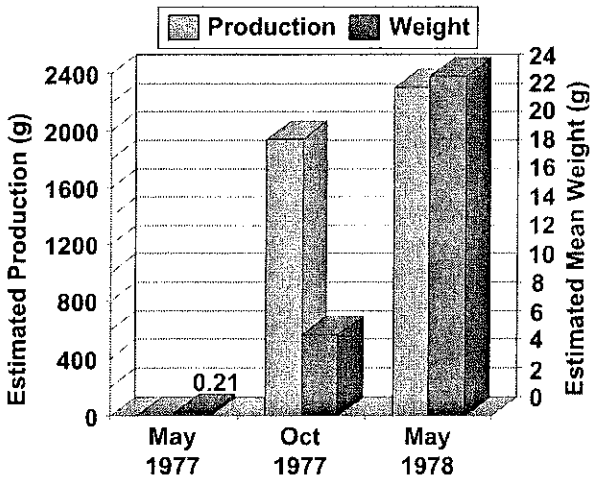

Figure 4-18. Estimated annual production and mean weight of young-of-the-year in the East Fork of the North Fork of the Mad River, California (Reeves 1978).

migrated as much as 20 miles before moving into off-channel ponds in a coastal Washington stream with the onset of high flows.

Direct loss or isolation of these habitats can reduce overwinter survival and production of salmonids (Tschaplinski and Hartman 1983). Fish that remain in the main channel in the winter concentrate in pools. Rodgers (1986) found coho salmon in Knowles Creek, a tributary of the Siuslaw River, in pools formed by debris-torrent deposits in the mainstem. Highest numbers were in deep pools with large amounts of wood. Such pools were formed at tributary junctions with small streams that had recently experienced debris torrents. Deep pools with large wood provide refugia for fish during high flows (McMahon and Hartman 1989; Harvey and Nakamoto 1998). Steelhead numbers are also greater in pools than riffles in winter (Grunbaum 1996).

In contrast to areas with harsh winters, winter may be a period of growth for fish in coastal Oregon streams. Water temperatures are mild, generally greater than 10°C for extended periods. Large amounts of organic materials that form the base of the food web, such as leaves and needles, are present in the channel. Carcasses of adults may also be present. These materials tend to accumulate in backwaters and behind concentrations of large wood (Moore and Gregory 1988) and provide food for invertebrates, which are in turn eaten by fish. Grunbaum (1996) found that age 1+ steelhead in coastal streams were active during the day in the winter and appeared to be feeding actively. Reeves (1978) found that more than 50 percent of the annual production of age 0+ steelhead in a small coastal northern California stream occurred over the winter (Figure 4-18). Mean size of individuals more than doubled at this time. Loss of winter production could have significant impacts on salmon and trout populations in Oregon streams.

Human Impacts on Fish and Fish Habitat

All species of Pacific salmon found in the Coast Range have been considered for listing under the Endangered Species Act. Species that have been listed include coho salmon coastwide; chum salmon in the lower Columbia River; steelhead on the southern Oregon coast; and spring chinook salmon in the Willamette Valley. Pink salmon were not listed primarily because they have already been extirpated from the coast. Fall chinook salmon coastwide and steelhead north of the Rogue River were not listed because of high population numbers. Lampreys are likely to be considered for listing in the near future.

The structure and composition of native fish communities in the Coast Range have been impacted by past and present human activities. A suite of factors is associated with the decline of native anadromous fishes in the Coast Range. These include loss or degradation of habitat, overharvesting in sport and commercial fisheries, and influence of hatchery fish (Nehlsen et al. 1991). Variable ocean conditions also influence population numbers and may exacerbate the effects of these various human impacts. Habitat alteration is cited most frequently as being responsible for the decline of these fish (Nehlsen et al. 1991; Bisson et al. 1992).

Physical habitats in rivers and streams of all sizes throughout the Coast Range have been altered and simplified by human activities. Early settlers extensively channelized and diked the lower portions of larger rivers to facilitate transportation, control flooding, and develop pastures for agriculture by early settlers. The lower Coquille provides a typical example of this type of development. Prior to the arrival of Euro-Americans, the lower Coquille River had broad forested floodplains with well-developed side-channels and sloughs (Benner 1992). The main channel was sinuous and occupied the valley bottom. Beaver ponds were extensive and there were large accumulations of wood in the channel and estuary. As settlement

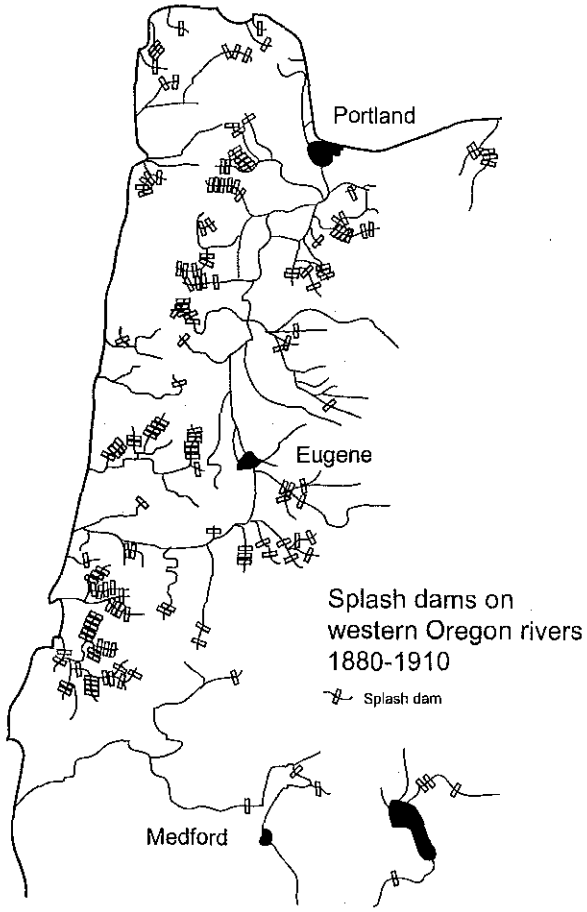

Figure 4-19. Location of permanent splash dams in the Oregon Coast Range, 1890-1910 (from J. R. Sedell).

proceeded, the channel was straightened and confined so that the floodplain is no longer connected to or interacts with the river. The floodplain was then often drained to create pastures for livestock. Large pieces of wood and rocks were removed from the channel to facilitate navigation and log transport. Secondary channels, backwaters, and oxbows, which are important habitats for many juvenile fishes, were lost as a result. In coastal streams, such habitats were historically important for coho salmon. Similar changes occurred on the Willamette River (Sedell and Froggatt 1984).

Smaller streams were also extensively affected by early development. Splash dams were built on many streams throughout western Oregon (Figure 4-19) to move logs from harvest sites to mills. These were permanent or temporary structures constructed across the channel to create a pond behind them, into which harvested trees were placed (Figure 4-20). During high flows, either the gate of a permanent dam was removed or the entire temporary structure was blown up, and the logs were carried downstream to processing facilities. Channels downstream of splash dams were straightened and obstructions removed to facilitate the movement of logs, resulting in very simplified channels, many of which persist today.

More recent activities have also altered habitat in many streams in the Coast Range. Timber harvest, urbanization, and agriculture have reduced the quantity and quality of habitat (Bisson et al. 1992). In the 1960s and 1970s, federal- and state-sponsored programs actively removed large wood from channels in the belief that accumulations of large wood impeded the upstream movement of fish. Additionally, management activities in riparian

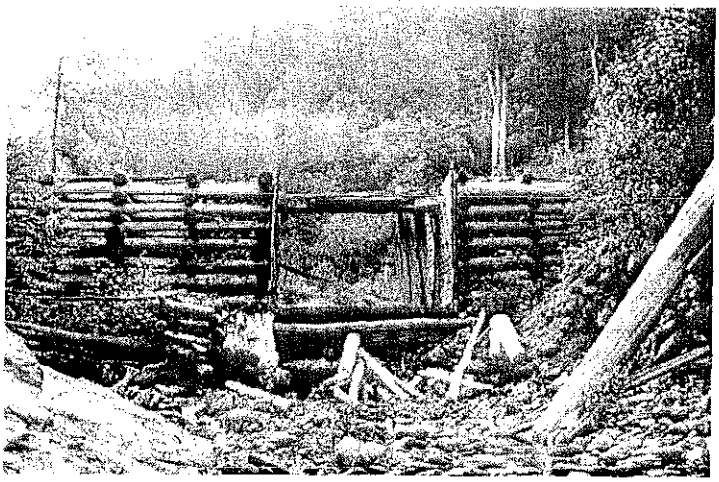

Figure 4-20. A splash dam similar to those used in the Oregon Coast Range (from J. R. Sedell).

areas, particularly timber harvest, increased along streams throughout the Coast Range. This reduced the amount of large wood that could be recruited to streams. The combination of loss of wood from active channel clearance and increased harvest, and increased levels of sedimentation in streams from timber harvest resulted in the loss of habitat, particularly pools. McIntosh and others (2000) found that the number of large pools (about 3 feet or more deep and 25 square yards or more in surface area), which are important habitats for many species and age-classes of fish, declined more than 75 percent in some coastal streams between the late 1930s to early 1940s and the mid 1980s.

Agricultural activities and growth of urban areas continue to impact aquatic systems and fish also. These activities occur primarily in the lower portions of watersheds, and reduce riparian habitats along main channels and smaller streams in the floodplain by diking and channelization. These impacts are particularly detrimental to coho salmon.

It is difficult to generalize about the response of fish to habitat alterations because responses vary with species, life-history stage, and location. Freshwater fish exist over a wide range of conditions, but the range that is generally most favorable for a species is relatively narrow (Larkin 1956). When environmental conditions change, relative abundances of the species in a community may shift. Those species favored by the new conditions increase, and those for which changes are less suitable decline. The result of this differential response is generally a decrease in diversity of the community, not usually from loss of species (the richness component of biodiversity) but rather because of changes in relative abundances of individuals of different species (the evenness component of biodiversity.

Reeves and others (1993) found that assemblages of juvenile anadromous salmonids in coastal Oregon watersheds where less than 25 percent of the basin was subjected to timber harvest and associated activities were more diverse than the assemblages in basins where more than 25 percent of the basin was harvested (Figure 4-21). The differences were primarily a result of increases in numbers of juvenile coho salmon and decreases in cutthroat trout numbers. Streams in systems with lower levels of timber harvest had more pools and more wood than those in systems with higher harvest levels. In steeper streams, coho salmon numbers declined as

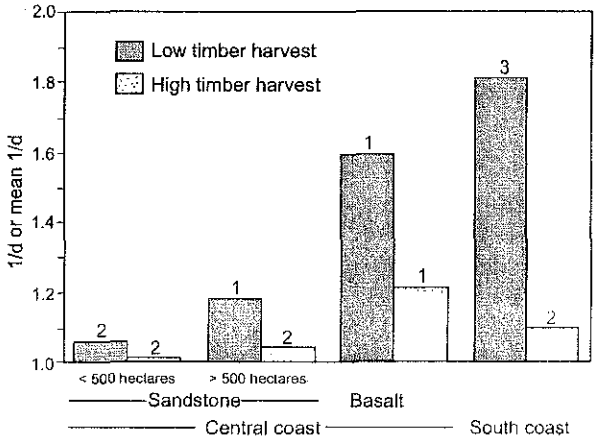

Figure 4-21. Mean diversity of juvenile anadromous salmonid assemblages in coastal Oregon watersheds with low levels (< 25 percent) and high levels (> 25 percent) of timber harvest (Reeves et al. 1993). (Reprinted by permission from Transactions of the American Fisheries Society.)

habitat complexity decreased. Cutthroat trout numbers decreased in lower-gradient systems. Coho salmon are more suited to slower water and trout to faster water (Bisson et al. 1988). Loss of structure in higher-gradient streams means the loss of slow-water habitats, and thus conditions were less favorable for coho salmon. On the other hand, loss of large wood in lower-gradient streams results in reduced cover and habitat suitability for cutthroat trout.

Similar responses have been observed in Carnation Creek, British Columbia (Hartman 1988; Holtby 1988), where cutthroat trout and steelhead numbers declined following timber harvest and coho salmon numbers increased. Chum salmon numbers also decreased following timber harvest (Scrivener and Brownlee 1989). Bisson and Sedell (1984) also noted a similar pattern of differential response in streams in Washington. In that case, 0+ steelhead were the dominant species in a stream following intensive timber harvest. Relative abundances of coho salmon and older than age 1+ cutthroat trout and steelhead were more even in a nearby pristine stream. The structure and composition of fish communities were similar in terms of species richness, but evenness was greater in a pristine stream than in an urban stream flowing into Puget Sound, Washington (Scott et al. 1986). A species' positive response to a change may not necessarily result in an increase in the species at a

later life-history stage, however. Murphy and others (1986) found more 0+ coho salmon during the summer in stream sections in southeast Alaska with clearcuts than in sections where riparian zones were patch cut or not harvested. They attributed this increase to increased primary production resulting from increased sunlight reaching the stream in clearcut sections. However, overwinter survival in clearcut sections was less than in the other sections because habitat suitability decreased as a result of the reduction in the amount of large wood. Consequently, survival decreased and numbers in clearcut sections were less than in the other sections after the winter.

Coho salmon increased in numbers and grew faster following timber harvest in Carnation Creek, British Columbia (Holtby 1988). These changes were attributed to increased water temperatures and benthic invertebrate production. Following timber harvest, the majority of coho salmon smolts were age 1+ compared to a mixture of age 1+ and 2+ prior to harvest (in more northerly areas such as British Columbia and Alaska, coho salmon may spend two years in freshwater before moving to the marine environment compared to only one year in Oregon). However, increased adult returns were smaller than the increased smolt numbers because the timing of ocean migration was about 12 to 14 days earlier following timber harvest than it had been prior to harvest. It was believed that this earlier ocean entry resulted in increased predation by hake (*Merluccius productus*), which migrate along the coast at this time of year (Hartman and Scrivener 1990). Normally, coho salmon would enter the ocean after the hake had moved through the area. Therefore, the increase in smolt numbers was offset by decreased ocean survival, and adults returning to Carnation Creek declined over time.

Changes in environmental conditions that are not necessarily lethal can alter the structure and composition of fish communities by changing the outcome of interactions among potential competitors. Water temperature mediates interactions between redside shiners and juvenile steelhead (Reeves et al. 1987). At temperatures of 19° to 22°C (62° to 67°F), shiners displaced trout by exploitative competition; that is, they were able to obtain food more efficiently. Steelhead dominated at cooler temperatures, 12° to 15°C (51° to 56°F), because of interference competition; they prevented competitor access to food by establishing and defending territories. Dambacher (1991) attributed the distribution pattern of trout and shiners in Steamboat Creek, Oregon, to changes in competitive interactions associated with water temperature and reach gradient. Shiners dominate in warmer, low-gradient reaches and trout in cooler, higher-gradient reaches. Water temperature also mediated interactions for food and space between redside shiners and juvenile chinook salmon in the Wenatchee River, Washington (Hillman 1991).

Ecosystem Restoration

Current approaches

The most cited factor associated with the decline of anadromous salmonids in the PNW and northern California is alteration of freshwater habitats (Nehlsen et al. 1991). Freshwater habitats used by anadromous salmonids have been simplified by a suite of human activities (Hicks et al. 1991; Bisson et al. 1992; Spence et al. 1996). Simplification includes loss of habitat quantity, quality, diversity, and complexity. Lawson (1993) argued that the continuing decline of the quantity and quality of freshwater habitats must be reversed if anadromous salmonid populations are to be protected from further decline and extirpation.

Management agencies and private individuals and companies throughout coastal Oregon have in recent years implemented a number of restoration projects to improve the condition of freshwater habitats and to increase fish populations. These efforts have primarily focused on improving conditions in the stream channel. Reeves and others (1991) cite several examples of early restoration projects (late 1960s to early 1970s). These included blasting pools in bedrock stream reaches, placing gravel-filled wire gabions or baskets in streams to collect and retain spawning gravels, and placing boulders and large wood in channels. Many of these techniques, such as using wire gabions and blasting pools, have since been abandoned because they failed to produce the desired results.

Some recent in-channel restoration efforts in the Coast Range focused on increasing habitat complexity by placing wood in channels or creating off-channel habitats. The most successful projects created alcoves or small backwaters just off the main channel by excavation, or by creating a channel that connects naturally occurring alcoves with the main channel (Nickelson et al. 1992b; Crispin et al. 1993;

Solazzi et al. 2000). Pieces of large wood were placed in the alcove to enhance complexity. These projects increased the number of coho salmon smolts (House and Boehne 1985; House 1996) and migrant cutthroat trout and steelhead (Solazzi et al. 2000).

The likelihood that in-channel restoration efforts will be successful is increased by creating aggregations of wood at strategic locations in the stream network (Dewberry and Doppelt 1996). A watershed analysis (see Doppelt et al. 1996 and Cissel et al. 1998) provides the context for locating structures. Usually the best sites will be at or below tributary junctions in unconstrained reaches, which are natural deposition and collection areas. Aggregations should be anchored by "key pieces" of wood, which Dewberry and Doppelt (1996) recommend be larger than 2.5 feet in diameter and at least as long as the width of the active channel. The most effective pieces will be logs with the root wad attached. Structures should not be placed at every tributary junction; fewer larger structures are more effective than several small ones. In-channel restoration has produced mixed results at best. Frissell and Nawa (1992) found that the vast majority of restoration structures, many of which were in coastal Oregon and were primarily single pieces of wood, single boulders, and boulder clusters placed in streams on public lands, did not achieve their expected results. Structures failed because they were not properly placed in the stream or they were incorrect for a given situation (Nickelson et al. 1992b). For example, log structures placed in unconstrained reaches were often stranded when channels shifted after high flows. Kondolf (2000) provides guidelines for geomorphic aspects of habitat restoration.

Failure to include watershed-level considerations into restoration efforts greatly limits the contribution of in-channel work. Structure placement has been viewed as the end step in restoration efforts, but successful restoration of fish habitat is dependent on restoration of both in-channel and upslope conditions (Hartman et al. 1996). Reeves and others (1997) evaluated the effectiveness of habitat-forming structures, primarily boulders and large wood, to restoring pools for steelhead in Fish Creek, a tributary of the Clackamas River near Estacada, Oregon. Five years after completion of structures, the amount of pool habitat had increased to the desired level and steelhead smolt numbers had increased by 27 percent. Then the basin experienced major floods in November 1995 and February 1996, and 236 landslides occurred in the watershed, most originating from roads or timber harvest units. More than half of the structures were lost and the lower channel aggraded as a result.

Failure to consider large-scale watershed conditions and to halt activities that cause habitat degradation will negate any positive effects of in-channel manipulations (Jones et al. 1996). It is unlikely that focusing only on in-channel restoration will improve habitats and increase fish numbers to legally and socially demanded levels. The amount of degraded habitat that can be treated is a relatively small proportion of the total. It is estimated that currently the vast majority of streams in the Coast Range are deficient in large wood. Generally, treated areas are those that are readily accessible to needed equipment (Frissell 1997). As a result, sites that have the greatest need for restoration or have the greatest potential to respond to restoration are often ignored. In addition, many improvements are relatively simple and do not create the range or diversity of conditions required by multiple species (Cederholm et al. 1997). Streams in the Coast Range are dynamic. Consequently, in-channel structures have a relatively short life expectancy (10 to 20 years) and need to be replaced periodically. It is not clear whether responsible agencies, organizations, and businesses are willing to make the necessary long-term commitments to restoration programs.

Ecosystem approach

There is an emerging recognition that a more comprehensive ecosystem approach is necessary to assist in the recovery of imperiled fish populations and species. Williams and others (1989) reported that, between 1979 and 1989, no fish species listed under the Endangered Species Act were delisted because of improved status. They believed that the focus on restoring in-channel conditions and the failure to address ecosystem-level concerns were primary factors responsible for this lack of improvement. Recovery of anadromous salmonids in the Coast Range is doubtful unless restoration efforts are focused on ecosystems and watersheds.

Current efforts, particularly on private lands, continue to focus on in-channel restoration and are unlikely to make significant contributions to habitat or population recoveries. In-channel work should be considered a catalyst for, rather than the sole

means of, achieving habitat and watershed recovery (Reeves et al. 1991). Structures may provide the initial recovery, particularly in more degraded situations, but there must also be efforts to restore watershed and ecological processes that create and maintain necessary habitat and environmental conditions. Having only an in-channel focus will result in short-lived results at best.

A primary goal of watershed/ecosystem restoration is to restore biological integrity, which is the ability of an ecosystem to recover from periodic disturbances and to express the historical range of ecological conditions (Angermeier 1997). Restoration policies and goals generally assume that societal demands, both material and nonmaterial, can be met from landscapes operating somewhere within their historical range of conditions. Thus, efforts to restore ecological conditions and processes, such as joining off-channel habitat connections and ensuring wood and sediment delivery and water flow, do not have to restore the full suite of conditions and processes found in natural systems. Rather, they need to restore the key ecological processes that will create the desired conditions across the landscape seasonally and over longer periods, such as decades to centuries.

Preventing initial degradation, which includes direct damage to habitat as well as the ecological processes that create and maintain habitat, is the most prudent and economical approach to ecological restoration. Repairing damage can be costly (Toth et al. 1997) and is not always successful; some impacts simply cannot be repaired. Mitigation measures, such as the credit provision in the Oregon State Forest Practices Rules that allow for harvest of trees from riparian areas if logs are placed in streams, can be expensive and less than effective. Clearly, past damages require restoration, but our efforts at habitat restoration and watershed management should put a strong priority on implementing land management policies and practices that protect and maintain the integrity of watersheds and their ecological processes. A primary principle of any successful watershed restoration program is that existing areas of good habitat must first be protected from degradation, particularly in the short term (McGurrin and Forsgren 1997).

Areas of good habitat are relatively rare in coastal Oregon today and future management could threaten many of these areas. Protecting these areas is essential in the short term to protect existing populations that supply colonists to other areas as they recover. This principle should be applied at all spatial scales from the site to the landscape. For example, at the site scale, emphasis should be placed on riparian areas that currently have desirable stand conditions. Management in these areas should be minimized to protect their integrity. Botkin and others (1995) concluded that the riparian management requirements on private lands in the Oregon State Forest Practices Act would do this. However, the Independent Multidisciplinary Scientific Team (1999) was less certain that riparian integrity is sufficiently protected by the act. The Forest Practices Act allows removal of larger trees over repeated entries, protects a relatively small area, and places primary emphasis on riparian zones along fish-bearing streams. These actions will likely compromise or eliminate necessary ecological functions and processes, such as large-wood recruitment.

Entire watersheds that currently are in good condition should also be protected from degradation. These watersheds should be 7th field HUs or larger. A watershed of this size is sufficiently large to allow anadromous salmonids to complete most of their freshwater life cycle, and could serve as a key source of migrants that can colonize new areas if they recover. A portion of the key watersheds established in the Northwest Forest Plan for federal lands fulfills this role. Unfortunately, these watersheds are generally limited to watersheds higher in river basins and are somewhat restricted in their distribution across the Coast Range. Therefore, their role in aiding the recovery of declining populations is restricted.

Because funds and time are always limited and the number of watersheds that are in good condition is small, priorities must be established for areas to be restored. Frissell (1996) presents a classification scheme for assigning such priorities:

(1) *Focal habitats* are critical refuge areas that have high-quality habitats. These can vary in size from a reach to a watershed. They have the highest priority because: (a) their protection will benefit multiple species; (b) potential biological/ecological benefits are high relative to costs of protection/restoration; and (c) the likelihood of near-term success is high.

(2) *Adjunct habitats* are areas immediately adjacent to focal habitats that have been degraded by human activities and do not currently support a high

diversity or abundance of native species. They have high priority for restoration because the potential buffering effect and influence of adjacent focal habitats gives them a relatively good chance for recovery.

(3) *Nodal habitats* are areas with high species diversity or strong populations that are not connected to focal or adjunct habitats. They contain critical habitats required by certain life-history stages (e.g., spawning and early-rearing areas, overwinter habitats, etc.). These can be located throughout a watershed.

(4) *Critical contributing areas* are portions of the watershed that do not provide habitat directly but are important sources of materials that may create and maintain habitat or influence the quality of the existing environment. These may include tributaries that are sources of wood and sediment (see Figure 4-6) or cold water for fish-bearing streams.

(5) *Grubstake habitats* are areas where restoration costs will be high because much effort is generally required to restore them. However, because these habitats are often rare but essential for fish, the potential benefits may be large. Areas with grubstake habitats tend to be located in lower portions of the stream network, where alteration as a result of agriculture and urbanization has been extensive. Biotic and physical responses are likely to take a long time, perhaps decades. Examples include floodplains, estuarine marshes, and mainstems of lowland rivers.

(6) *Lost-cause habitats* are areas so severely degraded that recovery of any significance is unlikely. Examples include portions that are in heavily urbanized areas, or where activities such as timber harvest and agriculture are very intensive. Investing scarce resources in these habitats is simply not worthwhile. Biota are likely to benefit more from investment in other habitats.

Because social, political, and economic factors influence watershed and aquatic ecosystems, they must be considered in restoration efforts (McGurrin and Forsgren 1997). Issues associated with these factors include: (1) securing dependable long-term funding; (2) obtaining landowner interest and cooperation; (3) receiving understanding and support from local governments; (4) motivating agencies to work with citizens; and (5) influencing government planning decisions that potentially influence activities in the watershed. Overcoming these problems can be as formidable as the actual restoration work. McGurrin and Forsgren (1997) present several concepts for watershed groups to use in dealing with these concerns.

The Future: Ecosystem and Landscape Management

Our understanding of what constitutes the freshwater ecosystems of anadromous salmon and trout is continually evolving. To date, much of the focus has been on relatively small spatial scales, such as habitat units (Bisson et al. 1982; Nickelson et al. 1992a), reaches (Murphy and Koski 1989), and, to a lesser extent, watersheds (Reeves et al. 1993). There is an emerging need to move from these small spatial scales to the larger scale of ecosystems and landscapes because, in part, of the necessity to recover the freshwater habitats of anadromous salmonids with low or declining population numbers across the Coast Range.

A variety of sources, including interested publics, interest groups, scientific review and evaluation teams (National Research Council 1996; Independent Multidisciplinary Scientific Team 1999), regulatory agencies, and policy- and decision-makers, are calling for the development of policies and practices to manage the freshwater habitats of at-risk salmon and trout at ecosystem and landscape levels. Scientists are only beginning to work at these scales, so understanding of the broad-scale behavior of aquatic ecosystems over extended time periods is limited. Therefore, responsible agencies are struggling with the challenge to develop appropriate and effective policies and programs.

It is important to recognize that an ecosystem and a landscape are different entities and hence their management requirements differ. Ecosystems are vague entities with boundaries that may shift in space and time (Caraher et al. 1999). However, we consider the spatial scale of an ecosystem to be a watershed that is a 6th or 7th field HU, which is consistent with the definition of Hunter (1996). A landscape is a mosaic or collection of ecosystems (Hunter 1996) that occupy a relatively large area (2.47×10^5 to 2.47×10^7 acres; Concannon et al. 1999). Multiple watersheds that are contiguous are considered a landscape.

The foundation and principles for managing terrestrial systems and biota at the ecosystem and landscape levels are much more developed than they are for aquatic systems. Major paradigms of

ecosystem management include (Lugo et al. 1999):

(1) Ecosystems are not steady state but are constantly changing through time.

(2) Ecosystems should be managed from the perspective of resilience, as opposed to stability.

(3) Disturbance is an integral part of any ecosystem and is required to maintain ecosystems.

Ecologists (Holling 1973; White and Pickett 1985) and managers recognize the dynamic nature of terrestrial ecosystems and how the associated biota and physical characteristics change through time. They are also aware that the range of conditions that an ecosystem experiences is determined to a large extent by the disturbances it encounters (a wildfire, hurricane, timber harvest and associated activities, etc.). Resilience is the ability of an ecosystem to recover to pre-disturbance conditions following a disturbance (Lugo et al. 1999). An ecosystem demonstrates resilience after a disturbance when the environmental changes caused by the disturbance are within the range of conditions that the system experienced before the disturbance. Reduced resilience results in a decrease in the diversity of conditions of a particular ecological state, the loss of a particular ecological state, or both (Lugo et al. 1999). Biological consequences of reduced resilience may include extirpation of some species, increases in species favored by available habitats, and an invasion of exotic species (Levin 1974; Harrison and Quinn 1989; Hansen and Urban 1992).

Yount and Niemi (1990) modified the definition of Bender and others (1984) and referred to a disturbance regime that maintains the resiliency of an ecosystem as a "pulse" disturbance. A pulse disturbance occurs infrequently, and there is sufficient time between disturbances to enable the ecosystem to recover to pre-disturbance conditions. A pulse disturbance allows an ecosystem to remain within its normal bounds to exhibit the same range of states and conditions that it does naturally. A "press" disturbance, on the other hand, reduces the resiliency of an ecosystem. It is a frequent or continuous impact that does not allow time for recovery to pre-disturbance conditions.

The less management actions resemble the disturbance regime under which an ecosystem evolved, the less resilient an ecosystem will be. The obvious challenge for ecosystem management is to make management actions resemble the natural disturbance processes and regime as closely as possible. The management disturbance regime should be more pulse-like and less like a press. Factors that must be considered in developing ecosystem management plans and policies are the frequency, magnitude (White and Pickett 1985; Hobbs and Huenneke 1992), and legacy (the conditions that exist immediately following the disturbance; Reeves et al. 1995) of disturbance regimes in the managed ecosystem. The impact on the ecosystem will depend on how closely the management disturbance regime resembles the natural disturbance regime with regard to these factors.

Landscape management strives to maintain a variety of ecological states in some desired spatial and temporal distribution. To do this, landscape management must consider (1) the development of a variety of conditions or states in individual ecosystems within the landscape at any point in time; and (2) the pattern resulting from the range of ecological conditions that are present (Gosz et al. 1999). Management must address the dynamics of individual ecosystems, the external factors that influence the ecosystems that comprise the landscape, and the dynamics of the aggregate of ecosystems. Obviously, understanding the dynamics of an individual ecosystem is demanding. Understanding the dynamics of the aggregate of ecosystems is much more challenging (Concannon et al. 1999).

Although a dynamic perspective of aquatic ecosystems is not widely held in the scientific community, the number of proponents is growing steadily (Minshall et al. 1989; Reeves et al. 1995; Benda et al. 1998). To establish a dynamic landscape perspective, the range of natural variability must be characterized at different spatial scales. Lower spatial scales (site, habitat unit) generally have a wider range of variation than do large scales (watershed, landscape). Wimberly and others (2000) demonstrated this for old-growth forests in the Coast Range. The amount of old growth at the finest spatial scale, the late-successional reserve (100,000 acres), ranged from zero to 100 percent over the time period of centuries. The variation was 15 to 80 percent at the scale of a national forest (7.27×10^5 acres). It was 25 to 73 percent at the province scale (5.6×10^6 acres).

The remaining challenge is to then determine how the location of each ecological condition moves across the landscape through time. The movement to ecosystem and landscape management for

aquatic systems requires the articulation of principles and a conceptual basis to guide the development of policies and practices. However, there is little in the scientific literature to help with this. A major reason for this deficiency is that there is little or no consideration of time as an essential component of aquatic ecosystems. The major paradigms that shape the thinking about aquatic ecosystems, such as the River Continuum Concept (Vannote et al. 1980), do not consider time or its influence. Similarly, classification schemes such as that of Rosgen (1994) identify a single set of conditions for a given stream or reach type; no consideration is given as to how these conditions may vary over time. As a result, the dynamics of ecosystems and landscapes over long time periods (several decades to centuries) are not recognized, and the condition of aquatic ecosystems is expected to be relatively consistent through time. Therefore, a stream is expected to be in good condition at all times; any variation from this is considered to be unacceptable.

To develop effective ecosystem and landscape management policies for aquatic systems in the Coast Range, it is essential to understand the natural disturbance regime, how it has affected in-channel habitat within and among watersheds (6th and 7th HUs), and how it has been modified by human activities. To develop effective guidelines for management of aquatic ecosystems, it is critical to acknowledge that periodic disturbance is an integral part of these systems. Natural disturbances episodically delivered materials, sediment and wood, that formed the habitat over time. Also, suitability of the habitat for anadromous salmonids varied from good to poor through time in the past.

This perspective is not yet held very widely in the scientific community and is not even considered in setting management policies. We believe that it is necessary to assume that human activities, such as timber harvest and associated activities, have replaced wildfire and floods as the major disturbances in the Coast Range today. We must compare features of the natural disturbance regime and the human disturbance regime with regard to frequency, magnitude, and legacy. It should be made clear that we do not believe it is possible that the human disturbance regime will exactly mimic the natural regime. The challenge is to make the human disturbance regime more of a pulse disturbance than a press disturbance.

A case study

Understanding the natural disturbance regime is one of the first steps required for ecosystem and landscape management. The following is an example of the foundation for ecosystem and landscape management for timber harvest and associated activities in the central Coast Range. Reeves and others (1995) described the long-term dynamics of sandstone watersheds in the central Oregon coast. A brief synopsis of this follows. It should be noted that this case study is based on the examination of three watersheds that had little or no impact from human activities; however, they differed in the time since the last large wildfires and catastrophic landsliding event. Harvey Creek had most recently experienced landsliding and debris flows, perhaps 80-100 years before the study. Franklin Creek was estimated to have experienced such a disturbance 140 to 160 years before, and Skate Creek more than 200 years before.

We acknowledge that the small sample size—a consequence of the fact that watersheds in the Coast Range without a strong signal of human impact are very rare—may not fairly represent the central Oregon coast. Nonetheless, we believe that this case study provides an initial basis for understanding the natural disturbance regime of aquatic systems

Table 4-2. Physical conditions and composition of the juvenile assemblage in three streams in the Oregon Coast Range at different times from the last disturbance.

Stream	*Years since last major disturbance*	*Mean depth of pools (m)*	*Percent gravel*	*Mean pieces of wood (100 m)*	*Percent of assemblage*		
					Coho	*Steelhead*	*Cutthroat*
Franklin Creek	90-100	0.87	70	7.9	98.0	1.0	1.0
Harvey Creek	160-180	0.67	60	12.3	85.0	12.5	2.3
Skate Creek	> 300	0.08	10	23.5	100.0	0.0	0.0

Data from Reeves et al. 1995.

in the Coast Range. The historical natural disturbance regime in the central Oregon coast was dominated by infrequent wildfires and frequent, intense winter rainstorms (Benda 1994). Wildfires reduced the soil-binding capacity of roots. When intense rainstorms saturated the soils, there were catastrophic landslides and debris flows into the valley bottoms and streams. Such disturbances typically occurred on average every 300 years (Benda 1994).

Harvey Creek was the studied stream that most recently had experienced landsliding and debris flows. Its channels were aggraded with gravel-sized sediment 2+ meters deep. The result was that the stream had long expanses of riffle-like habitat with few pools (Reeves et al. 1995; Table 4-2). The few pools present were relatively deep, while the amount of large wood was relatively low (Table 4-2). Although large amounts of wood from upslope areas were delivered to the channels, much of it was buried in the sediments and did not immediately function to create habitat.

The likely immediate impacts of such a large disturbance event were direct mortality of fish, habitat destruction, elimination of or reduction in access to spawning and rearing areas, and temporary reduction or elimination of food resources. The diversity of fishes in Harvey Creek was relatively low (Reeves et al. 1995; Table 4-2). Coho salmon dominated the salmonid assemblage. Only a few juvenile cutthroat trout and steelhead were present, most likely because pools lacked large wood and the complexity it creates. Over time we would expect conditions in Harvey Creek to become more favorable to fish. Franklin Creek best approximated the complex habitat conditions that develop 80 to 140 years after a catastrophic disturbance. The amount of sediment in the channel would have declined over that period because of downstream transport and erosion (Benda 1994), exposing wood and large substrates that had been buried initially. There was also the recruitment of wood from the surrounding riparian zone, which now had trees that had become large enough to create habitat in the channel. Pools in Franklin Creek are shallower than those in Harvey Creek (Table 4-2), but they are more complex as a result of the increased amount of wood. Based on modeling the amount of sediment in channels as a result of natural wildfire and landsliding, Benda (1994) estimated that approximately 60 percent of the sandstone streams in the central Coast Range were in this condition at any point in time historically.

The diversity of the salmonid assemblage changed at this time as a result of the changes in physical conditions. Coho salmon still numerically dominate the assemblage in Franklin Creek (Table 4-2). However, cutthroat trout and steelhead make up a much larger proportion of the assemblage than they do in Harvey Creek. After an extended time since the last major disturbance (> 200 years), habitat conditions for juvenile anadromous salmonids were thought to decline), as in Skate Creek (Table 4-2). Old-growth forests in riparian zones would have delivered large amounts of wood to the channel, so the amount of wood in the channel of Skate Creek is now very high. However, the amount of gravel has declined because of erosion and downstream transport (Benda 1994). The result is that the stream has long expanses of bedrock. Pools are very shallow and not very suitable for fish. Juvenile coho salmon were the only fish found in this stream.

Life-history features of anadromous salmon and trout allowed them to persist in such a dynamic environment. Adaptations include straying by adults, relatively high fecundity rates, and movement by juveniles. Straying by adults is directly or indirectly genetically controlled (Quinn 1984) and aids the reestablishment of depressed or extirpated populations (Ricker 1989; Tallman and Healey 1994). The high fecundity of anadromous salmonids permits relatively quick establishment and growth in new areas with favorable conditions (Reeves et al. 1995). Juveniles may move from natal streams into unoccupied habitats and grow rapidly (Tschaplinski and Hartman 1983), thus helping to establish populations in the new areas.

Conclusions

We believe that human demands on aquatic ecosystems in the Oregon Coast Range will only continue to increase in the future. Given that, it will not be possible for the historical natural disturbance regime to operate, even in a relatively small number of watersheds. If aquatic ecosystems are to be conserved and restored, human activities will have to be viewed in the context of a disturbance regime that can sustain their long-term productivity. The challenge is to make the human disturbance regime resemble the natural regime as closely as possible; in other words, make human activities more of a pulse disturbance than a press disturbance (Yount

and Niemi 1990). It is therefore necessary to identify those activities that can be modified to maintain required ecological processes and leave the legacy required for the resilience and persistence of the ecosystems.

A new disturbance regime

The recovery of degraded aquatic ecosystems in the Coast Range will be dependent on developing a new disturbance regime. One of the necessary steps is to compare the elements of the natural disturbance regime to those in the human disturbance regime, with respect to legacy, frequency, successional states, and size and spatial patterns of disturbance. The following example is for timber harvest. We have focused on timber harvest for this example because we feel that it offers the best opportunities for ecosystem and landscape management. Other human activities, such as agriculture and urbanization, need to be considered; however, they are very strong press disturbances and do not lend themselves to modification to the degree needed to develop disturbance regimes that are more pulse-like than press-like.

We recognize that timber harvest strategies vary with ownership and the owner's objectives. We will generalize about ecosystem management for aquatic systems in which timber management is the primary disturbance. The following compares timber harvest and the historic disturbance regime of aquatic ecosystems in the Coast Range. A more detailed discussion is presented in Reeves and others (1995). The timber harvest disturbance regime differs from the stand-replacing wildfires that affected aquatic ecosystems in several respects. One difference is the legacy of each. Wildfires left large amounts of standing and downed wood that was delivered, along with sediments, in landslide and debris torrents to fish-bearing streams in the valley bottoms (Benda 1994). The wood delivered via these hillslope processes can be a substantial amount of the total volume of wood found in streams (McGarry 1994). As described previously, once the amount of sediment declined to intermediate levels, high-quality habitats developed (Benda 1994). Landslides associated with timber harvest, on the other hand, contain primarily sediments, because trees along the landslide tract have been removed (Hicks et al. 1991). As a consequence, channels are simpler after timber harvest (Hicks et al. 1991; Reeves et al. 1993; Ralph et al. 1994) than they are after wildfire.

Timber harvest and wildfire also differ with regard to the frequency of disturbances. The interval between disturbances affects the range of conditions and ecological states that can develop within an ecosystem (Hobbs and Huenneke 1992). The extended time interval between natural disturbance events (300 years; Benda 1994) allowed a wide range of conditions to develop in aquatic ecosystems in the Coast Range. Timber harvest generally occurs at intervals shorter than this, generally 40 to 50 years on private lands and 80 to 100+ years on federal and state lands. The physical habitat conditions necessary to support the variety of fish naturally found in coastal streams may not develop in such relatively short periods, especially on private lands.

Another difference between the disturbance regime of timber harvest activities and of wildfire is the spatial distribution of successional stages under each regime. In the watersheds of the central coast area, Benda (1994) estimated that historically on average 15 to 25 percent of the forest would have been in early-successional stages. On federal lands in these watersheds approximately 35 percent are currently in early-successional stages (J. Martin, Siuslaw National Forest, personal communication). (The total percentage in early-successional stages would be larger if private lands were included.) This increase in early-successional stages has resulted in a concomitant decrease in the percentage of area of mid-successional forests, and those central coast watersheds with larger amounts of mid-successional forest appear to contain the most favorable habitats for anadromous salmonids (Botkin et al. 1995; Reeves et al. 1995).

A fourth difference between the natural disturbance regime and the current timber harvest disturbance regime is the size of the disturbance events and the landscape pattern created by the disturbance. Timber harvest activities generally occur in small individual actions that "disturb" areas of 40 to 120 acres and are distributed across the landscape. In contrast, wildfires resulted in larger but more concentrated areas of disturbance. In the central Coast Range, the mean size was 7,500 acres (Benda 1994).

Variation among watersheds in their suitability for fish is reduced under the timber harvest regime compared to the wildfire regime. Dispersal of timber harvest activities over relatively large areas subjects a greater number of watersheds to disturbance at any point in time and has degraded streams across

the landscape, while the concentration of wildfire in a relatively small proportion of the landscape resulted in a variation in watershed conditions, ranging from poor to good, at any point in time (Reeves et al. 1995).

The legacy of timber harvest needs to include more large wood. Leaving large trees in riparian zones along selected landslide-prone channels will result in the delivery of more wood to fish-bearing streams and will increase the potential of aquatic ecosystems to develop conditions favorable for anadromous salmonids. The model of Benda and Cundy (1990) can be used to identify which landslide-prone channels have the greatest potential for delivering wood to fish bearing channels. This model was shown to be more than 90 percent accurate in identifying these channels in Coast Range watersheds impacted by the February 1996 storms (Robinson et al. 1999). Figure 4-6 shows an example of the distribution of these channels in a watershed.

Responsible agencies and landowners seem reluctant to extend riparian zones into intermittent and small nonfish-bearing streams on state and private lands. Opponents cite the scientific literature to argue that the vast majority of the wood found in fish-bearing streams is recruited from within a relatively short distance from the stream. However, we believe that cited papers do not support this contention. For example, McDade and others (1990) found that 90 percent of the wood came from within 66 feet of the stream. This result is based on using only a fraction (about 50 percent) of the total amount of the wood in the channel. The authors excluded wood pieces for which the origin in adjacent riparian zones could not be identified (McDade et al. 1990), thus excluding any landslide-delivered pieces. Additionally, only stream reaches that were not impacted to any extent by landslides were examined in the study (F. Swanson, Pacific Northwest Research Station, personal communication). Therefore, the results of this study showed the amount of wood coming from only one source—the immediately adjacent riparian zone. Riparian zone standards based on these kinds of results need to be re-evaluated in the development of ecosystem and landscape management plans and policies to ensure that all sources of wood are protected.

Extended time periods between disturbances from timber harvest could also be part of any ecosystem and landscape management plan. The interval between disturbances determines to a large extent the range and types of conditions that can develop in an ecosystem. Based on the limited observations of Reeves and others (1995), it appears that favorable conditions in central Oregon coast streams begin to appear 80 years or so following a disturbance; this is a rough approximation that requires more supporting research. The longer rotation between disturbances may not have to apply to an entire watershed if riparian zones are sufficiently large and include appropriate landslide-prone nonfish-bearing and intermittent streams.

Policies and practices for landscape management should consider allowing management activities to be concentrated at the ecosystem level rather than distributing activities over wider areas (Reeves et al. 1995). An example of this is shown in Figures 4-22 and 4-23 (in color section following page 84). The amount of activity allowable in a watershed is often limited by rules and regulations governing cumulative effects (Figure 4-22), but ecosystem and landscape effects may be lower if activities are concentrated in a given area rather than being dispersed (Figure 4-23). Grant (1990) modeled both scenarios to determine their effects on pattern of peak flow and found little difference between the two approaches. Concentrating rather than dispersing activities also confers benefits to terrestrial organisms that require late-successional forests (Franklin and Forman 1987).

Watershed reserves could also be considered in the development of ecosystem- and landscape-management policies, but only as short-term components. Reserves, such as the Key Watersheds identified in FEMAT (1993) or the Class I waters of Moyle and Yoshiyama (1994), are essential to protect watersheds that are currently in good condition. However, in dynamic environments reserves such as these simply act as holding islands that persist for relatively short ecological periods (White and Bratton 1980; Hales 1989; Gotelli 1991). Therefore, given the dynamic nature of aquatic ecosystems in the Coast Range, and elsewhere in the PNW, any single watershed reserve will not and should not be expected to provide high quality for extended periods. The challenge of ecosystem and landscape management is to manage for the future generations of "reserves" so that as good habitats become degraded, either through human or natural disturbances or through development of new ecological states (i.e., succession), others become available.

Many hurdles must be overcome to make viable ecosystem and landscape policies for aquatic systems work. Biologists, managers, and planners must consider much longer time frames than they are generally accustomed to using (Reeves et al. 1995). They need to acknowledge and understand the dynamics of ecosystems and landscapes in space and time. Legal and regulatory constraints may have to be reconsidered. For example, current cumulative effects regulations would prevent concentration of activities. Or, water quality standards for temperature or suspended sediment may be violated in some watersheds following disturbances, which may be a vital component of ecosystem and landscape management. There will also be social and economic barriers. In much of the Coast Range, there are multiple landowners with differing objectives. Coordinating objectives and timing of activities in such a mosaic so as to achieve ecosystem and landscape management will not be easy.

It is important that disturbance be recognized as an integral component of ecosystem and landscape management (Reeves et al. 1995; Gosz et al. 1999; Lugo et al. 1999). This will require helping managers, scientists, administrators, politicians, and the public to realize that periodic disturbances to aquatic ecosystems are essential to maintain long-term productivity and that they are not necessarily negative. Adjusting expectations that all watersheds should be in "good" condition at all times may be the biggest change required for successful ecosystem and landscape management of aquatic systems in the Oregon Coast Range.

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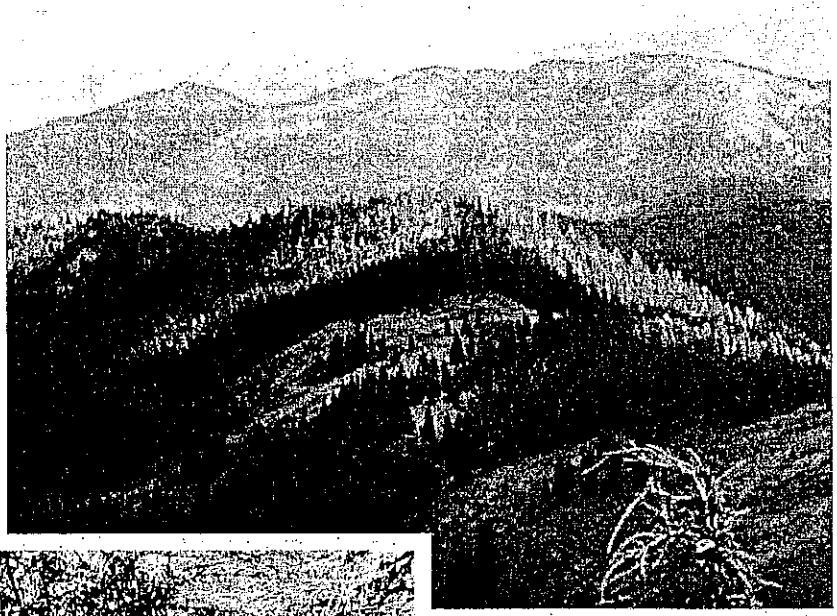
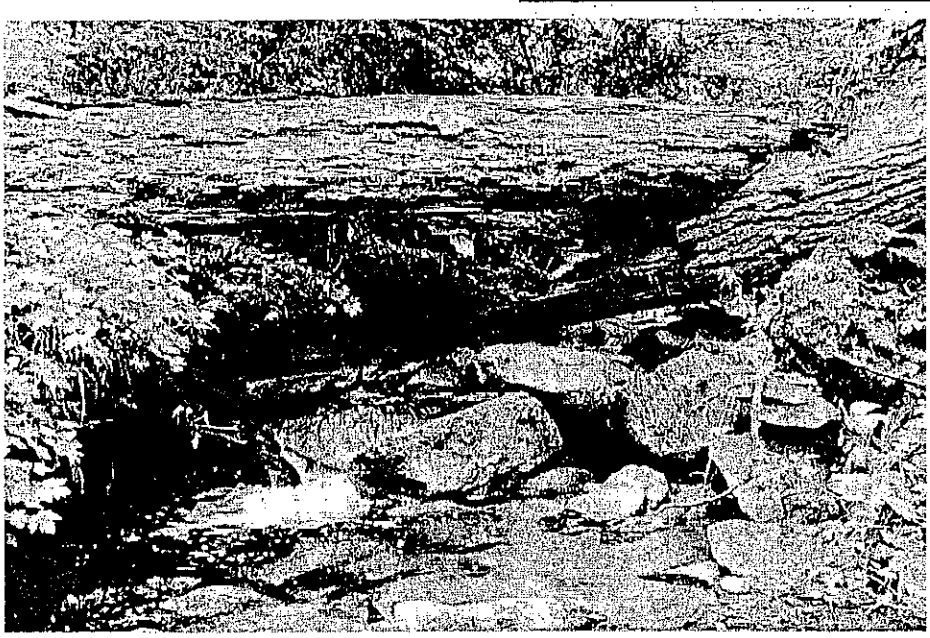
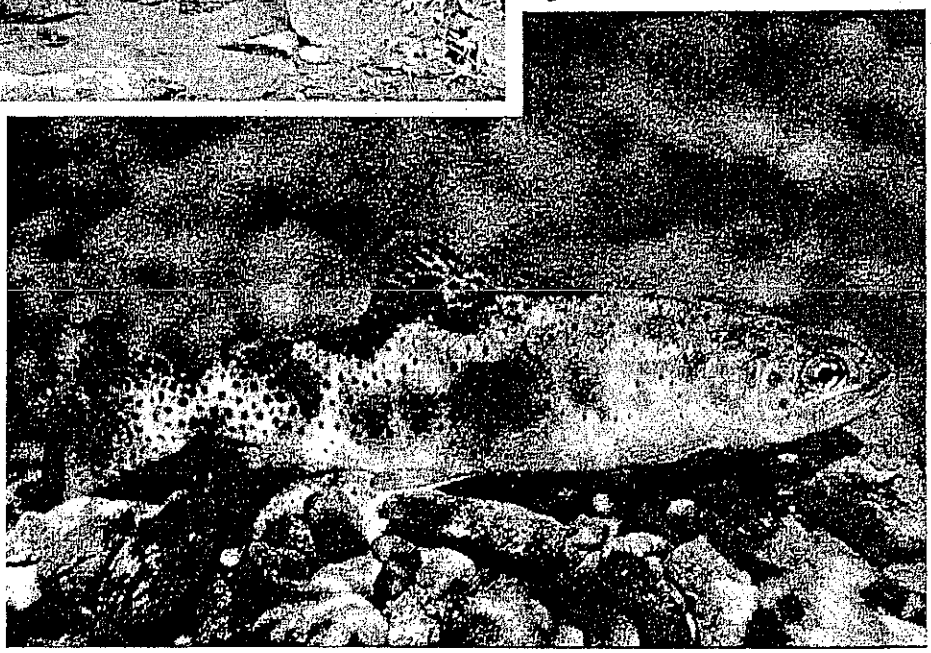
Sufficiency Analysis:

A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality







by:
Oregon Department
of Forestry
and
Oregon Department of
Environmental Quality

EXECUTIVE SUMMARY

Background

In recent years, increased attention has been given to the development of Total Maximum Daily Loads (TMDLs) and the listing of 303(d) water quality limited streams[1] in the state of Oregon under the Clean Water Act. This has presented new opportunities for the Oregon Department of Forestry (ODF) and the Department of Environmental Quality (DEQ) to move forward together to address water quality issues on non-federal forestlands. To adequately address these issues, the ODF and DEQ have agreed through an April 1998 Memorandum of Understanding (MOU) to jointly evaluate the sufficiency of the Forest Practices Act (FPA) to protect water quality. The MOU outlines five specific water quality parameters that will be addressed: temperature, sedimentation, turbidity, aquatic habitat modification, and bio-criteria.

The purpose of this sufficiency analysis, as described the MOU (Appendix D) is to determine:

(a) The adequacy of the FPA pursuant to ORS 527.765 in the achievement and maintenance of water quality standards, with due consideration to regional and local variation in effects;
(b) If forest practices contribute to identified water quality problems in listed water quality limited streams; and
(c) If so, to determine whether existing forest practice rules provide sufficient control to assure that water quality standards will be met so that waters can be removed from the 303(d) list.

Consistent with the MOU, water quality parameters not specifically addressed in the sufficiency analysis "are generally not attributable to forest management practices as regulated by the EPA." Given the lack of any significant information on "other" parameters that might be influenced by current practices since the drafting of the MOU, the ODF and DEQ have agreed that an evaluation of parameters beyond those specifically listed in the MOU is not warranted at the time of this evaluation. The intent of the MOU and the focus of this report is on those parameters where it is known that forest practices have in some cases caused documented changes in water quality conditions.

The overall goal of the water protection rules as stated in Oregon Administrative Rules (OAR 629-635-0100 (7)) is to provide resource protection during operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met.

> (a) The protection goal for water quality (as prescribed in ORS 527.765) is to ensure through the described forest practices that, to the maximum extent practicable, non-point source discharges of pollutants[2] resulting from forest operations do not impair the achievement and maintenance of the water quality standards.

[1] Water quality limited streams are those waters included on the 303(d) list maintained by the DEQ. These are waterbodies currently identified as not meeting water quality standards (see Appendix E).
[2] Non-point source discharges are those originating from diffuse sources across the landscape and cannot be traced to a single point or descrete activity.

(b) The protection goal for fish is to establish and retain vegetation consistent with the vegetation retention objectives described in OAR 629-640-0000 (streams), OAR 629-645-0000 (significant wetlands), and OAR 629-650-0000 (lakes) that will maintain water quality and provide aquatic habitat components and functions such as shade, large woody debris, and nutrients." OAR 629-635-0100 (7)

State policy on water pollution control for state and private forestlands originates from the Environmental Quality Commission (EQC) and applicable administrative statutes:

"To protect, maintain and improve the quality of the waters of the state for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, municipal, recreational and other legitimate beneficial uses." [ORS 468B.015(2)]

"Implementation of any limitations or controls applying to nonpoint source discharges or pollutants resulting from forest operations are subject to ORS 527.765 and 527.770." [ORS 468B.110 (2)]

Consistent with these statutes, the FPA is Oregon's water quality standard compliance mechanism with respect to forest operations on state and private forestlands:

"The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state. Such best management practices shall consist of forest practices rules adopted to prevent or reduce pollution of waters of the state. Factors to be considered by the board in establishing best management practices shall include, where applicable, but not be limited to:

(a) Beneficial uses of waters potentially impacted;
(b) The effects of past forest practices on beneficial uses of water;
(c) Appropriate practices employed by other forest managers;
(d) Technical, economic and institutional feasibility; and
(e) Natural variations in geomorphology and hydrology." [ORS 527.765 (1)]

"A forest operator conducting, or in good faith proposing to conduct, operations in accordance with best management practices currently in effect shall not be considered in violation of any water quality standards." [ORS 527.770]

These Oregon administrative rules are designed to achieve water quality goals consistent with the relevant statutes, ORS 468B.015(2), 468B.110 (2), 527.765, and 527.770 cited above. It is in this regulatory and policy context that applicable water quality standards and the FPA are implemented to address water quality protection for waters of the state.

Most of the parameters addressed in this sufficiency analysis are inter-related, and forest management activities often have the potential to affect more than one parameter at the same

time. For example, habitat can be modified with changes in sedimentation and turbidity, and sedimentation can influence stream temperature by altering channel dimensions and subsurface hydrology, thus affecting the net heat load to the stream. It is logical to take a holistic approach and consider water quality conditions as a result of all the parameters interacting collectively rather than attempting to consider each parameter wholly independent of the others. Accordingly, this report takes a broad approach to examining the sufficiency of the FPA and considers the multiple factors and functions by evaluating water quality standards primarily through the FPA rule objectives.

Given the consistency between the FPA and state water quality statutes and their respective administrative rules, achieving FPA goals, as articulated in the administrative rules, will ensure achieving and maintaining water quality goals and water quality standards to the maximum extent practicable. This sufficiency analysis will therefore consider the adequacy of the rules in achieving the objectives and goals of the FPA. If current practices are meeting FPA objectives and goals, state water quality standards will be met as well. If the ODF and DEQ find FPA objectives and goals are not being met, the BOF will create or modify statewide or regional rules, or design other effective measures to address the water quality impairment.

In analyzing natural resource data and attempting to draw specific cause-and-effect conclusions between human activities and natural resource conditions, the quality and/or quantity of data necessary for a high level of scientific certainty is often not available. This effort at evaluating the sufficiency of the FPA is no exception. Available data pertinent to direct cause-and-effect linkages between the FPA and quantitative water quality conditions is very limited.

There are at least two general points of view regarding such scientific uncertainty. One is to assert that since it cannot be determined with certainty that a set of practices *is* achieving a given water quality standard, a conservative approach should be taken and the rules changed to provide a higher level of protection in case a significant risk does, in fact, exist. Another view is to assert that since it cannot be determined with certainty that a set of practices *is not* achieving a given water quality standard, there is no reason for a change in practices until further monitoring and/or research can prove that a significant risk does, in fact, exist. Both points of view are valid when scientific findings are uncertain, and values and beliefs play a large role in how these points of views utilize limited scientific information.

One task of the ODF and DEQ sufficiency analysis is to present and analyze all of the applicable science and information. Following the completion of this analysis, the Board of Forestry will consider the recommendations in light of the relevant social, economic, and environmental context of the FPA. The goal of this approach is to utilize the recommendations so that outcomes are consistent with both the scientific information and the existing socio-economic framework of the FPA.

Social, Economic, and Environmental Framework

For the report recommendations to be acted upon following its completion, a review of the legal and policy setting, Oregon's forest land base, and forest ecosystem dynamics will need to be considered by the Board of Forestry in reviewing the adequacy of the FPA in meeting water

quality standards "to the maximum extent practicable" as defined by state statute. Appendix A provides this review and describes the overall context in which the FPA operates. There are different environmental, social, and economic implications, depending on the interpretation of "maximum extent practicable," and these implications should be considered for this evaluation to result in an outcome that does not create unintended negative consequences for resource protection. For example, increased forestry regulations in Washington state, combined with development pressures, are partly responsible for ten-times the area of forestlands being converted to other land uses as compared to Oregon over the last decade. While these increased regulations may have resulted in some increase in resource protection for forestlands at a site-specific level, it may have been at the cost of losing an area of land (400,000 acres) to other uses that may not provide as high a level of resource protection as forestlands. Taking into account the social, economic, and environmental aspects in evaluating FPA-sufficiency early on can help to avoid this type of unintended negative consequence, while also ensuring that statutory obligations are met.

Current Scientific Knowledge

Appendix B is a review and summary of the current scientific findings and monitoring results relevant to specific forest practice issues directly related to achieving water quality goals. Each of the water quality parameters that are the subjects of this report are linked to specific forest practice issues that address those parameters. The forest practice issues reviewed here include stream temperature, large wood, forest roads, landslides, and fish passage. The technical information included in this section of the report is used as the basis of the evaluations and recommendations developed in the remainder of this report, and they are referenced accordingly.

Description of Pollution Control Mechanisms

Appendix C describes the current pollution control mechanisms implemented to meet or exceed current water quality standards. These mechanisms include both the FPA and Oregon Plan voluntary measures. They are organized under the same forest practice issues outlined in Appendix B.

Evaluation

The following conclusions apply to all applicable standards (temperature, sedimentation, turbidity, aquatic habitat modification, and bio-criteria).

Site-Specific Evaluation

Current protection requirements may be inadequate in the following areas:

- Standards for some medium and small Type F streams in western Oregon may result in short-term temperature increases at the site level. However, the significance and scope of this increase is uncertain, and it may be offset at the landscape scale by other factors. Relevant to

the habitat modification standard and criteria, large wood potential for some of these streams are less than what was assumed under the 1994 rules.

- Standards for some small Type N streams may result in short-term temperature increases at the site level that may be transferred downstream (this may impact water temperature and cold-water refugia) to fish-bearing streams. The significance and scale of this change is uncertain, and it may be offset at the landscape scale. Relevant to the habitat modification standard and criteria, large wood potential delivered by debris torrents (typically in areas of very steep topography) along these streams may be less than optimal.

For large Type F streams, shade levels appear to be adequate, and large wood outputs for these streams is consistent with that assumed under the 1994 rules.

With the exception of the issue of wet-weather hauling and steep-slope ground skidding and those areas noted above, the FPA appears to be adequate when implemented successfully.

Holistic Evaluation

Over time and space the forested landscape changes. Disturbance is an important process for maintaining productivity and resetting the environment, but it can also have a number of impacts to water quality parameters. Human activities can alter the frequency and magnitude of disturbance relative to historical patterns. While some human activities, like timber harvesting, may be more frequent than historical rates of disturbance, harvesting may also be less intense of a disturbance as compared to, for example, historical wildfire. Other impacts, like fire suppression, may reduce the frequency of disturbance, but result in somewhat more intense disturbances when fires do occur. The frequency and intensity of the event can influence vegetative and other disturbance recovery. Human activities to reduce adverse effects, therefore, need to be evaluated against historical patterns of disturbance.

The current distribution of forest stand age classes, the levels of tree stocking in managed plantations, and fire suppression have resulted in well-stocked, dense, closed canopy conifer stands across a larger portion of the forested landscape than has historically occurred. Thus the current rules and practices likely result in an increased level of shade at a landscape scale. At a site-specific scale, however, some level of risk exists along some streams, as noted in the next section. The significance of this risk in terms of influencing stream temperatures at a watershed (or sub-basin) scale is uncertain.

More arguably, higher conifer stocking levels across the landscape in upland and riparian areas may result in an increased potential for large wood delivery. The likelihood of such additional stocking resulting in increased large wood production is dependent upon the harvest levels, retained trees, natural mortality and other disturbance events. Until the sizes of riparian trees increase through normal growth volume may be limited, even though the number of trees may be relatively high. Nonetheless, current practices are likely sufficient at a landscape scale.

Temperature

The following is an evaluation of the temperature standard by specific stream types and sizes:

Medium and small Type F streams: Current research and monitoring results show that current RMA prescriptions for western Oregon may result in short-term temperature increases on some Type F streams; however the significance of the potential temperature increases at a watershed (or sub-basin) scale is uncertain.

Small Type N streams: Current research and monitoring results show current practices may result in short-term (two to three years) temperature increases on some Type N streams. The significance of potential temperature increases on Type N streams to downstream fish-bearing streams and at a watershed (or sub-basin) scale is uncertain.

All other streams: Influences on stream temperatures from shade levels resulting from specific BMP prescriptions for the other stream category types have not been assessed due to a lack of relevant data. However, in light of the data and findings specific to medium and small Type F streams, and given the higher level of vegetation retention on large Type F streams, it is likely that the standard is being met on large Type F streams.

Sedimentation Standard

The intent of the sedimentation standard as it applies to the FPA is to minimize soil and debris entering waters of the state. (OAR 629-30-000(3)) With the exception of wet-weather road use, complying with the road construction and maintenance rules currently in place is likely to result in meeting water quality standards. The rule and guidance recommendations described in the next section of this report will work towards ensuring the goals of the FPA and water quality standards are being met.

Turbidity Standard

Given the lack of quantitative data to specifically address the turbidity numeric standard, the turbidity standard is evaluated qualitatively. The intent of the turbidity standard, as it applies to the FPA, is to minimize soil and debris entering waters of the state. (OAR 629-30-000(3)). Both the FPA and water quality standards are being met when unfiltered surface runoff from road construction is entering applicable waters of the state and there is a visible difference in the turbidity of the stream above and below the point of delivery of the runoff for less than a two- or four-hour duration (depending on the stream grade and with all practicable erosion controls in place). When unfiltered surface runoff from general road use is minimized, and/or if all applicable BMPs have been applied, both the FPA and water quality standards are being met as well.

With the exception of wet-weather road use, complying with the road construction and maintenance rules and guidance currently in place is likely to result in meeting water quality standards. The rule recommendations will help improve compliance and implementation of the FPA to ensure the goals of the FPA and thus water quality standards are being met. Specific to

wet-weather hauling, construction and maintenance standards should be developed for roads at risk for sediment delivery. Prohibiting hauling during periods of wet weather on road systems that have not been constructed with specific standards for surface materials, drainage systems, or other alternatives (paving, increased numbers of cross drains, sediment barriers, settling basins, etc.) will also minimize delivery of sediment streams.

Habitat Modification Standard

The FPA standard as it relates to habitat modification is "to grow and retain vegetation [along fish-bearing streams] so that, over time, average conditions across the landscape become similar to those of mature streamside stands;" and "to have sufficient streamside vegetation [along non fish-bearing streams] to support functions and processes that are important to downstream fish use waters and domestic water use."(OAR 629-640-0000)

The following is an evaluation of the habitat modification standard described above by specific stream types and sizes:

Medium and small Type F streams: Monitoring data indicates the assumptions used to determine basal area targets for small and medium streams in western Oregon may not be consistent with what the RMAs are capable of growing along these streams. The data also shows that 60 percent of harvest operations occurring along fish-bearing streams do not result in management within the RMAs. There is a reasonable possibility that, under the current rules, some of these streams are not likely to result in the "desired future condition" in a timely manner, as described in the goals of the FPA.

Small Type N streams: There is increasing scientific evidence that small non-fish-bearing streams prone to debris flows provide an important source of large wood for downstream fish habitat. While these streams are providing some level of functional large wood inputs and shade production under the current rules, the rules were not specifically designed to retain significant sources of large wood and shade in these areas. There is a reasonable possibility that, under the current rules, some of these streams are not likely to adequately support functions and processes important to downstream fish use waters, as described in the goals of the FPA.

All other streams: Influences on habitat modification resulting from specific best management practices for the other stream category types have not been assessed since they were considered a lower priority. However, given the higher level of vegetation retention on large Type F streams, and in light of the data and findings specific to medium and small Type F streams, it is likely the standard is being met on these streams.

Fish passage blockages: Since 1994, the FPA has required juvenile fish passage be provided on all fish-bearing streams. Current monitoring information does not indicate Forest Practices policies need to be significantly changed on how to install fish-passable stream crossings. With few exceptions, it appears when the guidelines are implemented correctly, the success rate is high for creating conditions believed to provide a high likelihood of fish passage.

Biocriteria Standard

This standard is consistent with multiple FPA purposes and goals that refer to the sound management of soil, air, water, fish and wildlife resources, while at the same time ensuring the continuous growing and harvesting of forest tree species. Given the general nature of this standard and the lack of specific criteria to use in evaluating this standard, biocriteria cannot be explicitly evaluated at this time. It is reasonable to assume that, given the inter-related nature of the temperature, sediment, turbidity and habitat modification parameters relative to biocriteria, to the extent these other parameters are being met, the biocriteria standard is likely to be met as well.

Recommendations

The FPA goals and objectives, as well as most of the state water quality standards and criteria being evaluated in this analysis (temperature and turbidity being the exceptions), are qualitative in nature. Thus, conclusions regarding the effectiveness of the rules in meeting the goals and objectives are qualitative as well. Available data relevant to those quantitative water quality standards (i.e. temperature and turbidity) is inadequate to draw specific and comprehensive conclusions about the adequacy of current practices; therefore, the evaluation of these criteria is also qualitative.

Data in many areas is lacking and, in many cases, not comprehensive. In light of this, any policy decisions made when this report is completed will depend upon professional judgement consistent with available scientific information. As the Board of Forestry considers these recommendations, social and economic factors, along with the scientific evidence on the adequacy of current practices presented here, will be considered as well.

The following recommendations are offered to highlight general areas where current practices could be improved upon to better meet the FPA goals and objectives and, in turn, provide greater likelihood of meeting water quality standards.

Recommendation #1: The RMA basal area retention standards should be revised, where appropriate, to be consistent with achieving characteristics of mature forest conditions in a timely manner; and to ensure that RMAs are providing desirable amounts of large wood and shade over space and time.

Recommendation #2: Revise current practices so desirable amounts of large wood are available along small stream channels that can deliver debris torrents to Type F streams. Ensure that adequate shade is maintained or rapidly recovered for riparian areas along small perennial Type N streams with the potential to impact downstream Type F waters.

Recommendation #3: Provide additional large wood to streams by actively placing the wood in areas where it will provide the greatest benefits to salmonids.

Recommendation #4: Reduce the delivery of fine sediment to streams by installing cross drains to keep drainage waters from eroding slopes. This will allow filtering of sediments and infiltration of drainage water into undisturbed forest soils. Cross drains should not be confused with stream crossing culverts. Cross drains take water from the road surface and ditch and route it under/across the road, discharging the water downslope from the road.

Recommendation #5: Develop specific standards for roads that will be actively used during the wet season. This would include a requirement for durable surfacing of roads in locations where fine sediment can enter streams. This would also include ceasing to haul if roads have not been constructed with effective surface materials, drainage systems, or other alternatives (paving, increased numbers of cross drains, sediment barriers, settling basins, etc.) that minimizes delivery of sediment into streams.

Recommendation #6: Develop specific guidance describing how roads in critical locations would be reviewed to reduce road length, and determining when, despite the relocation, the road location would pose unacceptable risk to resources and not be approved.

Recommendation #7: Construct stream crossings that adequately pass large wood and gravel downstream, and provide other means for passage of large wood and sediment at those crossings that restrict passage. The transport mechanisms for large wood and gravel should include both stream storm flows and channelized debris flows. This would reduce the risk of debris backing up behind the structure, potentially resulting in catastrophic sediment delivery caused by washouts.

Recommendation #8: Develop specific steep-slope, ground-based, yarding practices, or add a prior approval requirement for ground skidding in high-erosion hazard locations.

Recommendation #9: Manage locations most prone to landslides (high-risk sites) with techniques that minimize impacts to soil and water resources. To achieve this objective, best management practices to protect landslide-prone terrain currently in guidance should be incorporated into the forest practice rules, while developing a better case history for evaluating the effectiveness of those practices. These standard practices are designed to minimize ground alteration/disturbance on high-risk sites from logging practices.

Recommendation #10: Provide for riparian functions along stream reaches above impassable stream crossing structures that have a high probability of recolonization by salmonids once the structure is replaced/improved. If an upstream reach has the capacity to be a fish-bearing stream, but is currently a non-fish-bearing stream because a stream crossing structure cannot pass fish,

the forest practices rules should be amended so the upstream reach is classified as a fish-bearing stream.

Recommendation #11: Facilitate the identification, prioritization, and restoration of existing culverts that currently do not pass fish. Culvert replacement should be accelerated above what is currently being done, specifically for family forestland owners who often do not have adequate resources to address this issue in a timely manner.

Recommendation #12: Provide a more effective and efficient means of classifying streams for "fish use." Revise the forest practice rule definition of Type F and Type N streams using a physical habitat approach to classify fish-use and non-use streams.

Compliance and Effectiveness Monitoring

The goal of the ODF forest practices monitoring program is to evaluate the effectiveness of the forest practice rules. Monitoring results are used to guide future management practices through the rule revision process. The goal includes a commitment to address specific Oregon Plan issues. The forest practices monitoring strategy is currently being revised. The key areas identified for improvement include:

- Building understanding, acceptance and support for the monitoring strategy.
- Using random sample design to select all sites. This has been used for two current projects.
- Combining monitoring efforts at each site to increase efficiency (i.e. compliance monitoring and riparian function at the same site)
- Increasing coordination with other Oregon Plan monitoring efforts, most notably DEQ and ODF&W.
- Addressing issues at a watershed scale.
- Improving communication of project status and results, both internally and externally using newsletters and project publications.

The following are specific recommendations for future monitoring:

1. Maintain a riparian monitoring program that continues to monitor the effectiveness of riparian prescriptions and riparian functions to ensure water quality goals are achieved in the future.

2. Monitor improvement of forest roads at a landscape level, looking specifically at implementation of the road hazard and risk reduction project.

3. Evaluate the need for further road compliance and effectiveness monitoring following the completion of the BMP compliance monitoring project relating to road BMPs. Also evaluate the progress and effectiveness of current voluntary efforts under the Oregon Plan to upgrade existing culverts that do not pass fish.

4. Monitoring of watershed-scale effects relative to current practices along small Type N streams should be a priority to help narrow the current level of uncertainty.

The following are remaining issues identified in this report that may warrant future examination as additional information is available:

- Is the occurrence of blowdown having an effect on meeting the goal of achieving "over time, average conditions across the landscape become similar to those of mature forest conditions" in RMAs?

- Are current forest practices meeting the water quality standard with respect to cold-water refugia? (This analysis will not be possible until the DEQ develops the specific guidance necessary to identify cold-water refugia on the ground that can be evaluated against the standard.)

- What effect, if any, are current practices along small non-fish-bearing streams having on downstream sediment regimes?

The Board of Forestry is currently deliberating the recommendations introduced by the Forest Practices Advisory Committee (FPAC) in September 2000. The process of implementing changes to current BMPs will occur over the next few years and is likely to consist of both regulatory and non-regulatory measures. The ODF monitoring program is also beginning a new series of effectiveness monitoring projects to evaluate BMP sufficiency in protecting riparian functions and water quality. There may also be some issues with water quality parameters that are not specifically addressed in this report that could have an unknown potential for current practices to cause changes in water quality conditions. In these cases, the DEQ will coordinate with the ODF and its monitoring program to address these parameters as concerns are identified and documented. Specific details of future monitoring efforts will be determined once the FPAC recommendations are developed further and implemented. ODF's monitoring strategy will continue to be developed at that time.

REPORT OF THE FOREST PRACTICES ADVISORY COMMITTEE ON SALMON AND WATERSHEDS

Artwork by Sophie Meserow, Riverdale Grade School, Portland

August 16, 2000

Oregon
John A. Kitzhaber, M.D., Governor

6-6-0

Department of Forestry
State Forester's Office
2600 State Street
Salem, OR 97310
(503) 945-7200
FAX (503) 945-7212
TTY (503) 945-7213/800-437-4490
http://www.odf.state.or.us

"STEWARDSHIP IN FORESTRY"

August 14, 2000

David Gilbert
Oregon Board of Forestry
2600 State Street
Salem, OR 97310

Dear Chair Gilbert and Members of the Oregon Board of Forestry:

I am pleased to transmit the final report of the Ad Hoc Forest Practices Advisory Committee on Salmon and Watersheds. The report represents the culmination of eighteen months of hard work by the Committee. It includes scientific and technical reviews as well as regulatory and non-regulatory recommendations relating to fish passage, forest roads, landslides, and riparian functions.

Following lengthy and sometimes tough deliberations, the committee achieved consensus or strong agreement on 24 recommendations that included not only regulatory changes but also incentives and voluntary activities. The recommendations were supported by members of the committee in the spirit of making significant and positive contributions for salmon and watersheds and to advance the Oregon Plan. For some recommendations, the views of individual committee members differed, and these differences are noted in the report. With regard to the riparian functions recommendations, these recommendations should be considered as a package because of the delicate balance that was achieved in reaching agreement on it.

Although the work of the FPAC is complete, I believe that it is important to point out specific follow-up actions that will need to be addressed by the Board of Forestry. These tasks are:

- Further exploration of incentives through the Board charging the Family Forestland Committee to explore and build on the incentive options developed by the FPAC.
- Directing the Department to work with interests in Eastern Oregon to develop riparian measures for eastern Oregon forests.
- Ensuring the rule proposals are supported by the findings required under ORS 527.714.

We look forward to presenting this report to you at your upcoming meeting on September 6, 2000.

Sincerely,

Ron Cease

Ronald C. Cease
Chair, Ad Hoc Forest Practices Advisory Committee
on Salmon and Watersheds

AH/kg

c: Members of the Ad Hoc Forest Practices Advisory Committee on Salmon and Watersheds
James E. Brown, State Forester
Ann Hanus
Charlie Stone
Ted Lorensen
Paula Burgess
Peter Green
Dick Pedersen
Jeff Boechler
Vicki Willis
Connie Green

Executive Summary
Forest Practices Advisory Committee on Salmon and Watersheds
Consensus and Strong Agreement Recommendations

The following is a summary of the recommendations that have received either "consensus" or "strong agreement" among committee members. "Consensus" support means all committee members present or represented by proxy at the meeting where the recommendation was discussed expressed support. "Strong Agreement" means no more than three of the thirteen-committee members expressed non-support. "Majority " support referenced in the body of the report means at least seven committee expressed support, but four to six committee members expressed non-support.

Fish Passage

Recommendation A: The forest practice rules should be revised to ensure that if an upstream reach has the natural capacity to be a fish-bearing stream but is currently a nonfish-bearing stream because of a stream crossing structure that cannot pass fish, the reach will be classified as a fish-bearing stream. The extent of potential fish use upstream of the blockage will be determined using guidance to be developed based on field fish presence surveys and interim criteria. *(See Option #1 under Fish Passage for more information)*

Recommendation B: Forest landowners should accelerate the identification, prioritization, and restoration of existing stream crossing structures (typically culverts) that currently do not pass fish on streams inhabited at any time of the year by anadromous or game fish species or fish that are listed as threatened or endangered species under the federal or state endangered species acts.

A new source of funding is necessary to encourage stream crossing repair work. The new funds could be generated based on forestland ownwership, on timber harvested, on acres harvested, on road miles, or through some other mechanism (a preference for a per acre assessment based on forestland ownership was expressed by the committee). Landowners could then apply for a credit against expenses incurred in voluntarily remediating legacy road and culvert problems. *(See Option #2 under Fish Passage for more information)* The funding mechanism would be phased out as landowners completed repair work.

Recommendation C: The forest practice rules should be revised to incorporate a physical habitat approach to designating fish use and non-fish use streams. ODF has developed interim classification guidelines to designate fish use based upon the physical characteristics of a stream. These guidelines were based upon fish presence survey data and could be used to classify streams that are fish use. The guidelines use either mapped or on-the-ground physical characteristics. The current stream classification rules would be amended to establish that fish use streams are any streams that meet the habitat criteria. The habitat criteria may need to be modified and improved based upon more recent and complete survey data. Key issues that will need to be addressed include the acceptable margin of error in applying a habitat model and opportunities for landowners to request field verification of habitat criteria. Fish presence survey

data, when available, will supercede the guidelines in designating fish or non-fish use. *(See Option #3 under Fish Passage for more information)*

Recommendation D: A funding source should be created for family forest landowners or the state should otherwise assist family forest landowners in obtaining funds from existing sources to expand the current voluntary road assessment effort to non-industrial private forestlands. This financial assistance would also be used to help family forest landowners replace stream crossings that are not adequately passing fish. *(See Option #4 under Fish Passage for more information)*

Forest Roads

Recommendation E: To address existing roads constructed using past practices or methods, such roads should be systematically evaluated and mitigated where appropriate for negative impacts or risks to:

1. Waters of the state;
2. Passage of juvenile/adult anadromous fish; and
3. Downstream passage of habitat elements.

"Other land-use" roads should use at least the same best management practices (BMPs) as required for forestlands.

The department should create specific road maintenance guidelines for high hazard locations, by developing and making available to operators and regulators improved guidance. The department should be given general authority to require additional cross drainage installation as a maintenance requirement prior to an operation when current road condition and a proposed use will impair water quality. *(See Option #6 under Forest Roads for more information)*

Recommendation F: Cross drainage structures on new roads should be installed so that the risk of sediment delivery to waters of the state from new roads is minimized.

While this is the current standard, department should provide better guidance and training for achievement of the rules. Current rules provide authority for installation and maintenance of road cross-drains. Training and improved guidance would be developed and implemented for operators/landowners and regulators that would emphasize the need for adequate spacing and the proper installation of road cross drains.

The forest practice rules should be revised to better clarify the objectives for cross-drainage. For example, the rules might state that the objectives are to ensure that cross drains are installed in adequate numbers and in proper locations so that:

1. Road surfaces are protected from erosion and water retention;
2. Erosion of the roadside ditch is minimized;
3. Ditch water is not discharged onto unstable slopes; and
4. The amount of ditch water (and associated sediment) discharging directly into a stream is minimized. *(See Option #7 under Forest Roads for more information)*

Recommendation G: The forest practice rules should be modified to more specifically address wet-weather hauling. This should include development of two criteria, probably in rule form, to:

1. Address road use in wet weather to ensure that durable surfacing or other effective methods are used on road segments that can deliver sediment to streams; and
2. Require operators to cease heavy truck traffic on roads when the road surface is breaking down (only for segments that are delivering sediment to streams). "Breaking down" would be defined by both depth of ruts and by depth of muddy fine sediment on the road. *(See Option #8 under Forest Roads for more information)*

Recommendation H: The department should develop clear decision-making criteria for evaluating proposed road locations in areas where there is a high risk of landslides, surface erosion, or of direct physical alteration to streams, riparian areas, lakes or wetlands. The criteria should identify preferred locations and construction practices that will result in roads being constructed in a manner that results in the lowest overall impact to water quality and fish habitat while allowing the landowners to achieve their management objectives (Method 5). The criteria should also direct the Department of Forestry to not approve road construction or reconstruction in the sensitive areas described above, if viable alternatives exist. *(See Option #10 under Forest Roads for more information)*

Recommendation I: Means should be developed or provided for the movement of large wood and sediment downstream at those crossings which may otherwise restrict movement. The transport mechanisms for large wood and sediments may be either stream storm flows or channelized debris flows. *(See Forest Roads Option #12 for more information)*

Recommendation J: Improved cooperative road system planning, maintenance and use is needed between federal and private forest landowners. *(See Option #16 under Forest Roads for more information)*

Recommendation K: Future forest road best management practice compliance and effectiveness monitoring should be implemented within the context of the Forest Practices Program's strategic monitoring plan and prioritized in context with available monitoring resources and other monitoring needs *(See Option #18 under Forest Roads for more information)*

Recommendation L: Additional training on forest road construction and maintenance should be provided for landowners and operators. *(See Option #19 under Forest Roads for more information)*

Recommendation M: The forest practice rules should be changed to require prior approval for ground based harvesting on steep slopes where there is a significant risk of sediment delivery to streams. *(See Option #57 under Forest Roads for more information)*

Recommendation N: A road closure program should be developed that forest landowners, the Department of Forestry, and local law enforcement can use to limit public access onto sensitive road systems that have a high risk of delivering sediment to streams, or that directly impact aquatic habitat. (*See Option #59 under Forest Roads for more information.*)

Landslides

Recommendation O: All landslide prone locations (now called "high risk sites") should be identified prior to timber harvest operations. During the notification process, the department should inform the operator of the likely presence of high risk sites in the operation area, based on coarse screen maps. The operator would then be expected to more specifically locate sites within the operation area by field reconnaissance. There is also the expectation that "significant" areas of high risk sites which are not mapped will also be identified by the operator. *(See Option #45 under Landslides for more information)*

Recommendation P: The department should identify stream channels which are prone to debris flows and torrents. Identifying those channels which are capable of transporting large wood to Type F streams could make it possible to focus riparian prescriptions on those streams where greater benefit to aquatic habitats are likely.

The department should inform the operator during the notification process of the likely presence of debris flow prone channels, based on coarse screen maps. The operator would then be expected to more specifically locate debris flow prone channels by field reconnaissance. ODF would provide specific criteria to be used in field identification. *(See Option #46 under Landslides for more information)*

Recommendation Q: The locations most prone to landslides (now called "high risk sites") should be managed with techniques that minimize impacts to soil and water resources.

To achieve this objective, the best management practices used to protect high risk sites that are currently in guidance should be incorporated into the forest practice rules (Method 1) and a better case history basis for evaluating the effectiveness of those practices should be developed (Method 6). These standard practices are designed to minimize ground alteration/disturbance on high risk sites from logging practices. *(See Option #47 under Landslides for more information.)*

Recommendation R: It is important to leave trees or downed wood in locations where they provide wood to be moved by debris flows into fish-bearing streams.

To achieve this objective, it is realistic or appropriate to use a menu of potential methods to leave trees or downed wood, depending upon likelihood of wood delivery and operational efficiency. It is not appropriate to rely on a single strategy to provide this potential source of large wood. The operator should be required to select an appropriate option in cooperation with ODF. *(See Option #61 under Landslides for more information.)*

Riparian Functions

Recommendation S: The active placement of large wood or other structure in streams deficient in wood or other structure is necessary for short-term aquatic habitat improvement, but it should be done in a manner that still assures the timely achievement and maintenance of characteristics of mature forest conditions in the riparian management area in the longer term. A menu of methods should be developed to prioritize and guide placement of large wood. This

menu should include as one method placing wood along streams during an adjacent entry for harvesting. *(See Option #20 under Riparian Functions for more information)*

Recommendation T: Additional department resources should be allocated to monitoring the effectiveness of the water protection rules. At a minimum, current levels of monitoring must be maintained. Adequate resources should also be provided to enable the department to conduct effectiveness monitoring related to the large wood objectives of the Oregon Plan for Salmon and Watersheds and water quality standards, as well as continued best management practices compliance monitoring. Coordination with other agencies on monitoring projects is essential. *(See Option #30 under Riparian Functions for more information)*

Recommendation U: The State of Oregon should develop a clearer and more comprehensive policy on riparian management that addresses all land uses. The committee did not discuss whether such a policy should require uniform protection on all land uses. However, the policy should, at a minimum, establish a baseline standard for resource protection and both clarify and explicitly describe Oregon's expectations for different land uses if some land uses will be required to meet a higher protection standard than others. *(See Option #41 under Riparian Functions for more information)*

Recommendation V: The following list of changes are recommended to increase the protection and restoration of riparian functions. Further clarification and/or guidance on a number of these points will be needed to further develop these concepts.

1. Harvesting Cap 40%
   In western Oregon, manage any harvesting within the RMA so that the retained conifer basal area exceeds the basal area standard target, or 60 percent of the pre-harvest basal area, whichever is greater.

2. No Touch area½ of RMA
   The no-touch width will be equal to one-half the width of the entire RMA.

3. Largest Trees 10 out of 20 largest
   Retain 10 of the 20 largest trees per 1,000' outside of the no-touch width that will best achieve aquatic riparian functions. Subject to FPF approval, the landowner would identify tree locations in a written plan demonstrating how this objective will be met. There would be discretion to also consider operational issues and the value of the trees, as long as best achieving aquatic riparian functions remains the primary objective.

4. Type N Streams FPF discretion
   a. Small Type NT streams are: 1. Perennial Small Type N (temperature) streams that are tributary and contribute at least 30% of the flow to small and medium Type F streams and that have a drainage area larger than X acres (basin size to be set be georegion, 40 acres for the coast range). Initial classification will be based on basin size, but landowners may delist streams or stream segments verified as non-perennial. 2. Small Type N (torrent) streams with drainage basins greater than 30 acres, in which more than 75% of the basin has been mapped as "high" or

50% "extreme" debris flow hazard (by the State Forester) and which have a high probability of wood delivery to Type F streams.

b. Small NT stream protection: 1. Up to the first 500 feet of Type NT (temperature) stream above the confluence with a Type F will have a 50 foot search zone, each side. Within the search zone, retain 4 square feet of trees per each 100 feet of perennial flow (up to 500') and all non-merchantable conifer on each side of the stream. Trees left along these streams to satisfy the basal area requirement can be counted as in-unit leave trees. 2. "Torrent" type NT streams will be protected as follows - FPF, working with the landowner, has discretion to direct retention of in-unit trees to 50 x 500' search zone (each side).

5. In-growth 25% adjustment for small streams
The standard target will be recalculated for small Type F streams using the same per-acre basal area as large streams, minus 25 percent for in-growth. The standard target will also be recalculated for medium Type F streams, using the same per-acre basal area as large streams.

6. Riparian Specialist
The Oregon Department of Forestry will designate a riparian specialist in each administrative area who will be available to inventory and prepare riparian prescriptions for landowners, at their request. These specialists will be new positions funded by funds other than the harvest tax.

7. Similar Prescriptions for All Large and Medium Streams
Large and medium Type N stream prescriptions will be the same as the equivalent size Type F.

8. Monitoring
The effectiveness of the small Type N stream prescription will be a monitoring priority.

9. Alternative Vegetation Retention Prescriptions
The existing alternative vegetation retention prescriptions (e.g., hardwood conversions) may be applied to all riparian management areas (RMA's).

10. Preventing Sediment Delivery
The purpose statement for harvesting rules will be modified to better describe the objective of preventing sediment delivery to channels. The current requirement not to locate skid trails within 35 feet of Type F or D streams will be extended to all streams. Skid trails will be defined as an excavated trail used to yard logs with more than one turn.

11. Measurement of Riparian Management Area/Channel Migration Zone
The riparian management area (RMA) will be measured from the current points of measurement except for areas designated by the State Forester as a channel migration zone (CMZ). A CMZ is an unconstrained reach of stream that in the judgment of the forester is likely to have channel movement that can go outside the RMA widths within the period of a rotation (50-100 years). Within the CMZ, the no touch area will be

measured from the high water mark of the channel (same as current rules). The outer edge of the CMZ will be based upon guidance to be developed by a technical committee. Retained trees in the CMZ shall be no less than the basal area standard target.

12. Type N and Small Type F Streams: Landowners would get credit for in-unit leave trees.

13. Conceptual agreement about the use of "stratification."
In recognizing that riparian stands are not homogenous and that applying a single target for the RMA can prevent appropriate management in patches with conifer "over" stocking, agreement was reached on the concept of stratification. The details of how to do it in the field are to be developed. Stratification could allow an RMA to be divided into segments with a different management approach applied to each segment; based on the specific conditions in the segment.

14. "Provide for placement of large wood" is supported as a concept.
(See "Subcommittee" Riparian Option under Riparian Functions for more information)

Landscapes

Recommendation W: The Board of Forestry should ask the Governor to:

- Convene a collaborative process for landscape scale approaches to protect and recover salmonids and provide and protect clean water across land uses and ownerships:

  1. Identifying and evaluating current policy frameworks and scientific findings related to landscape management;
  2. Developing common protocols for watershed assessment and monitoring;
  3. Review existing and proposed watershed assessment protocols and recommend a means to achieve an effective assessment;
  4. Identifying research needs, regulatory and non-regulatory policies, and technical methods to support landscape scale approaches; and
  5. Improving cooperative approaches and partnerships among local, state, and federal governments and private landowners.

- Strengthen "Oregon Plan for Salmon and Watersheds" support for basin and watershed scale assessment, collaboration, and restoration by:

  1. Linking funding support for OWEB projects to basin and watershed priorities and those projects that are supportive of the goals of the Oregon Plan;
  2. Increasing long term financial support for watershed councils and coordinators;
  3. Boosting funding to state agencies to enhance technical support to watershed councils and restoration activities of watersheds;
  4. Setting priorities, where possible, according to the identification of limiting factors on fish runs;

5. Assembling a local/state/federal team to solve watershed and landscape level problems that involve multiple governmental agencies. The team would recommend positive changes to reduce/eliminate duplication, do away with actions that are counter to the Oregon Plan, and improve communications. Where appropriate, non-governmental representatives should be included; and
6. Ensuring the long term viability of the Oregon Plan by implementing Executive Order EO99-01.

- Support increased funding for scientific research and the establishment of a natural resource research institute to address landscape/watershed scientific questions and Oregon Plan policy issues using a multi-disciplinary approach; and

- Strengthen policies to encourage maintenance of the forestland base and increase it through afforestation of suitable lands since forests provide the best and most essential habitat components for salmonids.

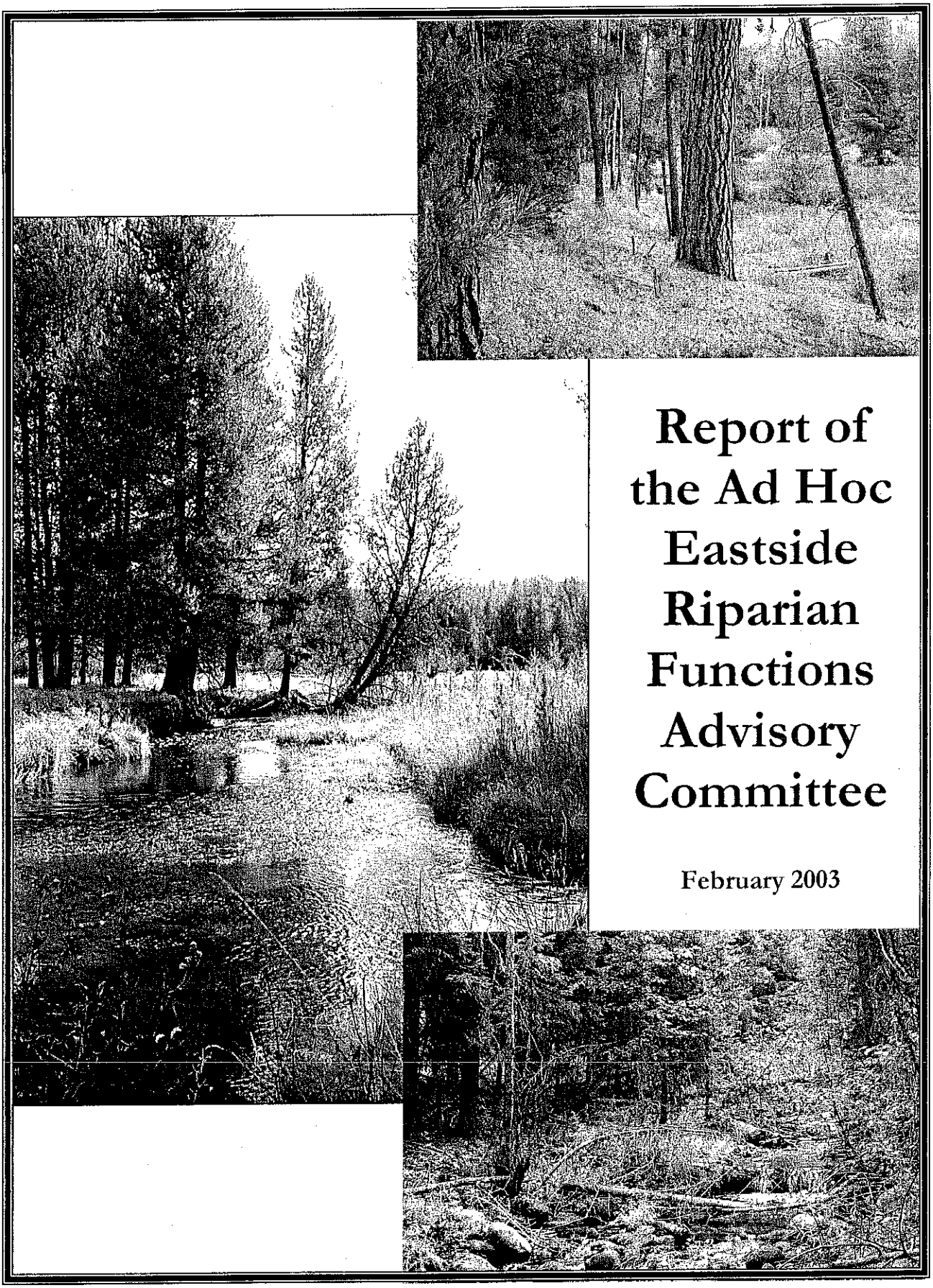
Recommendation X: The Board of Forestry should:

- Include the policy objectives of the Oregon Plan for Salmon and Watersheds as part of its next revision of the Board's strategic plan, *The Forestry Program for Oregon*;

- Investigate, develop, and promote incentives--such as expanding the federal Conservation Reserve Enhancement Program, providing financial assistance, using forest stewardship plans, and easing anti-trust restrictions—so as to encourage forest landowners to encompass broader landscape goals in their management plans; and

- Continue to investigate and analyze forest conditions across the landscape through:

1. The Department of Forestry's Forest Assessment Project which has forged partnerships with Oregon State University and the Pacific Northwest Research Station; and
2. Data and models developed in other projects such as the Umpqua Land Exchange and the Sierra Nevada Project.



Report of the Ad Hoc Eastside Riparian Functions Advisory Committee

February 2003

Oregon
Theodore R. Kulongoski, Governor

Department of Forestry
State Forester's Office
2600 State Street
Salem, OR 97310
503-945-7200
FAX 503-945-7212
TTY 503-945-7213 / 800-437-4490
http://www.odf.state.or.us

"STEWARDSHIP IN FORESTRY"

Howard Sohn, Chair
Oregon Board of Forestry
2600 State Street
Salem, OR 97310

Dear Chairman Sohn and Members of the Oregon Board of Forestry:

I am pleased to transmit the final report of the ad hoc Eastside Riparian Functions Advisory Committee (ERFAC). The report represents the culmination of twenty months of work by the committee. ERFAC was convened by the Department of Forestry as recommended by the ad hoc Forest Practices Advisory Committee on Salmon and Watersheds, and as approved by the Board on July 20, 2001. ERFAC's deliberations focused on forest practices and riparian functions in eastern Oregon. The report presents recommendations for regulatory and nonregulatory actions to meet water quality standards and to protect and restore salmonids in eastern Oregon.

The Department of Forestry selected representatives for the eleven-member committee with the intention of providing a cross-section of viewpoints, both from a geographical and an interest group perspective. The intended balance was impacted when the tribal representative and subsequently the designated alternate left their positions with the Confederated Tribes of Warm Springs before the committee's final deliberations. ERFAC deliberations were lengthy and at times challenging as committee members with diverse backgrounds struggled to develop recommendations based on the limited scientific and technical information available for eastern Oregon. The report presents the committee's support for specific recommendations related to riparian functions and an explanation of the basis for each recommendation. The report also presents dissenting viewpoints from members who indicated that they did not support a recommendation.

A central concept in committee deliberations was the potential need for active management within riparian areas because of the role of frequent fire in the natural history of the arid eastside ecosystems, and the increasing impacts of disease and insect outbreaks attributed to decades of fire suppression. Some committee members felt that the committee had effectively focused on protecting riparian functions, while others felt the focus was on active management and silviculture, with a lack of consideration for what was needed to meet water quality standards and improve fish habitat. These conflicting viewpoints are reflected in the tallies of support for each recommendation.

I am hopeful that the recommendations contained in this report, along with those from the preceding efforts of Forest Practices Advisory Committee, the Independent Multidisciplinary Science Team, and Sufficiency Analysis reports, will be useful as the Board of Forestry considers potential changes to forest practices.

Sincerely,

John Howard

John Howard
Chair, Eastside Riparian Functions Advisory Committee

JH:LQ:kg

c: Members of the Eastside Riparian Functions Advisory Committee
Roy Woo, Acting State Forester
Charlie Stone
Jim Brown, GNRO
Jim Myron, GNRO

LIST OF ACKNOWLEDGMENTS

Committee Members

John Howard, Chair, Union County Commissioner
Stan Benson, Eastern Oregon Regional Forest Practices Committee
Rex Storm, Associated Oregon Loggers
Berta Youtie, The Nature Conservancy
John Rounds, Oregon Small Woodlands Association
Marilyn Livingston, Public-at-Large
Jason Miner, Oregon Trout
John Ward, Friends of the Greensprings
Steve Courtney, Malheur Lumber, Eastern Oregon Regional Forest Practices Committee
Bob Messinger, Oregon Forest Industries Council, Boise Cascade Corp.
Brad Nye, Confederated Tribes of Warm Springs (Tribal representatives were not present in the later ERFAC meetings)

Committee Alternates

Dennis Reynolds (for John Howard)
Chris Sokol (for Stan Benson)
Jim Geisinger (for Rex Storm)
Jeff Fields (for Berta Youtie)
John Breese (for John Rounds)
Irene Jerome (for Marilyn Livingston)
Jim Myron (for Jason Miner)
Anita Ward (for John Ward)
John Morgan (for Steve Courtney)
Chris Jarmer (for Bob Messinger)
Bobby Brunoe (for Brad Nye)

Facilitators

Denise Reinhart, US Forest Service, and Dale Largent, Resolutions, Inc.

Oregon Department of Forestry Staff

John Buckman, Gregg Cline, Liz Dent, Jo Emrick, Brad Knotts, Rod Krahmer, Russ Lane, Jim Paul, Lanny Quackenbush, Joshua Robben, Pat Rudisill, Lena Tucker, Julie Welp, Arlene Whalen

Technical Advisors

Jon Germond, Oregon Department of Fish and Wildlife; Tom Rosetta, Oregon Department of Environmental Quality; Fred Hall, Retired, US Forest Service, Region 6 (now with Plantecol NW); Steve Fitzgerald and Guillermo Giannico, Oregon State University

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Executive Summary
Report of the Eastside Riparian Functions Advisory Committee

Introduction

In 1999, then-Governor John Kitzhaber issued Executive Order No. EO 99-01 to outline the responsibilities of state agencies under the Oregon Plan for Salmon and Watersheds. The executive order directed the Board of Forestry to determine what, if any, changes were needed to forest practices to meet water quality standards and to protect and restore salmonids. In 1999, the Board convened the ad hoc Forest Practices Advisory Committee (FPAC), which provided its report to the Board in 2000. The FPAC report addressed a range of issues, including riparian functions. However, the committee recognized that its recommendations relating to riparian functions were developed primarily from a western Oregon perspective, and that additional review from an eastern Oregon perspective was needed. In response to this need, the Oregon Department of Forestry convened the Eastside Riparian Functions Advisory Committee (ERFAC) in 2001. ERFAC completed its deliberations late in 2002, providing the recommendations outlined in this executive summary.

ERFAC's goal was to reach consensus on a set of recommendations related to forest practices and riparian functions. The language of the charter and decision protocol indicates that consensus agreement was the most desirable outcome, but that if consensus could not be reached, strong agreement or majority support would still be considered valuable. The committee held extensive discussions in its attempt to achieve consensus, visiting field sites, reviewing scientific and monitoring information, and looking at the wide range of viewpoints of committee members. At its final meeting (on October 30, 2002) ERFAC members indicated their level of support for the package of thirteen recommendations outlined in this executive summary. Ten members were present at this meeting. Eight members supported the package; two members opposed it. According to the decision protocol, this would constitute strong agreement, but not consensus. Committee members also indicated their level of support for the individual recommendations that made up the package. Six of those recommendations received consensus support, and seven received strong agreement.

Individual Recommendations

Recommendation A: Desired Future Condition for Fish Use Streams
The following definition for the "desired future condition" should be used for eastern Oregon (OAR 629-640-000 (2)(a)):

> "Eastern Oregon has a tremendous diversity of riparian forest conditions. The desired future riparian condition for fish use streams is to grow and retain vegetation so that over time and across the landscape riparian forests are vigorous and structurally diverse. Riparian forest structures vary across the eastern Oregon landscape and within the limits of site productivity there exists a broad range of tree species, size and age classes with an understory of shrubs and herbs. The functions and values of riparian forests include water quality, hydrologic function, the growing and harvesting of trees, and fish and wildlife resources. These riparian forests provide ample shade over the channel, a relative

abundance of large woody debris in the channel, channel influencing root masses along the edge of the high water level, snags, and regular inputs of nutrients through litter fall."

Strong agreement: Nine committee members supported Recommendation A; one member opposed it.

Recommendation B: RMA Widths for Fish Use Streams
Retain current RMA widths (50, 70, and 100 feet for small, medium, and large Type F streams, respectively).

Consensus support: Ten committee members supported Recommendation B.

Recommendation C: Basal Area Retention Along Fish Use Streams
Use two site classes for basal area retention in RMAs to reflect variability in site capability in eastern Oregon riparian management areas, as follows:

For partial harvest or Type 1 (square feet of basal area/1000 ft)

40% GBA	Large	Medium	Small
Site 4/5* (moist)	170	120	85
Site 6/7 (dry)	110	80	55

For final harvest (Type 2 & 3), and
For 'brush credit' or 'ungulate alternative' (partial harvest or Type 1)
(square feet of basal area/1000 ft)

30% GBA	Large	Medium	Small
Site 4/5* (moist)	130	90	65
Site 6/7 (dry)	90	65	45

*Much of the discussion was on whether the distinction between site 4 and 5 could be consistently made on the ground, but the understanding was that site 2 and site 3 ground would be included in the site 4/5 category.

The following conditions must be present in order for the 'brush credit' or 'ungulate alternative' basal area targets to be applicable: existing understory vegetation (grasses, shrubs, and non-merchantable trees) retained along the stream has a high likelihood to persist over time.

Strong agreement: Eight committee members supported Recommendation C; two members opposed it.

Recommendation D: Near Stream Protection for Fish Use Streams
Near-stream protection under an active management approach within the RMA will be provided by the protections described below. If this approach is not utilized in the RMA, then the default is the 20-foot no-harvest zone:

1. Retain all trees leaning over the channel, as required by current rule.
2. Retain all channel-stabilizing trees that have exposed roots within the active channel.

3. For large and medium Type F streams, retain the five largest trees within the first half of the RMA, per 1000 feet of stream length.
- Create an active placement incentive as an alternative for meeting this requirement.
- Encourage site specific plans to alter the requirements if necessary to address forest health issues.

4. For small Type F streams, retain five trees 20 inches DBH or larger within the first half of the RMA, per 1000 feet of stream length. If no trees at least 20 inches DBH are present, retain the five largest trees.
- Create an active placement incentive as an alternative for meeting this requirement.
- Encourage site specific plans to alter the requirements if necessary to address forest health issues.

5. Within the first 20 feet adjacent to Type F streams, retain all understory vegetation and all trees up to 6 inches in DBH, unless management is necessary for regeneration or pre-commercial thinning to achieve the desired future condition.
6. A thirty-five-foot equipment exclusion zone on all fish use streams would be the standard prescription. Prior approval for entering the 35-foot zone would be allowed under certain circumstances and would be addressed in a written plan.

Note: The retention requirements in items D1 through D5 would not necessarily be mutually exclusive. For example, a tree required to be retained for bank stabilization could be one of the five largest trees if it met the size requirement, and might also fulfill other near stream protection requirements.

Level of Support for Recommendation D with item D3: Strong agreement. Eight committee members indicated support; two members indicated opposition.

Level of Support for Recommendation D with Item D4: Strong agreement. Seven committee members indicated support; three members indicated opposition.

Recommendation E: Stratification
ERFAC agrees with the concept of stratification and recommends that the department develop rule language and guidance specific to eastern Oregon. All trees should be retained in segments of the RMA that are below the standard basal area target, and trees retained within the 'overstocked' area can be at or above the standard target.

Strong agreement: Nine committee members supported Recommendation E; one member opposed it.

Recommendation F: Channel Migration Zones (CMZs)
ERFAC recommends that the department develop guidance on eastern Oregon CMZs to help evaluate the current level of CMZ protections, and make a determination on the desirable level of protection for these areas.

Consensus support: Ten committee members supported Recommendation F.

Recommendation G: Protection of Type N Streams
The following additional protections are to apply to Type N streams:

1. Extend the current vegetation retention requirements along small perennial Type N streams out to 20 feet during harvest operations.
2. The forest practice rules should be modified to more specifically address the risk of sediment delivery from skid trails[1] located near small Type N streams.
3. For medium and large Type N streams, apply the protection standards ERFAC recommends for small Type F streams.
4. The effectiveness of the small Type N stream prescriptions should be a monitoring priority.

Strong agreement: Seven committee members supported Recommendation G; three opposed it.

Recommendation H: Monitoring Strategies for Wetlands
The department should develop monitoring strategies that will include evaluating the effectiveness of the forest practice rules for significant and other wetlands.

Strong agreement: Nine committee members supported Recommendation H; one member declined to indicate support or opposition.

Recommendation I: Incentives
The department should recommend to the Board of Forestry that the forest practice rules be modified, as necessary, to provide a broad range of incentives to improve fish habitat. It should be recognized that multiple methods are available to address protection issues related to ungulates (e.g. see Recommendation C above and OAR 629-640-0110).

Consensus support: Ten committee members supported Recommendation I.

Recommendation J: Statewide Riparian Policy; Wild and Domestic Ungulates
Urge the Board of Forestry to provide a recommendation to the Statewide Riparian Management Policy Group concerning the impacts of both wild and domestic ungulates on forested eastside RMAs. The recommendation should discuss the roles of other regulatory and land-use agencies concerning the maintenance and enhancement of high-quality riparian areas.

Consensus support: Ten committee members supported Recommendation J.

Note: The committee asked the Oregon Department of Forestry to prepare a clarifying redraft, if it could be done without changing the meaning of the statement. However, the committee did not reach agreement on the proposed redraft. For more information on this process, see Recommendation J in the full ERFAC report.

[1] As determined by the Department, skid trails include, but are not limited to, any area where equipment constructs a trail by excavating, filling, and/or compacting. Ground used for a single pass by mechanical shears or feller-bunchers is not considered a skid trail unless ruts develop or the surface organic material is removed.

Recommendation K: Riparian Specialists
The department should designate at least one riparian specialist for each district in eastern Oregon to inventory and prepare riparian prescriptions for operators and landowners.

Consensus support: Ten committee members supported Recommendation K.

Recommendation L: Training for Landowners, Operators, and the Public
The department is encouraged to emphasize Forest Practices Act training and education opportunities for landowners, operators, and the public.

Consensus support: Ten committee members supported Recommendation L.

Recommendation M: Training for Forest Practices Foresters (FPFs)
The department is encouraged to emphasize FPF training to ensure compliance and consistency with the Forest Practices Act.

Consensus support: Ten committee members supported Recommendation M.

State of Oregon
Department of Environmental Quality Memorandum

To: Environmental Quality Commission **Date:** September 28, 2004

From: Mikell O'Mealy, Assistant to the Commission and Director

Subject: Materials for the October 21 joint meeting with the Board of Forestry

Enclosed are your materials for the Thursday, October 21 joint meeting with the Board of Forestry (BOF), including a joint staff report from the Oregon Department of Forestry and the DEQ, profiles of BOF members, and a master itinerary for the October 21-22 meeting.

The EQC will hold a regular business meeting on Friday, October 22, and we will send staff reports for that meeting to you later this week.

Andrea Bonard will contact you shortly to schedule a pre-meeting briefing for you and our administrators to go over key discussion items for the joint meeting with the BOF, and other topics of the October 22 meeting. Andrea will also provide assistance with your travel arrangements, including driving directions and any other support you may need.

As you know, we'll be meeting in the beautiful City of Tillamook, and we have reserved rooms for Wednesday and Thursday night, October 21 and 22, at the Best Western Holiday Motel (located at 1722 North Makinster Road in Tillamook, phone: 503-842-7599, fax: 503-842-7930).

If you have any questions about the meeting or these materials, please contact me at 503-229-5301, or toll-free at 1-800-452-4011 ext. 5301 in the state of Oregon. Again, look for a second mailing from us with October 22 meeting materials later this week. Thanks.

Board of Forestry / Environmental Quality Commission
Joint Meeting

Thursday, October 21, 2004
ODF Tillamook District Office
5005 East 3rd Street, Tillamook

7:30 – 12:00 Tour to learn about stream protection issues on forestland

12:00 – 12:30 Lunch in route to the meeting from the tour

12:30 – 5:00 Joint public meeting, at the ODF Tillamook Headquarters Building, 4907 East 3rd Street, in Tillamook, Oregon

- 12:30 Introductions and purpose of the meeting; Steve Hobbs and Mark Reeve
  Key objectives and values of the Board and Commission
- 1:00 Overview of recent history and decisions to date; Lanny Quackenbush and Koto Kishida
  Brief review of the sufficiency analysis, FPAC, ERFAC process through rule change process to date
- 1:15 Issues of science; Bob Baumgartner and Gregg Cline
  Brief description of DEQ temperature standard, IMST report and other technical issues.
- 1:30 Issues of law; Ian Whitlock and Larry Knudsen
  Brief description of BOF and EQC statutory responsibilities and requirements.
- 1:50 Issues of policy; Paul Slyman and Marvin Brown
  Complementary policies and values; areas where policies and values may conflict.
- 2:15 Break
- 2:30 Discussion: *What are the areas of interest or concern for Board and Commission members on decisions to date or recommendations awaiting action by the Board*?
  - Are there decisions to date that warrant discussion given the issues of science, law and policy?
  - In what direction would Board or Commission members like to see the recommendations still under consideration go?
  - Generally, what are the areas of opportunity or concern for the application of water quality standards in forestlands?
- 3:30 Public comment opportunity; open invitation to audience members to provide brief comments to Board and Commission members
- 4:00 Discussion: *What guidance do Commission and Board members have for future cooperation and collaboration between DEQ and ODF to ensure that water quality standards are achieved in forest lands and that water quality standards are adopted and applied appropriately on forestlands?*
- 5:00 Adjourn

6:00 - 9:00 Meet and greet with local officials and interests to discuss local environmental and economic issues, Swiss Hall , 4605 Brookfield Rd, Tillamook.

1. Welcome and presentation of county issues. Tillamook County Chair
2. Welcome and presentation of City issues. Mayor of Tillamook
3. General Welcome and discussion. All

Environmental Quality Commission Meeting
October 21-22, 2004

October 21-22 Lodging: Best Western Holiday Motel, 1722 North Makinster Road, Tillamook, Oregon, Phone: 503-842-7599, Fax: 503-842-7930

Wednesday, October 20

Afternoon	Travel to Tillamook
6:00	Dinner with DEQ regional staff to discuss local environmental issues, location TBD

Thursday, October 21 Joint meeting with Board of Forestry

7:30 – 12:00	Tour to review stream protection issues on forestland
1200 – 1230	Lunch in route to the meeting from the tour
12:30 – 5:00	Joint public meeting, ODF Tillamook Headquarters Building, 4907 East 3rd Street *See attached agenda*
6:00	Dinner with EQC and BOF members, DEQ and ODF staff, location TBD
7:00 – 9:00	Meeting with local officials to discuss local environmental and economic issues, ODF Tillamook Headquarters Building

Friday, October 22 Regular EQC business meeting

Location: Tillamook County Building, 201 Laurel, Tillamook, Oregon, Phone: 503-842-3403

7:30	Executive Session
9:00 -	Regular EQC meeting
9:00 – 9:05	A. Approval of Minutes
9:05 – 9:25	B. Action Item: Mass Load Policy Interpretation – City of Salem Wastewater Treatment Facility, Mike Kortenhof and Mark Hamlin
9:25 – 10:20	C. Contested Case No. AQ/AB-NWR-03-099 regarding Vladimir Petrovich Ozeruga
10:20 – 10:35	Break
10:35 – 11:30	D. Contested Case No. AQ/AB-NWR-03-134 regarding William M. McClannahan
11:30 – 11:45	Public Forum
11:45 – 12:15	E. Informational Item: Overview of Proposed Changes in Environmental Enforcement and Compliance Rules, Anne Price and Jane Hickman
12:15 – 1:00	Lunch
1:00 – 1:15	F. Director's Dialogue
1:15 – 1:45	G. Informational Item: UMCDF Update, Dennis Murphey
1:45 – 2:30	H. Informational Item: Portland Area Carbon Monoxide Plan and the Oxygenated Fuel Requirement, Annette Liebe, David Collier and Dave Nordberg *Including a public comment opportunity*
2:30 – 2:45	Break
2:45 – 3:00	I. Rule Adoption: Pollution Control Facilities Tax Credit Permanent Rules, Helen Lottridge and Maggie Vandehey
3:00 – 3:45	J. Informational Item: Independent Spent Fuel Storage Installation Tax Credit Certification, Helen Lottridge and Maggie Vandehey *Including a comment opportunity for PGE*
3:45 – 3:50	K. Commissioners' Reports
3:30	Travel home

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Board of Forestry Members

Click on their name or picture to learn more about them.

Steve Hobbs,

Chair, Board of Forestry

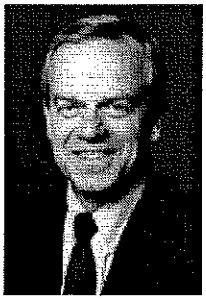
Marvin Brown,

State Forester

Jennifer Phillippi

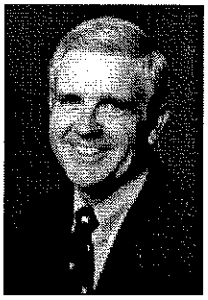
Diane Snyder

Barbara Craig



William Hutchison

Chris Heffernan



Larry Giustina

Last updated
08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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Steve Hobbs

Stephan Hobbs is Associate Dean for Research in OSU's college of Forestry. He's served as director of the Coastal Oregon Productivity Enhancement (COPE) Program. COPE is a multi-disciplinary research effort aimed at obtaining a better understanding of forest and stream resources in the Oregon Coast Range and how they can be managed more effectively. Hobbs says he has a "strong commitment to the sustainable use of Oregon's forest resources. Serving on the state Board of Forestry will provide me with an opportunity to make a significant contribution to the policies that support how forest resources are managed." Hobbs holds a BS in Forestry and a Ph.D. in Forestry Science.

Contact Information:

College of Forestry
109 D Richardson Hall
Corvallis, OR 97331
phone: 541-737-2222
FAX: 541-737-3008

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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Marvin Brown

Marvin Brown became Oregon State Forester in June 2003. The former Missouri State Forester brought diverse experience in forest policymaking at the state, national and international levels to the job. He has worked extensively as a professional forester in both the private and public sectors.

As head of the Oregon Department of Forestry, Brown administers the agency under policies set by the Oregon Board of Forestry. The department provides wildfire protection to 16 million acres of private and public forestland, implements the Oregon Forest Practices Act, and manages 800,000 acres of state-owned forests. In addition, the department provides technical assistance to the state's many family forestland owners.

"Oregon has a truly special forest resource that is highly valued by its citizens," Brown said. "Our job in the department is to work closely with those interests to see that our forests are in a sustainable condition now, and for future generations to come."

Brown held several management positions within the Missouri Department of Conservation over the course of some 22 years and served the last seven years of his tenure as Missouri's State Forester.

As director of forest policy for Willamette Industries (now merged with Weyerhaeuser) from 1999-2002, he was responsible for certification of environmental standards on the company's 1.7 million acres of forest holdings. He also developed Willamette's corporate-wide forest policy. As the CEO's representative, he helped develop and refine the Sustainable Forestry Initiative, an internationally recognized certification standard for sustainable forest management that is currently in use by major forest products companies throughout the U.S. and Canada.

Brown was director of private forestland management for the American Forest and Paper Association prior to becoming Oregon State Forester. In that position he directed private lands-related policy, regulatory and legislative activities for the trade association,

which represents the forest-products industry in the U.S. and abroad.

During his career, Brown has served as technical advisor to the U.S. State Department, and as a non-governmental representative, on numerous international delegations to United Nations forest policy negotiations. As a panel member of the intergovernmental Montreal Process, he assisted in developing a set of criteria and indicators of sustainable forestry that are recognized worldwide.

Throughout his career, Marvin Brown has served in key forest policymaking roles with several professional associations including the National Association of State Foresters (elected president in 1998) and the Society of American Foresters.

He holds both master's and bachelor's degrees in forestry. Brown and his wife, Pamela, reside in Salem.

Contact Information:

Secretary/State Forester
Oregon Dept. of Forestry
2600 State Street
Salem, OR 97310
503-945-7211
FAX: 503-945-7212

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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Jennifer Phillippi

Jennifer Phillippi is Business Manager of Rough and Ready Lumber Co. She is also President of Perpetua Forests Company, and is a third-generation family sawmill and forest landowner. Phillipi served as a core stakeholder in the development of the Board of Forestry's strategic plan, the *2003 Forestry Program for Oregon* , a public process about which she says she was "heartened to see a thoughtful and balanced attitude towards an issue that in other settings often becomes politically diverse with ineffective results," Phillipi views the current Oregon Forest Practices Rules as both "productive and flexible, allowing landowners to respond to the conditions of different forest types while accommodating diverse individual objectives. Having grown up in a rural, forested area, she has a particularly close connection to the woods.

Contact Information:

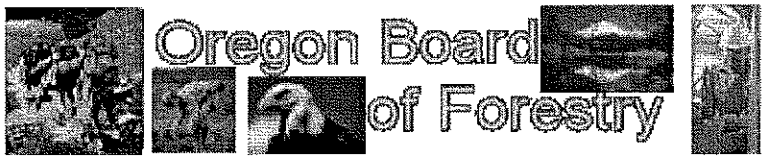
Rough and Ready Lumber Co.
PO Box 519
Cave Junction, OR 97523
541-592-3116 x 113

Term Expires 1/31/08

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.



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Last updated
08/10/04

Diane Snyder

Diane Snyder is executive director of Wallowa Resources, a non-profit corporation established in 1996 with a stated mission to "promote community, forest and watershed health while creating family-wage jobs and business opportunities." Snyder has served as chair of the Wallowa County Economic Development Council and as Director of the Wallowa County Planning Department.

Contact Information:

Wallowa Resources
P.O. Box 274
Enterprise, Or 97828
541-426-8053
FAX: 541-426-9053
Term Expires: 4/17/06

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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Barbara Craig

Barbara Craig is a natural resources attorney with the law firm of Stoel Rivers LLP, as well as a professional forester. Craig's practice involves Endangered Species Act issues, including the Shortnose and Lose River suckers, the Oregon silverspot butterfly and the Northern spotted owl. She has served on the Oregon Department of Fish and Wildlife Advisory Committee for revisions to the Oregon Endangered Species Act, and on the Oregon State University Forest Research Laboratory Advisory Committee. "I care deeply about Oregon's forests and natural resources," Craig says, "Oregon must continue to take strong leadership in the management of our private, state, and federal forestlands."

Contact Information:

Stoel Rives LLP
900 SW 5th Avenue, Suite 2600
Portland, OR 97204
503-294-9166
Term Expires 1/31/08

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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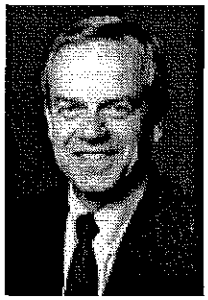
William Hutchison



William Hutchison is an attorney with the law firm of Tooze, Duden, Creamer, Frank, and Hutchison in Portland. He has been engaged in forest management issues throughout his career. His professional affiliations include Oregon State Bar, Multnomah County Bar Association, and American Bar Association. His practice emphasis has been on cooperateive, corporate, real property, and environmental law.

Contact Information:

Tooze, Duden, Creamer, Frank & Hutchison
333 SW Taylor
Portland, OR 97204
503-219-8133
FAX: 503-223-5550
Term Expires 6/30/06

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

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Chris Heffernan

Chris Heffernan is a rancher and farmer from North Powder and owns and actively manages 1,332 acres of grazing and forest lands. He owns the North Slope Hay Company, Inc., and manages H & H Ranches, an alfalfa farm and livestock grazing operation. Heffernan and his family's ranch earned the national honor of the 2002 Rural Sportsman Big Game Management Farm of the Year as well as the Wildlife Stewardship Farm of the Year award. Heffernan has served as the Eastern Oregon representative on the Committee for Family Forestlands. He is a committee member of the Rocky Mountain Elk Foundation and committee chairman of the Northeast Oregon Regional Fire Protection Board. Heffernan holds a baccalaureate in Agriculture Education from California State University.

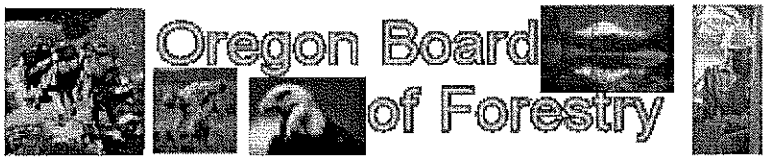
Contact Information:

North Slope Hay Co.
63600 Viewpoint Lane
North Powder, OR 97867
541-786-2257
FAX: 503-898-2203
Term Expires 4/3/05

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.



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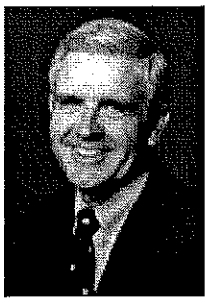
Larry Giustina



Larry Giustina has been managing general partner of Giustina Land and Timber Company since 1990. His family has been in the wood products business for three generations. His father helped institute the Oregon Forest Practices when he served on the Board of Forestry in the early 1970s. Giustina holds a B.S. in Business from Oregon State University.

Contact Information:

Giustina Land & Timber Co.
P.O Box 989
Eugene, OR 97440
541-345-2301
FAX: 503-345-2305
Term Expires 4/17/06

Last updated 08/10/04

Content-related questions?
Joe Misek | 2600 State St. | Salem, OR 97310
Phone: (503) 945-7414 | Fax: (503) 945-7490

Designed by Jeremiah Tenneson
Maintained by Alicia Andrews.
Questions? Contact the Webmaster.

Oregon Environmental Quality Commission Meeting
October 21-22, 2004

Held in Tillamook, Oregon

On Wednesday, October 20, the Environmental Quality Commission (EQC, Commission) will meet join Department of Environmental Quality (DEQ) staff for dinner to discuss local environmental issues and agency work. The dinner will begin at 6:00 p.m. at The Fern, located at the 1000 North Main Street (Highway 101) in Tillamook.

Thursday, October 21, 2004

Beginning at 7:30 a.m. on Thursday morning, the Commission will join the Oregon Board of Forestry (BOF, Board) for a tour to observe stream protections on private forest land. After the tour, the Commission and Board will hold a joint public meeting beginning at 12:30 p.m. at the Oregon Department of Forestry (ODF) Tillamook District Office, located at 5005 East 3rd Street in Tillamook. Below is the agenda for the joint meeting.

Environmental Quality Commission and Board of Forestry Joint Meeting
12:30 p.m. - 5:00 p.m.
ODF Tillamook District Office
5005 East 3rd Street, Tillamook

12:30 Introductions and purpose of the meeting; Steve Hobbs and Mark Reeve
Key objectives and values of the Board and Commission.

1:00 Overview of recent history and decisions to date; Lanny Quackenbush and Koto Kishida
Brief review of the Sufficiency Analysis, Forest Practices Advisory Committee, and Eastside Riparian Functions Advisory Committee processes through the current rulemaking process.

1:15 Issues of science; Bob Baumgartner and Gregg Cline
Brief description of the DEQ temperature standard, the Independent Multidisciplinary Science Team report, and other technical issues.

1:30 Issues of law; Ian Whitlock and Larry Knudsen
Brief description of BOF and EQC statutory responsibilities and requirements.

1:50 Issues of policy; Paul Slyman and Marvin Brown
Complementary policies and values; areas where policies and values may conflict.

2:15 Break

2:30 Discussion: *What are the areas of interest or concern for Board and Commission members on decisions to date or recommendations awaiting action by the Board*?

- Are there decisions to date that warrant discussion given the issues of science, law and policy?
- In what direction would Board or Commission members like to see the recommendations still under consideration go?

- Generally, what are the areas of opportunity or concern for the application of water quality standards in forestlands?

3:30 Public comment opportunity; open invitation to audience members to provide brief comments to Board and Commission members.

4:00 Discussion: *What guidance do Commission and Board members have for future cooperation and collaboration between DEQ and ODF to ensure that water quality standards are achieved in forest lands and that water quality standards are adopted and applied appropriately on forestlands?*

5:00 Adjourn

On Thursday evening, the EQC and BOF will hold and informal gathering with local and tribal officials to discuss environmental and economic issues. The gathering will be from 7:30 p.m. until 9:00 p.m. in the Swiss Hall, located at 4605 Brookfield Road in Tillamook.

Friday, October 22, 2004

The EQC will hold a regular business meeting on Friday at the Tillamook County Building, located at 201 Laurel Avenue in Tillamook. Prior to the regular meeting, beginning at 7:30 a.m., the Commission will hold an executive session to consult with counsel concerning legal rights and duties regarding current and potential litigation against the DEQ. Executive session is held pursuant to ORS 192.660(1)(h). Only representatives of the media may attend, and media representatives may not report on any deliberations during the session.

Regular Environmental Quality Commission Meeting
9:00 a.m. - 4:00 p.m.
Tillamook County Courthouse
201 Laurel Avenue, Tillamook

A. Approval of Minutes
The Commission will review, amend if necessary, and approve draft minutes of the September 9, 2004 EQC meeting.

B. Action Item: Mass Load Policy Interpretation - City of Salem Wastewater Treatment Facility
Mike Kortenhof, DEQ Western Region Water Quality Manager, will recommend that the EQC approve a rule interpretation involving renewal of the National Pollutant Discharge Elimination System Permit for the City of Salem's wastewater treatment facility. The proposed permit will provide for treatment of longstanding sewage overflows, and will increase pollution limits because treatment cannot remove the pollution load from the overflows. The Department will recommend that the overflows be considered *existing loads* because they are not new and are allowed under the existing permit.

C. Contested Case No. AQ/AB-NWR-03-099 regarding Vladimir Petrovich Ozeruga
The Commission will consider a contested case in which Vladimir Petrovich Ozeruga appealed a proposed order and $7,132 civil penalty for failing to require a DEQ-licensed

asbestos abatement contractor to conduct an asbestos abatement project on a facility he owned in Northeast Portland.

D. Contested Case No. AQ/AB-NWR-03-134 regarding William M. McClannahan
The Commission will consider a contested case in which William M. McClannahan appealed a proposed order and $10,000 civil penalty for failing to require a DEQ-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owned in Hermiston.

E. Informational Item: Overview of Proposed Changes in Environmental Enforcement and Compliance Rules
Anne Price, DEQ Office of Compliance and Enforcement Administrator, will update the Commission on proposed changes to DEQ's rules governing the enforcement of Oregon's environmental regulations and statutes, including civil penalty assessments and orders. Ms. Price will briefly describe the history of the rulemaking, key issues, and next steps, leaving time for questions and comments from Commissioners.

F. Director's Dialogue
Stephanie Hallock, DEQ Director, will discuss current events and issues involving the Department and the state with Commissioners.

G. Informational Item: Status of Chemical Agent Destruction Activities at the Umatilla Chemical Agent Disposal Facility
Dennis Murphey, DEQ Chemical Demilitarization Program Administrator, will give an update on the status of recent activities at the Umatilla Chemical Agent Disposal Facility (UMCDF). In August, the Commission gave approval to start chemical weapon destruction at the facility, and DEQ's Chemical Demilitarization Program continues close oversight of work at the facility.

H. Informational Item: Portland Area Carbon Monoxide Plan and the Oxygenated Fuel Requirement
Annette Liebe, Acting DEQ Air Quality Division Administrator, will brief the Commission on issues related to the proposed Portland Area Carbon Monoxide (CO) Maintenance Plan. The DEQ plans to bring the plan to the Commission for consideration at the December 9-10 EQC meeting. A controversial element of the plan is whether or not to continue the existing oxygenated fuel requirement. The Commission plans to take public comments on the proposed plan at the October 22 meeting.

I. *Rule Adoption: Addressing Inconsistencies between the Pollution Control Facilities Tax Credit Law and Rules
Helen Lottridge, DEQ Management Services Division Administrator, and Maggie Vandehey, DEQ Pollution Control Facilities Tax Credit Coordinator, will propose permanent rule changes to address inconsistencies between the pollution control facilities tax credit statutes and rules relating to filing deadlines. The tax credit statutes changed in 2001 to shorten the application filing time from two years to one year after construction of a facility is substantially completed. DEQ rules stated that an application must be filed within two years of completion. In May 2004, the Commission adopted a temporary rule to address the inconsistency, and will consider a permanent rule at this meeting.

J. Informational Item: Independent Spent Fuel Storage Installation Tax Credit Certification
Helen Lottridge, DEQ Management Services Division Administrator, and Maggie Vandehey, DEQ Pollution Control Facilities Tax Credit Coordinator, will seek direction from the Commission on the breadth and depth of discussion desired at the December 9, 2004 EQC meeting with regard to the Independent Spent Fuel Storage Installation (ISFSI) tax credit. The Commission granted preliminary certification to the ISFSI as a pollution control facility in September 2000, and will consider final certification of the facility at its December meeting.

K. Commissioners' Reports

Adjourn

The next Environmental Quality Commission meeting will be held December 9-10 in Portland

Agenda Notes

***Rule Adoptions**: Hearings have been held on Rule Adoption items and public comment periods have closed. In accordance with ORS 183.335(14), no comments may be presented by any party to either the Commission or Department on these items at any time during this meeting.

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

Public Forum: The Commission will break the meeting at approximately 11:30 a.m. on Friday, October 22 to provide members of the public an opportunity to speak to the Commission on environmental issues not part of the agenda for this meeting. Individuals wishing to speak to the Commission must sign a request form at the meeting and limit presentations to five minutes. The Commission may discontinue public forum after a reasonable time if a large number of speakers wish to appear. In accordance with ORS 183.335(13), no comments may be presented on Rule Adoption items for which public comment periods have closed.

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

Environmental Quality Commission Members

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

Mark Reeve, Chair
Mark Reeve is an attorney with Reeve Kearns in Portland. He received his A.B. at Harvard University and his J.D. at the University of Washington. Commissioner Reeve was appointed to the EQC in 1997 and reappointed for a second term in 2001. He became Chair of the EQC in 2003. Commissioner Reeve also serves as a member of the Oregon Watershed Enhancement Board.

Lynn Hampton, Vice Chair
Lynn Hampton serves as Tribal Prosecutor for the Confederated Tribes of the Umatilla Indian Reservation and previously was Deputy District Attorney for Umatilla County. She received her B.A. at University of Oregon and her J.D. at University of Oregon School of Law. Commissioner Hampton was appointed to the EQC in July 2003 and lives in Pendleton.

Deirdre Malarkey, Commissioner
Deirdre Malarkey graduated from Reed College and received her M.A. and Ph.D. from the University of Oregon. She has served previously on two state natural resource boards and on the Water Resources Commission and retired as a land use planner. Commissioner Malarkey was appointed to the EQC in 1999 and reappointed in 2003. Commissioner Malarkey lives in Eugene.

Ken Williamson, Commissioner
Ken Williamson is head of the Department of Civil, Construction and Environmental Engineering at Oregon State University and serves as Co-Director of the Center for Water and Environmental Sustainability. He received his B.S. and M.S. at Oregon State University and his Ph.D. at Stanford University. Commissioner Williamson was appointed to the EQC in February 2004 and he lives in Corvallis.

The fifth Commission seat is currently vacant.

Stephanie Hallock, Director
Department of Environmental Quality
811 SW Sixth Avenue, Portland, OR 97204-1390
Telephone: (503) 229-5696 Toll Free in Oregon: (800) 452-4011
TTY: (503) 229-6993 Fax: (503) 229-6124
E-mail: deq.info@deq.state.or.us

Mikell O'Mealy, Assistant to the Commission
Telephone: (503) 229-5301

Approved___
Approved with Corrections___

Minutes are not final until approved by the Commission.

Oregon Environmental Quality Commission
Minutes of the Three Hundredth and Twenty First Meeting

September 9, 2004
Regular Meeting[1]

On Wednesday, September 8, the Environmental Quality Commission (EQC, Commission) met with Department of Environmental Quality (DEQ, Department) staff for dinner at 5:30 p.m. at the Cedar Grill, located at 201 Central Avenue in Coos Bay, to hear an update on the agency's work. At 7:00 p.m., the EQC met with local officials to discuss environmental and economic issues on Oregon's south coast. The meeting was held in the Myrtlewood Room of the Coos Bay Public Library, located at 525 Anderson Street in Coos Bay, Oregon.

Beginning at 8:30 a.m. on Thursday morning, September 9, the Commission toured local environmental projects for an on-site inspection of DEQ's activities. After the tour, the Commission met in an executive session beginning at 11:30 a.m., to consult with counsel concerning legal rights and duties regarding current and potential litigation against the DEQ[2], and to review and evaluate the employment-related performance of the Director pursuant to standards, criteria and policy directives previously adopted by the Commission[3]. The executive session was held in the Cedar Room of the Coos Bay Public Library.

The following EQC members were present for the regular meeting, held in the Myrtlewood Room of the Coos Bay Public Library.

Mark Reeve, Chair
Lynn Hampton, Vice Chair
Deirdre Malarkey, Member
Ken Williamson, Member

Chair Reeve called the meeting to order at approximately 1:10 p.m., and introduced Commission members, DEQ Director Stephanie Hallock, Assistant Attorney General Larry Knudsen, and Commission Assistant Mikell O'Mealy. Agenda items were taken in the following order.

D. Informational Item: Status of Chemical Agent Destruction Activities at the Umatilla Chemical Agent Disposal Facility

Dennis Murphey, DEQ Chemical Demilitarization Program Administrator, gave the Commission an update on the status of recent activities at the Umatilla Chemical Agent Disposal Facility (UMCDF), including the start of chemical agent operations, recent events at the facility, and activities of other demilitarization facilities nationwide. Commissioners discussed work at the UMCDF with Mr. Murphey, and thanked him for his presentation.

A. Approval of Minutes

The Commission reviewed draft minutes of the July 15-16, 2004 EQC meeting and the August 13, 2004 EQC meeting. Commissioner Malarkey moved that the Commission approve draft minutes of the July 15-16, 2004 meeting. Commissioner Hampton seconded the motion and it passed with

[1] The staff reports for this meeting can be viewed and printed from DEQ's Web site at http://www.deq.state.or.us/about/eqc/eqc.htm. To request a copy to be sent by mail, contact DEQ, Office of the Director, 811 SW Sixth Avenue, Portland, Oregon 97204; phone: (503) 229-5990.
[2] pursuant to ORS 192.660(1)(h)
[3] pursuant to ORS 192.660(1)(i)

four "yes" votes. Commissioner Hampton moved that the Commission approve draft minutes of the August 13, 2004 meeting. Commissioner Malarkey seconded the motion and it passed with four "yes" votes.

B. Contested Case Number LQ/HW-NWR-02-123 regarding Dura Industries, Inc.

The Commission considered a contested case between the DEQ and Dura Industries, Inc., in which the company appealed a proposed order and $9,400 civil penalty for hazardous waste management violations. Dura Industries, Inc. is a metal finishing business in Portland whose processes include cleaning aluminum and steel parts with corrosives, painting metal parts, and conducting chromic conversions. Larry Knudsen, Assistant Attorney General, summarized the findings of fact made by the Administrative Law Judge and asked Commissioners to declare any ex parte contacts or conflicts of interest regarding the case. All Commissioners declared that they had no ex parte contacts or conflicts of interest. John Burns and Jerry Hauser presented arguments on behalf of Dura Industries, Inc., and Jeff Bachman, DEQ Environmental Law Specialist, presented arguments on behalf of the Department.

Commissioners raised a number of questions about some of the evidence in the case and the findings of fact made by the Administrative Law Judge. Commissioners discussed their questions with Mr. Burns, Mr. Hauser, Mr. Bachman and Director Hallock. After consideration, Commissioner Hampton moved that the Commission remand the case to the Administrative Law Judge for further consideration of the evidence supporting the findings of fact. Commissioner Williamson seconded the motion and it passed with four "yes" votes.

C. Action Item: Consideration of a Pollution Control Facilities Tax Credit Requests

Helen Lottridge, DEQ Management Division Services Administrator, and Maggie Vandehey, DEQ Tax Credit Program Coordinator, presented recommendations on Pollution Control Facility Tax Credit applications for facilities that control air and water pollution, recycle solid and hazardous waste, and reclaim plastic products. In 1967, the Oregon Legislature established the tax credit program to help businesses meet environmental requirements. The program was later expanded to encourage investment in technologies and processes that prevent, control or reduce significant amounts of pollution. In 1999, facilities that control nonpoint sources of pollution (such as wood chippers) were made eligible for the program.

Ms. Vandehey recommended that the Commission certify forty pollution control facility tax credit applications as presented in the Department's staff report. In addition, Ms. Vandehey stated that applications #6555 and #6556, which the Department had recommended be denied in the staff report, were pulled from the agenda at the company's request to allow time for submitting additional information. After considering the Department's recommendation, Commissioner Hampton moved that the Commission approve final certification on the forty applications as proposed. Commissioner Malarkey seconded the motion and it passed with four "yes" votes.

E. Rule Adoption: Truck Engine Tax Credit

Annette Liebe, Acting DEQ Air Quality Division Administrator, and Kevin Downing, DEQ Air Quality Specialist, proposed rules to establish DEQ policies and procedures for issuing tax credits to Oregon taxpayers who purchase qualifying diesel truck engines. Ms. Liebe explained that as part of a state funding package for constructing new highways and bridges in Oregon, the 2003 Legislature passed a bill to create a tax credit for purchasing "cleaner" diesel truck engines (model years 2003-2007) that have been certified by the federal Environmental Protection Agency as emitting low nitrogen oxides. The bill made DEQ responsible for administering the tax credit, similar to the Pollution Control Facilities Tax Credits that DEQ has administered since 1967.

Commissioners discussed the proposed rules with Ms. Liebe and Mr. Downing, and made two clarifying changes:

- The first change was made to the proposed Oregon Administrative Rule (OAR) 340-016-0230 (3), which stated, "The taxpayer may submit more than one application in a calendar year but

may not claim a truck engine more than once." The second portion of the sentence, "but may not claim a truck engine more than once" was deleted.

- The second change added subsection (10) to OAR 340-016-0230, stating "DEQ will not accept an application for a truck engine that has previously received a tax credit."

After discussion, Commission Malarkey moved that the Commission adopt the proposed rules as amended. Commissioner Hampton seconded the motion and it passed with four "yes" votes.

Public Forum
At approximately 4:10 p.m., Chair Reeve asked whether any members of the audience wished to provide public comment to the Commission. No one expressed a desire to comment.

F. Director's Report
Stephanie Hallock, DEQ Director, discussed current events and issues involving the Department and the state with Commissioners, including progress of the Governor's Global Warming Advisory Group.

G. Commissioners' Reports
Related to global warming, Commissioner Williamson suggested that the Department explore possibilities for recycling used concrete. He stated that recycling concrete would help conserve our concrete and aggregate resources, conserve the fuel that is used to generate new concrete, and reduce the concrete waste that is taken to landfills. Director Hallock thanked him for his suggestion and said she would discuss it with DEQ's Land Quality Administrator.

Commissioner Malarkey mentioned the status of the Southern Willamette Valley Groundwater Management Area, and commended DEQ employees Nina DeConcini and Jennifer Boudin for leading a recent successful event that encouraged use of alternative lawn care practices.

Chair Reeve described his recent experience touring the Hinkle Creek Watershed Demonstration project, which is funded in part by the Oregon Watershed Enhancement Board, and mentioned that part of the project will investigate the effects of forest practices on water quality.

Chair Reeve adjourned the meeting at approximately 4:45 p.m.

State of Oregon

Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item B, Action Item: Mass Load Rule Interpretation – City of Salem Wastewater Treatment Facility
October 22, 2004 EQC Meeting

Department Recommendation

The Department recommends that the Environmental Quality Commission (EQC, Commission) approve this rule interpretation involving the renewal of the National Pollutant Discharge Elimination System (NPDES) Permit for the City of Salem's wastewater treatment facility. The proposed permit (see Attachment A) provides for treatment of longstanding sewage overflows and increases the mass load limits in the permit because treatment cannot remove the entire mass load from the overflows. The Department recommends that the overflows be considered *existing loads* because they are not new and are allowed under the existing permit. As such, the new mass load limits would not be an increase in the allowed load, which is restricted under the EQC 1977 Antidegradation/Growth Policy (see Attachment B).

Background

The City of Salem Willow Lake Water Pollution Control Facility (WLWPCF) serves a population of over 207,000 and discharges to the Willamette River at River Mile 78.4. The WLWPCF can only treat about 105 million gallons of wastewater per day (MGD) as an instantaneous peak flow, and several large raw sewage overflows occur each winter from the collection system. The City was issued a Mutual Agreement and Order (MAO) on January 21, 1998. The MAO requires the City to provide system improvements necessary to comply with rules regarding overflows. As mandated by rule, the MAO requires that the City comply by December 31, 2009. The City of Salem's NPDES permit expired on May 31, 1998, and the Department has proposed renewal of the permit to allow the City to construct the new treatment facilities in time to meet the MAO schedule.

The current facility was built in 1975 and operates under a DEQ issued NPDES permit that covers treatment and discharge of domestic and industrial wastewater. The treatment facility has mass load limits for two parameters, carbonaceous biochemical oxygen demand ($CBOD_5$) and total suspended solids (TSS).

The existing NPDES permit limits during the winter are:

Parameter	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lbs
$CBOD_5$	13,000	19,000	26,000
TSS	16,000	23,000	31,000

In the winter the sewers overflow before they get to the treatment plant. For the worst case month, the sewage overflows are estimated to average 71 MGD, carrying 55,000 lbs/day $CBOD_5$ and 57,000 lbs/day TSS. For the worst case day, the sewage overflows are estimated to be 131 MGD, carrying 101,000 lbs/day $CBOD_5$ and 106,000 lbs/day TSS. These overflows are allowed under the existing permit because they were considered unavoidable, but the $CBOD_5$ and TSS loads are not regularly measured and do not tally against the load limits in the permit.

The City of Salem has proposed construction of a new and innovative Peak Excess Flow Treatment Facility (PEFTF), as well as upgrades at the WLWPCF. The PEFTF will be located about four miles upstream from the WLWPCF to avoid expensive work to increase sewer system capacity. The upgraded and new treatment facilities will essentially eliminate the raw sewage overflows by providing treatment and discharge for flows up to a maximum month average of 205 MGD.

The City of Salem has requested new three tiered mass load limits starting when the "winter monthly average flow" treated by the combined PEFTF and WLWPCF exceeds 90 MGD (winter is defined as November through May). The Department supports the City's request, as described below. The Department is proposing that new $CBOD_5$ and TSS mass load limits be applied to the combined discharges from the WLWPCF and the PEFTF. The proposed limits are:

(1) When monthly average flows are greater than or equal to 90 MGD and less than 110 MGD

Parameter	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lbs
$CBOD_5$	19,000	28,000	38,000
TSS	23,000	34,000	45,000

(2) When monthly average flows are greater than or equal to 110 MGD and less than 140 MGD

Parameter	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum Lbs
$CBOD_5$	23,000	34,000	46,000
TSS	28,000	41,000	55,000

(3) When monthly average flows are greater than or equal to 140 MGD

Parameter	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum Lbs
$CBOD_5$	29,000	44,000	58,000
TSS	35,000	53,000	70,000

Taking into account the existing overflows, the proposed limits represent a net load reduction from current loading because the overflows will be captured and treated. The current maximum WLWPCF monthly load plus the worst case monthly overflows load is estimated to average approximately 68,000 lb/day $CBOD_5$, whereas under the proposed permit the new treatment capacity will lower the load to a monthly average of 29,000 lb/day $CBOD_5$. When the facility upgrades are complete there will be a significant improvement in water quality during winter storm events.

Key Issues

New or Increased Discharged Loads

The purpose of the Antidegradation Policy, OAR 340-041-0004, is to guide decisions "such that unnecessary degradation from new or increased point or nonpoint sources of pollution is prevented" (see Attachment B, page 1 (1)). Specifically, the Growth Policy, OAR 340-041-0004 (2), requires "that growth and development be accomplished by increased efficiency and effectiveness of waste treatment control such that measurable future discharged waste loads from existing sources do not exceed presently allowed discharged loads" (see Attachment B, page 1 (2)).

The permit raises a legal question. How should OAR 340-041-0004(2) be interpreted in situations where the existing municipal permit acknowledges routine overflows but does not quantify the mass load from these discharges? The proposed permit reduces the overall loading to the receiving water but includes nominally larger load limits in the permit because overflows will be treated. For the purposes of applying the Growth Policy, the Department views the existing load to include the overflows, rather than limit it to the mass loads quantified in the existing permit. The Department does consider this to

be a precedent setting action. Previous mass load increase approvals have involved growth and would still have been necessary under this rule interpretation. Likewise, this interpretation would apply to any other community that may be found to have an existing load not related to growth.

Under Oregon law, the courts will give considerable weight to the Commission's interpretation of its own rule. Similar deference is typically not provided to an interpretation made by the Director or Department. Therefore, the Department is recommending that the Commission make the determination.

The proposed limits, antidegradation review, and individual draft findings are detailed in the Draft NPDES Permit (Attachment A) and the Draft NPDES Permit Evaluation Report (Attachment C).

Recommendation
The Department recommends that the Commission approve the determination that the overflows should be counted as existing load when applying the Growth Policy.

EQC Authority

The EQC has the authority to take this action under the Antidegradation Policy, OAR 340-041-0004, and Oregon Revised Statutes 468B.010 to .048, which provide the statutory authority for the Antidegradation Policy.

Summary of Public Comments

The proposed permit was placed on public notice on August 10, 2004 (see Attachment D). A public hearing was held on September 9, 2004 and the public comment period ended on September 20, 2004. Only DEQ and City of Salem staff attended the public hearing and no comments were presented.

Written comments were received from the U.S. Environmental Protection Agency (EPA) and from the Northwest Environmental Defense Center (NEDC); see Attachments E and F. The public comments received only have bearing on the requested EQC action as it relates to the Antidegradation Policy interpretation described above. The recommended EQC action is intended to clarify the distinction between existing load and mass load increases.

DEQ is working separately with EPA to address the other issues raised during public comment process and believes that the proposed permit can be modified to accommodate these concerns. An update on those discussions will be provided to the Commission at the October 22 meeting.

Attachments

A. Draft NPDES Permit
B. Antidegradation Policy/Growth Policy (OAR 340-041-0004)
C. Draft NPDES Permit Evaluation Report with Attachments
D. NPDES Permit Notice of Public Hearing
E. Comment letter from EPA (dated Sept. 17, 2004)
F. Comment letter from NEDC (dated Sept. 20, 2004)

Available Upon Request

- Oregon Administrative Rules

Approved:

Section: MEH

Division: MEH for Kent Nelson

Report Prepared By: Mark E. Hamlin
Phone: (503) 378-8240 x239

SALEM

ATTACHMENT A

PUBLIC NOTICE DRAFT NPDES PERMIT

PUBLIC NOTICE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT

Department of Environmental Quality
Western Region – Salem Office
750 Front Street NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

City of Salem
5915 Windsor Island Road N
Salem, OR 97303

SOURCES COVERED BY THIS PERMIT:

	Type of Waste	Outfall Number	Outfall Location
	Treated Municipal Wastewater		
	WLWPCF Multiport Diffuser	001A	RM 78.4 Willamette R
	WLWPCF Bank Outfall	001B	RM 78.4 Willamette R
	PEFTF Outfall	002A	RM 82.6 Willamette R
	Emergency Overflows:		
North River Rd Overflow	3045 N. River Road	002B	RM 82.6 Willamette R
Union Street Overflow	445 Union Street NE	003	RM 84.0 Willamette R
Claggett Creek Overflow	5450 River Road North	005	R.M. 4.0 Claggett Crk
Airport Pump Station	Air Way Dr. at RR tracks	101	Pringle Creek
Aldersgate Pump Station	Turner & Mill Creek Rd.	102	Mill Creek
Battle Creek Pump Station	Battle Crk on S. Commercial	103	Battle Creek
Birch Pump Station	Turner & Birch St.	104	Mill Creek
Chemawa Pump Station	Indian School Rd. & Blossom	105	Claggett Creek
Church Pump Station	Church & Bellevue	106	Pringle Creek
Cordon Pump Station	5055 Macleay Rd. SE	107	Fruitland Creek
Dearborn Pump Station	Dearborn & Shoreline	108	Willamette River
Elizabeth Pump Station	Elizabeth & Shoreline	109	Willamette River
Ferry Pump Station	Ferry at Front	110	Willamette River
Greenbriar Pump Station	793 Finch Ct. NE	111	Fruitland Creek
Hayesville Pump Station	Hayesville at Harlan	112	Little Pudding River
Jade St. Pump Station	4900 Jade St. NE	113	Pudding Creek
Joplin Pump Station	Joplin & Croisan Scenic Way	114	Croisan Creek
Keizer Pump Station	Keizer and Ridge	115	Claggett Creek
Labish Pump Station	Labish & York	116	Labish Ditch
Larmer Pump Station	Broadway & Belmont	117	Mill Creek
Mahrt Pump Station	Mahrt in the Drive-In Theater	118	Mill Creek
Middlegrove Pump Station	5000 Silverton Rd. NE	119	Pudding Creek
Mission Pump Station	West end of Mission St.	120	Willamette River
Rivercrest Pump Station	Rivercrest & Dennis	121	Willamette River
Sandra Lane Pump Station	Turner & Sandra Ln.	122	Mill Creek
Satter Pump Station	Lancaster & Satter	123	Claggett Creek
State Pump Station	State & Cougar Ct.	124	Fruitland Creek
Stoneway Pump Station	Stoneway & Dallas Hwy.	125	Willamette River
Sunset Meadows Pump Station	5350 Landon St. SE	126	Willamette River
Turner Pump Station	Turner & 5th St.	127	Mill Creek
Wallace Pump Station	Wallace Rd. & Musgrave	128	Willamette River
West Salem Pump Station	Wallace Rd. & Brush College	129	Glen Creek
Windstone Pump Station	4974 Windstone Wy. NE	130	Fruitland Creek
Manhole 36-454-037	Cumberland Ct. at Boone Rd. SE	131	Pringle Creek
Manhole 36-454-079	Arlene Ave. & Clarence Ct. SE	132	Pringle Creek
Manhole 36-474-023	Rosemont at Ruge St. NW	133	Storm Drain to Willamette River
Manhole 36-474-041	Gerth at 3rd St. NW	134	Storm Drain to Willamette River
Manhole 39-460-033	N of Ewald Ave. & Seneca St. SE	135	Clark Creek
Manhole 39-470-040	Saginaw at Miller SE	136	Storm Drain to Willamette Slough

Emergency Overflows (continued):

		Outfall Number	Outfall Location
Manhole 42-454-002	Boxwood Ln at 7th Ave. SE	137	Storm Drain to Pringle Creek
Manhole 42-462-010	Ratcliff at Willow Ct. SE	138	Clark Creek
Manhole 42-462-037	S of Vista Ave. & Winter St. SE	139	Clark Creek
Manhole 42-464-065	N of Vista Ave. & Summer St. SE	140	Clark Creek
Manhole 42-464-073	N of Vista Ave. & Bluff SE	141	Clark Creek
Manhole 42-468-084	N of Leffelle St. & Yew St. SE	142	Pringle Creek
Manhole 42-472-038	Church St. N of Leslie St. SE	143	Pringle Creek
Manhole 45-460-087	S of 1888 Ewald Ave. SE	144	Pringle Creek
Manhole 45-468-002	Cross St. & 13th St. SE	145	Pringle Creek
Manhole 45-468-062	20th St. S of Mission St. SE	146	Shelton Ditch
Manhole 45-474-074	B St. & 14th St. NE	147	Storm Drain to Mill Creek
Manhole 45-478-045	Jefferson St. & Fairgrounds Rd NE	148	Storm Drain to Willamette River
Manhole 45-480-065	Myrtle at Highland NE	149	Storm Drain to Willamette River
Manhole 45-480-068	Myrtle at Academy NE	150	Storm Drain to Willamette River
Manhole 45-484-032	E of Salem Parkway & Broadway St. NE	151	Storm Drain to Willamette River
Manhole 48-458-025	Strong Rd at Reed Rd SE	152	Pringle Creek
Manhole 48-474-032	"B" St. at 19th	153	Storm Drain to Mill Creek
Manhole 48-476-032	Kansas W of 17th St. NE	154	Storm Drain to Mill Creek
Manhole 48-476-044	Nebraska St. E of 17th St. NE	155	Storm Drain to Claggett Creek
Manhole 51-474-032	D St. at Evergreen NE	156	Storm Drain to Claggett Creek
Manhole 51-474-039	Park Ave. N of D St. NE	157	Storm Drain to Willamette River
Manhole 51-476-040	Market St. at Evergreen NE	158	Storm Drain to Claggett Creek
Manhole 51-476-059	Englewood at Evergreen NE	159	Storm Drain to Claggett Creek
Manhole 51-476-069	Englewood at Park Ave. NE	160	Storm Drain to Claggett Creek
Manhole 51-478-004	Grant E of 19th St. NE	161	Storm Drain to Willamette River
Manhole 51-486-013	Wayside Terrace E of Portland Rd NE	162	Claggett Creek
Manhole 57-484-019	Sandringham N of Silverton Rd NE	163	Claggett Creek
Manhole 60-488-037	Satter Dr. E of Merrimac Ct NE	164	Storm Drain to Claggett Creek
Manhole 63-468-004	Arrowood Ct W of Cordon Rd. SE	165	Storm Drain to Fruitland Creek
Manhole 63-468-007	Powderhorn Ct W of Cordon Rd. SE	166	Storm Drain to Fruitland Creek

FACILITY TYPE AND LOCATION:

Activated Sludge - Trickling Filter
Willow Lake Wastewater Treatment Plant
5915 Windsor Island Road N
Salem, Oregon
Treatment System Class: Level IV
Collection System Class: Level IV

RECEIVING STREAM INFORMATION:

Basin: Willamette
Sub-Basin: Middle Willamette
Receiving Stream: Willamette River
LLID: 1227618456580 - 78.4 - D
County: Marion

EPA REFERENCE NO: OR002640-9

Issued in response to Application No. 991640 received December 15, 1997. This permit is issued based on the land use findings in the permit record.

Michael H. Kortenhof, Western Region Water Quality Manager Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system and discharge to public waters adequately treated wastewaters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	Page
Schedule A - Waste Discharge Limitations not to be Exceeded	4
Schedule B - Minimum Monitoring and Reporting Requirements	7
Schedule C - Compliance Conditions and Schedules	12
Schedule D - Special Conditions	13
Schedule E - Pretreatment Activities	16
Schedule F - General Conditions	18

Unless specifically authorized by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge to waters of the state is prohibited, including discharge to an underground injection control system.

SCHEDULE A

1. Waste Discharge Limitations not to be exceeded after permit issuance (see Note 1).

a. Treated Effluent Outfall 001A, Outfall 001B and Outfall 002A (see Note 2)

(1) June 1 - October 31:

Parameter	Average Effluent Concentrations* Monthly	Weekly	Monthly** Average lb/day	Weekly** Average lb/day	Daily** Maximum lbs
$CBOD_5$ (See Note 3)	32 mg/L	40 mg/L	9,300	12,000	14,000
TSS	37 mg/L	45 mg/L	11,000	13,000	15,000

(2) November 1 - May 31 (when monthly average flows are up to 90 MGD):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly*** Average lb/day	Weekly*** Average lb/day	Daily*** Maximum lbs
$CBOD_5$ (See Note 3)	25 mg/L	40 mg/L	13,000	19,000	26,000
TSS	30 mg/L	45 mg/L	16,000	23,000	31,000

(3) November 1 - May 31 (when monthly average flows are greater than or equal to 90 MGD and less than 110 MGD):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly**** Average lb/day	Weekly**** Average lb/day	Daily**** Maximum lbs
$CBOD_5$ (See Note 3)	25 mg/L	40 mg/L	19,000	28,000	38,000
TSS	30 mg/L	45 mg/L	23,000	34,000	45,000

(4) November 1 - May 31 (when monthly average flows are greater than or equal to 110 MGD and less than 140 MGD):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly**** Average lb/day	Weekly**** Average lb/day	Daily**** Maximum lbs
$CBOD_5$ (See Note 3)	25 mg/L	40 mg/L	23,000	34,000	46,000
TSS	30 mg/L	45 mg/L	28,000	41,000	55,000

(5) November 1 - May 31 (when monthly average flows are greater than or equal to 140 MGD):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly**** Average lb/day	Weekly**** Average lb/day	Daily**** Maximum lbs
$CBOD_5$ (See Note 3)	25 mg/L	40 mg/L	29,000	44,000	58,000
TSS	30 mg/L	45 mg/L	35,000	53,000	70,000

* These concentration limits are less stringent than the minimum design criteria found in OAR 340-041-0345. Upgrading to the more stringent requirements will be deferred until it is necessary to expand or otherwise modify or replace the existing secondary treatment facilities.

** The summer mass load limits are based on the average dry weather flow to the facility of 35 MGD. The daily mass load limit is suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

*** The low flow winter mass load limits are based on the average wet weather flow to the facility of 62 MGD. The daily mass load limit is suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

**** The high flow winter period mass load limits are based on the minimum month average flow for the appropriate range and the concentration limit. The daily mass load limit is suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

(6) Other Parameters (year-round except as noted)

Parameter	Limitations
E. coli Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 4)
Total Residual Chlorine	Shall not exceed a monthly average concentration of 0.09 mg/L and a daily maximum concentration of 0.23 mg/L. (See Note 5)
pH	Shall be within the range of 6.0 - 9.0
$CBOD_5$ Removal Efficiency (on a monthly average concentration basis)	(1) Shall not be less than 85% when monthly average daily flow is 54 MGD or less (2) Shall not be less than 78% when monthly average daily flow is greater than 54 MGD but less than 90 MGD (3) Shall not be less than 65% when monthly average daily flow is greater than 90 MGD
TSS Removal Efficiency (on a monthly average concentration basis)	(1) Shall not be less than 85% when monthly average daily flow is 54 MGD or less (2) Shall not be less than 72% when monthly average daily flow is greater than 54 MGD

(7) Except as provided for in OAR 340-045-0080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041 except in the following defined mixing zone:

The allowable mixing zone for Outfall 001A is that portion of the Willamette River contained within a band extending out ten (10) feet from each side of the discharge diffuser and extending from a point ten (10) feet upstream of the diffuser to a point one hundred fifty (150) feet downstream from the diffuser. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

The allowable mixing zone for Outfall 001B is that portion of the Willamette River contained within a band extending out twenty (20) feet from the east bank of the river and extending from a point ten (10) feet upstream of the discharge to a point one hundred fifty (150) feet downstream from the discharge. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

b. Treated Effluent Outfall 002A Peak Excess Flow Treatment Facility (PEFTF)
These limitation become effective upon initiating operations of the PEFTF

(1) November 1 - May 31 (when discharging):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lbs
$CBOD_5$ (See Note 3)	25 mg/L	40 mg/L	(See Note 2)	(See Note 2)	(See Note 2)
TSS	30 mg/L	45 mg/L	(See Note 2)	(See Note 2)	(See Note 2)

(2) Other Parameters (November 1 - May 31 when discharging)

Parameter	Limitations
E. coli Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 4)
pH	Shall be within the range of 6.0 - 9.0

(3) Except as provided for in OAR 340-045-0080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041 except in the following defined mixing zone:

The allowable mixing zone for Outfall 002A is that portion of the Willamette River contained within a band extending out twenty (20) feet on each side of the discharge and extending from a point ten (10) feet upstream of the discharge to a point one hundred fifty (150) feet downstream from the discharge. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

(4) Discharges from the PEFTF shall be limited to those periods when the secondary treatment capacity of the Willow Lake Wastewater Treatment Plant has been or is likely to be exceeded.

c. Emergency Overflow Outfalls 002B through 166

(1) No wastes shall be discharged from these outfalls, unless the cause of the discharge is due to storm events as allowed under OAR 340-041-0009 (6) or (7) as follows:

(2) Raw sewage discharges are prohibited to waters of the State from May 22 through October 31, except during a storm event greater than the one-in-ten-year, 24-hour duration storm. If an overflow occurs between May 22 and June 1, and if the permittee demonstrates to the Department's satisfaction that no increase in risk to beneficial uses occurred because of the overflow, no violation shall be triggered if the storm associated with the overflow was greater than the one-in-five-year, 24-hour duration storm.

d. No activities shall be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals shall be managed and disposed in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR 340-040).

NOTES:

1. At the point of discharge, the Willamette River is water quality limited for temperature (summer), fecal coliform (fall, winter and spring), dissolved oxygen during the spawning season, iron and mercury year-round and biological criteria (due to skeletal deformities in juvenile Northern Pike Minnow). Just downstream from the discharge, the Willamette River is water quality limited for several toxic parameters (PCB, aldrin, dieldrin, DDT and DDE) year around. A Total Maximum Daily Load (TMDL) has not been issued for any of these parameters at the time of permit issuance. Upon EPA approval of a TMDL addressing any of these pollutants, this permit may be reopened to include any Waste Load Allocation (WLA), best management practice or any other condition required by the TMDL.

2. The $CBOD_5$ and TSS concentration limits and all other parameter limits in Schedule A, Condition 1.a. apply to the discharge from Outfalls 001A and 001B. The $CBOD_5$ and TSS concentration limits and all other parameter limits in Schedule A, Condition 1.b. apply to the discharge from Outfall 002A. The $CBOD_5$ and TSS mass load limits in Schedule A, Condition 1.a. apply to the combined discharge from Outfalls 001A, 001B and 002A.

3. The $CBOD_5$ concentration limits are considered equivalent to the minimum design criteria for BOD_5 specified in Oregon Administrative Rules (OAR) 340-041. These limits and $CBOD_5$ mass limits may be adjusted (up or down) by permit action if more accurate information regarding $CBOD_5/BOD_5$ becomes available.

4. If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at four-hour intervals beginning within 28 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.

5. When the total residual chlorine limitation is lower than 0.10 mg/L, the Department will use 0.10 mg/L as the compliance evaluation level (i.e. daily maximum concentrations below 0.10 mg/L will be considered in compliance with the limitation).

SCHEDULE B

1. **Minimum Monitoring and Reporting Requirements to be met after permit issuance** (unless otherwise approved in writing by the Department)

The permittee shall monitor the parameters as specified below at the locations indicated. The laboratory used by the permittee to analyze samples shall have a quality assurance/quality control (QA/QC) program to verify the accuracy of sample analysis. If QA/QC requirements are not met for any analysis, the results shall be included in the report, but not used in calculations required by this permit. When possible, the permittee shall re-sample in a timely manner for parameters failing the QA/QC requirements, analyze the samples, and report the results.

a. Influent

The facility influent grab samples and measurements and composite samples are taken in the headworks just downstream of the bar screens. The composite sampler is located next to the barscreen building

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Flow Meter Calibration	Quarterly	Verification
$CBOD_5$	3/Week	Composite
TSS	3/Week	Composite
pH	Daily	Continuous
Toxics:		
Metals (Ag, As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, Zn) & Cyanide, measured as total in mg/L (See Note 1)	Quarterly using 3 consecutive days between Monday and Friday, inclusive	24-hour daily composite (See Note 2)

b. Treated Effluent Outfall 001A and Outfall 001B

The facility effluent grab and composite samples and all measurements are taken from the 72-inch outfall just downstream from the final combined effluent flow control box except bacteria samples which are taken from the end of the chlorine contact basin. The composite sampler is located adjacent to the box.

Item or Parameter	Minimum Frequency	Type of Sample
$CBOD_5$	3/Week	Composite
Ammonia (NH3-N)	3/Week	Composite
TSS	3/Week (see Note 3)	Composite
Hardness (mg/L $CaCO_3$)	See Notes 3 and 9	Grab
pH	Daily	Continuous
Dissolved Oxygen	3/Week	Grab
E. coli	3/Week	Grab (See Note 5)
Quantity Chlorine Used	Daily	Measurement
Chlorine Residual	Daily	Grab
Pounds Discharged ($CBOD_5$ and TSS)	3/Week	Calculation
Average Percent Removed ($CBOD_5$ and TSS)	Monthly	Calculation
Temperature:		
Effluent Temperature, Daily Maximum	Daily	Continuous (see Note 6)
Nutrients:		
TKN, NO2+NO3-N, Total Phosphorus	1/Week (May-Oct)	24-hour Composite
Toxics:		
Metals (Ag, As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, Zn) & Cyanide, measured as total in mg/l (See Notes 1, 3 and 4)	Quarterly using 3 consecutive days between Monday and Friday, inclusive	24-hour daily composite (See Note 2)

b. Treated Effluent Outfall 001A and Outfall 001B (continued)

Item or Parameter	Minimum Frequency	Type of Sample
Toxics (continued)		
Iron	Monthly (see Note 7)	24-hour daily composite
Whole Effluent Toxicity	Annually (See Note 8)	Acute & chronic
Priority Pollutants	(See Note 9)	24-hour Composite

c. Treated Effluent Outfall 002A Peak Excess Flow Treatment Facility (PEFTF)
These monitoring requirements become effective upon initiating operations of the PEFTF

The facility effluent grab and composite samples and all measurements are taken downstream from the UV lamps. The composite sampler is located in the UV room downstream from the UV lamps.

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Flow Meter Calibration	Quarterly	Verification
$CBOD_5$	Daily (when discharging for longer than 2 hours during any calendar day) (see Note 16)	Composite
Ammonia (NH3-N)	Daily (when discharging for longer than 2 hours during any calendar day)	Composite
TSS	Daily (when discharging for longer than 2 hours during any calendar day) (see Notes 3 and 16)	Composite
Hardness (mg/L $CaCO_3$)	See Note 9	Grab
pH	Daily (when discharging for longer than 2 hours during any calendar day)	Continuous
E. coli	Daily (when discharging for longer than 2 hours during any calendar day)	Grab (See Note 5)
UV Radiation Intensity	Daily (when discharging for longer than 2 hours during any calendar day)	Reading (See Note 10)
Pounds Discharged ($CBOD_5$ and TSS)	Daily (when discharging for longer than 2 hours during any calendar day)	Calculation
Toxics:		
Metals (measured as total in mg/L), Cyanide and organic Priority Pollutants	Annually (see Note 17)	24-hour daily composite (see Note 1)
Iron	Monthly (when discharging for longer than 2 hours during any calendar day) (see Note 7)	24-hour daily composite
Whole Effluent Toxicity	Annually	Acute

d. Biosolids Management (see Note 11)

Item or Parameter	Minimum Frequency	Type of Sample
Sludge analysis including: Total Solids (% dry wt.) Volatile solids (% dry wt.) Biosolids nitrogen for: NH_3-N; NO_3-N; & TKN (% dry wt.) Phosphorus (% dry wt.) Potassium (% dry wt.) pH (standard units)	Quarterly	Composite sample to be representative of the product prior to being sold or given away (See Note 12)
Sludge metals content for: Ag, As, Cd,	Quarterly	Composite sample to be

Cr, Cu, Hg, Mo, Ni, Pb, Se & Zn, measured as total in mg/kg		representative of the product prior to being sold or given away (See Note 12)
Record of % volatile solids reduction accomplished through stabilization	Monthly	Calculation (See Note 13)
Record of digestion days (mean cell residence time)	Monthly	Calculation (See Note 14)

d. Biosolids Management (continued)

Item or Parameter	Minimum Frequency	Type of Sample
Daily Minimum Sludge Temperature	Daily	Record
Record of locations where Class B biosolids are applied on each DEQ approved site. (Site location maps to be maintained at treatment facility for review upon request by DEQ)	Each Occurrence	Record of date, volume & locations where biosolids were applied recorded on site location map.

e. Emergency Overflow Outfalls 002B through 166

Item or Parameter	Minimum Frequency	Type of Sample
Flow	Daily (during each occurrence)	Estimate duration and volume

f. Willamette River

Item or Parameter	Minimum Frequency	Type of Sample
Cadmium measured as total in mg/L	Semi-annually during one day of the 3 consecutive days of effluent monitoring (See Note 15)	Grab
TSS	See Note 15	Grab
Hardness (mg/L $CaCO_3$)	See Note 15	Grab

2. **Reporting Procedures**

a. Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the appropriate Department office by the 15th day of the following month.

b. State monitoring reports shall identify the name, certificate classification and grade level of each principal operator designated by the permittee as responsible for supervising the wastewater collection and treatment systems during the reporting period. Monitoring reports shall also identify each system classification as found on page one of this permit.

c. Monitoring reports shall also include a record of the quantity and method of use of all sludge removed from the treatment facility and a record of all applicable equipment breakdowns and bypassing.

3. **Report Submittals**

a. The permittee shall have in place a program to identify and reduce inflow and infiltration into the sewage collection system. An annual report shall be submitted to the Department by September 1 each year, which details sewer collection maintenance activities that reduce inflow and infiltration. The report shall state those activities that have been done in the previous year and those activities planned for the following year. The report shall clearly indicate those activities conducted in accordance with the updated Inflow Removal Plan required by Schedule C, Condition 1. If any

activities required by the Plan are not conducted, the report shall include a strategy for coming back into compliance with the Plan.

b. For any year in which biosolids are land applied, a report shall be submitted to the Department by February 19 of the following year that describes solids handling activities for the previous year and includes, but is not limited to, the required information outlined in OAR 340-050-0035(6)(a)-(e).

c. An annual report covering effluent temperature monitoring done in the calendar year is due by February 15th of the following year. The report shall also include results of any temperature monitoring conducted on the influent, sidestreams or the Willamette River. The report shall include calculations of the weekly averages of the daily maximum temperatures of the effluent. Effluent monitoring data may be submitted electronically to the Department.

NOTES:

1. For influent and effluent cyanide samples, at least six (6) discrete grab samples shall be collected over the operating day. Each aliquot shall not be less than 100 mL and shall be collected and composited into a larger container, which has been preserved with sodium hydroxide for cyanide samples to insure sample integrity.

2. Daily 24-hour composite samples shall be analyzed and reported separately. Toxic monitoring results and toxics removal efficiency calculations shall be tabulated and submitted with the Pretreatment Program Annual Report as required in Schedule E. Submittal of toxic monitoring results with the monthly Discharge Monitoring Report is not required.

3. During the first two years after permit issuance, special monitoring for cadmium shall be conducted on the effluent during at least one of the three consecutive days of quarterly monitoring. TSS and hardness shall be monitored simultaneously. The special monitoring for cadmium shall be conducted using a "clean" sampling method, an "ultra-clean" sampling method, EPA method 1669 or any other test method approved by the Department. After the first two years, special monitoring of the effluent for cadmium may be eliminated unless otherwise notified in writing by the Department. For all tests, the method detection limit shall be reported along with the sample result.

4. During the first two years after permit issuance, special monitoring for mercury shall be conducted on the effluent at least semi-annually during at least one of the three consecutive days of quarterly monitoring. The special monitoring for mercury shall be conducted in accordance with EPA Method 1631. At the permittee's option, the results of the special monitoring may be used for one or more of the three consecutive days monitoring that is required on a quarterly basis. After the first two years, special monitoring of the effluent for mercury may be eliminated unless otherwise notified in writing by the Department. For all tests, the method detection limit shall be reported along with the sample result.

5. *E. coli* monitoring must be conducted according to any of the following test procedures as specified in **Standard Methods for the Examination of Water and Wastewater, 19th Edition**, or according to any test procedure that has been authorized and approved in writing by the Director or an authorized representative:

Method	Reference	Page	Method Number
mTEC agar, MF	Standard Methods, 18th Edition	9-29	9213 D
NA-MUG, MF	Standard Methods, 19th Edition	9-63	9222 G
Chromogenic Substrate, MPN	Standard Methods, 19th Edition	9-65	9223 B
Colilert QT	Idexx Laboratories, Inc.		

When continuous monitors are used, indicate the time interval between temperature readings, and results are to be tabulated and submitted in an annual report. Continuous temperature monitors must be audited in June and December, following procedures described in DEQ Procedural Guidance for Water Temperature Monitoring. Continuous temperature monitors are to be checked visually monthly to insure that the devices are still in place and submerged.

7. During the first year after permit issuance, monitoring for iron shall be conducted on Outfalls 001A and 001B at the frequency specified. During the first year after start up, monitoring for iron shall be conducted on Outfall 002A at the frequency specified. The method detection limit must be lower than 0.3 mg/L. After the first year of iron monitoring, iron monitoring of the effluent may be eliminated unless otherwise notified in writing by the Department. For all tests, the method detection limit shall be reported along with the sample result.

8. Beginning no later than calendar year 2005, the permittee shall conduct Whole Effluent Toxicity testing for a period of four (4) years in accordance with the frequency specified above. If the Whole Effluent Toxicity tests show that the effluent samples are not toxic at the dilutions determined to occur at the Zone of Immediate Dilution and the Mixing Zone, no further Whole Effluent Toxicity testing will be required during this permit cycle. Note that four Whole Effluent Toxicity test results will be required along with the next NPDES permit renewal application.

9. The permittee shall perform all testing required in Part D of EPA Form 2A. The testing includes all metals (total recoverable), cyanide, phenols, hardness and the 85 pollutants included under volatile organic, acid extractable and base-neutral compounds. In addition, the permittee shall monitor for the pesticide pollutants listed in Table II of Appendix D of 40 CFR Part 122. Three scans are required during the 4 ½ years after permit issuance. Two of the three scans must be performed no fewer than 4 months and no more than 8 months apart. The effluent samples shall be 24-hour daily composites, except where sampling volatile compounds. In this case, six (6) discrete samples (not less than 40 mL) collected over the operating day are acceptable. The permittee shall take special precautions in compositing the individual grab samples for the volatile organics to insure sample integrity (i.e. no exposure to the outside air). Alternately, the discrete samples collected for volatiles may be analyzed separately and averaged.

10. The intensity of UV radiation passing through the water column will affect the systems ability to kill organisms. To track the reduction in intensity, the UV disinfection system must include a UV intensity meter with a sensor located in the water column at a specified distance from the UV bulbs. This meter will measure the intensity of UV radiation in mWatts-seconds/cm2. The daily UV radiation intensity shall be determined by reading the meter each day. If more than one meter is used, the daily recording will be an average of all meter readings each day.

11. If alternative methods of demonstrating compliance with federal pathogen reduction and/or vector attraction reduction requirements are used, the monitoring and sampling frequency shall be based on 40 CFR Part 503 and shall conform to the approved Biosolids Management Plan.

12. Composite samples from the digester withdrawal line shall consist of at least 4 aliquots of equal volume collected over an 8 hour period and combined.

    Inorganic pollutant monitoring must be conducted according to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Second Edition (1982) with Updates I and II and third Edition (1986) with Revision I.

13. Calculation of the % volatile solids reduction is to be based on comparison of a representative grab sample of total and volatile solids entering each digester (a weighted blend of the primary and secondary clarifier solids) and a representative composite sample of solids exiting each digester withdrawal line (as defined in note 11 above).

14. The days of digestion shall be calculated by dividing the effective digester volume by the average daily volume of sludge production.

15. During the first two years after permit issuance, the Willamette River shall be monitored for cadmium, TSS and hardness when special monitoring of effluent cadmium is conducted (see Note 3). The Willamette River monitoring for cadmium shall be conducted using a "clean" sampling method, an "ultra-clean" sampling method, EPA method 1669 or any other test method approved by the Department. After the first two years,

Willamette River monitoring may be eliminated. For all tests, the method detection limit shall be reported along with the sample result. The Willamette River shall be sampled for hardness and TSS at the same time the river is sampled for metals.

16. It is anticipated that the Peak Excess Flow Treatment Facility (PEFTF) will discharge to Outfall 002A on an intermittent basis as necessary to prevent sanitary sewer overflows. The weekly average effluent concentration limits shall be reported for all discharges from the PEFTF having a duration of 7 days or less continuous discharge. The monthly average effluent concentration limits shall be reported for all discharges from the PEFTF having a duration of greater than 7 days continuous discharge in the month or when the total number of days of PEFTF operation during the month exceeds 15 days.

17. The permittee shall perform all testing required in Part D of EPA Form 2A. The testing includes all metals (total recoverable), cyanide, phenols, hardness and the 85 pollutants included under volatile organic, acid extractable and base-neutral compounds. In addition, the permittee shall monitor for the pesticide pollutants listed in Table II of Appendix D of 40 CFR Part 122. Annually during any year the facility is operated, scans are required during each winter operational season after facility start up. The effluent samples shall be 24-hour daily composites (except where sampling volatile compounds) or the operating day, which ever is shorter. In the case of volatile compounds, one or more discrete samples (not less than 40 mL) collected every four hours over the operating day are acceptable. The permittee shall take special precautions in compositing the individual grab samples for the volatile organics to insure sample integrity (i.e. no exposure to the outside air). Alternately, the discrete samples collected for volatiles may be analyzed separately and averaged. During the first two years after start up, monitoring for mercury shall be conducted in accordance with EPA Method 1631.

SCHEDULE C

Compliance Schedules and Conditions

1. Within 180 days of permit issuance, the permittee shall submit to the Department for review and approval a proposed updated program and time schedule for identifying and reducing inflow. Within 60 days of receiving written Department comments, the permittee shall submit a final approvable program and time schedule. The program shall consist of the following:

   a. Identification of all overflow points and verification that sewer system overflows are not occurring up to a 24-hour, 5-year storm event or equivalent;

   b. Monitoring of all pump station overflow points;

   c. A program for identifying and removing all inflow sources into the permittee's sewer system over which the permittee has legal control; and

   d. If the permittee does not have the necessary legal authority for all portions of the sewer system or treatment facility, a program and schedule for gaining legal authority to require inflow reduction and a program and schedule for removing inflow sources.

2. Within two (2) years of initiating operations at the Peak Excess Flow Treatment Facility (PEFTF), the permittee shall submit the results of a mixing zone study that indicates the dilutions available during periods when the facility might be in operation.

3. The permittee is expected to meet the compliance dates which have been established in this schedule. Either prior to or no later than 14 days following any lapsed compliance date, the permittee shall submit to the Department a notice of compliance or noncompliance with the established schedule. The Director may revise a schedule of compliance if he/she determines good and valid cause resulting from events over which the permittee has little or no control.

SCHEDULE D

Special Conditions

1. Unless otherwise approved in writing by the Department, all inflow sources are to be permanently disconnected from the sanitary sewer system in accordance with the program for identifying and removing all inflow sources required by Schedule C, Condition 1.

2. All biosolids shall be managed in accordance with the current, DEQ approved biosolids management plan, and the site authorization letters issued by the DEQ. Any changes in solids management activities that significantly differ from operations specified under the approved plan require the prior written approval of the DEQ.

   All new biosolids application sites shall meet the site selection criteria set forth in OAR 340-050-0070 and must be located within state of Oregon. All currently approved sites are located in state of Oregon. No new public notice is required for the continued use of these currently approved sites. Property owners adjacent to any newly approved application sites shall be notified, in writing or by any method approved by DEQ, of the proposed activity prior to the start of application. For proposed new application sites that are deemed by the DEQ to be sensitive with respect to residential housing, runoff potential or threat to groundwater, an opportunity for public comment shall be provided in accordance with OAR 340-050-0030.

3. This permit may be modified to incorporate any applicable standard for biosolids use or disposal promulgated under section 405(d) of the Clean Water Act, if the standard for biosolids use or disposal is more stringent than any requirements for biosolids use or disposal in the permit, or controls a pollutant or practice not limited in this permit.

4. **Whole Effluent Toxicity Testing**

   a. The permittee shall conduct whole effluent toxicity tests as specified in Schedule B of this permit.

   b. Whole Effluent Toxicity tests may be dual end-point tests, only for the fish tests, in which both acute and chronic end-points can be determined from the results of a single chronic test (the acute end-point shall be based upon a 48-hour time period).

   c. Acute Toxicity Testing - Organisms and Protocols

      (1) The permittee shall conduct 48-hour static renewal tests with the *Ceriodaphnia dubia* (water flea) and the *Pimephales promelas* (fathead minnow).

      (2) The presence of acute toxicity will be determined as specified in **Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms**, Fourth Edition, EPA/600/4-90/027F, August 1993.

      (3) An acute Whole Effluent Toxicity test shall be considered to show toxicity if there is a statistically significant difference in survival between the control and 100 percent effluent, unless the permit specifically provides for a Zone of Immediate Dilution (ZID) for biotoxicity. If the permit specifies such a ZID, acute toxicity shall be indicated when a statistically significant difference in survival occurs at dilutions greater than that which is found to occur at the edge of the ZID. Until the mixing zone study for Outfall 002A is complete, an assumed dilution of 4:1 will be used to evaluate acute toxicity at the ZID. Upon completion of the study, the actual dilution will be used.

   d. Chronic Toxicity Testing - Organisms and Protocols

      (1) The permittee shall conduct tests with: *Ceriodaphnia dubia* (water flea) for reproduction and survival test endpoint, *Pimephales promelas* (fathead minnow) for growth and survival test endpoint, and *Raphidocelis subcapitata* (green alga formerly known as *Selanastrum capricornutum*) for growth test endpoint.

(2) The presence of chronic toxicity shall be estimated as specified in **Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, Third Edition, EPA/600/4-91/002, July 1994.

(3) A chronic Whole Effluent Toxicity test shall be considered to show toxicity if a statistically significant difference in survival, growth, or reproduction occurs at dilutions greater than that which is known to occur at the edge of the mixing zone. If there is no dilution data for the edge of the mixing zone, any chronic Whole Effluent Toxicity test that shows a statistically significant effect in 100 percent effluent as compared to the control shall be considered to show toxicity.

e. Quality Assurance

(1) Quality assurance criteria, statistical analyses and data reporting for the Whole Effluent Toxicity tests shall be in accordance with the EPA documents stated in this condition and the Department's **Whole Effluent Toxicity Testing Guidance Document**, January 1993.

f. Evaluation of Causes and Exceedances

(1) If toxicity is shown, as defined in sections c.(3) or d.(3) of this permit condition, another toxicity test using the same species and Department approved methodology shall be conducted within two weeks, unless otherwise approved by the Department. If the second test also indicates toxicity, the permittee shall follow the procedure described in section f.(2) of this permit condition.

(2) If two consecutive Whole Effluent Toxicity test results indicate acute and/or chronic toxicity, as defined in sections c.(3) or d.(3) of this permit condition, the permittee shall evaluate the source of the toxicity and submit a plan and time schedule for demonstrating compliance with water quality standards. Upon approval by the Department, the permittee shall implement the plan until compliance has been achieved. Evaluations shall be completed and plans submitted to the Department within 6 months unless otherwise approved in writing by the Department.

g. Reporting

(1) Along with the test results, the permittee shall include: 1. the dates of sample collection and initiation of each toxicity test; 2. the flow rate at the time of sample collection. Effluent at the time of sampling for Whole Effluent Toxicity testing should include analytical results of samples of required parameters stated under Schedule B, condition 1 of this permit.

(2) The permittee shall make available to the Department, on request, the written standard operating procedures they, or the laboratory performing the Whole Effluent Toxicity tests, are using for all toxicity tests required by the Department.

h. Reopener

(1) If Whole Effluent Toxicity testing indicates acute and/or chronic toxicity, the Department may reopen and modify this permit to include new limitations and/or conditions as determined by the Department to be appropriate, and in accordance with procedures outlined in Oregon Administrative Rules, Chapter 340, Division 45.

5. The permittee shall comply with Oregon Administrative Rules (OAR), Chapter 340, Division 49, "Regulations Pertaining To Certification of Wastewater System Operator Personnel" and accordingly:

a. The permittee shall have its wastewater system supervised by one or more operators who are certified in a classification and grade level (equal to or greater) that corresponds with the classification (collection and/or treatment) of the system to be supervised as specified on page one of this permit.

Note: A "supervisor" is defined as the person exercising authority for establishing and executing the specific practice and procedures of operating the system in accordance with the policies of the permittee and requirements of the waste discharge permit. "Supervise" means responsible for the technical operation of a system, which may affect its performance or the quality of the effluent produced. Supervisors are not required to be on-site at all times.

b. The permittee's wastewater system may not be without supervision (as required by Special Condition 5.a. above) for more than thirty (30) days. During this period, and at any time that the supervisor is not available to respond on-site (i.e. vacation, sick leave or off-call), the permittee must make available another person who is certified at no less than one grade lower then the system classification.

c. If the wastewater system has more than one daily shift, the permittee shall have the shift supervisor, if any, certified at no less than one grade lower than the system classification.

d. The permittee is responsible for ensuring the wastewater system has a properly certified supervisor available at all times to respond on-site at the request of the permittee and to any other operator.

e. The permittee shall notify the Department of Environmental Quality in writing within thirty (30) days of replacement or redesignation of certified operators responsible for supervising wastewater system operation. The notice shall be filed with the Water Quality Division, Operator Certification Program, 811 SW 6th Ave, Portland, OR 97204. This requirement is in addition to the reporting requirements contained under Schedule B of this permit.

f. Upon written request, the Department may grant the permittee reasonable time, not to exceed 120 days, to obtain the services of a qualified person to supervise the wastewater system. The written request must include justification for the time needed, a schedule for recruiting and hiring, the date the system supervisor availability ceased and the name of the alternate system supervisor(s) as required by 5.b. above.

6. The permittee shall notify the DEQ Western Region - Salem Office (phone: (503) 378-8240) in accordance with the response times noted in the General Conditions of this permit, of any malfunction so that corrective action can be coordinated between the permittee and the Department.

7. The permittee shall not be required to perform a hydrogeologic characterization or groundwater monitoring during the term of this permit provided:

a. The facilities are operated in accordance with the permit conditions, and;

b. There are no adverse groundwater quality impacts (complaints or other indirect evidence) resulting from the facility's operation.

If warranted, at permit renewal the Department may evaluate the need for a full assessment of the facilities impact on groundwater quality.

SCHEDULE E

Pretreatment Activities

The permittee shall implement the following pretreatment activities:

1. The permittee shall conduct and enforce its Pretreatment Program, as approved by the Department, and comply with the General Pretreatment Regulations (40 CFR Part 403). The permittee shall secure and maintain sufficient resources and qualified personnel to carry out the program implementation procedures described in this permit.

2. The permittee shall adopt all legal authority necessary to fully implement its approved pretreatment program and to comply with all applicable State and Federal pretreatment regulations. The permittee must also establish, where necessary, contracts or agreements with contributing jurisdictions to ensure compliance with pretreatment requirements by industrial users within these jurisdictions. These contracts or agreements shall identify the agency responsible for all implementation and enforcement activities to be performed in the contributing jurisdictions. Regardless of jurisdictional situation, the permittee is responsible for ensuring that all aspects of the pretreatment program are fully implemented and enforced.

3. The permittee shall update its inventory of industrial users at a frequency and diligence adequate to ensure proper identification of industrial users subject to pretreatment standards, but no less than once per year. The permittee shall notify these industrial users of applicable pretreatment standards in accordance with 40 CFR § 403.8(f)(2)(iii).

The permittee shall enforce categorical pretreatment standards promulgated pursuant to Section 307(b) and (c) of the Act, prohibited discharge standards as set forth in 40 CFR § 403.5(a) and (b), or local limitations developed by the permittee in accordance with 40 CFR § 403.5(c), whichever are more stringent, or are applicable to nondomestic users discharging wastewater to the collection system. Locally derived discharge limitations shall be defined as pretreatment standards under Section 307(d) of the Act.

A technical evaluation of the need to revise local limits shall be performed at least once during the term of this permit and must be submitted to the Department as part of the permittee's NPDES permit application, unless the Department requires in writing that it be submitted sooner. Limits development will be in accordance with the procedures established by the Department.

5. The permittee shall issue individual discharge permits to all Significant Industrial Users in a timely manner. The permittee shall also reissue and/or modify permits, where necessary, in a timely manner. Discharge permits must contain, at a minimum, the conditions identified in 40 CFR § 403.8(f)(1)(iii). Unless a more stringent definition has been adopted by the permittee, the definition of Significant Industrial User shall be as stated in 40 CFR § 403.3(t).

6. The permittee shall randomly sample and analyze industrial user effluents at a frequency commensurate with the character, consistency, and volume of the discharge. At a minimum, the permittee shall sample all Significant Industrial Users for all regulated pollutants twice per year. Alternatively, at a minimum, the permittee shall sample all Significant Industrial Users for all regulated pollutants once per year, if the permittee has pretreatment program criteria in its approved procedures for determining appropriate sampling levels for industrial users, and provided the sampling criteria indicate once per year sampling is adequate. At a minimum, the permittee shall conduct a complete facility inspection once per year. Additionally, at least once every two years the permittee shall evaluate the need for each Significant Industrial User to develop a slug control plan. Where a plan is deemed necessary, it shall conform to the requirements of 40 CFR § 403.8(f)(2)(v).

Where the permittee elects to conduct all industrial user monitoring in lieu of requiring self-monitoring by the user, the permittee shall gather all information which would otherwise have been submitted by the user. The

permittee shall also perform the sampling and analyses in accordance with the protocols established for the user.

Sample collection and analysis, and the gathering of other compliance data, shall be performed with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Unless specified otherwise by the Director in writing, all sampling and analyses shall be performed in accordance with 40 CFR Part 136.

7. The permittee shall review reports submitted by industrial users and identify all violations of the user's permit or the permittee's local ordinance.

8. The permittee shall investigate all instances of industrial user noncompliance and shall take all necessary steps to return users to compliance. The permittee's enforcement actions shall track its approved Enforcement Response Plan, developed in accordance with 40 CFR § 403.8(f)(5). If the permittee has not developed an approved Enforcement Response Plan, it shall develop and submit a draft to the Department for review within 90 days of the issuance of this permit.

9. The permittee shall publish, at least annually in the largest daily newspaper published in the permittee's service area, a list of all industrial users which, at any time in the previous 12 months, were in Significant Noncompliance with applicable pretreatment requirements. For the purposes of this requirement, an industrial user is in Significant Noncompliance if it meets one or more of the criteria listed in 40 CFR 403.8(f)(2)(vii).

10. The permittee must develop and maintain a data management system designed to track the status of the industrial user inventory, discharge characteristics, and compliance. In accordance with 40 CFR § 403.12(o), the permittee shall retain all records relating to pretreatment program activities for a minimum of three years, and shall make such records available to the Department and USEPA upon request. The permittee shall also provide public access to information considered effluent data under 40 CFR Part 2.

11. The permittee shall submit by March 1 of each year, a report that describes the permittee's pretreatment program during the previous calendar year. The content and format of this report shall be as established by the Department.

12. The permittee shall submit in writing to the Department a statement of the basis for any proposed modification of its approved program and a description of the proposed modification in accordance with 40 CFR § 403.18. No substantial program modifications may be implemented by the permittee prior to receiving written authorization from the Department.

NPDES GENERAL CONDITIONS
(SCHEDULE F)

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit.

In addition, a person who unlawfully pollutes water as specified in ORS 468.943 or ORS 468.946 is subject to criminal prosecution.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;

b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions

(1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.

(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

(1) Bypass is prohibited unless:

(a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to

prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The permittee submitted notices and requests as required under General Condition B.3.c.

(2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.

(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the causes(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and

(4) The permittee complied with any remedial measures required under General Condition A.3 hereof.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions

(1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.

(2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.

(3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:

(1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and

(3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

Representative Sampling

Sampling and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years or both.

5. Reporting of Monitoring Results

Monitoring results shall be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports shall be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value shall be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

Records Contents

Records of monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time

the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected;

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and

e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:

a. Any unanticipated bypass which exceeds any effluent limitation in this permit.

b. Any upset which exceeds any effluent limitation in this permit.

c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. Falsification of Information

A person who supplies the Department with false information, or omits material or required information, as specified in ORS 468.953 is subject to criminal prosecution.

10. Changes to Indirect Dischargers - **[Applicable to Publicly Owned Treatment Works (POTW) only]**

The permittee must provide adequate notice to the Department of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;

b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

11. Changes to Discharges of Toxic Pollutant - **[Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]**

The permittee must notify the Department as soon as they know or have reason to believe of the following:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:

(1) One hundred micrograms per liter (100 µg/l);

(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

(4) The level established by the Department in accordance with 40 CFR 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 µg/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

(4) The level established by the Department in accordance with 40 CFR 122.44(f).

SECTION E. DEFINITIONS

1. BOD means five-day biochemical oxygen demand.

2. TSS means total suspended solids.

3. mg/l means milligrams per liter.

4. kg means kilograms.

5. m^3/d means cubic meters per day.

6. MGD means million gallons per day.

7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.

8. FC means fecal coliform bacteria.

9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.

10. CBOD means five day carbonaceous biochemical oxygen demand.

11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.

12. Quarter means January through March, April through June, July through September, or October through December.

13. Month means calendar month.

14. Week means a calendar week of Sunday through Saturday.

15. Total residual chlorine means combined chlorine forms plus free residual chlorine.

16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.

17. POTW means a publicly owned treatment works.

SALEM

ATTACHMENT B

ANTIDEGRADATION POLICY

OAR 340-041-0004

Attachment B

Antidegradation Policy/Growth Policy

OAR 340-041-0004

(1) Purpose. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340-041-0007 through 340-041-0350 are intended to supplement the Antidegradation Policy.

(2) Growth Policy. In order to maintain the quality of waters in the State of Oregon, it is the general policy of the Commission to require that growth and development be accommodated by increased efficiency and effectiveness of waste treatment and control such that measurable future discharged waste loads from existing sources do not exceed presently allowed discharged loads except as provided in section (3) through (9) of this rule.

(3) Nondegradation Discharges. The following new or increased discharges are subject to this Division. However, because they are not considered degradation of water quality, they are not required to undergo an antidegradation review under this rule:

(a) Discharges Into Existing Mixing Zones. Pollutants discharged into the portion of a water body that has been included in a previous mixing zone for a permitted source, including the zones of initial dilution, are not considered a reduction in water quality, so long as the mixing zone is established in accordance with OAR 340-041-0053, there are no other overlapping mixing zones from other point sources, and the discharger complies with all effluent limits set out in its NPDES permit;

(b) Water Conservation Activities. An increase in a pollutant concentration is not considered a reduction in water quality so long as the increase occurs as the result of a water conservation activity, the total mass load of the pollutant is not increased, and the concentration increase has no adverse effect on either beneficial uses or threatened or endangered species in the water body; and

(c) Temperature. Insignificant temperature increases authorized under OAR 340-041-0028(11) and (12) are not considered a reduction in water quality.

(d) Dissolved Oxygen. Up to a 0.1 mg/l decrease in dissolved oxygen from the upstream end of a stream reach to the downstream end of the reach is not considered a reduction in water quality so long as it has no adverse effects on threatened and endangered species.

(4) Recurring Activities. Since the baseline for applying the antidegradation policy to an individual source is the water quality resulting from the source's currently authorized

discharge, and since regularly-scheduled, recurring activities remain subject to water quality standards and the terms and conditions in any applicable federal and state permits, certifications and licenses, the following activities will not be considered new or increasing discharges and will therefore not trigger an antidegradation review under this rule so long as they do not increase in frequency, intensity, duration or geographical extent:

(a) Rotating grazing pastures,

(b) Agricultural crop rotations, and

(c) Maintenance dredging.

(5) Exemptions to the Antidegradation Requirement. Some activities may, on a short term basis, cause temporary water quality degradation. However, these same activities may also have substantial and desirable environmental benefits. The following activities and situations fall into this category. Such activities and situations remain subject to water quality standards, and must demonstrate that they have minimized adverse affects to threatened and endangered species in order to be exempt from the antidegradation review under this rule:

(a) Riparian Restoration Activities. Activities that are intended to restore the geomorphology or riparian vegetation of a water body, or control invasive species need not undergo an antidegradation review so long as the Department determines that there is a net ecological benefit to the restoration activity. Reasonable measures that are consistent with the restoration objectives for the water body must be used to minimize the degradation;

(b) Emergency Situations. The Director or a designee may, for a period of time no greater than 6 months, allow lower water quality without an antidegradation review under this rule in order to respond to public health and welfare emergencies (i.e., a significant threat of loss of life, personal injury or severe property damage); and

(c) Exceptions. Exceptions authorized by the Commission under (9) of this rule.

(6) High Quality Waters Policy: Where the existing water quality meets or exceeds those levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, and other designated beneficial uses, that level of water quality must be maintained and protected. However, the Environmental Quality Commission, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, and with full consideration of sections (2) and (9) of this rule, and 340-041-0007(5), may allow a lowering of water quality in these high quality waters if it finds:

(a) No other reasonable alternatives exist except to lower water quality; and

(b) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference;

(c) All water quality standards will be met and beneficial uses protected; and

(d) Federal threatened and endangered aquatic species will not be adversely affected.

(7) Water Quality Limited Waters Policy: Water quality limited waters may not be further degraded except in accordance with section (9)(a)(B), (C) and (D) of this rule.

(8) Outstanding Resource Waters Policy. Where existing high quality waters constitute an outstanding State or national resource such as those waters designated as extraordinary resource waters, or as critical habitat areas, the existing water quality and water quality values must be maintained and protected, and classified as "Outstanding Resource Waters of Oregon."

(a) The Commission may specially designate high quality water bodies to be classified as Outstanding Resource Waters in order to protect the water quality parameters that affect ecological integrity of critical habitat or special water quality values that are vital to the unique character of those water bodies. The Department will develop a screening process and establish a list of nominated water bodies for Outstanding Resource Waters designation in the Biennial Water Quality Status Assessment Report (305(b) Report). The priority water bodies for nomination include:

(A) Those in State and National Parks;

(B) National Wild and Scenic Rivers;

(C) State Scenic Waterways;

(D) Those in State and National Wildlife Refuges; and

(E) Those in federally designated wilderness areas.

(b) The Department will bring to the Commission a list of water bodies that are proposed for designation as Outstanding Resource Waters at the time of each triennial Water Quality Standards Review; and

(c) When designating Outstanding Resource Waters, the Commission may establish the water quality values to be protected and provide a process for determining what activities are allowed that would not affect the outstanding resource values. After the designation, the Commission may not allow activities that may lower water quality below the level

established except on a short term basis to respond to public health and welfare emergencies, or to obtain long-term water quality improvements.

(9) Exceptions. The Commission or Department may grant exceptions to this rule so long as the following procedures are met:

(a) In allowing new or increased discharged loads, the Commission or Department must make the following findings:

(A) The new or increased discharged load will not cause water quality standards to be violated;

(B) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference; and

(C) The new or increased discharged load will not unacceptably threaten or impair any recognized beneficial uses or adversely affect threatened or endangered species. In making this determination, the Commission or Department may rely upon the presumption that if the numeric criteria established to protect specific uses are met the beneficial uses they were designed to protect are protected. In making this determination the Commission or Department may also evaluate other State and federal agency data that would provide information on potential impacts to beneficial uses for which the numeric criteria have not been set;

(D) The new or increased discharged load may not be granted if the receiving stream is classified as being water quality limited under OAR 340-041-0002(62)(a), unless:

(i) The pollutant parameters associated with the proposed discharge are unrelated either directly or indirectly to the parameter(s) causing the receiving stream to violate water quality standards and being designated water quality limited; or

(ii) Total maximum daily loads (TMDLs), waste load allocations (WLAs) load allocations (LAs), and the reserve capacity have been established for the water quality limited receiving stream; and compliance plans under which enforcement action can be taken have been established; and there will be sufficient reserve capacity to assimilate the increased load under the established TMDL at the time of discharge; or

(iii) Effective July 1, 1996, in water bodies designated water-quality limited for dissolved oxygen, when establishing WLAs under a TMDL for water bodies meeting the conditions defined in this rule, the Department may at its discretion provide an allowance for WLAs calculated to result in no measurable reduction of dissolved oxygen (DO). For this purpose, "no measurable reduction" is defined as no more than 0.10 mg/L for a single source and no more than 0.20 mg/L for all anthropogenic activities that influence the

water quality limited segment. The allowance applies for surface water DO criteria and for Intergravel dissolved oxygen (IGDO) if a determination is made that the conditions are natural. The allowance for WLAs applies only to surface water 30-day and seven-day means; or

(iv) Under extraordinary circumstances to solve an existing, immediate and critical environmental problem, the Commission or Department may, after the completion of a TMDL but before the water body has achieved compliance with standards, consider a waste load increase for an existing source on a receiving stream designated water quality limited under OAR 340-041-0002(62)(a). This action must be based on the following conditions:

(I) That TMDLs, WLAs and LAs have been set; and

(II) That a compliance plan under which enforcement actions can be taken has been established and is being implemented on schedule; and

(III) That an evaluation of the requested increased load shows that this increment of load will not have an unacceptable temporary or permanent adverse effect on beneficial uses or adversely affect threatened or endangered species; and

(IV) That any waste load increase granted under subparagraph (iv) of this paragraph is temporary and does not extend beyond the TMDL compliance deadline established for the water body. If this action will result in a permanent load increase, the action has to comply with sub-paragraphs (i) or (ii) of this paragraph.

(b) The activity, expansion, or growth necessitating a new or increased discharge load is consistent with the acknowledged local land use plans as evidenced by a statement of land use compatibility from the appropriate local planning agency.

(c) Oregon's water quality management policies and programs recognize that Oregon's water bodies have a finite capacity to assimilate waste. Unused assimilative capacity is an exceedingly valuable resource that enhances in-stream values and environmental quality in general. Allocation of any unused assimilative capacity should be based on explicit criteria. In addition to the conditions in subsection (a) of this section, the Commission or Department may consider the following:

(A) Environmental Effects Criteria:

(i) Adverse Out-of-Stream Effects. There may be instances where the non-discharge or limited discharge alternatives may cause greater adverse environmental effects than the increased discharge alternative. An example may be the potential degradation of groundwater from land application of wastes;

(ii) Instream Effects. Total stream loading may be reduced through elimination or reduction of other source discharges or through a reduction in seasonal discharge. A

source that replaces other sources, accepts additional waste from less efficient treatment units or systems, or reduces discharge loadings during periods of low stream flow may be permitted an increased discharge load year-round or during seasons of high flow, so long as the loading has no adverse affect on threatened and endangered species;

(iii) Beneficial Effects. Land application, upland wetlands application, or other non-discharge alternatives for appropriately treated wastewater may replenish groundwater levels and increase streamflow and assimilative capacity during otherwise low streamflow periods.

(B) Economic Effects Criteria. When assimilative capacity exists in a stream, and when it is judged that increased loadings will not have significantly greater adverse environmental effects than other alternatives to increased discharge, the economic effect of increased loading will be considered. Economic effects will be of two general types:

(i) Value of Assimilative Capacity. The assimilative capacity of Oregon's streams is finite, but the potential uses of this capacity are virtually unlimited. Thus it is important that priority be given to those beneficial uses that promise the greatest return (beneficial use) relative to the unused assimilative capacity that might be utilized. In-stream uses that will benefit from reserve assimilative capacity, as well as potential future beneficial use, will be weighed against the economic benefit associated with increased loading;

(ii) Cost of Treatment Technology. The cost of improved treatment technology, non-discharge and limited discharge alternatives may be evaluated.

Stat. Auth.: ORS 468.020, 468B.030, 468B.035, 468B.048
Stats. Implemented: ORS 468B.030, 468B.035, 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03

SALEM

ATTACHMENT C

PUBLIC NOTICE DRAFT
EVALUATION REPORT

PUBLIC NOTICE

State of Oregon
Department of
Environmental
Quality

National Pollutant Discharge Elimination System
PERMIT EVALUATION AND FACT SHEET
July 30, 2004

Oregon Department of Environmental Quality
Western Region, Salem Office
750 Front Street Northeast, Suite 120
Salem, OR 97301-4039
(541) 378-8240

Permittee:	City of Salem
	555 Liberty Street
	Salem, OR 97301
	File Number: 78140
Current Permit:	NPDES Permit Number: 101145
	EPA Reference Number: OR-002640-9
	Issue Date: August 25, 1993
	Expiration Date: May 31, 1998
Source Information	Willow Lake Water Pollution Control Facility (WLWPCF)
	5915 Windsor Island Road N.E.
	Salem, Oregon 97303
	Latitude North 45^0 00' 35" Longitude West -123^0 03' 17"
Receiving Stream:	Willamette River
	LLID: 1227618456580 - 78.4 - D
	River Mile: 78.4
Proposed Action:	NPDES Major Domestic Permit
	Application Number: 991640
	Date Received: December 15, 1997
Source Contact:	Francis Kessler
	Phone: (503) 588-6380
Permit Writer:	Mark Hamlin
	Phone: (503) 378-8240 ext. 239

INTRODUCTION

The City of Salem owns and operates a secondary wastewater treatment facility located in Salem, Oregon **(see Attachment 1)**. The treatment facility serves the Salem/Keizer area. Domestic, commercial and industrial wastewater is treated and discharged to the Willamette River in accordance with National Pollutant Discharge Elimination System (NPDES) Permit number 101145. The NPDES Permit for the facility was originally issued on June 26, 1991 as Permit number 100783 in response to Application number 998162. The City appealed the permit and the appeal was resolved with the reissuance of the permit on August 25, 1993 as Permit number 101145.

On May 2, 1996, the City requested a modification of the Permit. The Permit modification was issued on January 21, 1998. The changes included new emergency overflow points, a much lower total residual chlorine limit, bacterial limits based on *E. coli* rather than fecal coliform, less stringent carbonaceous biochemical oxygen demand ($CBOD_5$) and total suspended solids (TSS) removal efficiency limits during periods of high flow, a Zone of Initial Dilution (ZID) was included in the mixing zone definition, modifications to the overflow prohibition, monitoring requirements for bacteria and ammonia were changed and a study on ammonia discharges was required.

The Permit expired on May 31, 1998. The Department received a renewal application on December 15, 1997. The permit shall not be deemed to expire until final action has been taken on the renewal application as per Oregon Administrative Rules (OAR) 340-045-0040. A renewal permit is necessary to discharge to state waters pursuant to provisions of Oregon Revised Statutes (ORS) 468B.050 and the Federal Clean Water Act. The Department proposes to renew the permit. This permit evaluation report describes the basis and methodology used in developing the permit.

This permit is a joint federal and state permit and subject to federal and state regulations. The Clean Water Act, the Code of Federal Regulations, and numerous guidelines of the Environmental Protection Agency (EPA) provide the federal permit requirements. The Oregon Revised Statutes, Oregon Administrative Rules, and policies and guidelines of the Department of Environmental Quality (Department) provide the state permitting requirements.

FACILITY DESCRIPTION

The treatment facility receives wastewater primarily from residential, commercial, and industrial sources from a population of approximately 210,000. The existing treatment plant **(see Attachment 2)** is located near the Willamette River in the northwestern corner of the Salem/Keizer urban growth boundary (UGB). The treatment plant is composed of two distinct sets of facilities, which were largely constructed between 1960 and 1975. The older portion of the plant, typically referred to as the North Plant, consists of an influent pump station, headworks, two primary center-feed circular clarifiers, four rock media trickling filters, and a circular center-feed secondary clarifier/chlorine contact tank. These liquid processes, along with two gravity thickeners and three anaerobic digesters, have been in operation since 1963. An addition constructed in 1975, which was initially intended to operate in parallel with the trickling filter process, consists of two primary clarifiers, a pure-oxygen activated sludge process, four secondary clarifiers, a chlorine contact chamber, an additional gravity thickener, and four anaerobic digesters. These facilities comprise the South Plant. A project that allows the North Plant and the South Plant to operate in series and/or parallel was added in the mid-1980s.

Facilities that currently serve both the North and South Plants include a bar screen (added in 1989), temporary sodium hypochlorite chlorination and sodium bisulfite dechlorination facilities (added from 2000 to 2001), and solids thickening and dewatering processes (added in 1998 to aid dewatering and to

replace/augment the aged dissolved air flotation system). Effluent is discharged through a 72-inch outfall to a riverbank discharge at Willamette River at river mile 78.4.

Dry Weather Non-Canning – The existing permit identifies the treatment facility design average dry weather flow (ADWF) capacity as 35 million gallons per day (MGD). Currently the plant operates at approximately 32.5 MGD during the dry season based upon an average of flows over the past five years. The treatment plant complies with permit limits. Even though the treatment facility is nearing its design capacity, the treatment plant produces high quality treatment, particularly during the dry weather season. During the wet weather season, the City's collection system experiences sanitary sewer overflow during major storm events.

Canning Season – When canning season loads begin to arrive at the Willow Lake Water Pollution Control Facility (WLWPCF) (typically in July), the process train is altered to account for load limitations at the trickling filters. The filters can be loaded only up to approximately 20 lb per day of biochemical oxygen demand (BOD_5) per 1,000 cubic feet of media volume (lb/d/1,000 cf) before odor generation becomes a serious problem. Under typical canning season loading conditions, this limits flow to the North Plant to approximately 13 MGD. The trickling filter effluent (TFE) is pumped across the site to receive additional secondary treatment in the South secondary process. The bulk of the flow (up to 30 MGD) is routed directly from the headworks to the South primary clarifiers, and into the South secondary process.

Process variation in the South Plant is required under the canning season loading condition, to handle the frequently high and variable BOD loads arriving at the WLWPCF. The system, which is operated as an air activated sludge process during the majority of the year, is converted to high purity oxygen activated sludge (HPOAS) system to handle BOD loads that are frequently in excess of 500 mg/L. Effluent from the North trickling filters is combined with South primary effluent, and treated with the HPOAS system. Clarified South secondary effluent is chlorinated and dechlorinated prior to discharge.

Wet Weather – As loads from the canning season subside in late October, flows to the facility begin to increase in response to the wet weather season. During this condition, wet weather flows up to 40 MGD can be treated across the North Plant, with up to 30 MGD of trickling filter effluent receiving disinfection through the North secondary clarifier prior to discharge. Series treatment through the trickling filters and air activated sludge processes occurs for up to 10 MGD of TFE. When influent flow exceeds 40 MGD, a flow split downstream of the plant headworks diverts up to 30 MGD to the South primary clarifiers and secondary process. This flow is clarified in the South secondary clarifiers prior to disinfection and then discharge.

When influent flow exceeds 80 MGD, it is necessary for the WLWPCF staff to employ select treatment to avoid process overloads. Flow to the North Plant, limited to 40 MGD by hydraulic restrictions, is treated across the trickling filters (of which 10 MGD is then pumped to the South Plant secondary treatment system). The remaining influent (up to 65 MGD) is diverted to the South primary clarifiers. Up to 50 MGD is treated in the South Plant secondary treatment system (activated sludge) and up to 30 MGD is treated in the North Plant secondary treatment system. Flow in excess of 80 MGD is given primary treatment and disinfection and then discharged.

Changes in Operation

Since the last permit was issued, dechlorination facilities have been added, a pilot wetlands constructed, and solids dewatering has been placed into operation. In addition, chlorine was converted from gas to liquid and a new bar screen has been installed.

New Facilities

The City is currently completing preliminary and final design of new wastewater treatment facilities. These facilities are to be located at the existing Willow Lake Treatment Plant, and the new Peak Excess Flow Treatment Facility (PEFTF) at North River Road Park, the site of an existing wastewater pump station and an emergency overflow outfall which discharges to the Willamette River at river mile 82.6. This is the site of the original wastewater treatment plant for the City of Salem and the outfall was part of that facility. The new facilities are being designed to eliminate sanitary sewer overflows in accordance with Mutual Agreement and Order No. WQ/M-WR-97-12.

Willow Lake Water Pollution Control Facility – The Willow Lake Water Pollution Control Facility improvements are being designed to increase the capacity of the treatment plant to 155 MGD (wet weather maximum month). The improvements are being constructed in phases. The first group of projects are scheduled to be completed by December 2009, and include a new influent pump station and headworks to provide 100 MGD of capacity, four new circular primary clarifiers, two new gravity thickeners for thickening primary sludge, expanded WAS thickening and biosolids dewatering facility, permanent chlorination and dechlorination facilities, an additional pass on the existing chlorine contact basin, a new parallel outfall and diffuser structure and improvements to the electrical distribution system and other treatment plant infrastructure **(see Attachment 3)**.

The size, number, and wet weather capacity of the existing and planned liquid stream treatment plant components are summarized in the table below.

Process	Number / Size (Each)	Wet Weather Capacity (Total)	New / Existing
Influent Pump Station	1 / -	100 MGD	New
Influent Pump Station	1 / -	>55 MGD	Existing
Influent Screens	2 / 7' wide	100 MGD	New
Influent Screens	2 / 10' wide	> 55 MGD	Existing
Primary Clarifiers	4 / 140' dia.	100 MGD	New
South Primary Clarifiers	2 / 140' dia.	65 MGD	Existing
Trickling Filters	3 / 225' dia.	± 30 MGD	Existing
Aeration Basins	3 / 1.43 Mgal	60 MGD	Existing
Secondary Clarifiers	4 / 140' dia.	60 MGD	Existing
Chlorine Contact Basin	1 / 1.59 Mgal	155 MGD	Expanded Existing

There are 3 distinct seasons of operation at the facility:

Wet Weather Season. Upon completion of the projects in December 2009, the WLWPCF will have hydraulic capacity to treat up to 155 MGD of wet weather flow through a combination of primary and secondary treatment. Flow into the plant will be split between the new headworks/primaries (100 MGD), and the existing screens/pumps/primaries (up to 55 MGD). Flows up to 60 MGD will receive secondary treatment in the activated sludge treatment system and up to 30 MGD will receive secondary treatment in the trickling filter treatment system. Flows in excess of 90 MGD will receive primary treatment through a combination of new and existing clarifiers. All effluent will be disinfected through the expanded chlorine contact basin.

Dry Weather Season. The dry weather season is the period when flows are low, and loads are not impacted by industrial (primarily fruit and vegetable packaging) activities. During this period all influent is treated by the new headworks and primary clarifiers. Primary effluent will be split between trickling

filter/activated sludge and conventional activated sludge secondary treatment. All effluent will be disinfected through the expanded chlorine contact basin.

Canning Season. During the canning season, flows and loads are impacted by industrial (primarily fruit and vegetable packaging) activities. During this period all influent is treated by the new headworks and primary clarifiers. Primary effluent will be split between trickling filter/activated sludge and high purity oxygen activated sludge (HPOAS) secondary treatment. All flow will be treated through the HPOAS process during the canning season. The flow through the trickling filters, which are limited in their capacity to treat BOD without generating odors, also is routed through HPOAS. All effluent will be disinfected through the expanded chlorine contact basin.

North River Road Park Facilities - The proposed North River Road Park Peak Excess Flow Treatment Facility (PEFTF) **(see Attachment 4)** is designed to provide secondary treatment to wet weather flows that exceed the capacity of the trunk sewer that conveys flow to the Willow Lake Water Pollution Control Facility. Because the operation of the PEFTF is more expensive than conventional secondary treatment, the operation will be limited to those periods of time when the secondary treatment capacity of the WLWPCF is exceeded.

The PEFTF includes an overflow structure in the sewer, an influent pump station, influent screens, a high rate ballasted sedimentation process, ultraviolet (UV) disinfection, and effluent pumping for use at high river stage. The ballasted sedimentation process utilizes polymer, coagulant (alum or similar product) and microsand, to provide high rate treatment. The settled sludge and microsand mixture is recycled to hydrocyclones where the microsand is re-injected into the process and the sludge is put back into the trunk sewer for subsequent treatment at the Willow Lake Water Pollution Control Facility.

Based on pilot testing performed in 2001, it is expected that this ballasted sedimentation process will provide greater than 85 percent TSS removal and greater than 55 percent BOD_5 removal. This level of treatment is equivalent to or better than treatment achieved through conventional secondary processes treating similarly dilute influents ($\leq$ 50 mg/L BOD_5/TSS). The pilot testing also demonstrated that when coupled with downstream UV disinfection, the PEFTF treatment train at North River Road Park will consistently meet Oregon bacterial standards.

Biosolids Management and Utilization

All waste sludge must be managed in accordance with the Department approved Biosolids Management Plan to ensure compliance with the federal biosolids regulations (40 CFR Part 503) and the state rules (OAR 340-050). The permittee's biosolids management plan was originally approved on October 11, 1989. A revised plan was submitted to the Department and approved on April 23, 1992. An updated management plan was submitted in March 2003. The Department is proposing to approve the plan **(see Attachment 5)**.

Pathogen reduction and vector attraction reduction is achieved through anaerobic digestion. Generally the solids residence time exceeds 40 days at a temperature of 36.6 degrees Centigrade. Volatile solids reductions exceed the required 38 percent. Biosolids meet and exceed the requirements of 40 CFR Part 503.

Primary and secondary solids are generated in the primary and secondary clarifiers respectively. Grit is removed by routing primary solids through cyclone degritters. Screenings and grit are transported to the Marion County Waste To Energy Facility for incineration.

Solids are thickened to approximately five percent prior to mesophilic primary/secondary anaerobic digestion in one of two digester facilities. Primary solids are thickened in one of three gravity thickeners. Typically, waste activated solids are thickened on the gravity belt thickener, however the gravity thickeners and a dissolved air floatation facility are available as redundant thickening processes.

The north digester facility is composed of two mechanically mixed, fixed cover, primary digesters which overflow to a floating dome, secondary digester. The south digester facility is composed of two gas mixed, fixed cover, primary digesters which overflow to two, fixed cover, secondary digesters.

The digester facilities gas systems are common and provide fuel for the cogeneration system. All four primary digesters are externally heated with coiled heat exchangers using a modified hot water loop from the cogeneration system as a heat source. Additionally, each facility houses boilers as a redundant heat source.

Each digester facility has mechanical grinders for particle size reduction and its own loading dock. Liquid biosolids, at approximately 2.9 percent total solids, are loaded into pressurized tanker trucks for hauling to application sites. Typically, liquid biosolids from the south digester facility are pumped through a mechanical grinder to the solids handling facility for dewatering on the belt filter press and storage in a loading hopper. Dewatered biosolids, at approximately 19 percent total solids, are loaded into semi-end dump trucks for hauling to application sites.

Based on the Biosolids Management Plan submitted by the City in March 2003, the annual volume of biosolids for 2002 was 4,258 Metric Tons. Biosolids are land applied in both liquid form and at about 19% pressed cake solids. The metals analysis for the May 2004 biosolids is summarized below:

Parameter	Mg/dry Kg		§503.13 Table 3 Limit	Parameter	Mg/dry Kg		§503.13 Table 3 Limit
	Liquid biosolids	Press Cake			Liquid biosolids	Press Cake	
Arsenic	14.5	18.1	41	Molybdenum	7.79	13.0	No limit
Cadmium	2.50	2.34	39	Nickel	<17.5	17.9	420
Chromium	91.2	101	No limit	Selenium	7.31	4.89	100
Copper	530	604	1500	Silver	18.9	19.3	No limit
Lead	26.1	29.7	300	Zinc	679	858	2800
Mercury	1.38	0.68	17				

Inflow and Infiltration (I/I)

During the 2002 and 2003 dry weather periods (June 1 through October 31), the plant's average flow was 28.1 MGD with a daily maximum flow of 33.7 MGD in September 2003. Based on the current flows, this facility is near secondary treatment design capacity. During the 2002/03 and 2003/04 wet weather periods (November 1 through May 31), the average flow to the facility was 46.4 MGD with a maximum daily flow as high as 100.5 MGD in February 2003.

Peak flow in the system exceeds the capacity of the conveyance and treatment system. Raw sewage overflows occur most winters. An extensive assessment of alternative was completed as part of the Willow Lake Wastewater Treatment Plant Facilities Plan, March 2002, prepared for the City by Carollo Engineers and Black & Veatch. The recommended plan includes a combination of added treatment capacity at the Willow Lake Treatment Plant and the construction of the Peak Excess Flow Treatment Facility (PEFTF) as described under the New Facilities description.

Collection system maintenance activities are conducted each year to keep the system operating properly, extend its life, remove sources of inflow/infiltration (I/I) and to prevent the introduction of new I/I into the system. Maintenance activities include the following:

TV Inspection:

Includes inspection of existing sewer lines as well as all new sewer lines that are added to the system. A written evaluation of each line segment is recorded in the Infrastructure Management System. Defects found in the collection system are noted and referred for appropriated corrective action. These actions include cleaning, repair, chemical grouting, chemical root treatment, or evaluation of rehabilitation/replacement.

Sewer Main Grouting:

This activity restores the integrity of the pipe joint resulting in removal of I/I from the collection system. This method is used when the main is of acceptable condition and only the pipe joints are leaking an excessive amount.

Sewer Main Repairs / Replacement:

This activity directly decreases I/I into the collection system. Sewer lines replaced under this activity are in addition to lines replaced under other programs (i.e. CIP projects).

Manholes Repaired / Sealed:

Manhole repairs restore integrity of the structure as well as removing I/I sources. Work is accomplished includes work done by City crews and work done by contractor.

Sewer Line Cleaning:

All sewer lines in the collection system are cleaned on varying cycles (1 month to 72 months) depending on need. The cleaning schedule and work requests are part of the City's computerized maintenance management system.

Permanent and Temporary Flow Monitors / Rain Gauges:

These monitors are used to collect flow data needed for designing system upgrades, monitoring overflow events, calibrating the collection system hydraulic model, and evaluating the condition of the collection system (dry weather vs. wet weather flows).

Sewer Service / Storm Drainage Service Inspections:

The City inspects all sanitary sewer services lines when installed or repaired. All sanitary sewer hookups are required to pass a 15-minute no-loss air test or hydrostatic test in conformance with the Uniform Plumbing Code before they are accepted. No-loss requirements are strictly enforced to prevent I/I from entering the collection system via new sanitary service lines. Storm drainage connections are also inspected to assure that no illicit connections are made to the sanitary system and that the drains are properly installed.

Smoke Testing / Dye Testing:

Smoke testing and dye testing of the collection system are performed to inspect for, or confirm the presence of pipeline defects, manhole defects and improper connections. Defects found are noted and referred for appropriate corrective action. Corrective actions may included replacement of missing clean-out caps, removal of rain drains from the collection system, and repair of pipeline breaks.

Collection System Rehabilitation / Replacement is undertaken by the City on an annual basis in the Capitol Improvements Program (CIP). This program rehabilitates and / or replaces sewer mains which are deteriorated. This activity removes sources of I/I in the collection system by eliminating pipes with structural defects that contribute I/I. On average, it is assumed that the sewer pipes will be replaced after 75-years of service.

Besides the normal maintenance, repair and replacement programs, the City also implements several specific programs that reduce the amount of extraneous water entering the collection system.

- Positive Protection Program – Started in 1997 to reduce basement flooding from sanitary sewer backups. Through FY 02/03, the program has protected 323 homes at a cost of approximately $4,400,000.

- Extraneous Water Program – Started in FY 99/00 to provide zero-interest deferred-payment loans for removing extraneous flows. The program is funded a $400,000 per year.

- Lateral Replacement Program – Started in FY 01/02 to help low income property owners replace failed service laterals. The program is funded at $250,000 per year.

- Lateral Retrofit Program - Started in FY 01/02 to replace laterals in areas where the sewer main was replaced in the 1980s. The program is funded at $250,000 per year.

The 1996 Master Plan included a Capital Improvement Program with numerous projects to reduce SSOs to tributary streams. Additional Phase II projects were included in 2000. Completion of all projects and elimination of tributary overflows is required by January 1, 2005.

The City has also conducted extensive I/I reduction programs and continues to make improvements to the collection system for the reduction of inflow. The City spends approximately $4,000,000 per year in sewer rehabilitation projects to reduce I/I. Assessment of the program has demonstrated that conveyance and treatment of peak flows is more cost effective than rehabilitation of the collection system.

Industrial Pretreatment

The City of Salem implements an industrial pretreatment program approved by the Department on April 18, 1983. Federal and state pretreatment requirements were included in the NPDES permit for this facility when the existing permit was issued.

The City of Salem currently permits a total of 27 significant industrial users (SIUs) of which 8 are federally designated categorical industrial users. Annual pretreatment program reports including updated industrial waste surveys are submitted yearly. A Pretreatment Compliance Audit of the industrial pretreatment program was conducted by the Department on May 14-15, 2002. The primary focus of the audit was to assess the core pretreatment program functions including legal authorities, inter-jurisdictional agreements, industrial waste survey methods, permitting and compliance oversight activities.

As a result of this audit, the Department issued a Notice of Noncompliance (NON WQ/WR-02-129) for the failure to modify the City's pretreatment ordinance to reflect industrial user permitting requirements, failure to obtain a Final Compliance Report from categorical industry, and allowing legal agreements with contributing jurisdictions to expire, among other minor program issues identified by the Department. On October 29, 2002, the City was assessed a civil penalty in the amount of $1,200.00 for two of these violations. On October 15, 2003, the Department acknowledged the City complied with all of the

requirements identified in the Notice of Noncompliance and is considered in compliance with pretreatment program requirements at this time.

Schedule E, Condition 12, of the current permit requires the City to submit substantial and non-substantial pretreatment program modification requests to the Department for approval. The DEQ has approved the following non-substantial pretreatment program modifications and are incorporating these program changes herein by reference: approval of intergovernmental agreements between the City of Salem and the Labish Village Sewer and Drainage District; and, the East Salem Service District, DEQ approval October 15, 2003: and, approved revisions to the municipal ordinance entitled, SEWER AND WATER CHAPTER 74 PRETREATMENT PROVISIONS, effective 30 days following June 11, 2003.

Outfalls

The current NPDES Permit allows the treatment facility to discharge treated effluent into Willamette River at River Mile 78.2. However, the Department's GIS tool identifies the discharge location as River Mile 78.4. The renewal permit will include a river mile of 78.4. The existing outfall has a bank side discharge from a 72-inch diameter pipeline.

A new outfall diffuser is being designed and constructed at the end of the existing outfall by the Permittee and is scheduled to be operational at the time the revised permit is effective. This will be Outfall 001A. The main purpose of the new diffuser is to increase the available dilution and improve the water quality at both the edge of the zone of initial dilution and the regulated mixing zone. The basis for design of the new diffuser is established in the report entitled Mixing Zone Study Report for the Willow Lake Wastewater Treatment Plant Discharge to the Willamette River, Oregon, dated August 11, 2003, and prepared by Limno-Tech, Inc. A new 7-foot by 8-foot box culvert side discharge outfall (Outfall 001B) will be constructed and used when the Willamette River is at a high level and the diffuser capacity needs to be augmented to achieve peak necessary capacity in the outfall system.

The multi-port diffuser configuration that has been designed will fully attain water quality standards given the ambient and effluent conditions specified. The diffuser consists of a round pipe laid on the bottom of the river, with 41 evenly spaced ports on top. The port openings point downstream and extend approximately one foot above the channel bed. Each port has an opening diameter of 10 inches. CORMIX modeling results for this diffuser configuration are as follows:

- Predicted dilution at the RMZ = 25:1
- Predicted dilution at the ZID = 12:1

Diffuser length is limited by the need to provide free passage of aquatic organisms past the mixing zone established for the WLWPCF discharge (see Mixing Zone Analysis below). It was determined, through model simulations, that dilution increased significantly with diffuser length and that it would be possible to attain a dilution of 25:1 with a diffuser with a length of 120 feet.

The existing outfall at the North River Park (Outfall 002) will be used as the outfall for the discharge from the PEFTF. This is a 72-inch bypass sewer and was constructed as a part of the original sewerage treatment works at the River Road Park site. Under normal operating conditions, all flow that is discharged from Outfall 002A will be first treated in the PEFTF. An emergency overflow will also be maintained at this facility (Outfall 002B).

The 002 outfall structure is located at the river bank and is a rectangular, closed top, cast-in-place concrete structure. The outfall consists of a low river level outfall and high river level, high flow outfall. The low river level outfall is a 30-inch concrete pipe extending into the Willamette River to an unknown

depth. The information available shows that the 30-inch pipe was most likely constructed at a grade similar to the river bed slope and may extend to an assumed approximate elevation of 104 feet. At the outfall structure, the invert elevation of the 30-inch pipe is approximately 114.64 feet. The high river level, high flow outfall is a 5-foot by 2.5-foot square opening in the side of the rectangular standpipe facing the river. This opening has an embedded, weathered steel grating across its entire area.

The existing Permit identifies 85 emergency overflow points (3 relief points, 31 pump stations and 51 manholes). The proposed Permit identifies 69 emergency overflow points (3 relief points, 30 pump stations and 36 manholes). Six pump station emergency overflows have been eliminated while five new ones have been identified. Fifteen manhole overflow points were eliminated but no new ones were identified. The Permittee has made improvement to the collection system and constructed additional pump stations. The new permit reflects these changes with the addition of the pump stations and the elimination of numerous manholes that will no longer overflow.

The Permittee has had numerous overflows and is under an order from the Environmental Quality Commission to correct overflows. By December 31, 2009, the Permittee is required to eliminate all sewer system overflows up to storms of 24 hour storm event with a one-in-five-year recurrence in the winter and one-in-ten-year recurrence in the summer.

Groundwater Issues

The treatment plant is constructed entirely of impervious structures. It is not anticipated that the treatment process and/or the discharge from this facility to surface waters will cause any groundwater impacts. Schedule A of the proposed permit prohibits adverse impacts to groundwater. A condition in Schedule D states that no groundwater evaluations will be required during this permit cycle.

The City also operates a Natural Reclamation System (NRS) adjacent to the Willow Lake treatment facility. This is a pilot project to evaluate the feasibility of polishing Willow Lake effluent prior to discharge. The NRS operates under a separate Water Pollution Control Facility (WPCF) Permit. The WPCF permit requires regular groundwater monitoring. The Department has determined that the local groundwater has not been impacted by the NRS or the Willow Lake treatment facility.

Stormwater Issues

General NPDES permits for stormwater are required for wastewater treatment facilities with a design flow of greater than 1 MGD if stormwater is collected and discharge from the plant site. All rain water at this facility is directed to the influent wet well and receives full secondary treatment. There is no discharge of stormwater from this facility.

RECEIVING WATER

Receiving Stream Water Quality

The City's discharge is to Willamette at River Mile 78.4. The basin name is the Willamette River Basin and the sub-basin name is the Middle Willamette sub-basin. The designated beneficial uses of the receiving stream are: public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life (including salmonid rearing, passage and spawning), wildlife and hunting, fishing, boating, water contact recreation, aesthetic quality, and commercial navigation and transportation. The water quality standards for the Willamette River Basin (OAR 340-041) were developed to protect the beneficial uses for the basin.

The Willamette River is included on the Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) as water quality limited for the following parameters:

Record	Waterbody	R.M.	Parameter	Season	Criteria
6040	Willamette R.	54.8 to 108	Fecal Coliform	Winter/Spring/Fall	Geometric Mean of 200, No more than 10%>400
5865	Willamette R.	54.8 to 108	Temperature	Summer	Rearing: 17.8 C
8382	Willamette R.	54.8 to 108	Iron	Year Around	Table 20
8524	Willamette R.	54.8 to 108	Dissolved Oxygen	October 1 - May 31	Spawning: 11 mg/L or 95% saturation
7088	Willamette R.	54.8 to 108	Mercury	Year Around	public health advisories
6126	Willamette R.	54.8 to 108	Biological Criteria		Waters of the state shall be of sufficient quality

In addition, the Willamette River is water quality limited downstream from the discharge for the following parameters:

Record	Waterbody	R.M.	Parameter	Season	Criteria
9220	Willamette River	24.8 to 54.8	PCB	Year Around	public health advisories
9221	Willamette River	24.8 to 54.8	Aldrin	Year Around	public health advisories
9223	Willamette River	24.8 to 54.8	Dieldrin	Year Around	public health advisories
9224	Willamette River	24.8 to 54.8	DDT	Year Around	public health advisories
9225	Willamette River	24.8 to 54.8	DDT Metabolite (DDE)	Year Around	public health advisories

A Total Maximum Daily Load (TMDL) addressing temperature, mercury, and fecal bacteria is scheduled to be issued in 2004. The TMDL will likely assign Waste Load Allocations (WLA) to this source. The WLA may be incorporated into the permit by modification or during the next permit renewal.

Fecal Coliform Issues

As stated, fecal bacterial levels exceed the standard during fall, winter and spring but no TMDL has been developed. The NPDES Permit represents the Bacteria Control Management Plan for the City of Salem. As long as the discharge remains in compliance with the permit's bacteria limits, the treated effluent discharge will not have a negative impact on the water quality of the Willamette River with respect to bacteria. The sewage collection system has experienced several raw sewage overflows during each of the last several years. These overflows have contributed an unknown amount to the violations of the fecal bacteria standard. As these overflows are captured and treated at either Willow Lake or PEFTF treatment facilities, the impacts will be reduced.

Temperature Issues

Water temperature affects the biological cycles of aquatic species and is a critical factor in maintaining and restoring healthy salmonid populations throughout the state. It is the policy of the Environmental Quality Commission (EQC) to protect aquatic ecosystems from adverse temperature changes caused by anthropogenic activities. The purpose of the temperature criteria listed in OAR 340-041-0028 is to protect designated beneficial uses that are temperature sensitive, including salmonids in waters of the State.

The Department utilizes Fish Use Designation and Salmon and Steelhead Spawning Use Designations maps to identify applicable temperature criteria for each basin. The Willamette Basin maps are contained in OAR 340-041, Figures 340A and 340B, respectively. According to the approved use designation maps, salmon and steelhead spawning is a designated use of the Willamette River from October 15 to May 15. During this period, the applicable numeric temperature criterion is 13 °C. For the remainder of the year,

salmon and trout rearing and migration is the designated use with an applicable numeric temperature criterion of 18 °C.

Rearing and Migration Period

The Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) for 2002 indicates the Willamette River is water quality limited for temperature during the summer rearing and migration season. Prior to the completion of a temperature TMDL, each NPDES point source that discharges into a temperature water quality limited water is allowed a "Human Use Allowance". Each point source may cause the temperature of the water body to increase up to 0.3 degrees Celsius above the applicable criteria after mixing with either twenty five (25) percent of the stream flow, or the mixing zone, whichever is more restrictive.

Based on the existing discharge, the Department calculated in-stream temperature increases (using the existing facility design flow and maximum effluent temperatures) by two separate methods as required by rule (OAR 340-041-0028(12)(b)):

- Based on 25 percent of the 7Q10 stream flow **(see Attachment 6a)**
- Based on the estimated dilution achieved in the mixing zone at 7Q10 stream flow **(see Attachment 6b)**

Because the in-stream temperature increase is significantly smaller than the allowable increase, this facility has no reasonable potential to violate the temperature standard. Therefore, an Excess Thermal Load limit has not been included in this permit.

Winter Spawning Season

The Department's List of Water Quality Limited Water Bodies (also called the 303(d) List) for 2002 indicates the Willamette River is not water quality limited for temperature during the winter spawning season. Each NPDES point source must protect cold water that complies with the water quality standard for temperature. Each point source may cause the temperature of the water body to increase up to 0.5 degrees Celsius above the applicable criteria after completely mixing with the stream flow.

Based on the existing discharge and the 7Q10 stream flow, the Department calculated in-stream temperature increases **(see Attachment 6c)** using the existing facility design flow and maximum effluent temperatures as required by rule (OAR 340-041-0028(11)(b)). Because the in-stream temperature increase is significantly smaller than the allowable increase, this facility has no reasonable potential to violate the temperature standard. Therefore, an Excess Thermal Load limit has not been included in this permit.

The permit may be reopened and a maximum allowable thermal load limit included when more accurate temperature data becomes available. If the Total Maximum Daily Load (TMDL) for temperature for this sub-basin assigns a Waste Load Allocation (WLA) to this source, this permit may be re-opened to establish new thermal load limits and/or new temperature conditions or requirements.

Mercury Issues

The Department has some information about discharges of mercury by the permittee. The discharge does not cause violations of the acute and chronic criteria but it is unknown how much the discharge contributes to the public health advisories caused by bioaccumulation of methylmercury in fish tissue.

As stated, a TMDL addressing mercury should be issued in 2004. The TMDL will likely require many sources to obtain a General NPDES Permit addressing mercury issues. The General Permit may require monitoring and implementation of Best Management Practices (BMP). In this permit, the Department proposes to require semi-annual monitoring for mercury during the first two years after permit issuance. Monitoring for mercury must be performed in accordance with EPA Method 1631. If the Department determines that there is an impact from the effluent for mercury, the permit may be modified to include limitations, additional monitoring or other requirements.

Iron Issues

The Willamette River is listed for iron in the reach in which the point of discharge for the WLWPCF is located. The listing is based on four samples in which the background iron concentration exceeds the limits set for the protection of human health in Table 20 of the water quality standards. The TMDL to be issued in 2004 will not address iron.

Data have been collected for the effluent since the start of 2004 and the effluent iron concentration has ranged from 0.10 mg/l to 0.16 mg/l with an average concentration of 0.128 mg/l. This compares to the human health criteria set for water and fish ingestion of 0.30 mg/l. The proposed permit will include a monthly effluent monitoring requirement for iron for one year after permit issuance. The monitoring will allow the Department to determine if iron in the discharge has a reasonable potential for causing or contributing to water quality standard violations. In such case, the Department may require additional monitoring or reopen the permit to include new limits, conditions or requirements. The permit will not include a limitation. The permit may also be reopened should a future TMDL assign an iron WLA to this source.

Dissolved Oxygen

The Willamette River violates the dissolved oxygen criteria during the salmonid spawning period (originally assumed to be October 1 through May 31). The spawning period violations occurred when stream flows were low. Due to recent rule changes, the salmonid spawning period has been established as October 15 through May 15. It is unknown whether the Willamette River will continue to be considered water quality limited for dissolved oxygen during the salmonid spawning period.

The Department evaluated the impact of the effluent on the dissolved oxygen concentration downstream from the discharge. During critical November conditions (low river flow, maximum temperature and pollutant loads), the discharge could cause up to a 0.37 mg/L decrease in the ambient dissolved oxygen concentration just prior to Willamette Falls **(see Attachment 7a)**. At more average winter conditions and actual discharged loads, the discharge would likely cause only a 0.059 mg/L decrease in the ambient dissolved oxygen concentration just prior to Willamette Falls **(see Attachment 7b)**.

The City of Salem has never experienced a month with an average plant flow approaching 90 MGD. An evaluation **(see Attachment 8)** of existing winter period river flows and plant flows (both on a monthly average basis) indicates the river flow would likely exceed 90,000 cfs when plant flows exceeded 90 MGD. This river flow exceeds the monthly average high flow with a probability of recurrence every 25 years. However, as the raw sewage overflows are captured and treated, it is possible the discharged flows could exceed a monthly average of 90 MGD. It is possible that the City could experience monthly average flows of 90 MGD with river flows as low as 75,000 cfs. This monthly average river flow could occur approximately every other year.

The City has requested a mass load increase when monthly average plant flows exceed 90 MGD. Therefore, the Department also evaluated the dissolved oxygen concentration impacts using maximum

discharged flow (190 MGD) into 75,000 cfs along with the currently permitted $CBOD_5$ load **(see Attachment 7c)** and the requested $CBOD_5$ load **(see Attachment 7d)**.

With the currently permitted loads, the discharge would likely cause a 0.025 mg/L decrease in the ambient dissolved oxygen concentration just prior to Willamette Falls. With the increased loads requested by the City, the discharge would likely cause a 0.026 mg/L decrease in the ambient dissolved oxygen concentration at the same location. The 0.001 mg/L difference is far less than measurable.

Future TMDLs may assign WLAs on oxygen demanding pollutants (carbonaceous and/or nitrogenous) that could reduce the permitted limits. This permit may be reopened to incorporate any WLA.

Other Toxics (PCB, Aldrin, Dieldrin, DDT, DDE)
The TMDL to be issued in 2004 will not address these pollutants but it is not likely this discharge is a significant source of these pollutants. However, the Department has little information concerning the discharge of these pollutants under this permit. Therefore, the proposed permit includes the pesticide fraction in the monitoring requirement for priority pollutants in Schedule B.

The Department is not aware of any other water quality violations that may be attributable to this source. A future TMDL will determine the corrective actions necessary to bring the Willamette River back into compliance. That TMDL may assign one or more pollutant WLA to this point source discharge. This permit may be reopened to incorporate any WLA.

Hydrologic Characteristics

The nearest USGS gage on the Willamette River is at about river mile 84.16. The period of record is in excess of 90 years although the flow has been regulated by upstream reservoirs since the mid 1960's. The drainage area is about 7,280 square miles.

The outfall location is about six miles downstream of the nearest gage (Gage No. 14191000). Low river flow at the WLWPCF was estimated using gage data from 1965 through 2002. Monthly 7Q10 flows and 7Q10 flows for the spawning season (October 15 through May 15) and the rearing and migration season (May 16 through October 14) are shown below in cfs:

7Q10 Flow in cfs

Month	7Q10	Month	7Q10
January	11400	July	5490
February	9550	August	5590
March	10800	September	6290
April	9750	October	8330
May	8120	November	9400
June	6030	December	10300

Spawning season 7Q10 – 6,910 cfs
Rearing and Migration season – 5460 cfs

Darrow Bar splits the flow in the Willamette River at the project site under a range of flow conditions. Because any flow passing around the west side of Darrow Bar is not available for dilution of the effluent from the WLWPCF, the flow division must be estimated. The splitting of river flow around Darrow Bar at the 7Q10 flow was estimated by assuming that the distribution of flow on each side of Darrow Bar is proportional to the cross-sectional area of flow under any given flow conditions. Channel cross-section

surveys provided by Black & Veatch provided channel bathymetry immediately upstream and downstream of Darrow Bar. By interpolating between these two surveys, the minimum bed elevation for the portion of the river on the west side of Darrow Bar was estimated. Bank elevations were obtained from the USGS 7.5 minute topographic map that included the project site. The bank and bed elevations were then used to represent the channel on the west side of Darrow Bar as a triangle, a reasonable approximation. The cross-section was then compared to the cross-section of the main channel under the same flow conditions.

This approach indicates that at the 7Q10 flow conditions, 92-percent of the river flow passes by the outfall side of the bar. Based on this condition, the July 7Q10 flow at the outfall is estimated at 5,051 cfs while the rearing season and spawning season 7Q10s are 5023 cfs and 6357 cfs, respectively.

Mixing Zone Analysis

Federal regulations (40 CFR 131.13) allow for the use of mixing zones, also known as "allocated impact zones". When using mixing zones, acute toxicity to drifting organisms must be prevented and the integrity of the waterbody as a whole may not be impaired. Mixing zones allow the initial mixing of waste and receiving water, but are not designed to allow for treatment. EPA does not have specific regulations pertaining to mixing zones. Each state must adopt its own mixing zone regulations that are subject to review and approval by EPA. In States that lack approved mixing zone regulations, ambient water quality standards must be met at the end of the pipe.

The Department has adopted the chronic and acute aquatic life criteria and developed mixing zone regulations with respect to that. The regulations are primarily narrative and essentially require the permit writer to use best professional judgment in establishing the size of the mixing zone. Based on EPA guidance and the Department's mixing zone regulations, two mixing zones may be developed for each discharge that reflect acute and chronic effects: 1) The acute mixing zone, also known as the "zone of initial dilution" (ZID), and 2) the chronic mixing zone, usually referred to as "the mixing zone". The acute mixing zone is designed to prevent lethality to organisms passing through the ZID. The chronic mixing zone is designed to protect the integrity of the entire water body as a whole. The allowable size of the mixing zone should be based upon the relative size of the discharge to the receiving stream, the beneficial uses of the receiving stream, location of other discharges to the same water body, location of drinking water intakes, and other considerations. More specific guidance is available from EPA regarding criteria used in appropriately sizing a ZID. Primarily the ZID must be designed to prevent lethality to drifting organisms.

The Department's mixing zone regulations state the mixing zone must be less than the total stream width as necessary to allow passage of fish and other aquatic organisms. The current permit provides for a mixing zone that consists of that portion of the Willamette River within a quarter circle with a one hundred fifty (150) foot radius of each discharge point. The Zone of Initial Dilution (ZID) is defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

The mixing zone for the new outfall diffuser (currently under construction) as Outfall 001A is defined as the area between the outfall diffuser and 150 feet downstream. The zone of initial dilution is between the diffuser and 15 feet downstream. Construction contract documents including drawings and specifications for the new diffuser have been reviewed and approved by the department. Construction is scheduled for the summer of 2004.

PERMIT HISTORY

Previous Permit Actions

National Pollutant Discharge Elimination System (NPDES) Permit number permit number 101145 was issued on August 25, 1993 and expired on May 31, 1998. The Department received a renewal application on December 15, 1997. The permit shall not be deemed to expire until final action has been taken on the renewal application. An Antidegradation Review was completed with a recommendation to proceed with this permit action **(see Attachment 9).**

A modification to the permit was issued on January 21, 1998 that added new emergency overflow points to be covered by the permit, deleted fecal coliform bacteria requirements which are replaced by the *E.Coli* bacteria limits, changed the removal efficiency for high flow periods, reduced the total chlorine residual limit, changed the overflow prohibition, added a ZID, provided for additional sampling requirements, and stipulated that an ammonia study be submitted.

Current Permit Limits

The current permit limits are as follows:

Outfall 001 – Treated Effluent

(1) June 1 - October 31 (Normal Canning Season):

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
$CBOD_5$ **	32 mg/L	40 mg/L	9,300	12,000	14,000
TSS	37 mg/L	45 mg/L	11,000	13,000	15,000

(2) November 1 –May 31:

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
$CBOD_5$ **	25 mg/L	40 mg/L	13,000	19,000	26,000
TSS	30 mg/L	45 mg/L	16,000	23,000	31,000

* The summer and winter Mass Load Limits are based on the average dry weather flow to the facility of 35 MGD and an estimated average wet weather flow of 62 MGD. Daily mass load limits are suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

**The $CBOD_5$ concentration limits are considered equivalent to the minimum design criteria for BOD_5 specified in OAR 340-41. These limits and the $CBOD_5$ mass load limits may be adjusted by permit action up or down if more accurate information regarding $CBOD_5/BOD_5$ equivalency becomes available.

(3)

Other parameters (year-round)	Limitations
pH	Shall be within the range of 6.0 - 9.0
Total Residual Chlorine	Shall not exceed a daily average of 0.05 mg/L
E. coli Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 1)
BOD_5 and TSS Removal Efficiency (on a monthly average concentration basis)	(1) When monthly average daily flow is 54 MGD or less, not less than 85 percent (2) When monthly average daily flow is greater than 54 MGD, not less than 78 percent for BOD and 72 percent for TSS

Notes:

1. If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at four hour intervals beginning with in 28 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.

(4) Notwithstanding the effluent limitations established by this permit, except as provided for in OAR 340-45-080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-41-445 except in the defined mixing zone:

That portion of the Willamette River within a quarter circle with a 150 foot radius of each point of discharge. In addition, the Zone of Initial Dilution (ZID) shall be defined as that portion of he allowable mixing zone that is within fifteen (15) feet of the outfall.

b. Outfall Number 002 through 005, 101 through 117 and 119 through 184

No waste shall be discharged from these outfalls and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-41-445, unless the cause of the discharge is an upset as defined in condition B4 and B6 of the attached General Conditions or is due to storm events as allowed under OAR 340-41-120(13) and (14). Overflows due to storm event shall be minimized. Overflows in winter due to storms less than the on-in-five year , 24-hour duration storm shall be eliminated as soon as practicable and not later than completion of the facilities required in paragraph 13.C.4 of the Mutual Agreement and Order #WQ/M-WR-97-147.

Raw sewage discharges are prohibited to waters of the State from May 22 through October 31, except during a storm event greater than the one-in-ten-year, 24-hour duration storm. If an overflow occurs between May 22 and June 1, and if the Permittee demonstrates to he Department's satisfaction that no increase in risk to beneficial uses occurred because of the overflow, no violation shall be triggered if the storm associated with the overflow was greater than the on-in-five-year, 24-hour duration storm.

Compliance History

This facility was last inspected on September 30, 2003 and was found to be operating in compliance with the permit. The following Notices of Noncompliance (NON) have been issued for violations documented at this facility since 1994:

Date of Notice	Type of Enforcement Action	Description of Violation
June 5, 1995	Notice of Noncompliance	TSS percent removal
August 8, 1997	Notice of Noncompliance	BOD and TSS percent removal Raw Sewage Overflows
December 31, 1997	Notice of Noncompliance	Failure to meet compliance schedule
May 3, 1999	Notice of Noncompliance	Bacteria limits
November 2, 2000	Notice of Noncompliance	Raw Sewage Overflow
May 24, 2002	Notice of Noncompliance	Industrial Pretreatment (Schedule E)

NON's are informal enforcement actions. Formal enforcement actions include Notice of Permit Violation (NPV), Civil Penalties (CP) and administrative orders (such as an MAO). The City was issued a MAO on January 21, 1998. The MAO includes a schedule of improvements necessary to eliminate additional violations. On February 28, 2001, the City received a civil penalty for the raw sewage overflow included in the November 2, 2000 NON. On October 29, 2002, the City received a civil penalty for the Industrial Pretreatment Program violations included in the May 24, 2002 NON.

PERMIT LIMITATIONS

Two categories of effluent limitations exist for NPDES permits: 1) Technology based effluent limits, and 2) Water quality based effluent limits. Technology based effluent limits have been established by EPA rules. Technology based effluent limits were established to require a minimum level of treatment for industrial or municipal sources using available technology. Water quality based effluent limits are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology.

Technology-Based Effluent Limits

EPA has established secondary treatment standards for domestic wastewater treatment facilities. The standards are found in 40 CFR Part 133. This facility must achieve biochemical oxygen demand (BOD_5) and suspended solids (TSS) compliance limits that are a combination of municipal wastewater requirements and requirements established for food processors that discharge into the POTW.

According to the federal rules, domestic facilities must achieve a biochemical oxygen demand (BOD_5) monthly average of 30 mg/L and a weekly average of 45 mg/L or a carbonaceous biochemical oxygen demand ($CBOD_5$) monthly average of 25 mg/L and a weekly average of 40 mg/L. The facility must also achieve a suspended solids (TSS) monthly average of 30 mg/L and a weekly average of 45 mg/L. The pH must be between 6.0 and 9.0. In addition, the facility must remove at least 85% of the influent BOD_5 or $CBOD_5$ and TSS.

In addition, Oregon Administrative Rules establish minimum design criteria for domestic treatment facilities. In the Willamette Basin, the BOD_5 and TSS minimum design criteria is 10 mg/L as a monthly average in the summer period and secondary treatment in the winter period. In addition, there are requirements for disinfection and dilution of oxygen demanding pollutants.

Improvements planned for the WLWPCF are designed to increase the peak flow treatment capacity as part of the strategy for compliance with the MAO for elimination of sanitary sewer overflows. Planning for expansion of the average dry weather flow and load capacity is underway but construction and operation of these improvements is not scheduled for the time period covered by this permit.

Water Quality-Based Effluent Limits

Pollutant parameters should be limited if there is a reasonable potential for the discharge to cause or contribute to an excursion above any state water quality criteria or standard. Future Total Maximum Daily Loads (TMDL) may assign Waste Load Allocations (WLA) to this source to address in-stream violations of water quality criteria.

The Department is required to determine whether the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality criterion. EPA has developed a method to make this determination for toxic pollutants called a reasonable potential analysis (RPA). An RPA relies on statistical probability to determine the likelihood that a discharge will violate an instream criterion based on the effluent data, its variability, available dilution, and the receiving water background concentration. The Department has developed RPA spreadsheets that employ EPA's methodology.

The RPA **(see Attachment 10)** was conducted on metals, toxic organics and ammonia based on acute and chronic water quality criteria and the available dilution. The evaluation indicated that none of the pollutants in the effluent except cadmium have a reasonable potential to cause an excursion above the state water quality criteria.

The Department monitors background concentrations of cadmium in the Willamette River. Because the Department's method detection limit is higher than both the acute and chronic criteria, the spreadsheet indicates there is a reasonable potential for cadmium to cause an excursion above the state water quality criteria. Regular sampling of plant effluent has been conducted by the City for cadmium. For 2003, 36 samples were analyzed and only three detections were encountered. These samples had a cadmium concentration of 0.027 µg/l, 0.030µg/l and 0.026 µg/l which are many orders of magnitude less than the water quality standard. Cadmium from the WLWPCF is not considered a significant source and no permit limit is warranted. Low level monitoring of the river and effluent have been proposed.

PERMIT DRAFT DISCUSSION

The proposed permit limits and conditions are described below. Refer to the proposed permit and the discussion above when reviewing this section.

Face Page

The face page provides information about the permittee, the waste stream, outfall locations, receiving stream information, permit approval authority, and a description of permitted activities. The permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system. Permits discharge of treated effluent to the Willamette River within limits set by Schedule A and the following schedules. All other discharges are prohibited.

In accordance with OAR 340, Division 49 all permitted municipal wastewater collection and treatment facilities are to receive a classification based on the size and complexity of the systems. The Department has incorporated the classification of the collection and treatment systems into the NPDES discharge permit. The treatment system and collection system are both considered to be Class IV systems. Both systems were reevaluated to determine the appropriateness of the current classification for operator certification requirements **(see Attachment #11)**. No changes are proposed to the system classifications.

Schedule A, Waste Discharge limitations

Schedule A contains the effluent limitations established for this facility. Requirements in the tables apply to the combined discharge from the listed outfalls.

a. Outfall 001A, 001B and 002A - Treated Effluent

(1) June 1 - October 31:

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
$CBOD_5$ **	32 mg/L	40 mg/L	9,300	12,000	14,000
TSS	37 mg/L	45 mg/L	11,000	13,000	15,000

(2) November 1 –May 31: Monthly average effluent flows up to 90 MGD

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
$CBOD_5$ **	25 mg/L	40 mg/L	13,000	19,000	26,000
TSS	30 mg/L	45 mg/L	16,000	23,000	31,000

(3) November 1 –May 31: Monthly average effluent flows greater than or equal to 90 MGD and less than 110 MGD

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly** Average lb/day	Weekly** Average lb/day	Daily** Maximum lbs
$CBOD_5$ **	25 mg/L	40 mg/L	19,000	28,000	38,000
TSS	30 mg/L	45 mg/L	23,000	34,000	45,000

(4) November 1 –May 31: Monthly average effluent flows greater than or equal to 110 MGD and less than 140 MGD

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly** Average lb/day	Weekly** Average lb/day	Daily** Maximum lbs
$CBOD_5$ **	25 mg/L	40 mg/L	23,000	34,000	46,000
TSS	30 mg/L	45 mg/L	28,000	41,000	55,000

(5) November 1 –May 31: Monthly average effluent flows greater than or equal to 140 MGD

Parameter	Average Effluent Concentrations Monthly	Weekly	Monthly** Average lb/day	Weekly** Average lb/day	Daily** Maximum lbs
$CBOD_5$ **	25 mg/L	40 mg/L	29,000	44,000	58,000
TSS	30 mg/L	45 mg/L	35,000	53,000	70,000

* The summer and winter Mass Load Limits are based on the average dry weather flow to the facility of 35 MGD and an estimated average wet weather flow of 62 MGD. Daily mass load limits are suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

** The high flow winter period mass load limits are based on the minimum month average flow for the appropriate range and the concentration limit. The daily mass load limit is suspended on any day when the flow to the treatment facility exceeds 70 MGD (twice the design average dry weather flow). The permittee shall operate the treatment facility at the highest and best practicable treatment and control.

(6)

Other parameters (year-round)	Limitations
pH	Shall be within the range of 6.0 - 9.0
Total Residual Chlorine	Shall not exceed a monthly average of 0.09 mg/L and a daily maximum of 0.23 mg/L
E. coli Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (See Note 1)
$CBOD_5$ Removal Efficiency (on a monthly average concentration basis)	(1) When monthly average daily flow is 54 MGD or less, not less than 85 percent (2) When monthly average daily flow is greater than 54 MGD, not less than 78 percent for $CBOD_5$ (3) When the monthly average daily flow is 90 MGD or greater, not less 65 percent for $CBOD_5$
$CBOD_5$ and TSS Removal Efficiency (on a monthly average concentration basis)	(1) When monthly average daily flow is 54 MGD or less, not less than 85 percent (2) When monthly average daily flow is greater than 54 MGD, not less than 72 percent for TSS

Notes:
(1) If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at four hour intervals beginning with in 28 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.

(7) Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-41 except in the defined mixing zone:

That portion of the Willamette River within15 feet upstream and 150 feet downstream of the diffuser. In addition, the Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within 15 feet of the outfall diffuser.

b. Outfall Number 002B through 166

No waste shall be discharged from these outfalls and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041, unless the cause of the discharge is an upset as defined in condition B4 and B6 of the attached General Conditions or is due to storm events as allowed under OAR 340-041-0009 (6) and (7).

Raw sewage overflows due to storm events shall be minimized as follows:

Overflows in winter (November 1 through May 21) due to storms less than the on-in-five year, 24-hour duration storm shall be eliminated as soon as practicable and not later than completion of the upgraded facilities required in paragraph 13.C.4 of the Mutual Agreement and Order #WQ/M-WR-97-147.

Raw sewage discharges are prohibited to waters of the State from May 22 through October 31, except during a storm event greater than the one-in-ten-year, 24-hour duration storm. If an overflow occurs between May 22 and June 1, and if the Permittee demonstrates to he Department's satisfaction that no increase in risk to beneficial uses occurred because of the overflow, no violation shall be triggered if the storm associated with the overflow was greater than the one-in-five-year, 24-hour duration storm.

c. Reclaimed Wastewater

The City operates a Natural Reclamation System (NRS) adjacent to the Willow Lake treatment facility. The NRS operates under a separate Water Pollution Control Facility (WPCF) Permit #102495. The discharge limits and monitoring requirements relating to reclaimed water as established under that permit.

d. Groundwater

No activities shall be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals shall be managed and disposed in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR 340-040).

CBOD and TSS Concentration and Mass Limits

Based on the Willamette Basin minimum design criteria, wastewater treatment resulting in a monthly average effluent concentration of 10 mg/L for $CBOD_5$ and TSS must be provided from June 1 through October 31. From November 1 through May 31, a minimum of secondary treatment is required. Secondary treatment in Oregon is defined as monthly average concentration limit of 30 mg/L for BOD_5 or 25 mg/L for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) and 30 mg/L for TSS.

The $CBOD_5$ concentration limits are considered equivalent to the minimum design criteria for BOD5 specified in OAR 340-41. These limits and the $CBOD_5$ mass load limits may be adjusted by permit action up or down if more accurate information regarding CBOD5/BOD5 equivalency becomes available.

The summer discharge limits were developed during the 1981 permit renewal process. An explanation of the limits was included in a Department letter dated August 25, 1983 **(see Attachment 12)**. The mass limits are based on contributions from both the domestic population and the mass loading from food processors that discharge into the POTW. According to 40 CFR Part 133.103(b), the BOD_5 and TSS secondary treatment standards may be adjusted upwards when industrial wastes are introduced into a publicly owned treatment works. The requirements are: (1) The permitted discharge of such pollutants, attributable to the industrial category, would not be greater than that which would be permitted under the effluent limit guideline if such industrial category were to discharge directly into the navigable waters, and (2) the flow or loading of such pollutants introduced by the industrial category exceeds 10 percent of the design flow or loading of the publicly owned treatment works. When such an adjustment is made, the values for BOD_5 and TSS should be adjusted proportionately.

The concentration limits were "back calculated" from the mass load limit of 11,000 pounds per day.

11,000 lbs BOD and TSS/day / (35 MGD X 8.34 lbs/gal) = 37 mg/L BOD and TSS

The BOD_5 limits were reduced slightly when the limitations were changed from BOD_5 to $CBOD_5$ with the 1993 permit action. The Department is proposing to retain the existing summer concentration and mass limits from the previous permit. The proposed monthly average $CBOD_5$ concentration limit is 32 mg/L with a weekly average limit of 40 mg/L. The proposed monthly average TSS concentration limit is 37 mg/L with a weekly average limit of 45 mg/L. The proposed monthly average $CBOD_5$ mass limit is 9,300 lbs/day with a weekly average limit of 12,000 lbs/day and a daily maximum of 14,000 lbs/day. The proposed monthly average TSS mass limit is 11,000 lbs/day with a weekly average limit of 13,000 lbs/day and a daily maximum of 15,000 lbs/day.

The summer concentration limits are based on a minimum design criteria of 30 mg/L for the domestic portion of the wastewater. The existing treatment facility is not designed to meet the Willamette Basin minimum design criteria for BOD_5 or TSS in the summer. In accordance with OAR 340-041-0061(4)(c), meeting the more stringent levels of treatment will be deferred until it is necessary to expand or otherwise modify or replace the existing treatment facilities.

The proposed monthly average winter $CBOD_5$ concentration limits are 25 mg/L with a weekly average limit of 40 mg/L. The proposed monthly average winter TSS concentration limits are 30 mg/L with a weekly average limit of 45 mg/L. These limits are in accordance with the federal secondary treatment standards and the Willamette Basin minimum design criteria. No changes are proposed for the $CBOD_5$ and TSS winter concentration limits. The existing facility can comply with the winter period minimum design criteria.

The existing winter mass load limits (monthly and weekly average and daily maximum) for $CBOD_5$ are based on the design average wet weather flow of 62 MGD and the appropriate concentration limits. The winter $CBOD_5$ calculations are:

a) 62 MGD x 8.34 lbs/gal x 25 mg/L = 12,927 (13,000) lbs/day monthly avg.
b) 12,927 lbs/day x 1.5 = 19,390 (19,000) lbs/day weekly avg.
c) 12,927 lbs/day x 2 = 25,854 (26,000) lbs daily maximum

The existing winter mass load limits (monthly and weekly average and daily maximum) for TSS are based on the design average wet weather flow of 62 MGD and the appropriate concentration limits. The winter TSS calculations are:

a) 62 MGD x 8.34 lbs/gal x 30 mg/L = 15,512 (16,000) lbs/day monthly avg.
b) 15,512 lbs/day x 1.5 = 23,269 (23,000) lbs/day weekly avg.
c) 15,512 lbs/day x 2 = 31,025 (31,000) lbs daily maximum

All mass limitations have been rounded to two significant digits. On any day that the daily flow exceeds 70 MGD (twice the design ADWF), the daily mass load limits shall not apply. In accordance with OAR 340-041-0061(10)(a)(G), the permittee is required to remove all inflow sources from the collection system because the winter mass limits are based on the design average wet weather flow (AWWF). The proposed permit includes a Schedule C condition requiring submittal of an updated program and time schedule for identifying and removing inflow.

The City is proposing to construct new treatment facilities (including upgrades at the Willow Lake Water Pollution Control Facility and new PEFTF treatment facilities at North River Road Park) during this

permit cycle. The Department is proposing that the $CBOD_5$ and TSS mass load limits be applied to the combined discharges from the WLWPCF and the PEFTF. By having combined mass limits, the entire system must be operated in a manner that will minimize the total load discharged. The oxygen demanding impacts are exerted many miles downstream from the City (far-field rather than near-field or mixing zone impacts). Therefore, combined or "bubble" limits make sense and will result in the minimum impact on the environment.

The Permittee has petitioned for a mass load increase when the monthly average flow treated by the combined PEFTF and WLWPCF exceeds 90 MGD. The reason for the increase in load is because flows that currently overflow the sewer system and enter the river as raw wastewater will be treated in the new facilities. Since the concentration and mass loads of the overflows have not been included in the existing permit, existing mass loads understate actual discharge conditions.

The Department is proposing increased mass load limits during winter periods of high flow as requested by the City. The maximum month flow to be treated at the WLWPCF is 140 MGD and the maximum month flow to be treated at the North River Road Park Facility is 50 MGD. The calculations for the proposed winter period $CBOD_5$ mass limits when flows are greater than or equal to 90 MGD are:

a) 90 MGD x 8.34 lbs/gal x 25 mg/L = 18,765 (19,000) lbs/day monthly avg.
b) 1.5 x 18,765 lbs/day = 28,148 (28,000) lbs/day weekly avg.
c) 2.0 x 18,765 lbs/day = 37,530 (38,000) lbs daily maximum

The calculations for the proposed winter period TSS mass limits when flows are greater than or equal to 90 MGD are:

a) 90 MGD x 8.34 lbs/gal x 30 mg/L = 22,518 (23,000) lbs/day monthly avg.
b) 1.5 x 22,518 = 33,777 (34,000) lbs/day weekly avg.
c) 2.0 x 22,518 lbs/day = 45,036 (45,000) lbs daily maximum

The calculations for the proposed winter period $CBOD_5$ mass limits when flows are greater than or equal to 110 MGD and less than 140 MGD are:

a) 110 MGD x 8.34 lbs/gal x 25 mg/L = 22,935 (19,000) lbs/day monthly avg.
b) 1.5 x 22,935 lbs/day = 34,403 (34,000) lbs/day weekly avg.
c) 2.0 x 22,935 lbs/day = 45,870 (46,000) lbs daily maximum

The calculations for the proposed winter period TSS mass limits when flows are greater than or equal to 110 MGD and less than 140 MGD are:

a) 110 MGD x 8.34 lbs/gal x 30 mg/L = 27,522 (28,000) lbs/day monthly avg.
b) 1.5 x 27,522 = 41,283 (41,000) lbs/day weekly avg.
c) 2.0 x 27,522 lbs/day = 55,044 (55,000) lbs daily maximum

The calculations for the proposed winter period $CBOD_5$ mass limits when flows are greater than or equal to 140 MGD are:

a) 140 MGD x 8.34 lbs/gal x 25 mg/L = 29,190 (29,000) lbs/day monthly avg.
b) 1.5 x 29,190 lbs/day = 43,785 (44,000) lbs/day weekly avg.
c) 2.0 x 29,190 lbs/day = 58,380 (58,000) lbs daily maximum

The calculations for the proposed winter period TSS mass limits when flows are greater than or equal to 140 MGD are:

a) 140 MGD x 8.34 lbs/gal x 30 mg/L = 35,028 (35,000) lbs/day monthly avg.
b) 1.5 x 35,028 = 52,542 (53,000) lbs/day weekly avg.
c) 2.0 x 35,028 lbs/day = 70,056 (70,000) lbs daily maximum

A review of monitoring data **(see Attachment #13)** for the last three years indicate the City should be able to comply with the proposed permit limits. The City of Salem has never experienced a month with an average plant flow approaching 90 MGD. However, as the raw sewage overflows are captured and treated, it is possible the discharged flows could exceed 90 MGD on a regular basis. It is anticipated that the City could experience monthly average flows of 90 MGD with river flows as low as 75,000 cfs which could occur about every other year.

The Willamette River is considered water quality limited for dissolved oxygen during the spawning season. All of the dissolved oxygen violations occurred during periods of low flow. However, since the Willamette River is listed for dissolved oxygen during the facility's wet season, no load increase can be granted that will cause a measurable decrease in the dissolved oxygen (DO) of the river. An analysis of the impact of the increased load has been completed and submitted to the Department. A very conservative assessment of the impact of the mass load increase was conducted using river flows of 9400 cfs (the November 7Q10).

The average DO depletion (using the entire wet weather season proposed discharge load limit) will be 0.01 mg/l at the start of the Newberg Pool. The maximum depletion will be in April and would be 0.02 mg/l at the same location. In this later condition, about 50 percent of full depletion has been reached. Therefore, this increase will not cause a measurable decrease in the DO of the river.

Currently, a significant fraction of the mass load is discharged unmeasured in the raw sewage overflows. By capturing and treatment these flows, the City of Salem will actually reduce their impact on the dissolved oxygen of the Willamette River. However, the above limits represent an increase from the current permit. The Department has evaluated the analysis of the impact and believes the increased winter mass load limits to be acceptable. The limits cannot be increased without approval of the Environmental Quality Commission (EQC). In accordance with OAR 340-041-0004(9), the EQC is obligated to make certain findings. Below is a list of the required findings and considerations that relate to dissolved oxygen followed by the Department's conclusions:

Findings:

The proposed wasteload must not cause water quality standards to be violated.

Conclusion:

The current permit does not account for pollutant load currently being discharged to the Willamette River through untreated Sanitary Sewer Overflows (SSO). The SSO load to the Willamette River is very significant in wet weather periods. However, the SSO load is infrequent and typically of short duration. The permittee must anticipate load increases that cover the planning period and all conditions. The following improvements will exist:

(1) The initial improvements planned will increase the amount of flow received and treated by 85 million gallons per day (MGD). Initially 50 MGD will receive the equivalent of

secondary treatment and 35 MGD will receive primary clarification and disinfection. The proposed improvements will markedly reduce pollutant load to the Willamette River and will improve water quality.

(2) Existing bacterial contamination from SSOs, resulting in violation of in-stream standards, will be eliminated up to the 5 year storm event. The mass load limits for Carbonaceous Biochemical Oxygen Demands (CBOD) and Total Suspended Solids (TSS) in the existing permit do not account for wet weather (SSO) pollutant load that is discharged without treatment. This untreated flow will be treated as improvements are made and an allowance must be provided for CBOD and TSS discharged in the treated effluent.

(3) The wet weather period mass load allowed in the Permit will have to be increased, even with all future flow receiving secondary treatment. The improvements will result in a significant net reduction in CBOD, TSS, bacteria, phosphorous, and toxic metals.

The increased wasteload must not impair any recognized beneficial uses.

Conclusion:

The increase in the permitted wasteload reflects a decrease in the actual wasteload discharged to the Willamette River. The pollutant load from the existing SSOs is not currently accounted for in the City of Salem's current NPDES permit. The treatment plant improvements proposed by the City of Salem will eliminate the wasteload due to SSOs but will increase the volume of treated wastewater discharged from the City's wastewater treatment facilities. This will result in a reduction of the overall pollutant load released into the Willamette River.

The SSOs discharge about 66,000 and 57,000 lbs/day BOD and TSS, respectively, during the maximum month and about 121,000 and 106,000 lbs/day BOD and TSS, respectively, on the maximum day. This mass load is not counted against the permit limits. The proposed permit includes monthly average increases of 22,000 and 14,000 lbs/day BOD and TSS, respectively, and daily maximum increases of 44,000 and 29,000 lbs BOD and TSS, respectively. With the planned improvements to the City's treatment facilities and with the elimination of SSOs, the requested mass load limit increases reflect a net reduction of pounds of 44,000 pounds average day maximum month CBOD and 43,000 pounds average day maximum month TSS. On a peak day, the net reduction will be 77,000 pounds for both CBOD and TSS. Additionally, there will be a 4 log reduction in *E. coli* concentration.

Because the requested mass load increase actually represents a reduction in the wasteload discharged to the Willamette River, there will be improved water quality and reduced impairment of beneficial uses.

If the receiving stream is water quality limited, the increased wasteload must be consistent with the waste load allocation assigned in the TMDL.

Conclusion:

The planned improvements will eliminate SSOs to the 5-year, 24-hour design storm to the Willamette River and therefore will reduce Biochemical Oxygen Demand (BOD) and TSS loadings compared to current conditions. The Willamette River is listed as water quality limited for dissolved oxygen but a TMDL has not been established. In order to proceed with the projects to eliminate SSOs to the Willamette River, a "worst case" scenario was used to determine potential loadings released to the river at the projected flow conditions in 2025. These projected mass loads were based on lower monthly and weekly effluent concentrations than the current permitted effluent concentration limits and effluent concentration limits lower than the basin standard. Based on this approach, the requested mass loads will result in load reductions of 37, 33, and 46 percent in maximum monthly, weekly, and daily pounds respectively, compared to the pollutant load that would result without these improvements.

While the permitted load must increase, the end result will be significantly less pollutant load on the Willamette River and a high performance standard for wet weather secondary treatment. Therefore the following findings, consistent with the requirements established in OAR 340-41-0026(3) can be made:

(1) The proposed National Pollutant Discharge Elimination System (NPDES) "winter" mass load limits will not cause water quality standards to be violated since they are lower than what is currently discharged and what is implicitly allowed by the current NPDES Permit.

(2) The proposed NPDES "winter" season mass load limits will not unacceptably threaten or impair any recognized beneficial uses since they are lower than what is currently discharged and what is implicitly allowed by the current NPDES Permit.

(3) The Willamette River has been identified as water quality limited for dissolved oxygen during the wet season. No TMDL for dissolved oxygen has been developed or is anticipated prior to expiration of the Permit. Proposed mass limits are lower than what is currently discharged and what is implicitly allowed by the current NPDES Permit. This will result in improved water quality and improved dissolved oxygen conditions in the Willamette River.

The activity associated with the waste load must be consistent with the acknowledged local land use plans.

Conclusion:

The proposed increase will serve existing conditions and customers within the service area and will provide for additional growth in the area through the planning period. The activity is consistent with the adopted and approved Facility Plan for wastewater treatment and control and the Comprehensive Plan for the City. The Department has received a Land Use Compatibility Statement for this project.

The Commission shall consider the possible negative impact of removing the discharge from the stream.

Conclusion:

The proposed discharge will meet all water quality standards. The requested mass load increase is for periods of high wet weather flows when there is virtually no opportunity for alternative use of the effluent. The permittee will be required to expand treatment capacity and improve treatment quality during the Facility Planning period. These improvements are expected to cost in excess of $350 million dollars during the planning period. It is likely the cost to permanently remove the flows from the river would be significantly higher, if at all possible.

The Commission shall consider instream effects, for example if the increased discharge is offset by other decreases.

Conclusion:

The proposed discharge will result in a net reduction in the discharge of pollutants to the Willamette River. While the permitted mass load for CBOD and TSS from the City of Salem's wastewater treatment facilities would be increased, actual pollutant load and pollutant concentrations will be decreased for CBOD, TSS phosphorus, bacteria and certain toxic metals. The treatment process that the City is proposing to use at the Peak Excess Flow Treatment Facility has been demonstrated to be more effective than traditional biological secondary treatment at reducing the concentration of phosphorus and certain toxic metals.

The Commission must consider the possible beneficial use of the effluent in non-discharge alternatives.

Conclusion:

This request specifically addresses high flow discharges. The winter flows could not be beneficially used since nearly all reuse options occur during the summer months.

The Commission shall consider the economic value of assimilative capacity.

Conclusion:

The requested increase in the permitted mass load that can be discharged from the City's wastewater treatment facilities actually represents a reduction in the mass load discharged to the Willamette River. The increase is needed because the City is eliminating SSOs and will be discharging more treated effluent as a result. Therefore the proposed increase in the permitted mass load for CBOD and TSS will not result in a reduction in assimilative capacity.

The requested mass load increase is for discharges that would occur only during times of rainfall induced high flow conditions. These occurrences will be associated with high river levels and flows, lower receiving stream and discharge temperatures, and therefore will occur during periods when dissolved oxygen saturation levels and assimilative capacity is at its greatest. Existing data indicates that in-stream dissolved oxygen levels are in excess of 11 mg/l during the periods this increased discharge would occur and that the current discharge is assimilated at the edge of the regulatory mixing zone.

The Commission shall consider the cost of treatment technology necessary to remain within the assigned mass loads.

Conclusion:

In order to remain within the current winter time mass load limits the permittee would be required to perform tertiary treatment on a significant percentage or all of the projected maximum month flow. This would result in an additional cost of approximately $35 million.

Recommendation

Based on the above findings and considerations, the Department recommends that the Commission approve the requested mass load increase.

CBOD and TSS Percent Removal Efficiency

A minimum level of percent removal for BOD5 and TSS for municipal dischargers is required by the Code of Federal Regulations (CFR) secondary treatment standards (40 CFR, Part 133). An 85 percent removal efficiency limit is generally included in permits in order to comply with federal requirements.

However, federal regulations include special considerations for less concentrated influent wastewater for separate sewers. 40 CFR 133.103 (d) states that "A...State Director is authorized to substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements...." provided that the permittee satisfactorily demonstrates that:

1. The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits, but its percent removal requirements cannot be met due to less concentrated influent wastewater;

2. To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations (defined as at least 5 mg/l more stringent than the otherwise applicable concentration-based limitations) than would otherwise be required by the concentration-based standards; and,

3. The less concentrated influent wastewater is not the result of excessive infiltration and inflow (I/I).

When these three conditions are met, federal regulations allow relaxed percent removal and mass load requirements during wet weather. The specific allowable percent removal requirements under these conditions are not constrained by the federal regulations.

Wet weather CBOD and TSS influent concentrations to the WLWPCF currently reach levels of between 40 and 70 mg/l during high flow events (flows between 85 and 105 MGD). When these events occur, effluent CBOD and TSS concentrations are consistently below the limits set in the existing NPDES permit. However, an 85 percent removal requirement for these constituents would result in required effluent concentrations as low as 6 mg/l. According to the federal definition, attaining this percent removal requirement would result in a significantly more stringent limitation than the concentration limits within the permit of 30 mg/l. These are the first two conditions that must be met in order to be granted a modification of percent removal and mass load requirements.

Excessive I/I is defined within 40 CFR 35.2005 (b) (16) as "the quantities of infiltration/inflow which can be economically eliminated from a sewer system as determined in a cost-effective analysis that

compares the costs for correcting the infiltration/inflow conditions to the total costs for transportation and treatment of the infiltration/inflow." The September 2002 *Willow Lake Wastewater Treatment Plant Facilities Plan* established that the less concentrated influent wastewater is not the result of "excessive I/I". As a result, the City meets all three of the conditions.

The City has previously qualified for a lower percentage removal of BOD and TSS pursuant to 40 CFR 133.103(d) because the above conditions have been demonstrated. In the City's current permit, reduced removal efficiently limitations are triggered when average monthly flows to the plant exceed 54 MGD, an event which happens approximately 35 percent of the time during the wet weather season, typically in the months of December, January, and February. When these events occur, the permit allows average monthly percent removals of 78 for BOD and 72 percent for TSS.

As planned, new facilities will be constructed to treat and disinfect wastewater which is currently discharged as untreated sanitary sewer overflows (SSOs). The September 2002 *Willow Lake Wastewater Treatment Plant Facilities Plan* outlines the planned improvements necessary to provide secondary treatment of all 2025 wet weather flows less than those generated by the 5-year, 24-hour storm event. Prior to 2025, some of the flow will receive "select treatment" at the WLWPCF but all of the flow will be disinfected prior to discharge to comply with Oregon's bacterial standard.

The design of improvements are premised on the following:

- 155 MGD of capacity at the WLWPCF by year 2010 with select treatment for 55 percent of 155 MGD.
- The West Salem Pump Station capacity will be increased from 20 MGD to 35 MGD by 2015.
- 20 percent reduction in $CBOD_5$ and 25 percent reduction in TSS through select treatment based on current treatment performance data.
- 50 MGD of PEFTF secondary treatment capacity by year 2010.
- Wet weather monthly average effluent CBOD and TSS concentrations of 20 mg/l for secondary treatment at WLWPCF.
- Wet weather monthly average effluent CBOD concentration of 30 mg/l and monthly average effluent TSS concentration of 15 mg/l from the PEFTF.
- Influent wastewater concentrations remain the same as currently observed during wet weather.

By 2010, it will be difficult for the City of Salem to meet the percent removal requirements established in the current permit. While more flow is receiving treatment each month, as little as 45 percent may receive secondary treatment at the WLWPCF during peak flow events. The remainder is receiving treatment at the PEFTF or receiving select treatment at the WLWPCF. TSS removal is less of a problem in 2010 because of the excellent TSS removal performance of the PEFTF during wet weather.

Since even secondary treatment of the dilute wastewater cannot consistently meet the permit removal requirements at higher flows, a 65 percent CBOD removal efficiency limit will be required when flows in the treatment systems exceed 90 MGD.

The City of Salem is committed to continue taking an aggressive and innovative approach to controlling SSOs. Since more traditional I/I reduction efforts have not proven effective nor cost-effective, the City is now planning on conveying and treating flows up to the five-year 24-hour winter storm event, either at the Willow Lake Water Pollution Control Facility or at the Peak Excess Flow Treatment Facility to be located in River Road Park.

<u>One-in-Five-Year Storm</u>

The Permittee is required to eliminate SSOs for all storms with a recurrence of less than one-in-five years. A phased approach is being used by the City for construction of improvements to ensure efficient investment in system improvements. Based on historical plant flow data and measurements of overflows, a one-in-five-year storm is estimated to generate 190 million gallons of wastewater over a 24-hour period. Therefore, the system should be sized to treat this volume of wastewater and if the system treats at least 190 mg over a 24-hour period, the Permittee will be in compliance with the SSO rule.

Operation of the system will need to be carefully managed to allow for peak flows during such an event that may be higher than the maximum capacity of the system. Operators will need to anticipate major storm responses and operate the PEFTF early in the process. This will maintain conveyance storage, maximum hydraulic capacity for pump stations and treatment units. These units will need to be employed, and system response will need to be carefully monitored to ensure compliance with this provision.

pH

The Willamette Basin Water Quality Standard for pH is found in OAR 340-041-0345(1)(a). The allowed range is 6.5 to 8.5. The proposed permit limits pH to the range 6.0 to 9.0. This limit is based on Federal wastewater treatment guidelines for sewage treatment facilities, and is applied to the majority of NPDES Permittees in the state. Within the permittee's mixing zone, the water quality standard for pH does not have to be met. The Department's Reasonable Potential Analysis (RPA) calculates the pH of the discharge combined with the receiving stream at the edge of the mixing zone. Based on the assumed critical case conditions, the RPA **(see Attachment #14)** demonstrates that mixing with ambient water within the mixing zone ensures that the pH meets the standard. The Department considers the proposed permit limits to be protective of the water quality standard.

Chlorine Residual

Chlorine is added to the discharge to disinfect the plant effluent and comply with the waste discharge limitations for bacteria. The minimum design criteria (OAR 340-041-0007) for sewage wastes requires the City to provide disinfection facilities capable of achieving 1.0 mg/L total chlorine residual. This level could be considered a technology based minimum concentration.

Chlorine is a known toxic substance and as such is subject to limitation under Oregon Administrative Rules. The rule (OAR 340-041) states in part that toxic substances shall not be discharged to waters of the state at levels that adversely affect public health, aquatic life or other designated beneficial uses. In addition, levels of toxic substances shall not exceed the criteria listed in Table 20, which were based on criteria established by the EPA and published in Quality Criteria for Water (1986), unless otherwise noted.

However, OAR 340-041-0053 states that the Department may allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone. The Department may suspend all or part of the water quality standards, or set less restrictive standards, in the defined mixing zone, provided the water within the mixing zone is free of materials in concentrations that will cause acute toxicity to aquatic life as measured by the acute Whole Effluent Toxicity method and outside the boundary of the mixing zone is free of materials in concentrations that will cause chronic toxicity.

Furthermore, 40 CFR §122.44(d) states that permit limitations must control all pollutants or pollutant parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality. The fresh water criteria for chlorine were used to calculate permit limitations.

According to OAR 340-041, Table 20, chlorine concentrations of 11 µg/L can result in chronic toxicity in fresh waters while 19 µg/L can result in acute chlorine toxicity in fresh waters.

Compliance with acute toxicity criteria is required at the edge of the Zone of Initial Dilution (ZID) and compliance with chronic toxicity criteria is required at the edge of the mixing zone.
For the facility, outfall, and mixing zone as presently configured, the dilution factor is 2.4 at the edge of the ZID and 8.3 at the edge of the mixing zone during critical low stream flow conditions. Permit limits based on these dilutions and the acute and chronic criteria were calculated and incorporated into the permit with the January 21, 1998 modification. The current total residual chlorine limit is a daily average of 0.05 mg/l.

With the installation of the new outfall diffuser, the available mixing is improved which allows for a somewhat higher total chlorine residual limit during normal operations. New total residual chlorine limits based on a dilution of 12 at the edge of the ZID and 25 at the edge of the mixing zone were calculated using a DEQ spreadsheet program and are proposed. The proposed total residual chlorine monthly average limit is 0.09 mg/L with a daily maximum of 0.23 mg/L **(see Attachment #15)**.

The current permit limits total residual chlorine to a daily average of 0.05 mg/L. The water quality based limit is more restrictive than the technology based minimum. The previous permit limits no longer apply since they were based on circumstances that have materially and substantially changed since the permit was issued. The Department is proposing to include total residual chlorine limits of 0.09 mg/L monthly average and a daily maximum of 0.23 mg/L.

The City currently has the ability to dechlorinate effluent flows up to 45 MGD and less. The MAO requires the City to comply with the total chlorine residual limit of 0.05 mg/L up to that flow and minimize the discharge of chlorine during periods of higher flow.

A file review of recent effluent monitoring data shows that the chlorine residual does not exceed this limit and the City should generally be able to comply with the new limits.

The water quality based effluent limits for total residual chlorine proposed in this permit are lower than the Minimum Level (ML) for chlorine of 0.1 mg/L published by EPA. In accordance with EPA Region X Guidance for WQBELs Below Analytical Detection Limits issued in 1996, the permit should include the ML as a "compliance evaluation level". The Department is proposing to include a note in Schedule A establishing 0.10 mg/L as a compliance evaluation level for total residual chlorine.

Bacteria

The current permit was modified to include limitations on *E. coli* bacteria. The limits are a monthly geometric mean of 126 E. coli per 100 mL, with no single sample exceeding 406 E. coli per 100 mL. The bacteria standard allows that if a single sample exceeds 406 E coli per 100 mL, then the permittee may take five consecutive re-samples. If the log mean of the five re-samples is less than or equal to 126, a violation is not triggered. The re-sampling must be taken at four hour intervals beginning within 28 hours after the original sample was taken. The fecal bacteria effluent limitations are achievable through proper operation and maintenance.

Mixing Zone

The available mixing zone has been modified to reflect the mixing that will be provided by the new outfall diffuser. The proposed definition for the mixing zone and ZID for Outfall 001A is:

> The allowable mixing zone for Outfall 001A is that portion of the Willamette River contained within a band extending out ten (10) feet from each side of the discharge diffuser and extending from a point ten (10) feet upstream of the diffuser to a point one hundred fifty (150) feet downstream from the diffuser. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

The proposed definition for the mixing zone and ZID for Outfall 001B is:

> The allowable mixing zone for Outfall 001B is that portion of the Willamette River contained within a band extending out twenty (20) feet from the east bank of the river and extending from a point ten (10) feet upstream of the discharge to a point one hundred fifty (150) feet downstream from the discharge. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

The proposed interim definition for the mixing zone and ZID for Outfall 002A is:

> The allowable mixing zone for Outfall 002A is that portion of the Willamette River contained within a band extending out twenty (20) feet on each side of the discharge and extending from a point ten (10) feet upstream of the discharge to a point one hundred fifty (150) feet downstream from the discharge. The Zone of Initial Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within fifteen (15) feet of the point of discharge.

The permit includes a requirement to perform a mixing zone study on Outfall 002A within two years of initiation of operations at the PEFTF facility. The permit may be reopened to modify the defined mixing zone, limitations and/or monitoring requirements.

Emergency Overflows

Improvements have been made to the collection system and pump stations and the list of emergency outfalls has been modified to reflect the current conditions. Schedule A contains a condition prohibiting discharges from these outfalls unless the cause of the overflow is in accordance with the rules.

Groundwater

Based on the Department's current information, this facility has a low potential for adversely impacting groundwater quality. Therefore, the permit includes a condition in Schedule A that prohibits any adverse impact on groundwater quality. In addition, Schedule D of the proposed permit states that no groundwater evaluations will be required during this permit cycle

Schedule B - Minimum Monitoring and Reporting Requirements

Schedule B describes the minimum monitoring and reporting necessary to demonstrate compliance with the conditions of this permit. The authority to require periodic reporting by permittees is included in ORS 468.065(5). Self-monitoring requirements are the primary means of ensuring that permit limitations are being met. However, other parameters need to be monitored to collect information when insufficient information exists to establish a limit, but where there is a potential for a water quality concern.

In 1988, the Department developed a monitoring matrix for commonly monitored parameters. The matrix was updated in 2004. Proposed monitoring frequencies for all parameters are based on the updated matrix and, in some cases, may have changed from the current permit. The proposed monitoring frequencies for all parameters correspond to those of facilities of similar size and complexity in the state.

The Permittee is required to have a laboratory Quality Assurance/Quality Control program. The Department recognizes that some tests do not accurately reflect the performance of a treatment facility

due to quality assurance/quality control problems. These tests should not be considered when evaluating the compliance of the facility with the permit limitations. Thus, the Department is also proposing to include in the opening paragraph of Schedule B a statement recognizing that some test results may be inaccurate, invalid, do not adequately represent the facility's performance and should not be used in calculations required by the permit.

Below is a discussion of some of the minimum monitoring requirements contained in the proposed permit:

Influent and Outfalls 001A and 001B (Treated Effluent)
Daily monitoring of influent flow is required in this permit. The flow meter must be calibrated quarterly. Monitoring of the influent for $CBOD_5$ has been substituted for BOD_5 monitoring. Monitoring the effluent for BOD_5 has been deleted. Both influent and effluent TSS monitoring is required. The frequency of $CBOD_5$ and TSS monitoring is retained at three times per week. Effluent ammonia monitoring is required because CBOD5 replaces BOD5. Ammonia monitoring is proposed at three times per week and should be performed on the same samples as $CBOD_5$.

Pounds of effluent $CBOD_5$ and TSS must be calculated at the same frequency as the effluent testing. Federal secondary treatment standards require municipal sources to achieve a specific $CBOD_5$ and TSS removal efficiency as a monthly average. Reporting of the removal efficiencies is required in the proposed permit.

The proposed permit requires monitoring of the quantity of chlorine used and the total chlorine residual on a daily basis to confirm consistent performance of the disinfection system. The frequency of bacteria monitoring for *E. coli* has been increased from twice per week to three times per week. Monitoring for *E. coli* must be performed in accordance with one of the methods approved by the Department. Monitoring of the influent and effluent for pH has been retained at daily.

The proposed permits includes new monitoring requirements for effluent temperature and dissolved oxygen. The effluent temperature must be monitored on a continuous basis year-round with the daily maximum reported. As discussed above, monitoring of the effluent for dissolved oxygen is proposed at three times per week.

In order to fully characterize the facility's contribution of nutrients to the receiving stream, the Department is proposing effluent monitoring for nutrients. Weekly monitoring of Total Kjeldahl Nitrogen (TKN), nitrate plus nitrite and phosphorus is proposed for the period from May through October each year. There is no change in this requirement except to delete ammonia as a parameter.

The City previously monitored the influent and effluent for 9 metals and cyanide monthly for three consecutive days and total phenols semi-annually for three consecutive days. The proposed permit requires monitoring the influent and effluent for 11 metals and cyanide quarterly for three consecutive days. The total phenols monitoring requirement has been deleted. Monitoring results are to be submitted in the annual pretreatment report and are not required to be submitted with the monthly DMR.

For the first two years after permit issuance, the City must perform special toxics monitoring on the effluent for cadmium during one of the three consecutive days of toxics monitoring. The special toxics monitoring shall be conducted using a "clean" sampling method, an "ultra-clean" sampling method, EPA method 1669 or any other test method approved by the Department with a detection limit of 0.1 µg/L or less. This is a new requirement.

For the first two years after permit issuance, the City must perform special toxics monitoring on the effluent for mercury semi-annually during one of the three consecutive days of toxics monitoring. The special toxics monitoring for mercury shall be conducted in accordance with EPA Method 1631.

After two years of special toxics monitoring, the City may eliminate special monitoring of the effluent unless otherwise notified by the Department. The Department will base its determination upon the ability of the permittee to consistently comply with the water quality criteria.

The permittee must perform "priority pollutant" scans in order to complete Part D of EPA Form 2A for the next renewal application. Three scans are required during the 4 ½ years after permit issuance. Two of the three scans must be performed no fewer than 4 months and no more than 8 months apart. As stated above, the proposed permit requires that the pesticide fraction be included in the monitoring of priority pollutants. This is a new requirement.

The Department previously required quarterly whole effluent toxicity (WET) tests during the first year using at least two species. The proposed permit requires annual WET tests using three species. If the results of the first four tests show that the effluent is not toxic, no further WET testing will be required during this permit cycle. WET tests are to be conducted in accordance with EPA test methods and procedural requirements as defined in Schedule D.

As discussed above, the proposed permit will include a monthly effluent monitoring requirement for iron for one year after permit issuance. This is a new requirement. The monitoring will allow the Department to determine if iron in the discharge has a reasonable potential for causing or contributing to water quality standard violations. In such case, the Department may require additional monitoring or reopen the permit to include new limits, conditions or requirements. The permit may also be reopened should a future TMDL assign an iron WLA to this source.

Outfall 002A (Treated Effluent)

Additional monitoring will be required to quantify and characterize the quality of the wastewater discharged at Outfall 002A. Flow monitoring is required daily while the flow meter must be calibrated quarterly. Sampling for $CBOD_5$, ammonia, TSS, pH and *E. coli* will be required for every day during which the PEFTF is operated for more than two hours in any calendar day. Daily composite samples will be required and monitoring for effluent $CBOD_5$, ammonia and suspended solids. Daily grab samples will be required for *E. coli* bacteria while pH must be monitored continuously. The pounds of $CBOD_5$ and TSS must be calculated daily.

Disinfection at this facility will be performed with ultraviolet (UV) radiation. The intensity of UV radiation passing through the water column affects the systems ability to kill organisms. To track the reduction in intensity, the UV disinfection system must include a UV intensity meter with a sensor located in the water column at a specified distance from the UV bulbs. This meter will measure the intensity of UV radiation in mWatts-seconds/cm2. The UV radiation intensity must be recorded daily when discharging.

Monitoring for metals, cyanide, organic priority pollutants, pesticides and acute whole effluent toxicity (WET) will be required annually during each winter season that the facility is operated. When possible, samples for toxicity should be 24 hour composites but will be limited to the period of operation when it is less than 24 hours.

Biosolids

OAR 340, Division 50, "Land Application of Domestic Wastewater Treatment Facility Biosolids, Biosolids Derived Products, and Domestic Septage" requires monitoring and reporting of specific sludge

parameters under Section 35. These parameters are identified in Schedule B under "Biosolids Management" and include: Total solids, Volatile solids, Nitrogen, eleven metals (Ag, As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se & Zn), Phosphorus, Potassium and pH.

Volatile solids reduction in the biosolids is the process used to demonstrate compliance with vector attraction reduction requirements. Monitoring of volatile solids reduction is proposed in the renewal permit. Digestion of the biosolids is the process used to demonstrate compliance with pathogen reduction requirements. Monitoring the duration and temperature of biosolids digestion is proposed in the renewal permit. The City must also record information about the beneficial use of biosolids that are land applied.

Outfalls 002B to 166 (Emergency Overflows)
The estimated duration and volume of each overflow from the emergency outfalls must be recorded. There is no change in this requirement except for the deletion of 21 overflow points and addition of 5 new overflow points.

Receiving Stream
The Willamette River shall be monitored for cadmium at the same time as the special monitoring of the effluent. The Willamette River shall be sampled for hardness and TSS at the same time the river is sampled for metals. Monitoring for hardness and TSS is necessary to determine the appropriate criteria since the new toxic standards will likely be based on dissolved metals. These are new requirements. After two years of special toxics monitoring, the City may eliminate monitoring of the Willamette River.

Reporting
The reporting period is the calendar month. Discharge monitoring reports must be submitted to the Department monthly by the 15th day of the following month. The monitoring reports need to identify the principal operators designated by the Permittee to supervise the treatment and collection systems. The reports must also include records concerning application of biosolids and all applicable equipment breakdowns and bypassing.

Schedule B of the permit includes the requirement for the submittal of annual reports. The conditions are standard language requirements concerning:

1) Submittal of an annual Inflow and Infiltration Report by September 1 each year.

2) Submittal of an annual Biosolids Report by February 19 each year.

3) Submittal of Temperature Monitoring Report by February 15 each year.

Schedule C, Compliance Schedules and Conditions

The permit contains two compliance conditions with deadlines:

1. Within 180 days of permit issuance, the permittee must submit a proposed program and time schedule for identifying and reducing inflow.

2. Within 2 years of initiating operations at the PEFTF facility, the permittee must submit the results of a mixing zone study that indicates the dilutions available during periods when the facility might be in operation.

The final condition requires the permittee to meet the compliance dates established in this schedule or notify the Department within 14 days following any lapsed compliance date.

Schedule D - Special Conditions

The permit contains seven special conditions. The requirements include:

1. Unless otherwise approved in writing by the Department, all inflow sources are to be permanently disconnected from the sanitary sewer system.

2. Schedule D of this permit includes conditions requiring biosolids be managed in accordance with the approved biosolids management plan.

3. The permit may be modified to incorporate changes in federal biosolids standards.

4. The requirements for Whole Effluent Toxicity (WET) testing are specified.

5. The permittee must have the facilities supervised by personnel certified by the Department in the operation of treatment and/or collection systems.

6. The permittee must notify the Department of malfunctions.

7. The permittee shall not be required to perform a hydrogeologic characterization or groundwater monitoring due during the term of this permit.

Schedule E – Pretreatment

The current permit contains a Schedule E which requires the City to conduct and enforce an industrial waste pretreatment program as approved by the Department and the General Pretreatment Regulations (40 CFR Part 403). The Department is proposing to include similar but updated conditions in the new permit.

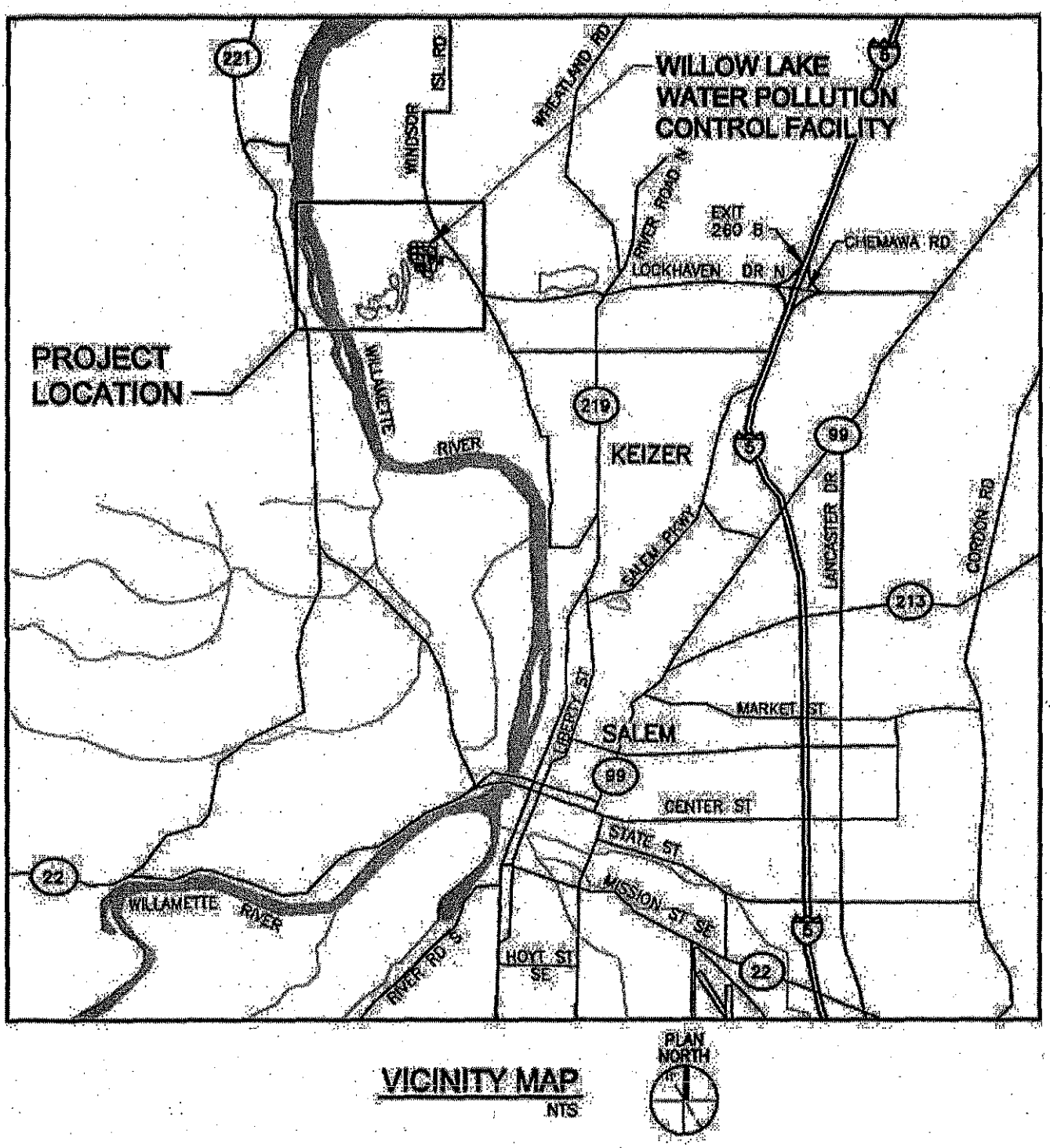
Schedule F, NPDES General Conditions

All NPDES permits issued in the State of Oregon contain certain conditions that remain the same regardless of the type of discharge and the activity causing the discharge. These conditions are called General Conditions. These conditions can be changed or modified only on a statewide basis. The latest edition of the NPDES General Conditions is December 1, 1995 and this edition is included as Schedule F of the draft permit.

Section A contains standard conditions which include compliance with the permit, assessment of penalties, mitigation of noncompliance, permit renewal application, enforcement actions, toxic discharges, property rights and referenced rules and statutes. Section B contains requirements for operation and maintenance of the pollution control facilities. This section includes conditions for proper operation and maintenance, duty to halt or reduce activity in order to maintain compliance, bypass of treatment facilities, upset conditions, treatment of single operational events, overflows from wastewater conveyance systems and associated pump stations, public notification of effluent violation or overflow, and disposal of removed substances. Section C contains requirements for monitoring and reporting. This section includes conditions for representative sampling, flow measurement, monitoring procedures, penalties of tampering, reporting of monitoring results, additional monitoring by the permittee, averaging of measurements, retention of records, contents of records, and inspection and entry. Section D contains reporting requirements and includes conditions for reporting planned changes, anticipated noncompliance, permit transfers, progress on compliance schedules, noncompliance which may endanger public health or the environment, other noncompliances, and other information. Section D also contains signatory requirements and the consequences of falsifying reports. Section E contains the definitions used throughout the permit.

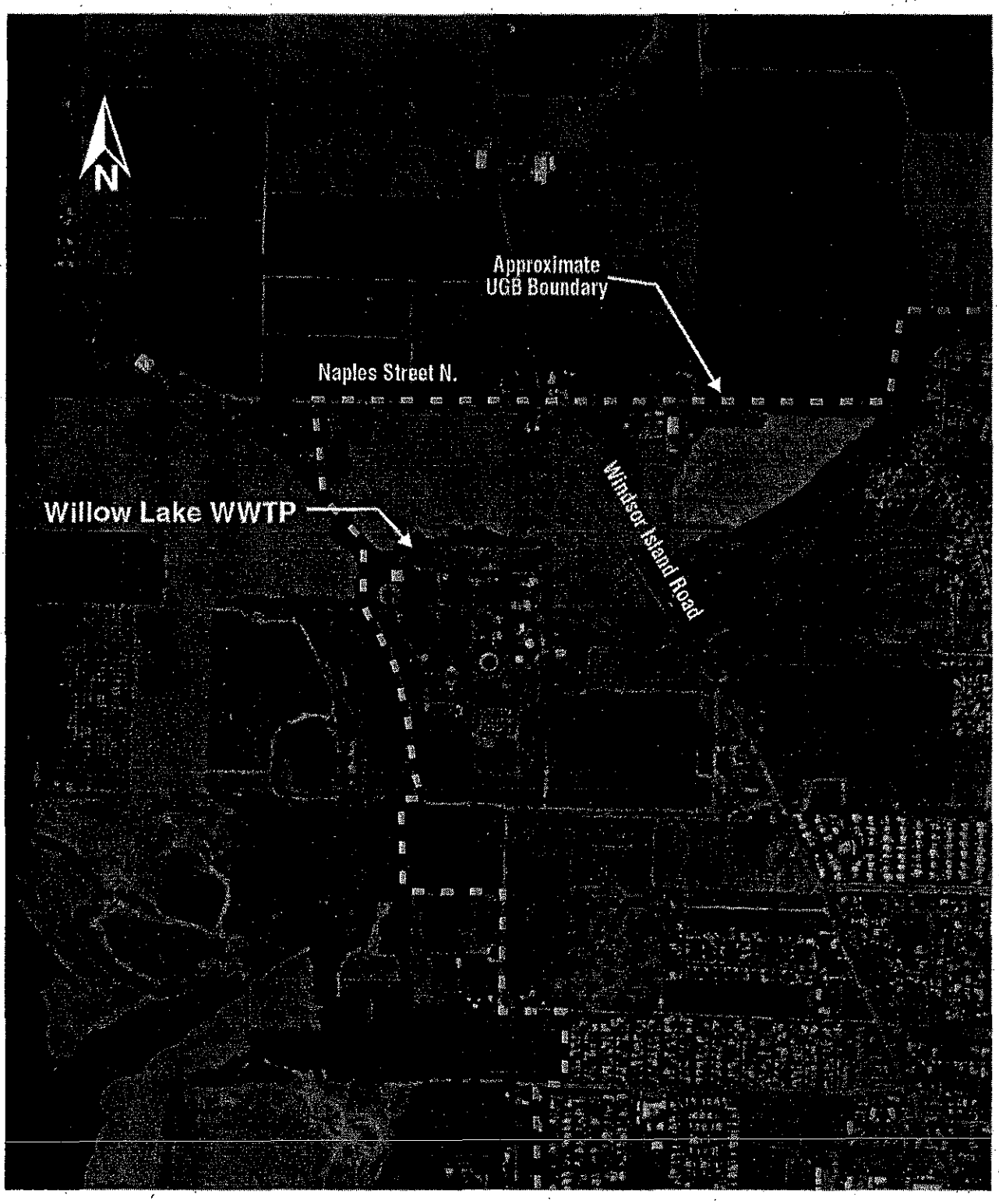
PERMIT PROCESSING/PUBLIC COMMENT/APPEAL PROCESS

The beginning and end date of the public comment period to receive written comments regarding this permit, and the contact name and telephone number are included in the public notice. The permittee is the only party having standing to file a permit appeal. If the Permittee is dissatisfied with the conditions of the permit when issued, they may request a hearing before the EQC or its designated hearing officer, within 20 days of the final permit being mailed. The request for hearing must be sent to the Director of the Department. Any hearing held shall be conducted pursuant to regulations of the Department.

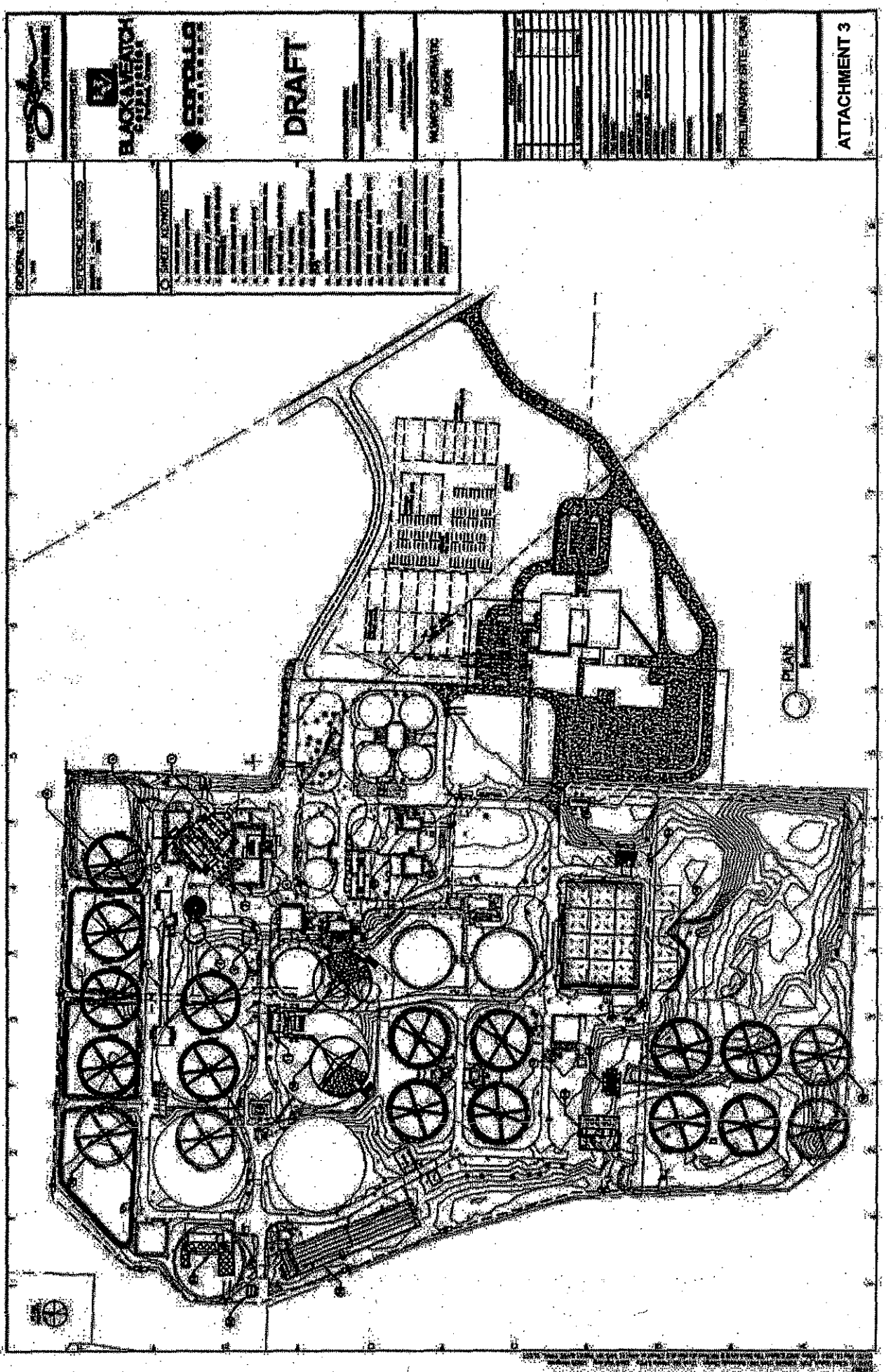


VICINITY MAP
NTS

ATTACHMENT 1



ATTACHMENT 2



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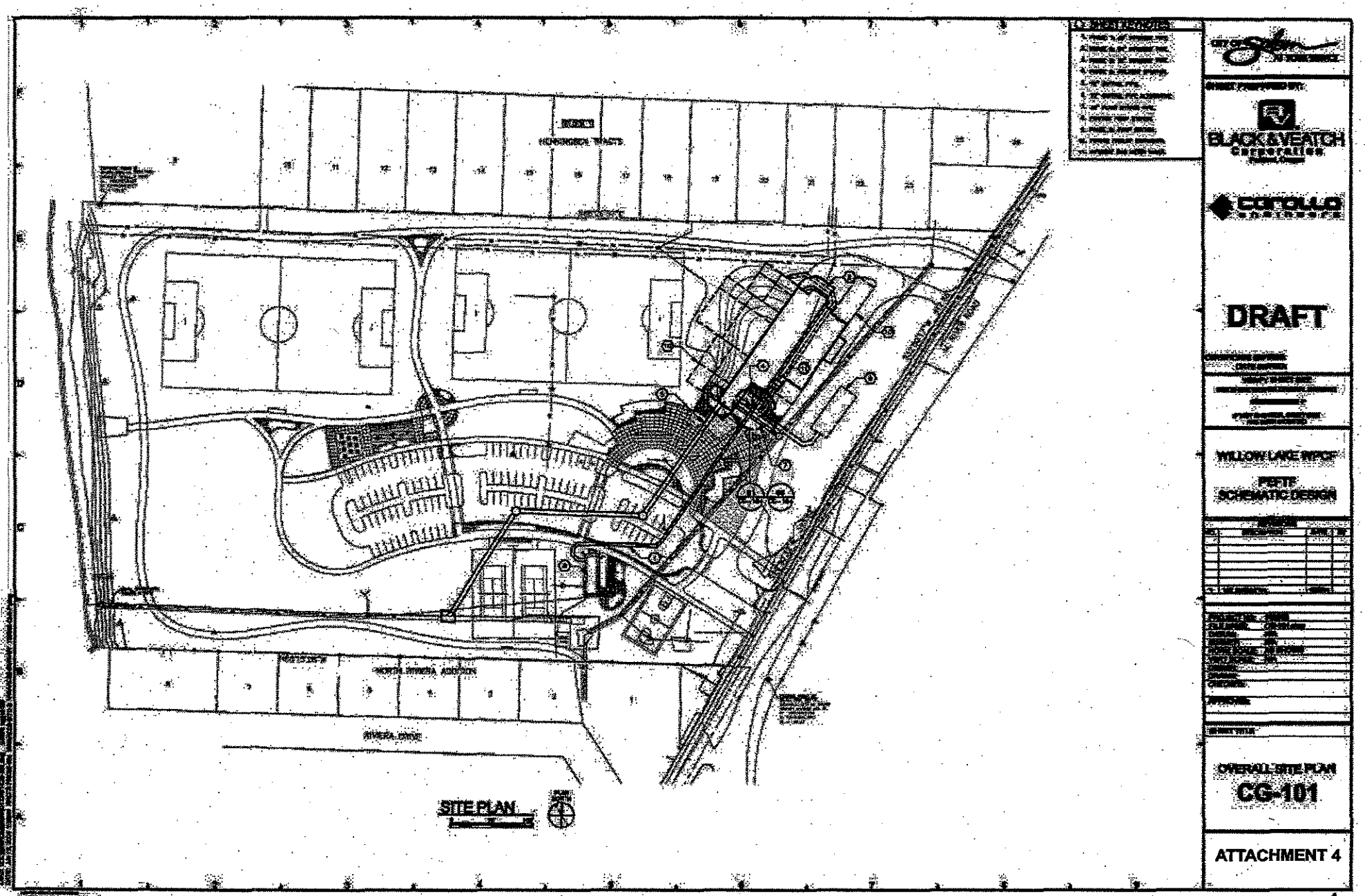


Attachment 4

Attachment 5
June 2004
Biosolid Management Plan
for
City of Salem
Willow Lake Waste Water Treatment Facility

File Number: 78140
Permit Number: 101145

PUBLIC NOTICE

I. Treatment Facility

Introduction:

The City of Salem (population approximately 210,000) owns and operates a municipal sewage collection and treatment system under National Discharge Elimination System (NPDES) permit number (101145). Wastewater processed by the sewage treatment works is principally of domestic origin. We in fact receive a large food processing load during several months of the year. The secondary treatment facility was built 1964, and upgraded in 1977 and 1988. Septage is accepted at the City Shop dump station approximately 8 miles from the Willow Lake Waste Water Treatment Facility. There are several industrial discharges to the City of Salem facility, and therefore the City has regulations under a local pretreatment permit. Treated effluent from the treatment plant is discharged to the Willamette River (78.4 River Mile), in Marion County, Oregon.

A) Wastewater Processing:

The City of Salem operates the Willow Lake Waste Water Treatment Facility (WWTF) an activated sludge plant with anaerobic digesters. Designed average dry weather flow is 35 million gallons per day (MGD). Willow Lake WWTP is sited on 40 acres between the City of Keizer's urban growth boundary and the Willamette River. The original trickling plant (north plant) was built in 1964 to provide treatment or residential, commercial, light industrial and industrial users. In 1977, a high purity oxygen activated sludge (HPOAS) plant (south plant) was sited immediately south of the original plant. The HPOAS process was specially selected to treat seasonal loading associated with the food processing industry. In 1988, rising energy costs inspired a facility up grade which included a mechanical bar screen, a cogeneration facility fueled by digester gas and design flexibility providing trickling filter activated sludge (TFAS) as a secondary treatment option. In 1998, increasing solids production prompted the purchase of a gravity belt thickener (GBT) and a belt filter press (BFP) which are housed in a new solids handling facility.

Wastewater passes through mechanical bar screens which remove trash and large debris prior treatment. Trash and debris are removed, dewatered, and compacted. Grit is removed by routing primary solids through cyclone degritters. Screenings and grit are transported the Marion County Waste to Energy Facility for incineration.

During the height of the canning season, (August, September, and October) flows up to 43

MGD must be split between the north and south primary clarifiers to lower trickling filter loading rates and reduce odors. The increased organic loading requires two aeration basins using high purity oxygen and mechanical mixers.

During wet weather, flows up to 75 MGD received secondary treatment from components of both the north and south treatment plants. Trickling filter effluent not routed to the south plant is settled and disinfected in the north secondary clarifier. North and South final effluents are mixed and dechlorinated in the plant effluent channel.

Flows 75 to 105 MGD bypass secondary treatment. Selective treatment flow passes through the south primary clarifiers, the chlorine contact chambers, and is dechlorinated in the plant effluent channel. Flows greater than 105 MGD per day are by passed to the Willamette River at North River Road park approximately 6 miles from the treatment facility.

Flow from the collection system enters the plant through a 75 inch interceptor and immediately passes through two mechanically raked bar screens in parallel operation en route to the raw pump station. Raw pumps discharge wastewater to the headwork channel where the gates control flow to the north and/or south plants.

During dry weather, prior to canning season, flows up to 43 MGD are pumped to the north plant's two (2) primary clarifiers (687,240 gal. each) and four (4) trickling filters (318,000 ft3 each). Trickling filter effluent is then pumped to the south plant for additional secondary treatment in one of three (3) aeration basins (1,420,000 gal. each) using fine bubble diffusers. Following aeration, mixed liquor is settled in one of four (4) south plant secondary clarifiers (1,730,000 gal. each) and clarifier effluent is disinfected in one of four (4) chlorine contact chambers (302,400 gal. each) and dechlorinated in the plant effluent channel. **See Attachment 5A** for a Willow Lake WWTP liquid flow schematic.

Table 1. Willow Lake WWTP Unit Process Capacities.

Unit process	Unit Capacity	Quantity	Total Capacity North Primary Clarifiers
687,240 gal.	2	1.36 MG	North Trickling filter
318,000 ft3	4	1.272 kcf	North Secondary Clarifiers
1,753,515	1	1.75 MG	North Gravity Thickeners
0.11 MG	2	0.22 MG	North Primary Digesters

0.96 MG	2	1.92 MG	
North Secondary Digesters	0.89 MG	1	0.89 MG
South primary Clarifiers	1,111,109 gal.	2	2.22 MG
South Aeration Basins	1,420,000 gal.	3	4.26 MG South Secondary Clarifiers
1,730,000 gal.	4	6.9 MG	
South Gravity Thickeners	0.14 MG	1	0.14 MG South Primary Digesters
1.26 MG	2	2.52 MG	
South Secondary Digesters	1.15 MG	2	2.30 MG
Gravity Belt Thickeners	200 gpm feed	1	43,000ppd at 18,000 mg/L
Belt Filter Press	120 gpm feed	1	18 dry tons/day at 25,000 mg/L
Dissolved Air Floatation	200 gpm feed	2	86,000 ppd at 18,000 mg/L Solid Storage Lagoons
1.55 MG	4	6.2 MG	Chlorine Contact Chambers
302,400 gal.	4	1.21 MG	

B) Solids Processing:

Salem's treatment facility utilizes an activated sludge process. The treatment facility wastes primary sludge and activated sludge from primary and secondary clarifiers to primary and secondary anaerobic digesters. Solids that are thickened to approximately five (5) percent prior to mesophillic primary/secondary anaerobic digestion are one of the City's two digester facilities. Primary solids are thickened in one of three gravity thickeners. Typically, waste activated solids (WAS) are thickened on the gravity belt thickener (GBT), however the gravity thickeners and a dissolved air floatation (DAF) facility are available as redundant thickening processes.

The north digester facility is composed of two (2) mechanically mixed, fixed cover, primary digesters which overflow to a floating dome, secondary digesters. The south digester facility is composed two (2) gas mixed, fixed cover, primary digesters which

overflow to two (2) secondary digesters.

The digester facilities gas systems are common and provide fuel for the cogeneration system. All primary digesters are externally heated with coiled heat exchanges using a modified hot water loop from cogeneration system as a heat source. Additionally, each facility houses boilers as a redundant heat source.

Each digester facility has mechanical grinders for particle size reduction and its own loading dock. Liquid biosolids, at approximately 2.9 percent total solids, are loaded into pressurized tanker truck and hauled to land application sites. Typically, liquid biosolids from the south digester facility are pumped through a mechanical grinder to the solids handling facility for dewatering on the belt filter press (BFP) and storage in a loading hopper. Dewatered biosolids, at approximately 19 percent total solids, are loaded into semi-end dump trucks for hauling to land application sites.

The digesters sludge under go a minimum mean cell residence time and minimum temperatures of between 15-days at 35C to 55C, and 60-days at 20C prior to the removal of sludge and performing a volatile solids reduction calculation. For the past three (3) years the solid residence time (SRT) averaged 48.9 days at an average temperature of 97.8 degrees Fahrenheit (36.6 degrees Celsius), which satisfies the Class b biosolid requirement of the EPA's 40 Code of Federal Regulations (CFR) Part 503.32 (b) Alternative 2, by providing in excess of 15 days SRT at or between 35 and 55 degrees Celsius. An average 67.0 percent volatile solids reduction has been achieved which satisfies the 40 CFR part 503.33 Vector Attraction Reduction requirements.

Solids piping flexibility allows any digester in the north or south digester facilities to be pumped to any other digester, to the loading docks, or to any of the lagoons. After settling, lagoon supernatant can be decanted to the plant influent channel at a non-interfering rate, further reducing solids volume by as much as 30 percent. **See Attachment 5B**, for a Willow Lake WWTP Solids flow schematic.

There are Four (4) potential end routes for biosolids from this facility and they are:

1) Biosolids removed from the anaerobic digesters,
2) Biosolids from gravity filter press,
3) Biosolids from the belt filter press, and
4) Biosolid from storage lagoons.

C) Solids Storage Structure:

Willow Lake WWTP has four (4) sludge storage lagoons for solids storage with a combined storage capacity of 6.2 million gallons.

D) Septage Receiving Facility:

Septage from septic haulers is dumped at the City shops facility, approximately 8 miles from the treatment plant.

E) Pretreatment Program:

The City of Salem Revised Sewer Ordinances, Chapter 74 addresses Sanitary Pretreatment and manages a pretreatment program overseeing permitted commercial/industrial users and septic haulers. The City has a formal industrial wastewater pretreatment program for 39 permitted industries and 8 categorical users. The City's biosolid has low metal concentrations compared to the EPA 40 CFR Part 503 Biosolid standards.

II Solid Treatment Processes

The EPA's 40 CFR Part 503 and DEQ's OAR340-50 allow the permittee to use EPA approved alternatives to satisfy Class A and B biosolids pathogen and vector attraction reduction criteria. The permittee must notify the Department in writing and get approval prior to any process change that would utilize pathogen reduction or vector attraction reduction alternatives other than their primary reduction alternatives contained in this management plan. The permittee must also certify that the alternatives used are EPA approved and that sampling and monitoring conforms to the 40 CFR 503 and OAR 340-050 regulations.

Pathogen Reduction

To meet the Part 503 regulatory requirements, pathogen reduction must be met before vector attraction reduction or at the same time vector attraction reduction is achieved.

Class A Biosolids

With all Class A alternatives microbial monitoring for fecal coliforms or *Salmonella* sp. is required (see section A and B below). This management plan lists the primary alternative and options employed by the permittee to meet Class A and B biosolids criteria.

A) Monitoring for Fecal Coliform or *Salmonella* sp.

Monitoring for Fecal Coliform or *Salmonella* sp. is required to detect growth of bacterial pathogens. Because Class A biosolids may be used without site restrictions, all Class A material must be tested to show that the microbial requirements are met at

the time when it is ready to be used, disposed, sold or given away. In addition to meeting process requirements, Class A biosolids must meet one of the following requirements:

Either the density of the fecal coliform in the biosolids be less than 1,000 MPN per gram total solids (dry gram weight), *Or* the density of *Salmonella* sp. Bacteria in the biosolids be less than 3 MPN per 4 grams of total solids (dry weight basis).

Unlike Class B biosolids, Class A requirements are not based on an average value. Sampling for Class A biosolids consists of at least seven (7) discrete samples taken over a 2-week period. Test results are required before Class A material can be release for use or disposal. The microbial requirement that a Class A biosolids must meet is either:

At the time of use or disposal, or at the time the biosolids are prepared for sale or given away in a bag or other container for land application, or at time the biosolid or material derived from the biosolid is prepared to meet the requirements in 503.10(b), 503.10 (c), 503.10 (e) or 503.10 (f).

B) Class A Pathogen Reduction Alternatives

Alt. 3) Sewage Sludge treated in known Processes 503.32(a) (5)

This requirement relies on comprehensive monitoring of bacteria, enteric viruses and viable helminth ova to demonstrate adequate reduction of pathogens:

Either the density of the fecal coliform in the sewage sludge be less than 1,000 MPN per gram total solids (dry gram weight), *Or* the density of *Salmonella* sp. Bacteria in the sewage be less than 3 MPN per 4 grams of total solids (dry weight basis).

The density of enteric viruses in the sewage sludge must be test prior to pathogen reduction treatment and then again after pathogen treatment at which time the enteric viruses must be less than 1 PFU per 4 grams of total solids (dry weight basis).

The density of viable helmith ova in the sewage sludge must be test prior to pathogen reduction treatment and then again after pathogen treatment at which time the viable helmith ova must be less than 1 PFU per 4 grams of total solids (dry weight basis).

Alt. 5) Processes to Further Reduce Pathogens (PFRP) #1 Composting.
Using either the within vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55C (131F) for three days. Noted must meet Class A compost criteria at the same time you meet Class B compost pathogen reduction criteria.

Class B Biosolids

Class B biosolids can be met by using one of three alternatives, the two primary alternatives used by this facility are Alt. 1) Monitor sewage sludge for fecal coliform 503.32(b)(2), and Alt. 2) Use Process to Significantly Reduce Pathogen (PSRP) 503.32(b)(3).

Alt. 1) Monitor sewage sludge for fecal coliform 503.32(b) (2) requires that seven samples of treated sewage sludge (biosolids) be collected and that the geometric mean fecal coliform density of these samples be less than 2 million MPN per dry gram biosolid (dry weight basis).

Alt. 2) Use Process to Significantly Reduce Pathogen (PSRP) 503.32(b)(3) considers sludge treated in one of the PSRPs listed in Appendix B of the 40 CFR Part 503 to meet Class B biosolid criteria for pathogen reduction.
For this facility the following PSRPs are primarily used:

#1 Anaerobic digestion, sludge is treated in the absence of air/oxygen for a specified residence time at a specified temperature. Values of the mean cell residence time and temperature shall be between 15 days at 35C to 55C and 60 days at 20C.

At this time the Willow Lake wastewater treatment facility does not use any of the following 3 treatment methods, but may in the future depending on solids treatment at this facility.

#2 Air Drying, sludge air dried on beds for minimum of 3 months (ambient temperature above 0C (32F) 2 out of the 3 months,

#4 Composting, the temperature of the sewage sludge is raised to 40C (104F) or higher and remains at 40C or higher for 5 days. For 4 hours during the 5-day period, the temperature in the compost pile must exceed 55C (131F), and

#5 Lime stabilization, sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 with no further addition of alkali agent, and maintain sludge pH of 12 active-mix for 2-hours.

B) Vector Attraction

This facility primarily uses Option 1 to meet Vector Attraction Reduction requirement, but in the future this facility may choose to use any of the following vector attraction reduction options:

Opt. 1) The % volatile solid reduction calculation to use for anaerobic digester that is decanted and that does not have appreciable grit accumulation would be the Van Kleeck or Approximate Mass balance (AMB) equation depending upon the percent solids in the decantate (**Attachment 5C**).

To meet the biosolid vector attraction reduction requirements an anaerobic digester must provide a 15 day detention time at 35 to (95F) in a completely mixed high rate digester in order to achieve a volatile solids reduction of 38 % or more. There are other volatile solid reduction methods that are deemed equivalent to the 38% volatile solid reduction criteria under the EPA's and the DEQ's regulations.

Opt. 2) When the 38% volatile solids reduction can not be met for anaerobically treated solids vector attraction reduction can be demonstrated by showing a less than 17% additional volatile solid loss during bench-scale aerobic batch digestion (2% TS or less) of the sewage sludge for 40 additional days at temperatures between 30 and 37C.

Opt.5) Aerobic treatment of sludge for at least 14 days at over 40C (104F), during the process the average temperature must be over 45C (Compost).

Opt. 6) The pH of the sewage sludge shall be raised to a pH of 12 or higher by the addition alkali agent and without the addition of more alkali agent. The batch shall remain at a pH of 12 or, for two hours or more active mix; and at a pH of 11.5 of higher for an additional 22 hours.

Opt. 7) The sewage sludge must achieve 75% solid by drying prior to mixing with other materials. Sewage sludge treated in aerobic or anaerobic process (i.e. Sewage sludge that does not contain unstabilized solids generated in primary wastewater treatment).

Opt 10) Sewage sludge land applied and shall be immediately incorporated into the soil after application on the land.

C) Batch Processes

Class A Biosolids

Alt. 5, PFRP Compost, compost pile must meet PFRP) of 3 consecutive days at a minimum pile temperature of 55C. (Note: Class A PFRP must be met within the Class B PSRP treatment parameter, EPA requirement).

Class B Biosolids

Alt. 3, # 4 PSRP) Compost, Process that Significantly Reduces Pathogens (PSRP) showing an average pile temperature of 45C and minimum temperature of 40C in the pile within 14 consecutive days.

Note: Class B compost (PSRP) has to be demonstrated through aerobic (time and temperature) before or at the same time vector attraction reduction satisfied the PSRP composting process.

The City has a Biosolid Fact Sheet it can provide customers and the public upon request. **(See Attachment 5D).**

III Biosolid Characteristics

For 2003, City of Salem has generated and land applied approximately 7225548 dry pound or 3613 dry US tons of biosolids. Under the 40 CFR Part 503 monitoring requirement City of Salem is required to sample their biosolid once per 60 days (6 times a year). Monitoring depends on the amount biosolid generated (metric tons) that are sold or given away, land application and surface disposal.

Sampling

1) Anaerobic Digester
Sample location: Sample port on discharge line from the digester.

Number and type of sample taken per day: Composite of seven (7) or more representative samples to be collected from digester outlet pipe.

Sample storage and transport: Samples are stored at 4 degrees C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hour of sample collection.

Sample analysis method: EPA 9045; EPA 160.3;EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89;

EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (*may include one or more of the referenced methods, see Attachment E).

2) Solid Storage Lagoons

Sample location: Center from the basin divided up into equal quadrants, plus several random and/or authoritative samples.

Number and type of sample taken per event: A composite of at least seven (7) representative samples from the mixed storage basin is required. Samples should include the entire proposed sludge column (not the water cap above the sludge layer).

Sample storage and transport: Composite sample is stored at 4 degrees C in icechest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hour of sample collection.

Sample analysis method: EPA 9045; EPA 160.3;EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (*may include one or more of the referenced methods).

3) Gravity Belt Thickeners and Belt Filter Presses

Sample location: Sample conveyor line on discharge line from the thickening units.

Number and type of sample taken per day: Composite of seven (7) or more representative samples collected throughout the thickening dewatering process.

Sample storage and transport: Samples are stored at 4 degrees C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hour of sample collection.

Sample location: Center from each GBT/BFP divided up into equal quadrants, plus several random and/or authoritative samples.

Number and type of sample taken per batch: A minimum of seven (7) discrete samples (Class A) from the GBT/BFP in service over a two (2) week period or the geometric mean of seven (Class B) or more samples mixed together to form a composite sample to a representative sample each year. The Department suggests the permittee run more samples than minimum required by the 40 CFR Part 503.

Sample storage and transport: Samples are stored at 4 degrees C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hour of sample collection.

Sample analysis method: EPA 9045; EPA 160.3;EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (*may include one or more of the referenced methods).

4) Compost

Sample location: Random depths and locations within the compost pile

Number and type of sample taken per batch: A minimum seven (7) discrete representative samples are mixed together to form a composite sample for metal analysis. For Class A Biosolid seven (7) discrete representative samples over a two-week period are required for pathogen testing.

Sample storage and transport: sample is stored at 4 degrees C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hour of sample collection.

Sample analysis method: EPA 9045; EPA 160.3;EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (*may include one or more of the referenced methods).

Biosolid Analysis:

Biosolid Chemical Analysis:

In 2003 the City land applied 3613 dry tons of biosolid in two forms, approximately 60% cake (5297761 lb.) and 40 % liquid (1927787 lb.) biosolid. The following is representative sampling of the biosolid metal concentrations in the City's 2003 biosolid.

Metal	#/-yr.
Arsenic (As)	116.3
Cadmium (Cd)	13.6
Chromium (Cr)	425.2
Copper (Cu)	4037.1
Lead (PB)	184.9
Mercury (Hg)	8.0
Molybdenum (Mo)	64.7
Nickel (Ni)	128.7
Selenium (Se)	27.5
Silver(Ag)	167.3
Zinc (Zn)	5530.4

Biosolid Nutrient Analysis:

For the year 2003, the biosolid contained about 762978, total nitrogen pounds (lb.) total nitrogen (N) of which about (6) lb. was in the nitrate form (NO3-NO2) and (185939) lb. was in the ammonia form (NH3). Other nutrients include about (167455) lb., phosphorus (P), (41904) lb., potassium (K), and has a pH of approximately 8. From the analysis the City of Salem needs approximately (1150) acres to land apply on to handle their annual biosolid nitrogen production. For year 2003 the approximate biosolids analysis and loading are found in Attachment F.

IV Biosolids Beneficial Reuse Program

Transportation and Land Application:

Biosolids are off loaded into tanker trucks at the plant. The biosolids loading areas are impounded in case of accidental spillage of biosolids during the truck loading process. These areas drain that tie back into the facility. During the summer months City of Salem's biosolids are land applied on several sites. For the year 2003 City of Salem land applied to several DEQ authorized sites totaling about 1637-acres. The biosolid land application sites are capable of assimilating City of Salem's annual total nitrogen production. The agronomic biosolid land application rate for pastures and grass is 120 lb. available N per acre-yr. The agronomic land application rate for perennial ryegrass, the predominate crop utilized by City of Salem's land application program, is 120 lb. available N per acre-yr.

Land application: City of Salem land applies on authorized pastures, farmlands, and forest sites. All DEQ site authorizations for City of Salem are part of City of Salem's Biosolid Management Plan. The City of Salem currently has a total of 11700 acres that are authorized for land application.

Table 2. Example of some of the City's biosolids site management information:

Site	Use/ acres	lb. N/acre	lb. N/site
Salem Site #1	Pasture/ 15 acres	120	1800
Salem Site #2	Pasture/ 13 acres	120	1560
Salem Site #3	Pasture/ 20 acres	120	2400
Salem Site #4	Pasture/ 20 acres	120	2400
Salem Site #5	Pasture/ 19 acres	120	2280
Salem Site #6	Pasture/ 3 acres	120	360
Salem Site #7	Pasture/ 12 acres	120	1440
Salem Site #8	Pasture/ 5 acres	120	600
Salem Site #9	Pasture/ 10 acres	120	1200
Salem Site #10	Pasture/ 10 acres	120	1200

Long term biosolid application rates and site restrictions are contained in the biosolid site authorization letter. References to the OAR 340-50, The 40 CFR Part 503, site setbacks, site agronomic loading rates, land application restrictions and site restrictions are also detailed out in the site authorization letter.

V Contingency Options

In the event biosolids are spilled between the treatment facility and the land application site, City of Salem's treatment facility shall contain the spill, lime, absorbent (for example sand) and remove spilled sludge solids spills with a front end loader or shovels and dispose of the spillage at a DEQ authorized application or disposal site. All spills into waters of the state or spills on the ground surface that are likely to enter waters of the state shall be reported immediately to Oregon Emergency Response System (OERS) at 1-800-452-0311 and your regional biosolids coordinator at (541) 440-3338. All spills of 25 gallons or more on the ground surface shall be report to the regional biosolids coordinator at (541) 440-3338.

VI Reporting

Daily Reporting and Recordkeeping:

Each year prior to land application of biosolids the source operators shall check to see if contiguous property owners have changed. The operators shall keep a record of contact (date, and/or written log of phone/letter call w/ name and number, and/or xerox of postcard w/ name and address, etc.,) with all contiguous land application property owners, and notify any new neighbor at the beginning of the land application season of the city=s intent to land apply biosolid. Operator shall provide this documentation in the annual biosolid report.

Annual Reporting

The Annual Biosolid Report is due February 19, of each year for the previous years land applied biosolids. Part of this report is the submittal of the daily site logs, which have the date, time, and quantity gal-lb. N/acre land applied for each day-tank-batch land applied. Site logs shall have a scaled map showing the site and the land application location that coincides with the daily site loading methods (truck spreader bar, irrigation cannon). Daily records should clearly show the location of daily biosolid loading site log.

Annual Report shall have a signed copy of the certification statements for pathogen reduction, vector attraction reduction and biosolids has been land applied at approved agronomic loading. Person signing statements should be the operator of record at the treatment plant. The operator shall show how the vector attraction reduction was met i.e., volatile solids reduction was achieved by time and temperature, the Van Kleeck equation filled out with digester records (MCRT), bench scale test, sour test or any other EPA approved alternative method appropriated for biosolid generated at your facility. Certification of pathogen reduction is required and is satisfied by submittal of test results in the Annual Biosolid Report. All the previous year's biosolids sampling and analysis that is required by the permit shall be included in City of Salem's Annual Biosolid Report (in the year's annual report appendix).

VII Certification Statement

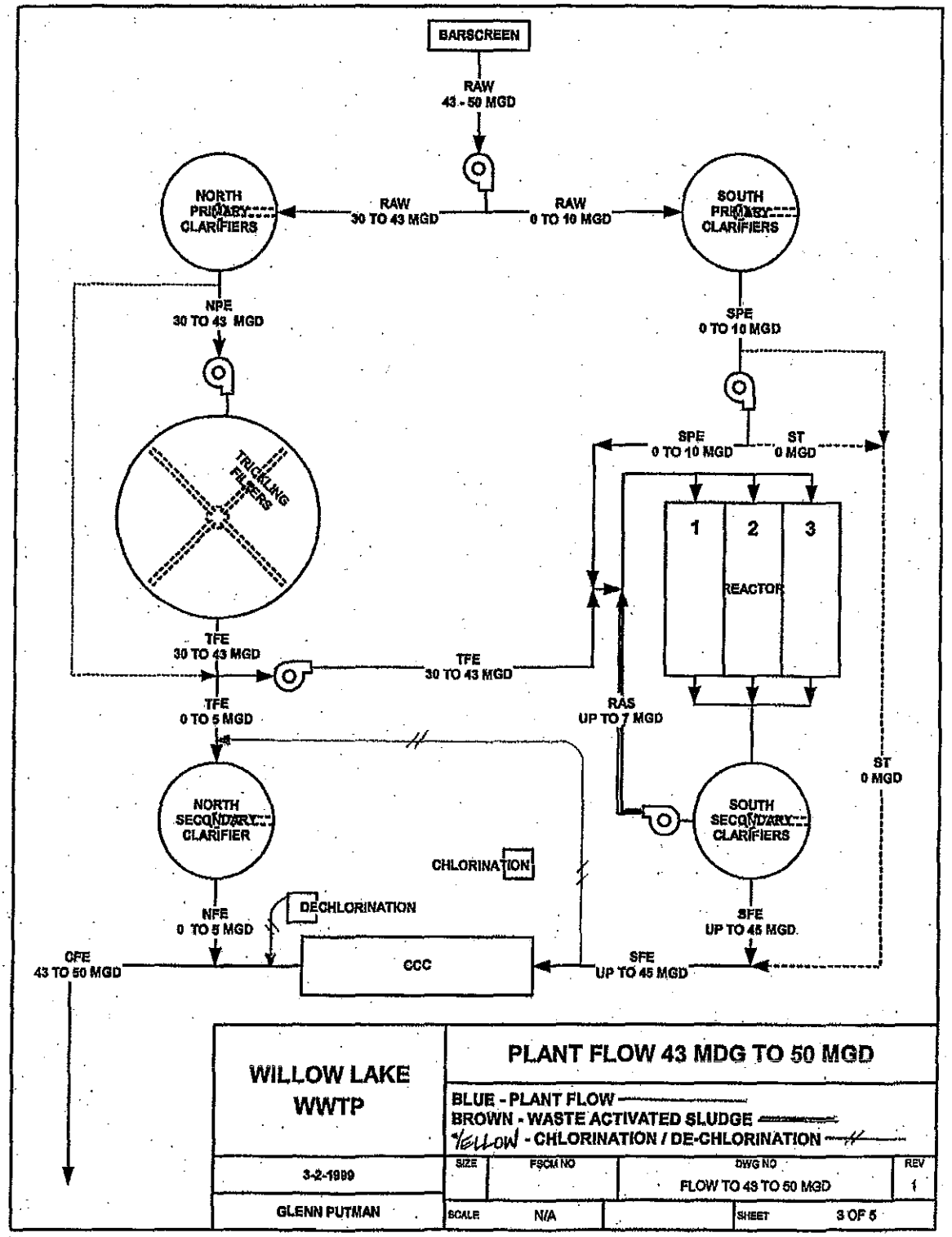
Salem's facility is capable of meeting their primary alternatives for achieving Class A or B biosolid pathogen and vector attraction reduction criteria. As required under 40CFR 503.17 a signed Class A and/or B biosolid and vector attraction certification statements shall accompany all biosolids that are land applied (below). For Class A or B biosolid annual biosolid analysis must be provided upon request. Certification statements must also show conformance with nutrient and land application loading rates where applicable.

"I certify, under penalty of law, that the pathogen requirements in [insert either 503.32(a) or 503.32(b)], the management practices in 503.14 and the vector attraction reduction requirements in [insert 503.33(b) (1) through 503.33(b) (10)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I also certify that all biosolids were land applied at the approved agronomic loading rate noted in the respective Department site authorization letter. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

Signature_____ Date_____.

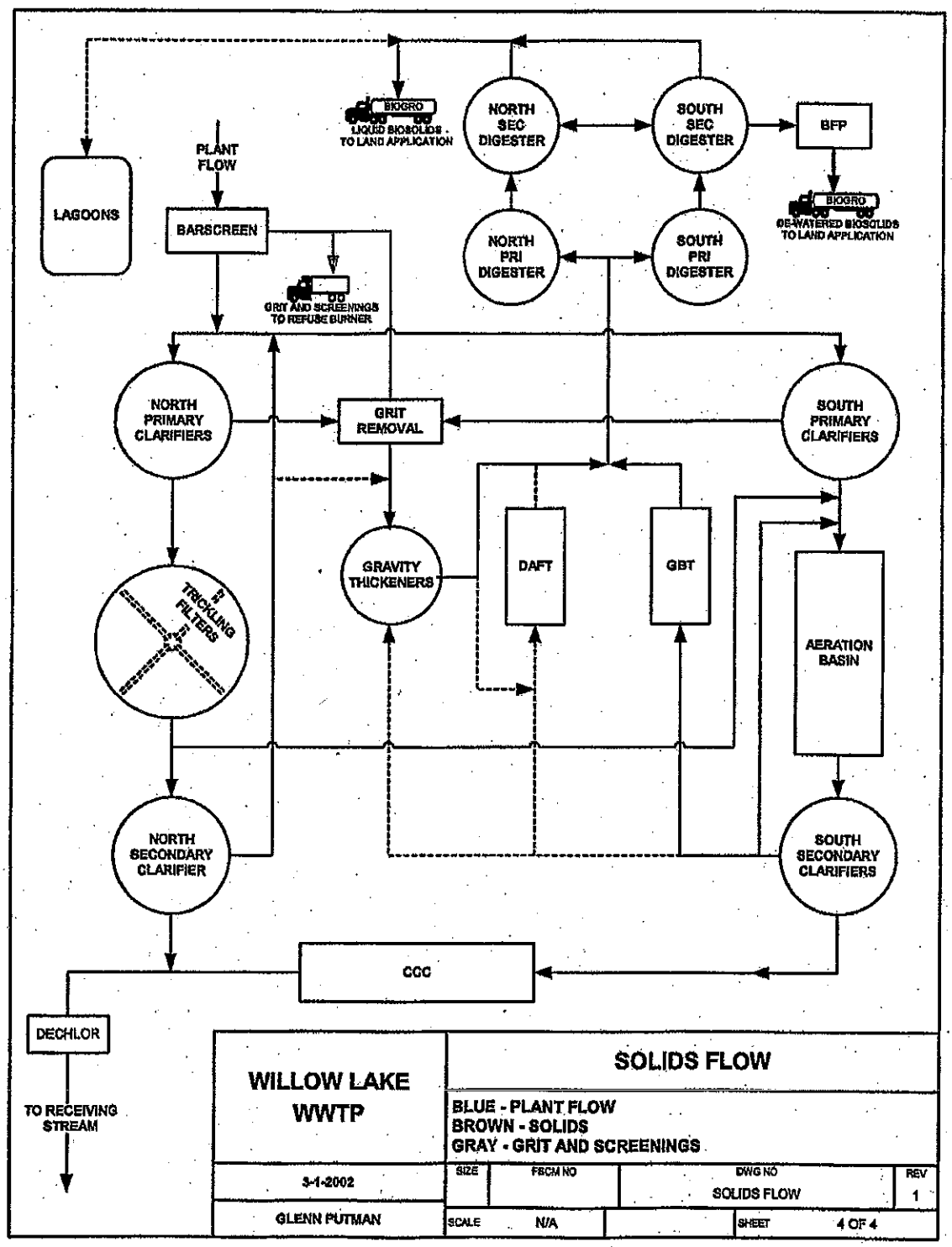
Attachment 5A

3. LIQUID FLOW STREAM: 42-60 MGD



Attachment S-B

4. SOLIDS FLOWSTREAMS: ALL SOLIDS



Attachment 5C:
Volatile Solids Reduction Calculation

Calculation of the % volatile solids reduction for the anaerobic digesters is to be based on comparison of a representative grab sample of total and volatile solids entering the digestion process (a weighted blend of the primary and secondary clarifier solids) and a representative composite sample of the solids existing the sludge holding tanks.

Typically in the past we've used the Van Kleeck equation for digesters. The assumption is that there is no grit accumulation in the digester. This volatile solids equation assumes the fixed solids input equals the fixed solids output. The Van Kleeck equation is appropriate if the digester decantate is low in total solids. The Van Kleeck equation can be used to calculate the volatile solids reduction for a digester that decants provided VSb equal VSd

FVSR: Fractional Volatile Solids Reduction

$$FVSR = 1 - VSb * (1-VSf) / VSf (1- VSb)$$

VSf Feed Sludge Fractional Volatile Solid, (kg/kg)
VSb Digested Sludge (digester bottom) Fractional Volatile Solids, (kg/kg)
VSd Decantate Fractional Volatile Solids

For this equation to be valid VSb must equal VSd.

For digesters with decant withdrawal (decant high in solids) and no grit accumulation, where the volatile and fixed concentrations are known for all streams as well as the volumetric flow rates for the decant and digester sludge then the Approximate Mass Balance equation should be used.

FVSR: Fractional Volatile Solids Reduction

$$FVSR = Fyb - Byb - Dyd / Fyb$$

Fyb (F) Feed Sludge Volumetric Flow Rate (m3/d)
(yb) Feed Sludge Volatile Solids Concentration (kg/ m3)

Byb (B) Digester Sludge (bottom) Volumetric Flow Rate (m3/d)
(Bb) Digester Sludge (bottom) Volatile Solids Concentration (kg/ m3)

Dyd (D) Decantate Volumetric Flow Rate (m3/d)
(yd) Decantate Volumetric Solids Concentration (kg/ m3)

Assumptions: Fixed Solids and Volatile Flows Streams.

Attachment 5D

FIGURE 9: BIOSOLIDS FACT SHEET

FACT SHEET FOR CLASS "B" BIOSOLIDS

DESCRIPTION:

Biosolids are biologically stabilized residuals derived from secondary treatment of domestic wastewater by the City of Salem's Willow Lake Wastewater Treatment Plant (WWTP).
These residuals have undergone anaerobic digestion, a controlled process recognized by the Environmental Protection Agency (EPA) and Department of Environmental Quality (DEQ) to make them suitable for transportation and land application. Digestion processes and Biosolids quality is regularly monitored to assure Federal and State pathogen reduction {(40) CFR, part 503.13 (b)(3) & OAR 340-50-26 (2)(b)}, vector attraction {40 CFR part 503.13 (b)(1) & OAR 340-50-26 (2)(c)}, and trace metal pollutants {40 CFR 503.13 (b)(1) & 340-50-026 (2)(a)}levels are within regulatory standards.

The Oregon Environmental Quality Commission (EQC) and EPA actively promote Biosolids recycling via land application. The City of Salem's Biosolids are a beneficial recyclable material which improves soil tilth, fertility, and stability.

Information on the City of Salem's Biosolids is available upon request from Willow Lake WWTP at 503-588-6380.

HAZARDS:

Willow Lake WWTP's Biosolids are not considered RCRA subtitle C hazardous waste nor are they toxic, biological or radioactive waste. In the event of a spill, call the City of Salem Dispatcher at 503-588-6333, or Willow Lake WWTP at 503-588-6380.

HANDLING AND PPE REQUIREMENTS:

Willow Lake WWTP Biosolids present little threat to hauler or public health and safety. The potential exists for disease-causing microorganisms to remain in the solids transported from the WWTP to the land application site. The following Safety Practices shall be observed to minimize exposure:

1. Wash hands before eating, drinking, or smoking.
2. Use waterless disinfectant soap for washing hands where water is not available.
3. Avoid rubbing eyes, nose and mouth after handling or unloading Biosolids.
4. Do not eat, drink, or smoke while or during the loading or unloading of Biosolids.
5. Wear gloves during loading and unloading of Biosolids
6. Wear protective clothing when there is to be more than causal contact with the Biosolids.
7. When clothing or body parts are exposed to Biosolids, wash skin with soap and water, change clothing before leaving the area.
8. Clean and disinfect all cuts or scrapes. Keep wounds protected from contamination.

Attachment 5E
Biosolid Analytical Test Methods

Biosolid Physical Analysis:

Parameter:	EPA Method:	Standard Method 18-19 Editions: Total Solids
EPA 160.3	2540 B	Volatile Solids
EPA 160.4		pH
EPA 150.1	4500-H+B	

Biosolid Metal Analysis:

Pollutant:	EPA Method:	Standard Method 18-19 Editions: Arsenic Total
EPA 206.2	3113 B	Cadmium Total
EPA 213.2	3113 B	Chromium Total
EPA 218.2	3113 B	Copper Total
EPA 220.1	3113 B or C	Lead Total
EPA 239.2	3113 B	Mercury Total
EPA 245.1	3113 B	Molybdenum Total
EPA 246.2	3113 B	Nickel Total
EPA 249.2	3113 B	Selenium Total
EPA 270.2	3113 B	Zinc Total
EPA 289.1	3113 B	

Biosolid Nutrient Analysis:

Parameter:	EPA Method:	Standard Method 18-19 Editions: Total Kjeldahl Nitrogen (TKN as N)
EPA 351.3	4500 N-org B or C	Organic Nitrogen
EPA 351.3	EPA 351.3 (TKN parameter minus ammonia N parameter)	Ammonia Nitrogen
EPA 350.2	4500 NH-3	Nitrate Nitrogen
EPA 353.1	4500-NO3-E	Total Phosphorus
EPA 365.3	4500-P E	Total Potassium
EPA 258.1	3111 B	

Biosolid Analysis Year 2003

Attachment 5F

NOTE THIS ANAYLSIS IS AN EXAMPLE CALCULATION OF 60% OF WILLOW LAKE 2003 ANNUAL BIOSOLID PRODUCTION.**

Source	Salem	**Lab analysis #**		**Date**	
File No.	78140		City of Salem	*used in spreadsheet	Monthly samples run
Phone No.	(503) 588-6250		Willow Lake WWTP		result are ave
Contact	Barry Evensen		Lab does analysis		of 12 samples

Nutrient and metals analysis are an average of representative sampling events taken over the year biosolids are land applied.
Nutrient and metal concentrations are determined from the current year's representative solids analysis.
Site loading rates for nutrients and metal must be adjusted based on current analysis to meet authorized site loading rates.

COLOR KEY

requires entered value
calculated value
replace 1 with coefficient from selection

SOLIDS ANALYSIS

Cake Biosolid	1	0.65	Replace the 1 with the appropriate decimal
Liquid Biosolid	0.5	0.5	Dewater (10-60%) and Liquid
% Total Solids	18.52		
% Volatile Solids	71.1		

PATHOGEN REDUCTION

Class A Biosolid			Put X next to Class A if true
Class B Biosolid		X	Put X next to Class B if true
	Alt	1	Cite 503.32 Alternative

Fecal Coliform [illegible] **<2,000,000 /dry gr. Total Solids**
org.-100ml/1 dry gr.

VECTRO ATTRACTION REDUCTION (DIGESTION METHOD)

Volatile Solids Reduction Method	Opt	1	Cite 503.33 Option

	2003			
Source	Salem			
File No.	75140			

VOLATILE SOLIDS REDUCTION (DIGESTION METHOD)

Volatile Solids Reduction Method		1	Cite 503.33 option
Anaerobic D.	0.2	0.2	Replace the 1 with the appropriate decimal
Aerobic D.	1	0.3	Replace the 1 with the appropriate decimal
Drying Bed	1	0.15	Replace the 1 with the appropriate decimal
Gal/yr.	4882000		

* Note If cake biosolids are generated then is total cubic yards instead of total gallons

Note biosolid cake conversion is 0.65 ton/ yd[3]

Pounds Equation

Dry TS US ton/yr.	3770.290435	lb. TS/yr. = %TS x 8.34 x gal/yr.	0	Cubic yards hauled
lb. TS/yr.	7540581		0	Total US tons
Total US tons	3770.29		0	
			0	

Conversion
US-> Metric tons multiply by 1.11
Metric -> US tons multiply by 0.9

Total Metric tons 3393.261439

NUTRIENT ANALYSIS

	%	mg/kg dry-wt.	
Total Organic	4.3991	43991	Organic N = (%TKN-%NH4)
TKN	5.6304	56304	Inorganic N = (%NH4 + %NO3)
NH4	1.2313	12313	
NO3	0.0308	308	
Phosphorus	2.1042	21042	
Potassium	0.02495	249.5	

	mg/kg dry-wt.	lb. / yr.	lb./ac-yr.	kg/ha
Phosphorus	21042	158668.9046	79.33445	88.05459
Potassium	249.5	1881.3750	0.94059	1.05357

pH	6.09

	2003			
Source	Salem			
File No.	78140			

NITROGEN	mg/kg dry-wt.	lb. / yr.	lb./ac-yr.	kg/ha
Total Organic	4.3991	66343.5395	33.1718	37.1524
TKN	5.6304	84912.8743	212.2824	237.7563
NH4	1.2313	45423.5869	23.2118	25.9972
NO3	0.0305	2299.8722	1.14994	1.28793
lb. mineralized organic N/dry ton			17.5964	
lb. inorganic N/dry ton			0.0035	
Total lb. available N/ ton			17.503	

NUTRIENT LOADING

Crop nitrogen loading rate N lb./acre	100.000	112	kg/ha
Total acres land applied for year.	2000		
Number dry tons land applied per acre	1.88	4.22	metric ton/ha
lb. Nitrogen per dry ton	20.52		
Total lb. Org-N produced per year	66343.54		
Total lb. NH4 produced per year	45423.59		
Total lb. NO3 produced per year	2299.55	#DIV/0!	lb. N / yd³
Total lb. Available N per year	115062.00	0.02	lb. N / gallon
Min. number of acres required per year (Nitrogen)	1150.67		

	2003
Source	75140
File No.	Salem

BIOSOLID METALS ANALYSIS AND CALCULATIONS

Sample calculation:
[(((5.0 mg As/1000000 mg TS X 140000 lb. Total Solids) = 0.07 lb. As/yr.
(((5.0 mg As/ 1000000 mg TS) x 140000 lb. TS) / 52 ac = 0.013 lb. As/ac-yr.
(EPA cumulative loading 41 total lb. As/ac / 0.013 lb. As/ac/yr.) = 2719.3 yr. site life for As
(0.013 lb. As/ac-yr.) x 1.12 conversion factor = 0.015 kg/ha-yr.
(2.6 tons biosolid is equivalent to a loading rate of 100 lb. total available N/ac) .

Metal Analysis	mg/kg dry-wt.
Arsenic	16.26
Cadmium	1.53
Chromium	66
Copper	560
Lead	25.7
Mercury	0.79
Molybdenum	8.97
Nickel	18.2
Selenium	3.68
Zinc	775

Metals	Biosolid concentration mg/kg	Ceiling Limits 503.13 Table 1 Conc mg/kg	Ceiling Limits 503.13 Table 1 metal lb./ton biosolid	Yearly lb. Metal per ton biosolids	Yearly Loading lb./ac-yr.	Yearly Loading kg/yr.
Arsenic	16.26	75	0.150	122.60985	0.06130	0.069
Cadmium	1.53	85	0.170	14.17629	0.00709	0.008
Chromium	66	1200	2.400	452.43486	0.22622	0.253
Copper	560	4300	8.600	4222.72535	2.11136	2.365
Lead	25.7	840	1.680	193.79293	0.09690	0.109
Mercury	0.79	57	0.114	5.95706	0.00298	0.003
Molybdenum	8.97	75	0.150	67.63901	0.03382	0.038
Nickel	18.2	420	0.840	137.23857	0.06862	0.077
Selenium	3.68	100	0.200	27.74934	0.01387	0.016
Zinc	775	7500	15.000	5874.11258	2.93706	3.290

There is no Ceiling limit for Chromium, table value is a past limit that is no longer valid, used here for loading calculations only.

	2003
Source	[redacted]
File No.	Salem

Metals	Analysis Biosolid conc. mg/kg	Cumulative Pollutant Limits CFR 503.13 Table 2 mg/ha	40 CFR 503.13 Table 2 metal lb./ac biosolid	Yearly lb. Metal per ton biosolids	Biosolid Loading lb./ac-yr.	Biosolid Loading kg/ha-yr.
Arsenic	[redacted]	41	45.920	2.276	[redacted]	0.001
Cadmium	[redacted]	39	43.680	0.263	[redacted]	0.000
Chromium	[redacted]	1200	1344.000	8.400	[redacted]	0.005
Copper	[redacted]	1500	1680.000	78.400	[redacted]	0.044
Lead	[redacted]	300	336.000	3.598	[redacted]	0.002
Mercury	[redacted]	17	19.040	0.111	[redacted]	0.000
Molybdenum	[redacted]	75	84.000	1.256	[redacted]	0.001
Nickel	[redacted]	420	470.400	2.548	[redacted]	0.001
Selenium	[redacted]	100	112.000	0.515	[redacted]	0.000
Zinc	[redacted]	2800	3136.000	109.060	[redacted]	0.061

There are no limits for Chromium or Molybdenum under Table 2, Mo concentration comes from Table 1. Ceiling Limit.

Metals	Biosolid Analysis mg/kg	Pollutant Conc. Limits Table 3 mg/ha	Table 3 lb. Metal per /ac biosolid	Loading lb./ac-yr.	Loading kg/ha-yr.	Site Life in years
Arsenic	[redacted]	41	45.920	0.061	0.069	[redacted]
Cadmium	[redacted]	39	43.680	0.007	0.008	[redacted]
Chromium	[redacted]	1200	1344.000	0.226	0.253	[redacted]
Copper	[redacted]	1500	1680.000	2.111	2.365	[redacted]
Lead	[redacted]	300	336.000	0.097	0.109	[redacted]
Mercury	[redacted]	17	19.040	0.003	0.003	[redacted]
Molybdenum	[redacted]	75	84.000	0.034	0.038	[redacted]
Nickel	[redacted]	420	470.400	0.069	0.077	[redacted]
Selenium	[redacted]	100	112.000	0.014	0.016	[redacted]
Zinc	[redacted]	2800	3136.000	2.937	3.290	[redacted]

There are no limits for Chromium or Molybdenum under Table 3, Mo concentration comes from Table 1. Ceiling Limit.

40 CFR 503.13 Tables 1-4.

T1, Ceiling loading, bulk biosolids sold or given away, bag or container, can not exceed pollutant concentration Table 1.

T2, Cumulative Loading, has to meet Table 1 and 2 limits, no lawn/garden Class A no ability to tract.

T3, Pollutant Concentration , bulk biosolid land applied on agriculture land, forest, public contact site or reclamation site has to meet Tables 1 &3.

T4, Annual Pollutant loading Rate, for land application of Class A biosolid given away in bag or container, has to meet Table 1 & 4.

Attachment 6a

Facility Name: Salem Willow Lake Date: 6/25/2004

Enter data into white cells below

7Q10 =	5023	cfs
Ambient Temperature or Criterion	18	°C
Effluent Flow =	35	mgd
Effluent Temperature	23	°C
Allowable increase =	0.3	°C

25% of 7Q10 = **1255.8** cfs

25% dilution = **24** dilution = (Qe+Qr)/Qe

ΔT at edge of MZ = 0.21 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

Attachment 6b

Facility Name: Salem Willow Lake Date: 6/25/2004

Enter data into white cells below:

Dilution =	25	
Ambient Temperature or Criterion	18	°C
Effluent Temperature	23	°C
Allowable increase =	0.3	°C
Effluent Flow Rate =	35	mgd

ΔT at edge of MZ= 0.20 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

Attachment 6c

Facility Name: Salem Willow Lake Date: 6/25/2004

Enter data into white cells below:

7Q10 =	6357	cfs
Ambient Temperature or Criterion	12.8	°C
Effluent Flow =	35	mgd
Effluent Temperature	19	°C
Allowable increase =	0.5	°C

100% dilution = 118 dilution = (Qe+Qr)/Qe

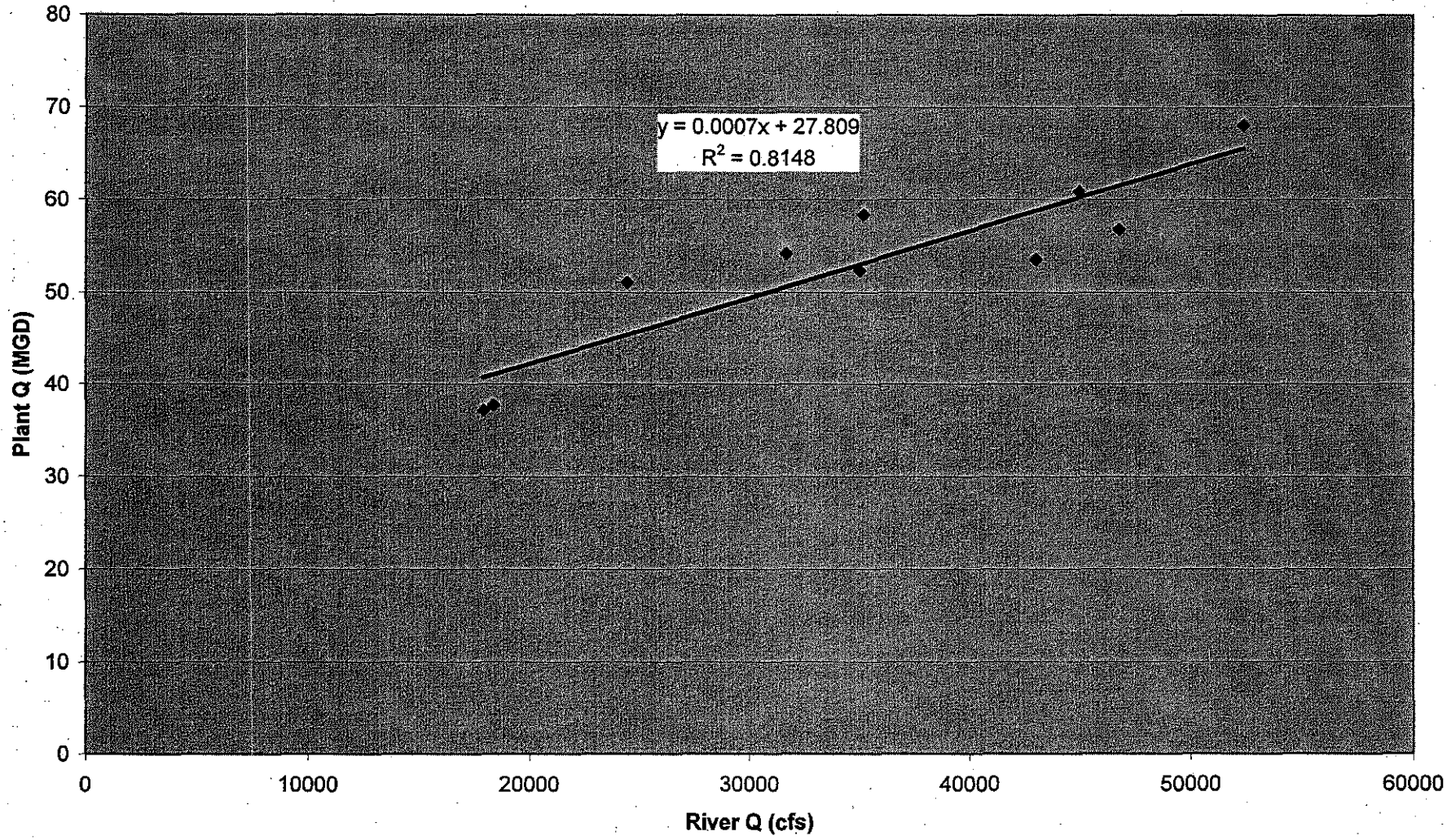
ΔT at edge of MZ= 0.05 °C No Reasonable Potential

Thermal Load Limit = N/A Million Kcals

Actual RMile (mi)	Model RMile (mi)	Time (days)	Deficit CBOD	Deficit NBOD	River Only DO	River+Source DO	Source Ambient DO Deficit
0.00	0.00	0.00	0.01	0.00	10.40	10.39	0.01
1.00	1.00	0.01	0.02	0.00	10.39	10.38	0.01
2.00	2.00	0.03	0.04	0.01	10.37	10.36	0.01
3.00	3.00	0.04	0.05	0.01	10.36	10.34	0.01
4.00	4.00	0.05	0.06	0.01	10.34	10.33	0.01
5.00	5.00	0.06	0.07	0.01	10.33	10.32	0.02
6.00	6.00	0.08	0.08	0.02	10.32	10.30	0.02
7.00	7.00	0.09	0.09	0.02	10.31	10.29	0.02
8.00	8.00	0.10	0.10	0.02	10.29	10.28	0.02
9.00	9.00	0.12	0.11	0.02	10.28	10.26	0.02
10.00	10.00	0.13	0.12	0.02	10.27	10.25	0.02
11.00	11.00	0.14	0.13	0.03	10.26	10.24	0.02
12.00	12.00	0.16	0.14	0.03	10.25	10.23	0.02
13.00	13.00	0.17	0.15	0.03	10.24	10.22	0.02
14.00	14.00	0.18	0.16	0.03	10.23	10.21	0.02
15.00	15.00	0.19	0.17	0.03	10.22	10.20	0.02
16.00	16.00	0.21	0.17	0.04	10.22	10.19	0.02
17.00	17.00	0.22	0.18	0.04	10.21	10.18	0.03
18.00	18.00	0.23	0.19	0.04	10.20	10.17	0.03
19.00	19.00	0.25	0.20	0.041	10.19	10.16	0.03
20.00	20.00	0.26	0.20	0.043	10.18	10.16	0.03
21.00	21.00	0.27	0.21	0.044	10.18	10.15	0.03
22.00	22.00	0.28	0.21	0.0457	10.17	10.14	0.03
Newberg Pool	1.00	0.01	0.22	0.049	10.17	10.13	0.04
24.00	2.00	0.03	0.22	0.052	10.18	10.13	0.05
25.00	3.00	0.04	0.23	0.055	10.18	10.12	0.06
26.00	4.00	0.05	0.23	0.058	10.18	10.11	0.07
27.00	5.00	0.06	0.24	0.062	10.19	10.10	0.09
28.00	6.00	0.08	0.24	0.065	10.19	10.09	0.10
29.00	7.00	0.09	0.25	0.068	10.19	10.08	0.11
30.00	8.00	0.10	0.25	0.071	10.20	10.08	0.12
31.00	9.00	0.12	0.26	0.074	10.20	10.07	0.13
32.00	10.00	0.13	0.26	0.078	10.20	10.06	0.14
33.00	11.00	0.14	0.27	0.081	10.21	10.05	0.16
34.00	12.00	0.16	0.27	0.084	10.21	10.04	0.17
35.00	13.00	0.17	0.28	0.088	10.21	10.04	0.18
36.00	14.00	0.18	0.28	0.091	10.22	10.03	0.19
37.00	15.00	0.19	0.29	0.094	10.22	10.02	0.20
38.00	16.00	0.21	0.29	0.098	10.23	10.01	0.21
39.00	17.00	0.22	0.30	0.101	10.23	10.00	0.23
40.00	18.00	0.23	0.30	0.104	10.23	10.00	0.24
41.00	19.00	0.25	0.31	0.108	10.24	9.99	0.25
42.00	20.00	0.26	0.31	0.111	10.24	9.98	0.26
43.00	21.00	0.27	0.32	0.114	10.24	9.97	0.27
44.00	22.00	0.28	0.32	0.118	10.25	9.96	0.29
45.00	23.00	0.30	0.33	0.121	10.25	9.95	0.30
46.00	24.00	0.31	0.33	0.125	10.26	9.95	0.31
47.00	25.00	0.32	0.34	0.128	10.26	9.94	0.32
48.00	26.00	0.34	0.34	0.132	10.26	9.93	0.33
49.00	27.00	0.35	0.35	0.135	10.27	9.92	0.35
50.00	28.00	0.36	0.35	0.138	10.27	9.91	0.36
Willamette Falls	29.00	0.37	0.35	0.142	10.27	9.90	0.37

Actual RM (mi)	Model RM (mi)	Time (days)	Deficit CBOD	Deficit NBOD	River Only DO	River+Source DO	Source Ambient DO Deficit
0.00	0.00	0.00	0.01	0.00	11.54	11.53	0.01
1.00	1.00	0.00	0.01	0.00	11.54	11.53	0.01
2.00	2.00	0.00	0.01	0.00	11.54	11.53	0.01
3.00	3.00	0.00	0.01	0.00	11.54	11.53	0.01
4.00	4.00	0.01	0.01	0.00	11.53	11.53	0.01
5.00	5.00	0.01	0.01	0.00	11.53	11.53	0.01
6.00	6.00	0.01	0.01	0.00	11.53	11.52	0.01
7.00	7.00	0.01	0.02	0.00	11.53	11.52	0.01
8.00	8.00	0.01	0.02	0.00	11.53	11.52	0.01
9.00	9.00	0.01	0.02	0.00	11.53	11.52	0.01
10.00	10.00	0.02	0.02	0.00	11.53	11.52	0.01
11.00	11.00	0.02	0.02	0.00	11.53	11.52	0.01
12.00	12.00	0.02	0.02	0.00	11.53	11.52	0.01
13.00	13.00	0.02	0.02	0.00	11.53	11.52	0.01
14.00	14.00	0.02	0.02	0.00	11.52	11.52	0.01
15.00	15.00	0.02	0.02	0.00	11.52	11.52	0.01
16.00	16.00	0.03	0.02	0.00	11.52	11.52	0.01
17.00	17.00	0.03	0.02	0.00	11.52	11.52	0.01
18.00	18.00	0.03	0.02	0.00	11.52	11.52	0.01
19.00	19.00	0.03	0.02	0.001	11.52	11.51	0.01
20.00	20.00	0.03	0.02	0.001	11.52	11.51	0.01
21.00	21.00	0.03	0.02	0.001	11.52	11.51	0.01
22.00	22.00	0.04	0.03	0.0010	11.52	11.51	0.01
Newberg Pool	1.00	0.00	0.03	0.001	11.52	11.51	0.01
24.00	2.00	0.00	0.03	0.001	11.52	11.51	0.01
25.00	3.00	0.00	0.03	0.001	11.52	11.51	0.01
26.00	4.00	0.01	0.03	0.001	11.52	11.51	0.01
27.00	5.00	0.01	0.03	0.001	11.52	11.51	0.01
28.00	6.00	0.01	0.03	0.001	11.52	11.51	0.01
29.00	7.00	0.01	0.03	0.001	11.52	11.51	0.01
30.00	8.00	0.01	0.03	0.001	11.52	11.51	0.01
31.00	9.00	0.01	0.03	0.002	11.52	11.51	0.01
32.00	10.00	0.02	0.03	0.002	11.52	11.51	0.01
33.00	11.00	0.02	0.03	0.002	11.52	11.51	0.01
34.00	12.00	0.02	0.03	0.002	11.52	11.51	0.01
35.00	13.00	0.02	0.03	0.002	11.52	11.51	0.01
36.00	14.00	0.02	0.03	0.002	11.52	11.51	0.02
37.00	15.00	0.02	0.03	0.002	11.52	11.50	0.02
38.00	16.00	0.03	0.03	0.002	11.52	11.50	0.02
39.00	17.00	0.03	0.03	0.002	11.52	11.50	0.02
40.00	18.00	0.03	0.03	0.002	11.52	11.50	0.02
41.00	19.00	0.03	0.03	0.002	11.52	11.50	0.02
42.00	20.00	0.03	0.03	0.002	11.52	11.50	0.02
43.00	21.00	0.03	0.03	0.002	11.52	11.50	0.02
44.00	22.00	0.04	0.04	0.002	11.52	11.50	0.02
45.00	23.00	0.04	0.04	0.002	11.52	11.50	0.02
46.00	24.00	0.04	0.04	0.003	11.52	11.50	0.02
47.00	25.00	0.04	0.04	0.003	11.52	11.50	0.02
48.00	26.00	0.04	0.04	0.003	11.52	11.50	0.02
49.00	27.00	0.04	0.04	0.003	11.52	11.50	0.02
50.00	28.00	0.05	0.04	0.003	11.52	11.50	0.02
Will Falls	29.00	0.05	0.04	0.003	11.52	11.50	0.025

Attachment #8
Willow Lake Q vs. Willamette River Q



Attachment 9

Appendix B: Antidegradation Review Sheet

ANTIDEGRADATION REVIEW SHEET FOR A PROPOSED INDIVIDUAL NPDES DISCHARGE

1. What is the name of Surface Water that receives the discharge? Willamette River

   Briefly describe the proposed activity: Municipal Wastewater Treatment

   Is this review for a (renewal) OR new (circle one) permit application?
   Go to Step 2.

---

2. Is this surface water an **Outstanding Resource Water** or **upstream** from an **Outstanding Resource Water**?
   No. Go to Step 3.

3. Is this surface water a **High Quality Water**?
   Yes. Go to Step 8.

4. Is this surface water a **Water Quality Limited Water**?
   Yes. Go to Step 14.

---

14. Will the proposed activity result in a Lowering of Water Quality in the **Water Quality Limited Water**? [see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from antidegradation review; otherwise see "Is an Activity Likely to Lower Water Quality?" in *Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications.*]
    No. Proceed with Permit Application. Applicant should provide basis for conclusion. Go to Step 21.

    The Department performed modeling of the dissolved oxygen reductions caused by the City of Salem's current permitted discharge and the proposed permitted discharge. The difference in ambient dissolved oxygen just prior to Willamette Falls (the point of maximum dissolved oxygen sag prior to extreme reaeration that cannot be modeled) was 0.001 mg/L. According to OAR 340-041-0004(3)(d), decreases up to 0.1 mg/L are not considered a reduction in water quality. (see full discussion of dissolved oxygen in the evaluation report under "Receiving Water".

    In addition, the current permit does not account for pollutant load currently being discharged to the Willamette River through untreated Sanitary Sewer Overflows

(SSO). The SSOs discharge about 66,000 and 57,000 lbs/day BOD and TSS, respectively, during the maximum month and about 121,000 and 106,000 lbs/day BOD and TSS, respectively, on the maximum day. This mass load is not counted against the permit limits. The facilities provided under this permit will actually result in a net reduction of pounds of 44,000 pounds average day maximum month CBOD and 43,000 pounds average day maximum month TSS. On a peak day, the net reduction will be 77,000 pounds for both CBOD and TSS.

21. On the basis of the Antidegradation Review, the following is recommended:
_X___ Proceed with Application to Interagency Coordination and Public Comment Phase.
____ Deny Application; return to applicant and provide public notice.

Action **Approved**

Section: DEQ Western Region WQ

Review Prepared By: Mark E. Hamlin
Phone: (503) 378-8240, ext. 239
Date Prepared: July 16, 2004

Please provide the following information and submit with the completed application form to:
Department of Environmental Quality
Water Quality Division—Surface Water Management
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Name: _____
Name of Company: _____
Address: _____
_____
_____
_____
Phone: _____
Fax: _____

Reasonable Pot al Analysis - Metals

Facility Name: City of Salem **Attachment 10** **Date:** 06/28/2004

Dilution Values? (Y/N)	Y	calculated
Dilution @ ZID	12	*
Dilution @ MZ	25	*
If no dilution values enter info below		
Facility Effluent Flow	*	MGD
7Q10	*	CFS
1Q10	*	CFS
% dilution at ZID	*	%
% dilution at MZ	*	%
Fresh Water? (Y/N)	Y	

Hardness	
Effluent	55
Stream	25
Mixed	
ZID	28
MZ	26

(Hardness values should be >25 and <400 mg/L)

Confidence Level	99%
Probability Basis	95%

PARAMETER	# of Samples	Highest Conc.	Coef. of Variance	Maximum Effluent Conc.	Background Conc.	Maximum Conc. at ZID	Maximum Conc. at MZ	WQ CRITERIA		REASONABLE POTENTIAL ?	
								1 Hour (CMC)	4 Day (CCC)		
		ug/l		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ACUTE	CHRONIC
ARSENIC V *				26.1	4.6	6.39	5.46	850	48	NO	NO
ARSENIC III				26.1	4.6	6.39	5.46	360	190	NO	NO
CADMIUM +				0.03	5.0	4.59	4.80	0.91	0.40	YES	YES
TOTAL CHROMIUM †				151.2	0.74	13.28	6.76	619.2	80.1	NO	NO
COPPER +				47	1.1	4.93	2.94	5.25	3.76	NO	NO
LEAD +				0.70	0.24	0.28	0.26	15.78	0.58	NO	NO
MERCURY				0.20	0.002	0.02	0.01	2.40	0.012	NO	NO
NICKEL +				64.7	20.0	23.73	21.79	475.8	50.8	NO	NO
SILVER +	4	0.51	0.60	1.63	0.03	0.16	0.09	0.44	0.12	NO	NO
ZINC +				91.1	2.06	9.48	5.62	39.19	34.07	NO	NO
CHLOROFORM	3	0.58	0.60	2.26	2	2.02	2.01	28900	1240	NO	NO
1,2-DICHLOROBENZENE	3	1.48	0.60	5.77	0.1	0.57	0.33	1120	763	NO	NO
1,4-DICHLOROBENZENE	3	0.8	0.60	3.12	0.1	0.35	0.22	1120	763	NO	NO
TOLUENE	3	0.52	0.60	2.03	0.50	0.63	0.56	17500	*	NO	*
DI-2-ETHYLHEXYL PHTHALATE	3	19.90	0.60	77.6	2.40	8.67	5.41	*	15.00	*	NO

NOTES :

All units in ug/L

* Insufficient data to develop criteria; value presented is the Lowest Observed Effect Level

\+ Hardness dependent criteria

‡ - No acute standard. The CMC is estimated as 2X the CCC.

† - Not DEQ Criteria

^ Marine acute criterion has insufficient data to develop criteria; value = LOEL

Reasonable Potential Analysis - Chlorine and Ammonia

Facility Name: City of Salem **Attachment 10** **Date:** 6/25/2004

Dilution Values? (Y/N)	Y	calculated
Low Flow Dilution @ ZID =	12	*
Low Flow Dilution @ MZ =	25	*
High Flow Dilution @ ZID =	12	*
High Flow Dilution @ MZ =	25	*

Enter data below if no dilution data is available

Data to estimate dilution	Summer	Winter
7Q10 (CFS) =	*	*
1Q10 (CFS) =	*	*
% dilution at MZ =	*	*
% dilution at ZID =	*	*
Effluent Flow (mgd) =	*	*

Confidence Level =	99%
Probability Basis =	95%

Summer data	Effluent	Stream	Mixed		
			ZID	MZ	
pH * =	7.1	7.7	7.5	7.6	(6.5-9)
Temp * =	23	22	22.1	22.0	° C
Alkalinity =	75	25			
Salmonids Present? (Y/N)		y			
Fresh Water ? (Y/N)		y			
Salinity (ppt)	0	20	18.3	19.2	
Winter data					
pH * =	7.2	7.6	7.5	7.5	(6.5-9)
Temp * =	15.5	13.5	13.7	13.6	° C
Alkalinity =	75	25			
Salmonids Present? (Y/N)		y			
Fresh Water ? (Y/N)		y			
Salinity (ppt)	0	20	18.3	19.2	

PARAMETER	# of Samples	Highest Conc. mg/l	Coef. of Variance	Maximum Effluent Conc. mg/l	Background Conc. mg/l	Maximum Conc. at ZID mg/l	Maximum Conc. at MZ mg/l	WQ CRITERIA 1 Hour (CMC) mg/l	WQ CRITERIA 4 Day (CCC) mg/l	REASONABLE POTENTIAL ? ACUTE	REASONABLE POTENTIAL ? CHRONIC
Low Flow Season											
AMMONIA*	89	21.40	0.37	21.40	0.04	1.820	0.894	10.53	1.07	**NO**	**NO**
High Flow Season											
AMMONIA*	97	22.60	0.37	22.60	0.05	1.929	0.952	12.69	1.81	**NO**	**NO**

* -NOTES :

Temperature must be between 0 and 30 ° C
pH must be between 6.5 and 9
Ammonia is total ammonia as NH3

Wastewater System Classification Worksheet for Operator Certification
OAR 340-049-0020

Attachment 11

General Requirements (OAR 340-049-0015) - Each owner of a regulated wastewater system must have its system supervised by one or more operators who hold a valid certificate for the type of system, wastewater treatment or collection, and at a grade equal to or greater than the wastewater system classification as defined in OAR-340-049-0020 and 0025. DEQ will advise system owners of the classification of their systems as a permit action. **As the classification establishes the operator certificate type and grade required for compliance, it needs to be set prior to "start-up" of a new or upgraded and/or expanded facility.**

Wastewater treatment system classifications will be derived from the total points assigned based on criteria shown in OAR 340-049-0025 (see Classification Worksheet). Collection system classifications are based on design population or population equivalent to be served by a wastewater treatment system (see Worksheet).

Upon written notice to the wastewater system owner, DEQ may classify a wastewater treatment system higher than the classification based on accumulated points if the complexity of a treatment system is not reflected in the criteria(see Worksheet examples). If deemed appropriate, DEQ may classify a wastewater collection system higher than the classification based on population when a Class I by population will have significant pumping of sewage including STEP or other pumping that may warrant a Class II designation. In either case, designation must be consistent with the intent of the classification system (see OAR 340-049-0020(4) & (5)).

Classification of Wastewater Systems (OAR 340-049-0020) All wastewater systems regulated under OAR 340-049 will be classified by DEQ as wastewater treatment systems and/or wastewater collection systems, as appropriate, in accordance with the following classification system:

Wastewater Treatment Systems	Wastewater Collection Systems
Class I - 30 total points or less	**Class I - 1,500 or less design population**
Class II - 31-55 total points	**Class II - 1,501 to 15,000 design population**
Class III - 56-75 total points	**Class III - 15,001 to 50,000 design population**
Class IV - 76 or more points	**Class IV - 50,001 or more design population**

Definitions used in these regulations unless otherwise required by context (see OAR 340-049-0010):

"Average Dry Weather Flow" (ADWF) means the design average dry weather flow capacity of the wastewater treatment system in gallons per day or Million Gallons per Day (MGD), as approved by the Department.

"Industrial Waste" means liquid wastes from an industrial or commercial process discharged into a wastewater system for conveyance and treatment.

"NPDES Permit" means a waste discharge permit issued in accordance with requirements and procedures of the National Pollutant Discharge Elimination System authorized by Section 402 of the Federal Clean Water Act and OAR 340, Division 45.

"Population" means the design population of the wastewater system represented as the number of people or the population equivalent the system is designed to serve. Equivalent population ordinarily is determined based on 70 gallons per person per day average dry weather flow (ADWF) or 0.17 lbs. BOD5 per person per day, whichever is greater.

"Wastewater" or "sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. The admixture of domestic and industrial waste or other by-products, such as sludge, is also considered wastewater or sewage.

"Wastewater Treatment System" or "Sewage Treatment System" means any structure, equipment or process for treating and disposing of, or recycling or reusing wastewater and sludge (including industrial waste) that is discharged to the wastewater system.

"Wastewater Collection System" or "Sewage Collection System" means the trunks, arterials, pumps, pump/lift stations, piping and other appurtenances necessary to collect and carry away wastewater or other liquid waste treatable in a community or private wastewater treatment facility.

"Wastewater System" means "Sewage Treatment Works" defined in ORS 448.405 as any structure, equipment or process required to collect, carry away and treat domestic waste and dispose of sewage as defined in ORS 454.010. Typically, components of a wastewater system include a wastewater collection system and a wastewater treatment system.

"WPCF Permit" means a Water Pollution Control Facilities permit to construct and operate a collection, treatment and/or disposal system with no discharge to navigable waters.

Wastewater System Classification Worksheet for Operator Certification
OAR 340-049-0020

WW System Common Name: City of Salem Willow Lake Water Pollution Control Facility

Facility ID: 78140 **Location:** 5915 Windsor Island Road N.E.

Total Points (from page 3): 229 **WWT Class (check):** ☐ I ☐ II ☐ III ☒ IV

Design Population[1]**:** 838,000 **WWC Class (check):** ☐ I ☐ II ☐ III ☒ IV

Design ADWF load (Influent MGD) 35 **Design BOD load (Influent lbs./day)** 142,500

Classified by: Mark E. Hamlin **Date:** June 29, 2004

Date this classification filed with the Operator Certification office:

System start-up date for this classification (new, upgrade or expansion): 2001

Is this a change from a prior classification? (check): ☐ Yes ☒ No

Criteria for Classifying Wastewater Treatment Systems (OAR 340-049-0025)

(1) Design Population or Population Equivalent Points (10 Points Maximum)

☐ Less than 750		0.5 points
☐ 751 to 2000		1 point
☐ 2001 to 5000		1.5 points
☐ 5001 to 10,000		2 points
☒ Greater than 10,000		3 points plus 1 per 10,000
	Point subtotal	87

(2) Average Dry Weather Flow (Design Capacity) Points (10 points Maximum)

☐ Less than 0.075 MGD		0.5 point
☐ Greater than 0.075 to 0.1 MGD		1 point
☐ Greater than 0.1 to 0.5 MGD		1.5 points
☐ Greater than 0.5 to 1.0 MGD		2 points
☒ Greater than 1.0 MGD		3 points plus 1 per 1 MGD
	Point subtotal	38

(3) Unit Process Points (Check all that apply)

Preliminary Treatment and Plant Hydraulics:

☐ Comminution (includes shredders, grinders, etc.)		1 point
☐ Grit Removal, gravity		1 point
☐ Grit Removal, mechanical		2 points
☒ Screen(s), in-situ or mechanical		1 point
☒ Pump/Lift Station(s) (pumping of main flow)		2 points
☐ Flow Equalization (any type)		1 point
	Point subtotal	3

Primary Treatment:

☐ Community Septic Tank(s)		2 points
☒ Clarifier(s)		5 points
☐ Flotation Clarifier(s)		7 points
☐ Chemical Addition System		2 points
☐ Imhoff Tank (or similar)		3 points
	Point subtotal	5
	Total Points Page 1	133

[1] **See "Population" definition. Use the design average daily per person load for Influent Flow or Influent BOD5, whichever is greater. This value is also used to determine the Collection System Classification.**

Wastewater System Classification Worksheet

Unit Process Points – Continued (Check all that apply)

Secondary, Advanced, and Tertiary Treatment:

☐	Low Rate Trickling Filter(s) (no recirculation)	7 points
☐	High Rate Trickling Filter(s) (recirculation)	10 points
☒	Trickling Filter - Solids Contact System	12 points
☐	Activated Sludge (any type)	15 points
☒	Pure Oxygen Activated Sludge	20 points
☐	Activated Bio Filter Tower less than 0.1 MGD	6 points
☐	Activated Bio Filter Tower greater than 0.1 MGD	12 points
☐	Rotating Biological Contactors 1 to 4 shafts	7 points
☐	Rotating Biological Contactors, 5 or more shafts	12 points
☐	Stabilization Lagoons, 1 to 3 cells without aeration	5 points
☐	Stabilization Lagoons, 1 or more cells with primary aeration	7 points
☐	Stabilization Lagoons, 2 or more cells with full aeration	9 points
☐	Recirculating Gravel Filter	7 points
☐	Chemical Precipitation Unit(s)	3 points
☐	Gravity Filtration Unit(s)	2 points
☐	Pressure Filtration Unit(s)	4 points
☐	Nitrogen Removal, Biological or Chemical/Biological System	4 points
☐	Nitrogen Removal, Designed Extended Aeration Only	2 points
☐	Phosphorus Removal Unit(s)	4 points
☐	Effluent Microscreen(s)	2 points
☐	Chemical Flocculation Unit(s)	3 points
☐	Chemical Addition System(s) (6 points maximum)	@ 2 points
	Point subtotal	32

Solids Handling:

☐	Anaerobic Primary Sludge Digester(s) w/o Mixing and Heating	5 points
☐	Anaerobic Primary Sludge Digester(s) with Mixing and Heating	7 points
☒	Anaerobic Primary and Secondary Sludge Digesters	10 points
☒	Sludge Digester Gas reuse	3 points
☐	Aerobic Sludge Digester(s)	8 points
☐	Sludge Storage Lagoon(s) (or tanks, basins etc.)	2 points
☐	Sludge Lagoon(s) with aeration	3 points
☐	Sludge Drying Bed(s)	1 point
☒	Sludge Air or Gravity Thickening	3 points
☐	Sludge Composting, In Vessel	12 points
☒	Sludge Belt(s) or Vacuum Press/Dewatering	5 points
☐	Sludge Centrifuge(s)	5 points
☐	Sludge Incineration	12 points
☐	Sludge Chemical Addition Unit(s) (alum, polymer, etc.)	2 points
☐	Non-Beneficial Sludge Disposal	1 point
☐	Beneficial Sludge Utilization	3 points
	Point subtotal	21

Disinfection:

☒	Liquid Chlorine Disinfection	2 points
☐	Gas Chlorine Disinfection	5 points
☒	Dechlorination System	4 points
☐	Other disinfection systems incl. ultraviolet and ozonation	5 points
	Point subtotal	6
	Total Points Page 2	59

Wastewater System Classification Worksheet

(4) Effluent Permit Requirement Points (Check as applicable):

☒ Minimum of secondary effluent limitations for BOD and/or TSS	2 points
☐ Minimum of 20 mg/L BOD and/or Total Suspended Solids	3 points
☐ Minimum of 10 mg/L BOD and/or Total Suspended Solids	4 points
☐ Minimum of 5 mg/L BOD and/or Total Suspended Solids	5 points
☐ Effluent limitations for effluent oxygen	1 point
Point subtotal	2

(5) Variation in Raw Waste Points. (6 points maximum) Points in this category will be awarded only when conditions are extreme to the extent that operation and handling procedure changes are needed to adequately treat waste due to variation of raw waste

☐ Recurring deviations or excessive variations 100% to 200%	2 points
☒ Recurring deviations or excessive variations of more than 200% **or** conveyance and treatment of industrial wastes by Pretreatment program	4 points
☐ Septage or other hauled waste (control and/or preliminary treatment)	2 points
Point subtotal	4

(6) Sampling and Laboratory Testing Points (check as applicable - maximum 11 points)

☐ Sample for BOD, Total Suspended Solids performed by outside lab	2 points
☒ BOD or Total Suspended Solids analysis performed at treatment plant	4 points
☐ Bacteriological analysis performed by outside lab	1 point
☒ Bacteriological analysis performed at WWT plant lab	2 points
☐ Nutrient, Heavy Metals or Organics analysis performed by outside lab	3 points
☒ Nutrient, Heavy Metals or Organics analysis performed at WWT plant	5 points
Point subtotal	11

(7) Points For Other Complexities Not Reflected Above: (see OAR 340-049 0020(4) & (5))

☒ Odor Control (2 points maximum)		1 to 2 points
☒ Standby Power Units	@	1 point
☒ Solids Composting or Land Application of Biosolids		10 points
☐ Alkaline Stabilization (3 points maximum)		2 to 3 points
☒ Other Effluent Limits [ammonia, Cl2, temp., etc. (list or attach list)]	@	1 point
☐ Pond(s) (advanced treatment polishing or irrigation holding)		2 points
☐ Effluent Land Disposal - Evaporation (surface or subsurface)		2 to 4 points
☐ Effluent direct Reuse or Recycle		6 points
☒ SCADA or similar for data (limited to extensive total process operation)		2 to 6 points
☐ Chemical/Physical advanced waste treatment following secondary		10 points
☐ Chemical/Physical advanced waste treatment w/o secondary		15 points
☐ Biological or Chemical/Biological advanced waste treatment		12 points
☐ Reverse Osmosis, Electro-dialysis or Membrane Filtration techniques		15 points
☐ Other complexities (list or attach list): _____		____
Point subtotal		20
Total Points Page 3		37

Total Accumulated Points (3 pages) 229

A COPY OF THIS COMPLETED WORKSHEET IS TO BE FILED WITH THE OPERATOR CERTIFICATION PROGRAM, WATER QUALITY DIVISION, PRIOR TO SYSTEM START-UP

Attachment 12

VICTOR ATIYEH
Governor

Department of Environmental Quality

522 S.W. FIFTH AVENUE, BOX 1760, PORTLAND, OREGON 97207 PHONE: (503) 229-5696

August 25, 1983

Mr. Thomas Heinecke, P.E.
Department of Public Works
City of Salem
555 Liberty St. S.E.
Salem, OR 97301

RE: WQ-City of Salem, Willow Lake STP
X-WQ-Boise Cascade, Salem
Marion County

Dear Tom:

Sorry for the delay in getting this information to you. This is in follow-up to your inquiry during City Council meeting August 15 regarding existing loads on the Willamette and how current Salem effluent limits were calculated.

My response consists of several parts. First, please refer to your copy of the letter I sent Sue Harris dated August 22, 1983. Second, below are some loading figures to the Willamette from our so called class of "major" dischargers. I do not have the information on the minors.

Major Industries, Summer 1982 (Monthly BOD_5 average, pounds/day):

Name	Actual Discharge	Permitted Discharge
Weyerhaeuser, Springfield	2360	3000
Halsey Pulp, Harrisburg	1080	2500
Western Kraft, Albany	2249	2500
Publishers Paper, Newberg	3800	6000
Publishers Paper, Oregon City	4800	8000
Crown Zellerbach, West Linn	1077	3300

Major Municipalities, Summer 1978:

Albany	154	1450
Salem	2124	11000
Springfield	2213	1725
Newberg	163	334
McMinnville	103	670
Lebanon	197	210
Corvallis	214	810
Cottage Grove	229	375
Eugene	4083	4300
Portland, Tryon Creek	270	834
Oak Lodge	237	667
Oregon City	210	750
Kellog Creek	366	1670

Third, the following will illustrate some of our calculations:

1. Salem Area Allocation (June 1-Oct.31) -- Consent Agreement:

	Monthly Average #/day	Weekly Average #/day	Daily Maximum #/day
BOD_5	11,067	13,150	15,133
TSS	11,067	13,150	15,133
NH_3-N	3,000	---	3,500

2. Willow Lake STP -- NPDES Permit:

(June 1 - October 31):			
BOD_5	11,000	13,000	15,000
TSS	11,000	13,000	15,000
NH_3-N	3,000	---	3,500
(November 1 - June 30):			
BOD_5	8,757	13,136	17,514
TSS	8,757	13,136	17,514

3. Boise Cascade - NPDES Permit:

(June 1 - October 31)			
BOD_5	---	8,000	12,000
TSS	16,580	---	30,800
NH_3-N	7,500		11,000
(November 1 - May 31):			
BOD_5	10,000	---	17,250
TSS	16,580	---	30,800
NH_3-N	10,000	---	15,000

The Willow Lake STP effluent limits were calculated as follows:

1. Industry BPT Allowance - Based on NWFPA raw pack projections for Salem members through 1983 and supplemented with operational information from John Schlueter, NWFPA Assistant Manager.

   Based upon operational information (length of processing week, length and calendar season of individual crop processing, etc.), the worst allowable BPT effluent case was determined.

Product	Daily Production 1000 lb/day	BOD-5(lb/day) mo.av.	BOD-5(lb/day) daily max.	TSS(lb/day) mo.av.	TSS(lb/day) daily max.
Beans	4,372.375	4,635	7,171	7,520	10,887
Cherries	1,142.667	1,371	2,114	2,560	3,462
Berries	194.111	159	246	265	379
Peas	166.667	298	457	543	740
Beets	801.714	433	649	1,018	1,243
Potential BPT Allowance (40 CFR Part 407, 10-21-75)		6,896	8,190 0.637	11,906	16,711

2. Non-Canning Summer Contribution

   a. 23 MGD @ 30 mg/l (secondary treatment) = 5,755 lb/day.

   b. 85% removal of influent loading (28,800 lb/day each of BOD_5 & TSS) = (0.15)(28,800 lb/day) = 4,320 lb/day 5755 lb/day, therefore, 4320 lb/day governs.

3. Total Allowable Summer Effluent Loading (July 1 - October 31)

Component	BOD-5 mo.aver.	BOD-5 daily max.	TSS mo.aver.	TSS daily max.
Industry & BPT	6,896	10,637	11,906	16,711
Non-industry & Secondary treatment	4,320	8,640	4,320	8,640
Total	11,216	19,277*	16,226	25,351*
Present Permit Allowance	11,000	15,000	11,000	15,000
Previous Permit Allowance	11,000	15,000	7,300	12,000
SCA Allowance	11,067	15,133	11,067	15,133

NOTE: at 35 MGD, 11,000 lb/day = 37 mg/l.

* These calculated potential higher limits not allowed by the Commission because:
   a. Receiving stream does not appear to have D.O. capacity.
   b. They are calculated from the "maximum adverse condition", an unlikely case.
   c. STP performance history shows capability superior to adverse case.

4. Allowable Winter Effluent Limits (November 1 - June 30)

No industrial allowances, since companies are doing repack. Therefore, limits are based on plant's 35 MGD design capacity and secondary treatment criteria (30/45/60 mg/l).

monthly average = (30 mg/l)(8.34)(35 MGD) = 8,757 lb/day
weekly average = (45 mg/l)(8.34)(35 MGD) = 13,136 lb/day
daily maximum = (60 mg/l)(8.34)(35 MGD) = 17,514 lb/day

I hope this addresses your questions. Please feel free to call me at 378-8240.

Sincerely,

John K. Borden, P.E.
Regional Manager

JKB/wr

cc: Larry Patterson, Water Quality Division

	INFLUENT										
MONTH	FLOW					BOD			TSS		
	Total	AVER	%ADWF	%AWWF	Peak	mg/l	lbs	% cap	mg/l	lbs	% cap
Jun-02	839	28.0	80		33.6	225	52449	37	199	46388	61
Jul-02	874	28.2	81		30.5	262	61576	43	221	51940	68
Aug-02	887	28.6	82		30.3	328	78287	55	241	57522	76
Sep-02	847	28.2	81		31.7	402	94694	66	280	65956	87
Oct-02	840	27.1	77		31.0	392	88536	62	242	54658	72
Nov-02	843	28.1		45	35.1	263	61610	43	216	50599	67
Dec-02	1584	51.1		82	96.0	191	81374	57	174	74131	98
Jan-03	1887	60.9		98	99.6	125	63469	45	121	61438	81
Feb-03	1517	54.2		87	100.5	143	64613	45	119	53769	71
Mar-03	1661	53.6		86	84.3	140	62548	44	128	57187	75
Apr-03	1571	52.4		84	92.5	134	58538	41	127	55480	73
May-03	1151	37.1		60	49.2	193	59762	42	167	51711	68
Jun-03	870	29.0	83		33.4	222	53689	38	190	45950	60
Jul-03	856	27.6	79		29.2	245	56416	40	217	49969	66
Aug-03	848	27.4	78		28.9	296	67544	47	226	51571	68
Sep-03	876	29.2	83		33.7	296	72046	51	227	55251	73
Oct-03	857	27.6	79		31.8	297	68473	48	247	56945	75
Nov-03	911	30.4		49	50.4	243	61551	43	203	51419	68
Dec-03	1761	56.8		92	94.2	135	63967	45	125	59228	78
Jan-04	2110	68.1		110	97.4	103	58476	41	97	55069	72
Feb-04	1695	58.4		94	84.5	116	56537	40	107	52151	69
Mar-04	1169	37.7		61	61.4	184	57870	41	162	50951	67
Apr-04	954	31.8		51	41.1	220	58334	41	194	51440	68
May-04	907	29.2		47	33.9	242	59020	41	202	49265	65
Mass loads are calcuated from monthly averages and are not as reported on the DMR											

	EFFLUENT							%REMOVAL	
MONTH	CBOD		BOD		TSS		NH3		
	mg/l	lbs	mg/l	lbs	mg/l	lbs	mg/l	BOD	TSS
Jun-02	3.6	839	8.2	1911	6.5	1515	16.8	96	97
Jul-02	4.0	940	11.6	2726	6.5	1528	14.3	96	97
Aug-02	5.6	1337	9.1	2172	9.2	2196	10.3	97	96
Sep-02	4.2	989	6.5	1531	7.4	1743	10.3	98	97
Oct-02	5.1	1152	8.2	1852	8.0	1807	13.4	98	97
Nov-02	5.1	1195	9.0	2108	7.7	1804	18.4	97	96
Dec-02	8.3	3536	12.8	5453	11.8	5027	12.9	93	93
Jan-03	7.6	3859	10.1	5128	10.1	5128	7.4	92	92
Feb-03	6.5	2937	9.1	4112	8.8	3976	8.0	94	93
Mar-03	7.2	3217	9.9	4423	7.8	3485	8.7	93	94
Apr-03	6.0	2621	8.0	3495	8.0	3495	9.1	94	94
May-03	4.4	1362	5.8	1796	5.3	1641	12.3	97	97
Jun-03	3.3	798	6.4	1548	5.4	1306	16.4	97	97
Jul-03	2.9	668	6.4	1474	5.5	1266	13.6	97	97
Aug-03	3.8	867	5.8	1324	5.5	1255	11.5	98	98
Sep-03	4.8	1168	7.9	1923	6.7	1631	9.6	97	97
Oct-03	5.1	1176	7.7	1775	7.6	1752	13.2	97	97
Nov-03	5.8	1469	9.6	2432	7.6	1925	16.6	96	96
Dec-03	9.1	4312	11.2	5307	10.4	4928	9.4	92	92
Jan-04	13.1	7437	15.2	8629	13.3	7551	8.1	85	86
Feb-04	11.5	5605	13.1	6385	11.4	5556	7.6	89	89
Mar-04	6.9	2170	9.3	2925	7.8	2453	13.8	95	95
Apr-04	4.8	1273	7.7	2042	5.8	1538	17.1	97	97
May-04	3.8	927	6.6	1610	5.4	1317	16.6	97	97
Mass loads are calcuated from monthly averages and are not as reported on the DMR									

Calculation of pH of a mixture of two flows.
Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

Attachment 14

INPUT	Lower pH	Upper pH
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	25	25
1. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	22.0	22.0
pH:	7.1	7.6
Alkalinity (mg CaCO3/L):	25	25
2. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	23.0	23.0
pH:	6.4	7.2
Alkalinity (mg CaCO3/L):	75.0	75.0
OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.37	6.37
Effluent pKa:	6.36	6.36
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.84	0.94
Effluent Ionization Fraction:	0.52	0.87
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	29.64	26.47
Effluent Total Inorganic Carbon (mg CaCO3/L):	143.73	85.89
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	22.04	22.04
Alkalinity (mg CaCO3/L):	27.00	27.00
Total Inorganic Carbon (mg CaCO3/L):	34.20	28.84
pKa:	6.37	6.37
pH at Mixing Zone/ZID Boundary:	**6.9**	**7.5**

Permit Limits - Chlorine and Ammonia

Facility Name: City of Salem **Attachment 15** **Date:** 6/28/2004

Dilution Values? (Y/N)	Y	calculated
Low Flow Dilution @ ZID =	12	*
Low Flow Dilution @ MZ =	25	*
High Flow Dilution @ ZID =	12	*
High Flow Dilution @ MZ =	25	*
	Summer	Winter
Effluent Flow (MGD) =	*	*
7Q10 (CFS) =	*	*
1Q10 (CFS) =	*	*
% dilution at MZ =	*	*
% dilution at ZID =	*	*

Summer data	Effluent	Stream	Mixed		
			ZID	MZ	
pH * =	7.1	7.8	7.5	7.6	(6.5-9)
Temp * =	23	22.5	22.5	22.5	° C
Alkalinity =	75	25			
Salmonids Present? (Y/N)		y			
Fresh Water ? (Y/N)		y			
Salinity	0	20	18.3	19.2	
Winter data					
pH * =	7.2	7.6	7.5	7.5	(6.5-9)
Temp * =	16	14	14.2	14.1	° C
Alkalinity =	75	25			
Salmonids Present? (Y/N)		y			
Fresh Water ? (Y/N)		y			
Salinity	0	20	18.3	19.2	

probability basis (for WLA multipliers): 99%

	WATER QUALITY CRITERIA										PERMIT LIMITS	
	1 Hour	4 Day	Back-	Allocations			#	Acute	Chronic	Min	95%	99%
PARAMETER	(CMC)	(CCC)	ground	Acute	Chronic	CV	Samples	LTA	LTA	LTA	Monthly	Daily
	mg/l	mg/l	mg/l	mg/l	mg/l		/Mo	mg/l	mg/l	mg/l	mg/l	mg/l
Low Flow Season												
CHLORINE	0.019	0.011	0.00	0.23	0.28	0.6	30	0.07	0.15	0.07	**0.09**	**0.23**
High Flow Season												
CHLORINE	0.019	0.011	0.00	0.23	0.28	0.6	30	0.07	0.15	0.07	**0.09**	**0.23**

SALEM

ATTACHMENT D

PUBLIC NOTICE

Notice of Public Hearing - September 9, 2004

PUBLIC NOTICE

Proposed NPDES Permit Renewal, Biosolids Management Plan Approval and MAO Modification for Willow Lake Wastewater Treatment Plant

State of Oregon
Department of
Environmental
Quality

Western Region
Water Quality
750 Front St. Suite 120,
Salem, OR 97301
Phone(503) 378-8240
Toll free number
(800) 349-7677
Fax (503) 373-7944
Permit Writer :
Mark Hamlin
www.deq.state.or.us

Notice issued: August 10, 2004

Hearing date:
September 9, 2004

Hearing Time: 2:00 P.M.

Hearing location:
Anderson Meeting Room B
Salem Public Library
585 Liberty Street
Salem, OR 97301

Written comments due: 5 p.m. September 20, 2004

Where can I send comments and get more information? DEQ accepts comments by mail, fax and email.

Name: Dottie Reynolds

Phone: (503) 378-8240, extension 238 or Toll free in Oregon (800) 349-7677

Mailing address:
Western Region - Salem Office, 750 Front Street NE, Suite 120, Salem, OR 97301-1039

Fax: (503) 373-7944

E-mail: reynolds.dottie@deq.state.or.us

(If there is a delay between servers, e-mails may not be received before the deadline. E-mails received after the deadline will not be considered.)

How can I review documents?
You can review the draft permit, permit application, Biosolids Management Plan (BMP) and MAO modification at:

DEQ Salem Office
750 Front Street NE, Suite 120
Salem, OR 97301-1039

To schedule an appointment in Salem, please call (503) 378-8240, extension 238.

What are DEQ's responsibilities?
The Oregon Department of Environmental Quality (DEQ) is the regulatory agency that helps protect and preserve Oregon's environment. DEQ is responsible for protecting and enhancing Oregon's water and air quality, for cleaning up spills and releases

of hazardous materials, and for managing the proper disposal of hazardous and solid wastes. One way DEQ does this is by requiring permits for certain activities.

The purpose of this notice is to invite you to make oral comments on this proposed permit, BMP and MAO modification at a hearing. You also may comment in writing.

Who is the applicant?
City of Salem

Where is the facility located?
5915 Windsor Island Road N
Salem, Oregon

What is proposed?
DEQ proposes to take three actions. They are:

1) renewal of the a National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit;
2) approval of a revised Biosolids Management Plan; and,
3) issuance of an addendum to the City's Mutual Agreement and Order (MAO) revising the interim chlorine residual limits.

The facility discharges into the Willamette River at river mile 78.4. At the point of discharge, the Willamette River is water quality limited for temperature (summer), fecal coliform (fall, winter and spring), dissolved oxygen during the spawning season, iron and mercury year around biological criteria (due to skeletal deformities in juvenile squawfish). In addition, just downstream from the discharge, the river is water quality limited for several toxic parameters (PCB, aldrin, dieldrin, DDT and DDE) year around. A Total Maximum Daily Load (TMDL) has not been issued for any of these parameters at this time. The permit requires monitoring for these parameters and may be reopened to include any Waste Load Allocation (WLA), best management practice or any other condition required by the TMDL.

This permit includes concentration, mass and removal efficiency limits on $CBOD_5$ and TSS. It also has limits on *E. coli* bacteria, pH, and total residual chlorine. With three exceptions, the limits are the same as the previous permit. The exceptions are: 1) new total residual chlorine limitations (based on dilution achieved with the new outfall diffuser) have been proposed; 2) a

new lower $CBOD_5$ removal efficiency limit is proposed when monthly average flows exceed 90 MGD; and, 3) new $CBOD_5$ and TSS mass load limits are proposed when monthly average flows exceed 90 MGD.

The Department proposes to delete twenty-one emergency overflow points and add five new potential overflow points.

Permit type: National Pollutant Discharge Elimination System (NPDES) Permit

Permit expiration:
Not more than 5 years after permit issuance.

What are the special conditions of this permit?
The Permit allows the construction and operation of a new Peak Excess Flow Treatment Facility (PEFTF) located at North River Road Park. The permit establishes monitoring requirements and discharge limits for this facility. The limits include $CBOD_5$ and TSS concentration and mass limits, pH limits and limitations on *E. coli* bacteria. The Permit also requires submittal of a mixing zone dilution study with two years of start up of the facility.

The Willamette River is water quality limited for several pollutant parameters at the point of discharge. This permit requires monitoring of those pollutant parameters.

The winter mass load limits for $CBOD_5$ and TSS are based on the design average wet weather flow. Because of this, the proposed permit includes a Schedule C condition requiring submittal of an updated program and time schedule for identifying and removing inflow.

The CBOD5 and TSS do not meet the Willamette Basin's summer period Minimum Design Criteria. However, compliance with Minimum Design Criteria will be deferred until the next upgrade in accordance with OAR 340-041-0061(4)(c).

Compliance history:
This facility was last inspected September 30, 2003 and was found to be operating in compliance.

The monitoring reports for this facility were reviewed for the period since the current permit was issued, including any actions taken relating to effluent violations. The permit compliance conditions were reviewed and all inspection reports for the same period were reviewed. Based on this review, the following violations have been documented at this facility during the term of the current permit.

» On May 24, 2002 a Notice of noncompliance was issued for Pretreatment Program violations.
» On November 2, 2000 a Notice of noncompliance was issued for Raw sewage overflow.
» On May 3, 1999 a Notice of noncompliance was issued for Exceeding permit limits.
» On December 31, 1997 a Notice of noncompliance was issued for Failure to meet compliance schedule.
» On August 8, 1997 a Notice of noncompliance was issued for Permit limits and compliance schedule.
» On June 5, 1995 a Notice of noncompliance was issued for Exceeding permit limits.
» On October 29, 2002 a Civil penalty was issued for Pretreatment Program violations.
» On February 28, 2001 a Civil penalty was issued for Raw sewage overflow.
» On January 21, 1998 a Mutual Agreement and Order requiring upgraded facilities for the control of raw sewage overflows was issued.

The above violations appear to be ongoing and the result of inadequate treatment facilities, which will take more than six months to correct. Therefore, the Department has negotiated a Mutual Agreement and Order that specifies a schedule for correcting the violations, interim effluent limits, and penalties for either missing any schedule requirements or interim effluent limits. The facility is due to come into compliance by no later than December 31, 2009.

Who is affected?
The proposed actions will affect residents of Salem and Keizer who are or will be served by the wastewater facilities. They also affect users of the Willamette River downstream of river mile 78.4 and property owners and residents in the vicinity of the facilities.

What other DEQ permits are required?
None

What legal requirements apply?
The NPDES permit is required in accordance with ORS 468B.050 and the federal Clean Water Act in order to discharge treated wastewater to public waters.

What discretionary decisions did DEQ make in deciding to issue the permit?
The Department used the appropriate Oregon Administrative Rules (OAR) and standard language for this permit. A Reasonable Potential Analysis was performed to determine which pollutants needed permit limits and/or monitoring requirements. An Anti-degradation review was conducted in order to determine whether the Department could allow increased discharges to waters of the state. All evaluations showed that the discharge meets the requirements and exceptions of the applicable regulations except as otherwise indicated in the permit and evaluation report.

What happens next?
DEQ will review and consider all comments received during the hearing and comment period. Following this review, DEQ may issue the permit and MAO modification and approve the BMP as proposed or the permit, MAO modification and BMP approval could be modified, or deny the permit, MAO modification and BMP approval.

Accessibility information
DEQ is committed to accommodating people with disabilities at our hearings. Please notify

DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact DEQ Public Affairs at (503) 229-5696 or toll free in Oregon at (800) 452-4011.

People with hearing impairments may call DEQ's TTY number, (503) 378-3684.

Which of the facility's activities are not under DEQ's jurisdiction?
Employee health and safety issues are regulated by the Occupational Safety and Health Administration (OSHA). Facility siting locations are under the jurisdiction of local zoning authorities. Associated building (excavation, grading, plumbing and electrical) permits are under the jurisdiction of local building authorities.

What similar activities take place in the vicinity of the facility?
Although somewhat smaller in size, the cities of Albany, Corvallis and Woodburn operate wastewater treatment facilities utilizing activated sludge.

What other facilities does this owner operate?
The City of Salem operates a Natural Reclamation System (NRS) adjacent to the Willow Lake treatment facility. This is a pilot project to evaluate the feasibility of polishing Willow Lake effluent prior to discharge. The NRS operates under a separate Water Pollution Control Facility (WPCF) Permit.

The City of Salem has been issued a NPDES Municipal Separate Storm Sewer System (MS4) Permit for stormwater discharges from the City's storm sewer system.

The City of Salem also has a NPDES General 1200-Z Permit for stormwater discharges from the airport and a NPDES General 1200-CA Permit for stormwater discharges from small construction sites.

What are the known health effects or environmental impacts of the permitted substances stored, disposed of, discharged or emitted by the facility?

- Bacteria and other human pathogens are present in untreated sewage, however treatment processes including disinfection occur that reduce the levels down to instream standards prior to discharge.
- Several metals at low concentrations are also often found in domestic sewage, which may originate in the community drinking water, from residential plumbing, industrial or commercial discharges or from other human activities. A portion of the metals is removed in the treatment process and may accumulate in the biosolids. The metals remaining are required to meet instream water quality standards at the edge of the mixing zone.
- The impacts to the environment (mostly dissolved oxygen depletion and solids deposition) are likely minor due to the large dilution available in the Willamette River.
- Inadequately disinfected wastewater could impact public health. The permittee will use chlorine to kill pathogenic organisms in the wastewater effluent. High effluent residual chlorine concentrations can be toxic to aquatic organisms in the receiving water. Therefore, the Department is including a chlorine limit in the permit to meet the ambient acute and chronic chlorine criteria.

How are the permitted substances measured?
Schedule B of the permit requires monitoring of various influent, effluent and biosolids parameters at specified minimum frequencies. Monitoring must be performed in accordance with federal regulations (40 CFR Part 136) unless otherwise specified in the permit.

SALEM

ATTACHMENT E

EPA COMMENT LETTER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: OWW-130

SEP 17 2004

Mr. Mike Kortenhof
Oregon Department of Environmental Quality
Western Region - Salem Office
750 Front Street NE, Suite 120
Salem, OR 97301-1039

Re: City of Salem Willow Lake Water Pollution Control Facility Draft NPDES Permit and Permit Evaluation and Fact Sheet

Dear Mr. Kortenhof:

EPA has reviewed the draft National Pollutant Discharge Elimination System (NPDES) permit for the City of Salem Willow Lake Water Pollution Control Facility (WLWPCF). Listed below are our general comments and recommendations that we hope will assist you in preparing the permit for final issuance. EPA requests that ODEQ provide a copy of the proposed permit, prepared after the close of the public comment period, to EPA Region 10 for our review prior to issuance. This request is in accordance with procedures identified in the NPDES MOA between ODEQ and EPA and in the NPDES regulations (40 CFR § 123.44). If the proposed final permit does not adequately address our concerns, EPA will, within 90 days of receipt of the proposed permit, transmit a detailed statement of the reasons for EPA's continuing objection and the actions that ODEQ must take to eliminate this objection (40 CFR § 123.44(b)(2)). ODEQ may not issue a final NPDES permit for this facility until EPA's objection is resolved (40 CFR § 122.4(c)).

In addition to authorizing the discharges from the WLWPCF, the permit establishes limits for a new separate wastewater treatment facility, the Peak Excess Flow Treatment Facility (PEFTF). The City is in the design phase for the facility. The PEFTF's outfall will be located 4.2 miles upstream from the outfall of the existing WLWPCF. It is our understanding that the City is under a Mutual Agreement and Order (MAO) with ODEQ to eliminate all sewer system overflows up to a 24-hour storm event with a one-in-five-year recurrence in the winter and one-in-ten-year recurrence in the summer by December 31, 2009. The PEFTF is part of the City's preferred alternative to meet the MAO.

In general, the nature of our objections to the draft permit includes the following three concerns:

1. The effluent limitations do not meet secondary treatment regulations. Each treatment works must meet effluent limitations based on secondary treatment regulations and any more stringent effluent limitations necessary to meet water quality standards.

2. Salem experiences extremely high volumes of inflow and infiltration (I/I) during wet weather events. We are concerned about the high volumes of I/I, since it can be a symptom of a deteriorating infrastructure. We believe a solution to address I/I that focuses its efforts on building higher treatment capacity (i.e. the PEFTF) instead of rehabilitation and replacement of the infrastructure may be short-sighted. Further, the Fact Sheet does not provide adequate justification that excessive I/I has been removed from the collection system. The permit should include additional requirements to address I/I, collection system capacity, and system deficiencies.

3. The permit authorizes the discharge of raw sewage from numerous "emergency overflow outfalls" in a manner that will not ensure compliance with Oregon's EPA-approved water quality standards.

More specific comments are as follows:

Percent Removal Requirements for PEFTF
The draft permit does not appear to include separate percent removal requirements for the PEFTF. Schedule A.1.a.(6) *Waste Limitations* lists $CBOD_5$ and TSS removal efficiencies. Based on Schedule A Note (2) it is unclear if these percent removal limits apply to both the PEFTF and the WFWPCF. Further, Schedule B *Minimum Monitoring and Reporting Requirements* omits monitoring and reporting requirements for $CBOD_5$ and TSS percent removal for the PEFTF.

The permit must include separate percent removal requirements for BOD and TSS for each facility. The secondary treatment regulations establish that the 30-day average percent removal not be less than 85 percent. An exception to the percent removal requirement can be granted under the special considerations portion of the secondary treatment regulations for dilute influent wastewater (40 CFR § 133.103(d)). ODEQ is authorized to substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirement provided that the permittee satisfactorily meets the requirements set forth in 40 CFR § 133.103(d). Nonetheless, the permit must include separate limits for each facility.

Combined Mass-based Limits for the PEFTF and the WLWPCF
The draft permit includes only combined mass loading limits for the PEFTF and the WLWPCF, which is unacceptable for technology-based requirements. The PEFTF is a separate facility. The permit must include separate mass-based loading limits for each facility.

The WLWPCF does not meet the requirements for reduced percent removal requirements.
The draft permit allows less than 85 percent removal limitations when flow exceeds 54 mgd. In accordance with 40 CFR § 133.103(d), treatment works that receive less concentrated wastes

from separate sewer systems can qualify to have their percent removal limits reduced provided that all of the following conditions are met:

- The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater.

- The facility would have been required to meet significantly more stringent limitations than would otherwise be required by the concentration-based standards and

- The less concentrated influent is not the result of excessive inflow/infiltration (I/I).

The WLWPCF does not meet the first condition. Based on WLWPCF data, from June 2002 to May 2004, the BOD and TSS percent removal was greater than or equal to 85 percent every month. Therefore, the facility does not qualify for a reduction in the percent removal requirements. In addition, as discussed below, there are unanswered questions regarding the third condition.

High I/I in the Salem collection system raises questions and concerns.
Salem has extremely high I/I which results in numerous overflows to water quality limited waters. Because of this situation and as a condition for authorizing the PEFTF, additional permit requirements are necessary to address I/I, collection system capacity and collection system deficiencies.

- The permit allows special consideration for percent removal requirements for the PEFTF based on the assertion that excessive I/I has been removed. The basis provided in the Fact Sheet is reference to the September 2002 Willow Lake Wastewater Treatment Plant Facilities Plan which established that the less concentrated wastewater is not the result of "excessive I/I." What were the alternatives that the permittee examined? Were there other feasible alternatives? What were the costs associated with the alternatives?

- Although the Fact Sheet describes Salem's efforts in removing I/I, the permit requirements for addressing I/I are limited considering the extent of the SSOs and the fact that the permit allows special consideration for percent removal requirements. Schedule B(3) and Schedule C(1) of the permit require an I/I reduction program and an annual I/I report documenting I/I reduction maintenance activities. However, specific permit required activities address only removal of inflow sources, not infiltration reduction.

- The excessive I/I analysis does not assure Salem has addressed collection system deficiencies. There are no special permit requirements to address system deficiencies.

Raw Sewage Overflows
The permit identifies 69 emergency overflow outfalls (3 relief points, 30 pump stations, and 36 manholes). The only EPA-approved water quality standards for bacteria are the numeric criteria

found at OAR 340-041-0009(1). It is unclear how the permit, by authorizing discharges of raw sewage from these 69 emergency overflow outfalls will ensure compliance with these numeric criteria. In addition, we have the following questions and comments regarding the SSOs:

- Does the permit impose any limitations on the discharges from the emergency overflow outfalls during the winter months? Schedule A.1.c states that no discharge is allowed from the outfalls unless due to storm events "as allowed under OAR 340-041-0009 (6) or (7) as follows:..." The permit then includes only the overflow language for summer months i.e. OAR 340-041-0009 (7). Schedule A.1.c does not include the overflow language for the winter months i.e. OAR 340-041-0009 (6) or any other limit on SSOs during the winter months. Page 21 of the Fact Sheet states that overflows in winter due to storms less than the one-in-five year, 24-hour duration storm shall be eliminated as soon as practicable and not later than completion of the upgraded facilities required in the Mutual Agreement and Order, but there does not appear to be any parallel language to this effect in the permit.

- Does the permit allow violation of water quality standards at the 69 overflow points? The permit requirement to meet the Water Quality Standards is included in the permit as a requirement under the permit limits for WLWPCF and the PEFTF, but is omitted under the emergency outfalls section. Page 21 of the Fact Sheet acknowledges that the authorization of SSOs will violate water quality standards: "No waste shall be discharged from these outfalls and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041, unless the cause of the discharge is an upset as defined in condition B4 and B6 of the attached General Conditions or is due to storm events as allowed under OAR 340-041-0009 (6) and (7)." Page 25 of the Fact Sheet acknowledges the gravity of the SSO load to the Willamette River and the fact that the permit is not written to protect the receiving water under these circumstances: "The current permit does not account for pollutant load currently being discharged to the Willamette River through untreated Sanitary Sewer Overflows (SSO). The SSO load to the Willamette River is very significant in wet weather periods."

- Allowing overflows from 36 manholes also appears to conflict with the general conditions section of the permit, which prohibits uncontrolled overflows from manholes. General Conditions Section B.6. states: "Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means." and "(3) 'Uncontrolled overflow' means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system" (emphasis added).

Flow Receiving Primary Treatment and Disinfection Only

The permit has no specific monitoring requirements to insure that effluent receiving only primary treatment and disinfection will meet the permit limits. Currently, flows to WLWPCF in excess of 80 mgd, receive primary treatment and disinfection only. With the planned improvements, the secondary treatment capacity of WLWPCF will be increased to only 90 mgd, whereas the influent pump capacity will be 155 mgd. So far in 2004, the WLWPCF maximum

month flow (i.e. the average flow during the highest month) was 68 mgd. It would appear that there is the potential for the facility to provide only primary treatment and disinfection to a significant amount of flow, and during a significant amount of time. The permit does not limit the amount of time or the quantity of flow that will receive only primary treatment and disinfection. Nor does the permit require the facility to document the quantity of flow that receives only primary treatment and disinfection. Further, the permit has no specific monitoring requirements during this treatment scenario to insure that the effluent meets the permit limits and to assess potential water quality impacts associated with the effluent.

Monitoring and Reporting Requirements for PEFTF
We have concerns that the draft requirements are not representative of the PEFTF effluent. The monitoring and reporting requirements must be clarified and additional requirements are needed. Some of the problems include the frequency of the metals and priority pollutant sampling, absence of chronic WET testing, lack of $CBOD_5$ and TSS sampling during the first two hours of facility operation, and the average weekly and average monthly reporting requirements for $CBOD_5$ and TSS.

Prohibition of Discharge from the PEFTF (Outfall 002A) from June 1 to October 31.
The draft permit establishes effluent limits for the PEFTF only during the period from November 1 to May 31. The permit must prohibit discharges from the facility (Outfall 002A) during the remainder of the year when no limits are in place.

Adjustment of Permit Limits Requires a Major Permit Modification
Note 3 in Schedule A of the draft permit states that the $CBOD_5$ concentration and mass limits may be adjusted (up or down) by permit action if more accurate information regarding $CBOD_5/BOD_5$ becomes available. In accordance with 40 CFR 122.62, any action that results in less stringent conditions is a major modification which requires public notification.

If you have any questions regarding these comments, please contact Susan Poulsom at (206) 553-6258. If Susan is unavailable, contact Mike Lidgard at (206) 553-1755.

Sincerely,

Michael F. Gearheard
Director
Office of Water

cc: Janet Taylor, Mayor City of Salem
Mark Charles, ODEQ

SALEM

ATTACHMENT F

NEDC COMMENT LETTER

NORTHWEST ENVIRONMENTAL DEFENSE CENTER
10015 S.W. Terwilliger Blvd., Portland, Oregon 97219
Phone: (503) 768-6673 Fax: (503) 768-6671
www.nedc.org

September 20, 2004

Dottie Reynolds
DEQ Western Region- Salem Office
750 Front Street NE, Suite 120
Salem, OR 97301

Re: City of Salem's Proposed NPDES Permit

Dear Dottie:

These comments are submitted on behalf of the Northwest Environmental Defense Center, Willamette Riverkeeper, and Northwest Environmental Advocates (jointly "commenters"). The draft NPDES permit for the City of Salem represents a significant lost opportunity to restore the degraded condition of the Willamette River. While we recognize the value of the future facility upgrades, the manner in which Oregon DEQ has clearly abdicated its responsibility to insure discharges from the City of Salem's POTW comply with the Clean Water Act to date and from this point forward until those upgrades are fully completed is simply deplorable. The agency sat on this expired permit for nearly 6 ½ years, and is now finally taking action to issue the permit, completely divorced from any findings or allocations established under the Willamette Basin TMDL process due to conclude, at least for some parameters, very shortly. Given the concerns set forth below in more detail, we strongly encourage the Department to revisit this draft permit and revise it to insure it is consistent with the Clean Water Act and applicable federal and state regulations. Please directly respond to the bold questions that follow.

I. THE CITY OF SALEM'S POTW DOES NOT QUALIFY FOR A PERCENT REMOVAL REDUCTION

The EPA's Secondary Treatment Regulations state that a permit shall not exceed an 85 percent CBOD5 and SS removal efficiency rate. 40 C.F.R. 133.102(4)(iii), (b)(3). This proposed permit sets the CBOD5 removal efficiency rate at 78 percent when monthly average daily flow is greater than 54MGD, and at 65 percent when monthly average daily flow is greater than 90MGD. Clearly, this permit fails to comply with EPA's 30-day average percent removal rate limitations.

The Department contends that the facility is allowed to decrease the removal efficiency rate because it meets the three requirements for special consideration under the federal regulations. 40 C.F.R. 133.103(d). 40 C.F.R. 133.103(d) establishes that the

regional administrator may substitute a lower percent removal requirement to compensate for a less concentrated influent provided the facility satisfy all three of the following criteria:

(1) The treatment works is consistently meeting, or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater
(2) to meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration- based standards, and
(3) the less concentrated influent wastewater is not the result of excessive Inflow and Infiltration.

In the aggregate, the requirements of this proposed permit actually allow an increase in pollutants carried by the influent. The permit proposes a less stringent limitation on BOD5 and TSS due to waste attributable to the industrial category exceeding 10 percent. NPDES Permit 101145, p22. Also, the DEQ is proposing to "eliminate the wasteload due to SSOs by increasing the volume of treated wastewater discharged from the City's wastewater treatment facilities." NPDES Permit 101145, p26. Furthermore, the "pollutant load from the existing SSOs is not accounted for in the current NPDES permit"
(Id.) resulting in permitted loadings contained in the draft permit that are substantially above those in the current permit.

Additionally, the total flow to the POTW must be less than 275 gallons per capita per day if the Department wishes to utilize the percent removal exemption discussed at 40 C.F.R. 133.103 (d), yet the fact sheet includes no reference to this important ratio in its discussion of the granted exemption. Elsewhere in the fact sheet are the following figures: the POTW services an area with a "population of approximately 210,000" (Fact Sheet at 2); and during wet weather, flows to the facility have been "as high as 100.5 MGD in February 2003. These figures lead to a ratio that is nearly double the necessary maximum 275 gallons per capita per day in order for the City of Salem to qualify for a lower percent removal efficiency.

Question #1: Has a current test, that takes into account the influent pollutant contributions from the SSOs, been administered that measures the levels of CBOD and TSS?

Question #2: Has the department taken into account that the proposed less stringent effluent concentration limits of CBOD5 and TSS facilitate meeting the 40 C.F.R. 133.103(d) criteria?

Question #3 : Is the total flow to the POTW ever greater than 275 gallons per capita per day?

II. THE ANTIDEGRADATION FINDINGS ARE GROSSLY INADEQUATE AND MISLEADING

Water quality-limited waterbodies may not be further degraded via new or increased permitted discharge loads absent findings consistent with OAR 340-001-0004, and an express exception granted by the EQC. This provision expressly requires numerous findings, including the requirement that the new load will not cause water quality standards to be violated. In one of the more patently evasive attempts at avoiding this provision the commenters have seen to date, the Department disregards the spirit of these requirements entirely. With this permitting action, the Department is authorizing an increased discharge load for pollutants both directly and indirectly related to pollutants for which the Willamette River is already in exceedance, not only until the new treatment system is completed (if at all during this permit cycle), but even thereafter. Since no TMDLs have yet been developed for the parameters of concern, the exception may not be lawfully granted.

The Department disingenuously suggests that the future winter mass load limits "will not cause water quality standards to be violated since they are lower than what is currently discharged..." (Fact sheet at 27). The City of Salem may, if all goes as planned (an unlikely assumption given the history of this source), violate water quality standards somewhat less at an indeterminate future date than they do now, but the fact that their exceedances will have lessened in scope or scale does not lead to the conclusion that they will not be violating those standards.

The Department relies on this same deceptive and unsupportable logic in its assessment that the increased loadings requested under this permit will not threaten or impair any recognized beneficial uses of the Willamette River merely because loadings at some indeterminate future point in time may be "lower than what is currently discharged..." (Fact sheet at 27).

Question #4: Is the Willamette River in the vicinity of the City of Salem's discharge water-quality limited for Fecal Coliform in winter/spring/fall?

Question #5: Does the City of Salem's discharge cause or contribute to that exceedance currently?

Question #6: Will the City of Salem's discharge continue to cause or contribute to that or any other water quality standard exceedance prior to the completion of facility upgrades?

Question #7: Assuming that all upgrades are eventually completed as planned, will there be absolutely no potential for discharge from the City's new POTW to cause or contribute to a violation of the Fecal Coliform standard or any other water quality standard?

III. THE DEPARTMENT ERRED IN SETTING CBOD5 LIMITS IN THE DRAFT PERMIT EQUAL TO BOD5 LIMITS IN THE PRIOR PERMIT

The proposed permit is flawed in basing its CBOD5 limits on the notion that they are equivalent to BOD5 limits. By setting CBOD5 limits equal to BOD5 limits the draft permit authorizes an increase in the effluent's biochemical oxygen demand on the Willamette River.

The biochemical oxygen demand test recognizes two types of organisms responsible for oxygen depletion. Secondary Treatment Information, 48 Fed. Reg. 52272, 52273. The first type of organism is a heterotrophic organism that breaks down carbonaceous sources (fecal waste), and the second is an autotrophic organism that uses nitrogenous sources (urine and proteins). *Id.* When performing the CBOD5 test, a chemical is added to the effluent, killing the nitrifiers, and subsequently inhibiting the autotrophic organisms from depleting oxygen. *Id.* Thus, the CBOD5 only measures the carbonaceous biochemical oxygen demand and ignores the substantial oxygen depletion effects of the autotrophic organisms (NBOD). *Id.*

The Environmental Protective Agency recognizes a difference between CBOD5 and BOD5 concentration limits by setting different minimum levels of quality parameters. *Id.* at 52275. "[T]he test results BOD5 and CBOD5 parameters will not necessarily be equivalent. These differences indicate that substitution of the CBOD5 parameter for the BOD5 parameter without a change in the effluent limitations to account for the residual NOD exertion may be inappropriate." *Id.* Under 40 CFR §133.102(a), for the two measurements to be considered equivalent, BOD5 minimum levels are set higher then the minimum levels using CBOD5. *Id.* at 52273 ("analyses were conducted to determine if appropriate adjustments should be made to account for the differences in the measurement of oxygen demand by the two test procedures [CBOD5 and BOD4]"; 40 CFR §133.102(a).

In fact the EPA has already considered the implications of allowing CBOD5 limitations to be equivalent to BOD5 limitations:

> "The Agency is aware that some facilities are being intentionally operated in a mode that inhibits the growth of nitrifying bacteria to improve BOD5 test results and compliance with secondary requirements. Such measures to inhibit nitrification in facilities usually result in poorer effluent quality.... and may often result in greater sludge production and higher operation and maintenance costs."

Id. at 52273.

The Department, in stating "[t]he CBOD5 concentration limits are considered equivalent to the minimum design criteria for BOD5 specified in Oregon Administrative Rules (OAR) 340-041" ignores this inconsistency and sets the rate of oxygen

consumption to levels higher then sanctioned under OAR 340-041. NPDES Permit 101145, note 4 p 6. To not act to remedy this flaw would be in violation of the CWA, and will allow for dangerously high levels of biochemical oxygen demand in the Williamette River in the vicinity of the discharge, depleting the oxygen and causing substantial damage to the river's wildlife and aesthetic value.

III. INAPPROPRIATE OMISSION OF TOTAL IMPACT ON DISSOLVED OXYGEN LEVELS (NOD)

There is no mention within the permit pertaining to the omission of imposed requirements for NOD. The EPA states that "determination of whether NOD reduction is required should be a case-by-case decision for each receiving water segment," In keeping in line with the overall objective of the NPDES program, the proposed permit should, at the least, demonstrate a logical and reasonable reason for omitting limitation requirements for NOD.

The objective of the NPDES is to eliminate the discharge of pollutants into our Nations waters. 33 U.S.C. § 1251(a),(a)(1). A major source of biochemical oxygen depletion (BOD Pollution) is from the unregulated, uncontrolled NOD. Secondary Treatment Regulation, 49 Fed. Reg. at 36999. The EPA recognizes that "NOD accounts for the majority of the oxygen demand remaining in the effluent once secondary treatment is achieved." *Id.*

In Maier, P.E. v. U.S.E.P.A, the court recognizes EPA's ability to "routinely" administer NOD and nutrient limitations in the NPDES permit on a case-by-case basis. 114 F.3d 1032, 1043. The reason EPA states for justifying its discretion is because the impact of NOD is "highly variable and dependent upon such factors as temperature and rate of flow of the receiving water body." *Id.* at 1036. This however does not justify the lack of analysis to determine whether NOD limitations are needed; especially considering that today's technology allows for the testing and controlling of NOD levels to be feasible and cost-effective. *Id.*

Taking into account the aforementioned, the Department should include within its proposed permit an analysis supporting its decision to exclude or include limitations on NOD. Also, the technological advances allowing the testing and control of NOD to be feasible and cost-effective support, at the least, an analysis to determine whether NOD limitations are warranted.

IV. DEQ INAPPROPRIATELY COMBINED POINT SOURCE DISCHARGES WHEN CALCULATING THE EFFLUENT LIMITATIONS

Appling CBOD5 and TSS mass load limits to the combined discharges from the listed outfalls (001A, 001B, 002A) is in violation of the CWA, CFRs and OARs. The CWA and applicable federal and state regulations are clear in requiring each point source to meet the sanctioned effluent pollution limitations. Therefore, the permit needs to be

corrected to state that each specific outfall needs to be in compliance with the permit's effluent limitations.

The outfalls listed in this permit clearly fall within the CWA's and OAR's definition of a "point source." The CWA and Department of Environmental Quantity have both defined a point source as "a discernable, confined, and discrete conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit ,... from which pollutants are or may be discharged." 33 U.S.C. §1362; OAR 340-041-0002. The CWA and OARs require that each outfall comply with the permit's effluent limitations. The CWA states that "Effluent limitations established pursuant to this section or section 1312 of this title shall be applied to all point sources of discharge of pollutants in accordance with the provisions of this chapter." 33 U.S.C. 1311. The outfalls in question are at considerable distances from each other, and there is simply no support for the Department's decision to treat them as one.

Question #8: How far are outfalls 001A, 001B and 002A from each other?

Question #9: What are the effluent limitations applicable to overflows 002B through 166 other than estimating flow duration and volume?

Question #10: Do the effluent limitations imposed on overflows 002B through 166 require compliance with state water quality standards?

Question #11: What is the legal justification for the blanket authorization of discharges from any and all overflow points in the event of anything less than a 1 in 5 year storm event with absolutely no control or effluent limitation?

V. THE EFFICIENCY LIMITS SET BY THE PERMIT ARE IN VIOLATION OF EPA'S ANTI-BACKSLIDING REGULATIONS

Federal regulations provide that "effluent limitations, standards or conditions" must be at least as stringent as effluent limitations, standards, or conditions in the previous permit. 40 C.F.R. §122.44(l)(1); *see also* 33 U.S.C. §1342(o). This permit proposes a CBOD5 removal efficiency rate of 65 percent when monthly average daily flow is greater than 90MGD compared to a removal efficiency rate of 72 percent in the previous permit.

The exceptions to EPA's anti-backsliding provisions are not applicable in this situation. The proposed permit claims that increased influent mass load from SSOs is the reason for adjusting the effluent limitations. This reasoning is flawed because treating the increased influent mass load from SSOs is required under 40 C.F.R. §122.26 and OAR 340-041-0009(2). Allowing violations of permit parameters merely because a facility will have difficulty meeting the limit is counter-intuitive and a violation of federal and state law.

VI. THE PERMIT FAILS TO TAKE INTO ACCOUNT ALLOCATIONS ESTABLISHED THROUGH THE WILLAMETTE TMDL PROCESS

The Willamette River TMDLs are due out in a month or two. This permit expired on May 31, 1998 nearly 6 ½ years ago.

Question #12: Why, after nearly 6 ½ years, is the agency finally acting on this permit just prior to completion of the Willamette River TMDLs?

VII. THE DEPARTMENT IS PERMITTING THE DISCHARGE OF TOXICS IN TOXIC AMOUNTS

The fact sheet states that the Department has "little information concerning the discharge of [toxics] under this permit", and therefore requests the permittee to monitor for select toxics. This is yet another example of the Department's typical approach of "permit first and ask questions later". The end result is that the permit authorizes the discharge of toxics in toxic amounts, and places absolutely no restriction on those toxics at all.

Question #13: How, particularly given that the City's permit expired nearly 6 ½ years ago, can the Department possibly justify a failure to ever require the City to conduct monitoring for the toxics it is authorizing under this permit?

Thank you for the accepting and considering these comments. We look forward to your response.

Sincerely,

Mark Riskedahl and Adam Friedman,
NEDC

State of Oregon
Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item C: Contested Case No. AQ/AB-NWR-03-099 regarding Vladimir Petrovitch Ozeruga, October 22, 2004 EQC Meeting

Appeal to EQC

On December 15, 2003, Vladimir Petrovitch Ozeruga (Petitioner) appealed the Proposed Order (Attachment G) which assessed him a $7,132 civil penalty for failing to require an asbestos abatement contractor licensed by the Department of Environmental Quality (Department) to conduct an asbestos abatement project on a facility he owned.

Background

The Department issued Petitioner a Notice of Civil Penalty Assessment (Notice) (Attachment K) on July 3, 2003. The Notice alleged that Petitioner violated Oregon Revised Statute (ORS) 468A.715(1) and Oregon Administrative Rule (OAR) 340-248-0110(2) by failing to require a Department-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owned.

On July 23, 2003, Petitioner appealed the Notice. On October 7, 2003, a contested case hearing was held, and on or about November 28, 2003, the Administrative Law Judge (ALJ) issued a Proposed Order (Attachment G) holding that Petitioner was liable for the violation. The ALJ reduced the Department's civil penalty assessment from $8,332 to $7,132, however, after finding that Petitioner was cooperative.

Petitioner filed a petition for Environmental Quality Commission (the Commission) review of the Proposed Order on December 15, 2003.

Findings of Fact (FOF) made by the ALJ in his Proposed Order are summarized as follows:

Petitioner owns property located at 5633 NE 15th Avenue in Portland, Oregon (the Property). Petitioner periodically purchases homes to resell for a profit. Petitioner holds a degree in civil engineering from a Russian university and has extensive experience in construction. The City of Portland formerly employed Petitioner as a building inspector. In early April 2003, Petitioner engaged in a renovation of the Property. (see FOF 1 in Attachment G)

On or about April 11, 2003, Petitioner and approximately three other workers removed cement asbestos board (CAB) siding and asbestos-containing sheet vinyl flooring from the Property. Petitioner and his workers placed some of the CAB siding and flooring in bags, but allowed some of this material to accumulate in the yard of the Property. The workers placed a majority of the material in a large uncovered dump truck at the Property. (see FOF 2)

On or about April 11, 2003, a member of the public lodged a complaint with the Department, asserting that Petitioner was removing asbestos-containing material from the Property without taking appropriate precautions. (FOF 4)

On April 14, 2003, David Wall of the Department inspected the Property and observed CAB siding and sheet vinyl flooring strewn about the Property and accumulated in a large dump truck at the Property. The failure to correctly bag the material resulted in a potential for public exposure to asbestos. (FOF 5)

Mr. Wall checked State records and determined that the workers were not licensed asbestos abatement contractors. (FOF 5) Mr. Wall estimated that Petitioner and his workers had removed between 1,000 and 2,000 square feet of CAB siding from the house at the Property. (FOF 5) Mr. Wall sampled the CAB siding and the flooring, and laboratory analysis confirmed that the materials contained between 10 and 20% chrysotile asbestos. (FOF 6)

Upon being informed of the presence of asbestos, Petitioner hired a licensed asbestos abatement contractor to complete the removal of the CAB siding and the flooring from the Property at a cost of approximately $500.

After speaking with multiple licensed asbestos abatement contractors, Mr. Wall estimated that it would have originally cost Petitioner approximately $2,500 to hire a licensed asbestos abatement contractor to complete the entire job of properly removing and disposing of the Property's CAB siding and flooring. Based upon this estimate, the Department assessed Petitioner an economic benefit of $1,132 for removing the flooring and CAB siding himself, instead of hiring a licensed asbestos abatement contractor.[1] (FOF 7)

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[1]Petitioner's economic benefit was based on the fact that Petitioner avoided $2,000 in total costs, as the Department offset the $2,500 that Petitioner should have spent to remove the CAB siding and flooring by the $500 that Petitioner ultimately spent to have the remaining CAB siding and flooring removed from the Property by a licensed abatement contractor. (Attachment K, Exhibit 8, page 2)

In his Conclusions of Law, the ALJ found that:

1. Petitioner allowed unlicensed workers to perform an asbestos abatement project on his property.
2. The civil penalty assessed by the agency was not appropriate.

Issues On Appeal:

In his Exceptions and Brief (Attachment D), Petitioner requests that the Commission adopt alternate findings of fact and alternate conclusions of law, and reverse the Administrative Law Judge's conclusion that Petitioner is liable for the violation.

In its Response Brief (Attachment A), the Department requests that the Commission uphold the Proposed Order.

Petitioner's First Exception

First, Petitioner argues that the house is not a "facility" because it is not equipped to serve others, and therefore not subject to the requirements of ORS 468A.715(1), which provides, in relevant part, that "an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects."

The Department responds that the house owned by Petitioner is a facility because the relevant definition of "facility" at OAR 340-248-0110(24) includes "all or part of any public or private building…".

The ALJ found that Petitioner is the owner of the house, and therefore subject to the requirements of ORS 468.715(1). (see Attachment G, p. 3)

Petitioner's Second Exception

Petitioner argues that the people who helped him perform the asbestos abatement project were not "workers" because they were his family members. Petitioner also argues that he and his family members do not need to be licensed by the state of Oregon to conduct an asbestos abatement project on his house.

The Department replies that the relevant rules do not distinguish between workers and family members; thus family members are considered workers if

they are doing the work.

Workers must be licensed to conduct an asbestos abatement project unless the abatement project is conducted inside a residence that is occupied by the owner, and the owner-occupant is performing the abatement project. (OAR 340-248-0250(2)) Therefore the Department notes that the exception to the requirement that a worker must be licensed in order to conduct an asbestos abatement project does not apply to Petitioner for two reasons. First, Petitioner has never argued or presented evidence that he occupied the house at the time of his unlicensed asbestos abatement project. Second, even if he were the owner-occupant of the Property, the project was performed outside the Property and not on the inside, which is required for the licensing exception to apply.

The Department notes that the ALJ found that Petitioner's workers were not licensed asbestos abatement contractors. (FOF 5)

Petitioner's Third Exception

Petitioner argues that he did not openly accumulate asbestos-containing waste material (ACWM) – with the exception of "small pieces" of CAB siding and sheet vinyl flooring – because he and his workers placed the ACWM in plastic bags.

The Department responds that Petitioner's argument is contradicted by Finding of Fact Number 5, which refers to the open accumulation of asbestos-containing cement siding and sheet vinyl flooring strewn about the Property and in a large uncovered dump truck.

Additionally, the Department notes that Petitioner's act of placing some of the ACWM in plastic bags was an inadequate method of packaging and labeling the ACWM. OAR 340-248-0280(2)(b) requires a person performing an asbestos abatement project to package and label the ACWM in leak-tight containers such as two plastic bags each with a minimum thickness of 6 millimeters, or a fiber or metal drum, and to label the containers as asbestos-containing. Petitioner openly accumulated the ACWM in the plastic bags because he did not satisfy these requirements.

Petitioner's Fourth Exception

Petitioner questions Mr. Wall's estimate that he and his workers removed 1,000 to 2,000 square feet of CAB siding, arguing that the facts do not support Mr. Wall's estimate.

The Department replies that Petitioner's argument is contradicted by the Finding of Fact Number 5, which is a conclusion, based on testimony provided by Mr. Wall, that Petitioner and his workers removed 1,000 to 2,000 square feet of CAB siding. The Department argues that Findings of Fact are to be determined by the ALJ, especially when there is conflicting evidence in the record, and the ALJ found Mr. Wall's testimony regarding the amount of CAB siding removed by Petitioner and his workers to be credible and supported by the facts.

Petitioner has the burden of demonstrating that evidence supporting his assertion is in the record. (ORS 183.450(2)) The Petitioner has not submitted the record or a portion of the record showing this purported evidence. If the Commission determines that the assertions in Petitioner's Exceptions are based on evidence that is not in the existing record, it may not consider this evidence when evaluating Petitioner's Exceptions.

Petitioner's Fifth Exception

Petitioner argues that the Department's evidence demonstrating his degree in Civil Engineering and his experience as a Building Inspector for the City of Portland should not have been considered by the ALJ when determining whether or not his conduct was negligent.

The Department argues that this evidence is relevant because it supports the allegation that Petitioner acted negligently. Through his education and experience Petitioner knew or should have known that there are public safety laws that govern who may perform certain tasks and how those tasks may be done.

EQC Authority

The Commission has the authority to hear this appeal under OAR 340-011-0132.

The Department's contested case hearings must be conducted by an ALJ.[2] The proposed order was issued under current statutes and rules governing the ALJ Panel.[3]

Under ORS 183.600 to 183.690, the Commission's authority to change or reverse an ALJ's Proposed Order is limited.

The most important limitations are as follows:

(1) The Commission may not modify the form of the ALJ's Proposed Order in any substantial manner without identifying and explaining the modifications.[4]
(2) The Commission may not modify a recommended finding of historical fact unless it finds that the recommended finding is not supported by a preponderance of the evidence.[5] Accordingly, the Commission may not modify any historical fact unless it has reviewed the entire record or at least all portions of the record that are relevant to the finding.
(3) The Commission may not consider any new or additional evidence, but may only remand the matter to the ALJ to take the evidence.[6]

The rules implementing these statutes also have more specific provisions addressing how Commissioners must declare and address any *ex parte* communications and potential or actual conflicts of interest.[7]

In addition, the Commission has established by rule a number of other procedural provisions, including:

(1) The Commission will not consider matters not raised before the ALJ unless it is necessary to prevent a manifest injustice. [8]
(2) The Commission will not remand a matter to the ALJ to consider new or additional facts unless the proponent of the new evidence has properly filed a

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[2] ORS 183.635.
[3] ORS 183.600 to 183.690 and OAR 137-003-0501 to 137-003-0700.
[4] ORS 183.650(2).
[5] ORS 183.650(3). A historical fact is a determination that an event did or did not occur or that a circumstance or status did or did not exist either before or at the time of the hearing.
[6] OAR 137-003-0655(5).
[7] OAR 137-003-0655(7), referring to ORS Chapter 244; OAR 137-003-0660.
[8] OAR 340-011-0132(3)(a).

written motion explaining why evidence was not presented to the hearing officer.[9]

Alternatives The Commission may:

1. As requested by Petitioner, reverse the ALJ's decision, based on the reasoning offered by Petitioner. Making this determination would require the Commission to make a finding that Petitioner's Exceptions are supported by the record and do not constitute new evidence.
2. As requested by the Department, uphold the ALJ's Proposed Order that Petitioner failed to require a Department-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owns and is liable for the $7,132 civil penalty. Making this determination would require the Commission to make a finding that the Department's Response to Petitioner's Exceptions is supported by the record and does not constitute new evidence.
3. Uphold the ALJ's decision, but adopt different reasoning.
4. Determine that the case cannot be decided without considering the new evidence, and therefore remand the case to the ALJ for a further proceeding to consider new evidence.

Attachments

A. Department's Response to Petitioner's Exceptions and Brief, dated February 19, 2004.
B. Letter from Mikell O'Mealy to Bryan Smith, dated February 17, 2004.
C. Letter from Bryan Smith to Mikell O'Mealy, dated February 12, 2004.
D. Petitioner's Exceptions and Brief, dated January 11, 2004.
E. Letter from Mikell O'Mealy to Petitioner, dated December 18, 2003.
F. Petitioner's Petition for Commission Review, dated December 10, 2003.
G. Proposed Order for Assessment of Civil Penalty, dated on or about November 28, 2003.
H. Notice of Hearing and Contested Case Rights, dated September 17, 2003.
I. Petitioner's Answer and Request For Hearing, dated July 20, 2003.
J. Notice of Assessment of Civil Penalty, dated July 3, 2003.
K. Exhibits from Hearing of October 7, 2003.
    1. Photographs taken by David Wall of the Department on April 14, 2003.
    2. Diagram of the house on the Property made by David Wall.
    3. Email from Liliana Echeverria to David Wall, dated April 15, 2003.

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[9] *Id.* at (4).

4. Asbestos sampling results.
5. Inspection Report, written by David Wall, dated April 14, 2003.
6. Notice of Noncompliance sent to Petitioner, dated April 21, 2003.
7. Asbestos Abatement Project Notification Form, dated April 16, 2003.
8. Memo regarding Petitioner's Economic Benefit, written by Les Carlough, dated June 23, 2003.
9. Email from David Wall to Bryan Smith, dated June 18, 2003.
10. Pollution Complaint, dated April 11, 2003.

Report Prepared by: Mikell O'Mealy
Assistant to the Commission

Phone: (503) 229-5301

Attachment A

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF: VLADIMIR OZERUGA,	)	DEPARTMENT'S ANSWERING BRIEF No. AQ/AB-NWR-03-099
RESPONDENT.	)	MULTNOMAH COUNTY

The Department of Environmental Quality (Department) submits this Answering Brief to the Environmental Quality Commission (Commission) for its consideration in the appeal of the Administrative Law Judge's (ALJ's) Proposed Order in Notice of Assessment of Civil Penalty (Notice) No. AQ/AB-NWR-03-099, filed by Vladimir Ozeruga, Respondent.

I. CASE HISTORY

1. Respondent periodically purchases houses to resell for a profit. In early April, 2003, Respondent engaged in a renovation of a house, which he owns, at 5633 NE 15th Avenue in Portland, Oregon. As part of that renovation, Respondent and his workers broke and removed asbestos-containing cement siding from the outside of the house, as well as asbestos-containing sheet vinyl flooring from the inside of the house. The workers were not licensed to perform asbestos abatement projects.

2. On July 3, 2003, the Department assessed Respondent a civil penalty of $8,332 for allowing unlicensed persons to perform an asbestos abatement project on a facility that he owned. Respondent appealed and a contested case hearing was held on October 7, 2003. On November 28, 2003, the Administrative Law Judge issued a Proposed Order finding that Respondent allowed unlicensed workers to perform an asbestos abatement project on his property. The Proposed Order upheld the Department's assessment of a civil penalty, but reduced the amount of the civil penalty to $7,132.

II. COMMISSION ACTION REQUESTED

The Department requests that the Commission issue a Final Order upholding the Administrative Law Judge's Proposed Order.

III. ADMINISTRATIVE LAW JUDGE'S CONCLUSIONS

The ALJ concluded that: (1) Respondent allowed unlicensed workers to perform an asbestos abatement project on his property, and (2) Respondent is subject to a civil penalty in the amount of $7,132.

IV. ARGUMENTS

A. ***The Private Building owned by Respondent is a Facility:*** Respondent argues that the residential house he owns, and upon which he and his workers performed an unlicensed asbestos abatement project, is not a "facility," and therefore not subject to the requirements of ORS 468A.715(1), which provides, in relevant part, that "an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects." (emphasis added). Respondent's argument is in error. The ALJ properly applied OAR 340-248-0110(24), which defines the term "facility" as "all or part of any public or private building, structure, installation, equipment, vehicle or vessel, including but not limited to ships," and found that Respondent's house is a private building, and therefore a facility. The ALJ then found that Respondent is the owner of the house, and therefore subject to the requirements of ORS 468A.715(1).

B. ***Respondent and His Workers were Required to be Licensed:*** Respondent argues that the people who helped him perform the asbestos abatement project were not "workers" because they were his family members. Although there is no Finding of Fact about whether the workers were Respondent's family, such a Finding would not be relevant to any issue in this case because the rules do not distinguish between workers and family members. Respondent also argues that he and his family members do not need to be licensed by the state of Oregon to conduct an asbestos abatement project on his house. There are only two exceptions to the requirement that a worker must be licensed in order to conduct an asbestos abatement project.

i. The first exception, OAR 340-248-0250(2)(a), states that an asbestos abatement project conducted inside a private residence is exempt from Oregon's licensing requirement if the residence is occupied by the owner and the owner occupant is performing the

asbestos abatement work. This exception does not apply because Respondent performed the asbestos abatement project outside the house. Furthermore, Respondent has never suggested that he occupied the house, as would be required for the first exception to apply.

ii. The second exception, OAR 340-248-0250(2)(b), pertains to asbestos abatement projects performed outside of a home, as in this case, but this rule only exempts the owner of the home from certain notification requirements contained in OAR 340-248-0260. Whether or not Respondent complied with notification requirements is not at issue. Respondent is incorrect that he and his workers could perform an asbestos abatement project outside of a private residence without first being licensed by the Department.

C. ***Respondent Openly Accumulated Asbestos-Containing Waste Material (ACWM):*** Respondent argues that he and his workers did not openly accumulate ACWM, although he admits that at least some ACWM did openly accumulate. Respondent's argument is contradicted by the Findings of Fact, which repeatedly refer to open accumulation of asbestos-containing cement siding and sheet vinyl flooring strewn about the yard and in a large uncovered dump truck. Respondent also argues that he placed some of the ACWM in plastic bags. However, OAR 348-240-280(2)(b) requires all ACWM to be adequately wetted and then packaged in leak-tight containers such as two plastic bags each with a minimum thickness of 6 mil., or fiber or metal drum, and the containers must contain a warning label identifying them as asbestos-containing. As an unlicensed worker, Respondent was not aware of the packaging and labeling requirements, and did not meet them during the abatement project. The ALJ's Findings of Facts recognized the failure to properly handle the ACWM, stating that Respondent's failure to correctly bag the ACWM resulted in a potential for public exposure to asbestos. After the Department notified Respondent of this on-going violation, Respondent hired a licensed asbestos abatement contractor who supervised the cleanup. The ALJ found that this was a reasonable affirmative effort to minimize the effects of the violation and concluded that the penalty should be mitigated based on Respondent's cooperation.

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D. ***Respondent abated at least 160 square feet of asbestos-containing material (ACM):*** The ALJ concluded that Respondent had abated more than 160 square feet of ACM, based in part upon testimony from Dave Wall, the Department's inspector, that the workers removed 1,000 to 2,000 square feet of ACM. While Respondent does not explicitly disagree with that Finding, he questions whether that testimony is credible. Findings of Fact are to be determined by the Administrative Law Judge, especially when there is conflicting evidence in the record. These findings are often based on the demeanor or credibility of the witness. The ALJ found Mr. Wall's estimate that Respondent removed 1,000 to 2,000 square feet of ACM to be reliable, and included this estimate in his Findings of Fact.

E. ***Respondent's Experience and Education Support the ALJ's Determination of Negligence:*** Respondent appears to argue that his degree in Civil Engineering and his experience as a Building Inspector for the City of Portland should not have been considered by the ALJ when determining whether or not his conduct was negligent. Pursuant to OAR 340-012-0030(11), "negligence" means failure to take reasonable care to avoid a foreseeable risk. The ALJ's Finding that Respondent held a degree in Civil Engineering and worked as Building Inspector for the City of Portland is relevant because it shows that he has the education and experience to understand that there are public safety laws that govern who may perform certain tasks and how those tasks may be done. Furthermore the ALJ also found, based on Respondent's testimony, that Respondent periodically purchases homes to resell for a profit. This distinguishes Respondent from a casual homeowner repairing his or her own home. Respondent chose to engage in the profitable industry of remodeling homes, and therefore he has an obligation to perform that work in a safe workman-like manner in compliance with all applicable laws. The ALJ was correct to find that Respondent was negligent "at best" because, on the basis of his education and his experience, he either knew or should have known that the siding he removed was asbestos-containing material.

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V. CONCLUSION

In his brief, Respondent expresses his belief that the amount of asbestos at issue is "practically nothing," considering that it was only found in a small amount of sheet vinyl flooring, and that the cement siding contained only 10% asbestos. This shows a fundamental misunderstanding of the dangers of asbestos and the reasons the laws require asbestos abatement contractors to be trained and licensed. When friable asbestos-containing material is ripped or broken, microscopic asbestos fibers are released and become airborne. These fibers float with air currents and may be inhaled into the lungs, where they may cause asbestosis, mesothelioma, lung cancer, and other serious illnesses. The danger of contracting these diseases increases with the amount of exposure, but there is no known safe level of exposure. Respondent assumes that ten percent asbestos is a small amount. He is mistaken. Because of the extreme hazards of the material, state and federal laws require that persons handling material containing more than one percent asbestos be licensed and trained to handle the material in a manner that does not release fibers into the neighborhood. In reviewing the evidence and the testimony, the ALJ found that Respondent had violated OAR 340-248-0110(2) by allowing unlicensed persons to perform an asbestos abatement project on a facility he owns, and that Respondent is liable for a civil penalty in the amount of $7,132. For the reasons stated above, the Department asks the Commission to issue a Final Order upholding the Proposed Order.

2/19/04
Date

Bryan Smith
Bryan Smith, Environmental Law Specialist

CERTIFICATE OF SERVICE

I hereby certify that I served the Hearing Memorandum within on the 19th day of February, 2004 by PERSONAL SERVICE upon

The Oregon Environmental Quality Commission
c/o Mikell O'Mealy, Assistant to the Commission
811 SW Sixth Avenue
Portland, OR 97204

and upon

Vladimir Ozeruga
PO Box 11778
Portland, OR 97211

by mailing a true copy of the above by placing it in a sealed envelope, with postage prepaid at the U.S. Post Office in Portland, Oregon, on February 19, 2004.

_____

Attachment B

Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

February 17, 2004

Via Certified Mail

Bryan Smith
Oregon DEQ
811 SW Sixth Ave.
Portland, OR 97204

RE: Agency Case No. AQ/AB-NWR-03-099

Dear Mr. Smith:

On February 12, 2004, the Environmental Quality Commission received your request for a one week extension for filing exceptions and briefs in the above-referenced case. The Commission has granted your request. The exceptions and briefs are now due on February 20, 2004. To file, please mail these documents to Mikell O'Mealy, on behalf of the Environmental Quality Commission, at 811 SW 6th Avenue, Portland, Oregon, 97204, with copies to Vladimir Ozeruga.

If you have any questions, please contact me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy

Mikell O'Mealy
Assistant to the Commission

cc: Vladimir Ozeruga, P.O. Box 11778, Portland, OR 97211

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

February 12, 2004

Mikell O'Mealy
Assistant to the Environmental Quality Commission
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Re: Vladimir Petrovitch Ozeruga
Notice of Violation and Assessment of Civil Penalty
No. AQ/AB-NWR-03-099
Multnomah County

Dear Ms. O'Mealy:

I am writing to request a one week extension of the February 13, 2004, deadline for the Department of Environmental Quality (the Department) to submit its Brief in Reply to Vladimir Petrovitch Ozeruga's Exceptions and Brief.

The Department requests this extension because I have been ill.

Thank you for your consideration of this request.

Sincerely,

Bryan Smith

Bryan Smith
Environmental Law Specialist

cc: Vladimir Petrovitch Ozeruga, PO Box 11778, Portland, OR 97211

June 22, 2004

Tuesday

June 2004

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

July 2004

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

6 am

7 00

8 00 Office Work (No bookings before 8:30am)

Umatilla conference call w/ Dennis, Sue, Tom, SH, and Mikell (they will call SH's office)

9 00

10 00 Meeting w/ Gale re: HR Strategic Planning (PS Office)

11 00

12 pm Do Not Schedule If Possible

1 00

2 00

3 00 Meeting w/ Dan Opalski (PS Office) new!

4 00 Office Work (No bookings after 4:00pm)

5 00

6 00

Attachment D

January 11, 2004

Delivered myself to the office on January 13, 2004

Mikell O' Mealy
811 SW 6th Ave.
Portland OR, 97204

Re: Agency Case No. AQ/AB-NWR-03-099

Exceptions and Brief

Dr. Mikell O' Mealy,

Thank you for giving me a privilege to file "Exceptions and Brief" within thirty days of the filing of my request for commission review.

These are the brief "Findings and Conclusions" that I object to in the Proposed Order by the Agency. I hope I will have the opportunity to explain more extensively, if it is necessary.

On, or about October 7, 2003, a hearing was held on the matter of Case No. AQ/AB-NWR-03-099. (Now I am going to go through the result of this hearing, which I received in writing). In the paragraph "Evidentiary Ruling" it says: "The ALJ admitted exhibits 1 through 10 into the record as evidence without objection."

1. We are talking about a "residential house" or "single family dwelling" owned by family. I do not assume my house as a "facility".
2. On, or about April 11, 2003, two of my sons, my brother, and I, (not workers) removed part of the siding from my house. We placed all removed siding in black plastic bags, except for small pieces. All was loaded into dump truck. We did not accumulate any asbestos material in the yard, like it is stated in the paragraph. Mr. Walls' photographs and his letter (Inspection Report, April 14, 2003) justify this. The letter says, "I walked around the house and found small pieces of cement siding and some remnant pieces of sheet vinyl." The ALJ admitted "some of the material to accumulate in the yard." I disagree with this statement. No materials which contained asbestos were accumulated in the yard except for, which stated above- small pieces.
3. My sons, my brother, and I are not licensed by the State of Oregon to perform asbestos abatement projects, which is true as stated in report. I believe we do not need to be licensed to work on our own house. This action was performed only on this house. I did not find in the "Division 12, Enforcement Procedure and Civil Penalties," sent to me by the agency, anything which states that owner must be licensed to work on his own property. Not only can an individual take siding off, but according to the Building Codes in the state of Oregon, the individual himself, can perform work such as plumbing, electrical, and mechanical on his own property.
4. According to Mr. Wall, "asbestos is a cancer causing material that poses a health hazard to individuals who are exposed to it." If this is true, for what

reason must my family and I have to be punished twice? First, we were exposed to this siding not knowing the hazardous risk. Now, I am penalized to pay an enormous fine of $7,132.00. Such an amount is approximate to one-third of my yearly gross income. I simply cannot afford this.

5. On April 14, 2003, Mr. Wall inspected the site. It says: "cement siding and sheet vinyl was strewn on the property and accumulated in a large uncovered dump truck." Like I mentioned earlier, only small pieces were found around the house and on the truck. All material was placed in plastic bags. Evidence to justify this are the photographs taken by Mr. Wall. The building debris, small pieces of siding, and vinyl between them, can be clearly visible. The rest of the siding was placed in plastic bags. This was done as a regular procedure, not because we knew that the siding contained asbestos. After we knew there was asbestos in that siding, we immediately called for a licensed contractor and followed his recommendations. I myself removed the black plastic bags from the dump truck and placed them in special yellow bags with labels on them. I then placed them into the contractor's special container. This job was done in the presence of the licensed contractor. This paragraph, however, states that the material was bagged incorrectly. I disagree with that. This paragraph also says that "Mr. Wall checked state records to confirm that the workers were not licensed asbestos abatement contractors." I do not understand how he could do that, without knowing the names of the "workers?" Next: "Mr. Wall estimated that the workers had removed 1000-2000 square feet of cement siding." Once again this is not understandable. Mr. Wall came on the site when the siding was already removed. The house was in the stage for preparation to painting in that particular time. This means that the house was power washed beforehand and old paint had already been scraped partially. In the beginning of exterior work, the house was partially covered with cement. What facts justify his numbers? When we placed siding into black plastic bags, the total amount of bags was about 6-8, all loaded up to about one-third or one-fourth of its capacity, (weight of material was greater than bags could withhold). This means that if placed in bags to maximum capacity, only 2-3 bags would be required. This can be assured with Ken Brien, representative of "Lake Oswego Insulation Company," which completed the rest of the job.
6. It says: "Mr. Wall collected four samples of the siding and flooring debris in the yard and also took photos of the site." I would like the commission to pay attention to the photographs. There were two different piles of debris. One pile was located on the ground and the second one was on the truck. These piles consisted of building debris on both photographs, but small pieces of siding are visible on them. Photos had been taken of the same piles but from different angles. Also, according to laboratory report crysotile asbestos was found only in beige vinyl and only in backing. It means that a very insignificant amount of asbestos was presented on the job site. A 2x3 feet staircase landing was covered by this vinyl. Also 10% asbestos was found in cement siding. What would 10% of 2-3 bags of siding be? Practically nothing.

7. I really did not know that "cementitious with grooved surface siding," contained asbestos. Moreover, I could not even assume that asbestos could be present in a 100 year old vinyl. Nonetheless, after a telephone conversation with Mr. Wall, I hired a licensed contractor to complete the job and do it in good manner, without any violation of DEQ law.

In the paragraph, "Conclusion of Law" it states: "Mr. Ozeruga allowed unlicensed workers to perform an asbestos abatement project on his property." Once again, I would like you to pay attention, that there were no workers. My sons, my brother, and I did the work on the house.

In the paragraph, "Liability," (from my point of view). To fully understand ORS468A.715(1) please read also (2) of this section. It is clearly talking about the owner of the facility, his own employees, and does not say anything about residential house or its owner and members of his family. I still disagree with the term "facility." I am not a professor of the English language, but to determine meaning of this word I used Webster's Dictionary, American Heritage Dictionary, Japanese/English Dictionary, Russian/English Dictionary, and Internet resources. Even agency's own definition OAR340-248-0110(24) states: "[F]acility means all or part of any public or private building, structure, installation, equipment, vehicle or vessel, including but not limited to ships." It does not mention anything about "residential house" or "single family dwelling," despite these terms used in the "Administrative Rules." For instance, 340-012-0030 (16) and others. But this paragraph says: "Mr. Ozeruga's home on NE 15th Ave. is a private building. Mr. Ozeruga is the owner of that building, and as such, he is subject to the requirements in ORS468A.715(1)." This is correct. My house or any house is a building, not a facility unless you or I install equipment there to serve others. After that it becomes a "facility." Another example: there is a three story building. We still call it a building, but after we occupy it with elderly people, it becomes a "facility" or a foster home.

There is a lot of inaccuracy or lack of clarity in these papers, sent to me by the Agency. It is not easy to accept and agree with it; moreover, with this huge fine. Mr. Smith compared this with a police ticket. Once I called the Agency and Mr. Wall personally, and informed them that on the house next to mine, people removed the same siding- cement siding and loaded it into a regular dumpster. On the hearing I asked Mr. Smith why nobody came to inspect the house. The answer was more than simple: "If there are 10 cars going on the freeway in the left lane at 80mph and the sign next to the road limits speed at 50. I am the last one in the row and I'm caught by the police officer. So I will be fined and the rest will get away with it. The same principle is here in our Agency." Of course, it is very hard for me to understand this kind of logic. First, it is very good if the policeman has a brain, but if that brain works that's even better. That means he understands your explanation and he has the right to forgive you or punish you. Second, from my perspective you cannot compare a traffic ticket and asbestos ticket, consequences in traffic violation and consequences with asbestos violation. If this is true what Mr. Wall says about asbestos exposure to yourself and others, which can cause serious illnesses, the Agency cannot ignore any inspections or calls. All ten of them have

to be caught and taken care of. The Declaration of Independence states "that all men are created equal." Consequently, they should be treated equally.

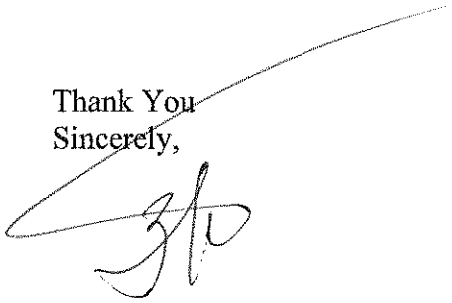
In the paragraph, "Civil Penalty Assessment," there is kind of an interesting thinking or calculation. Quote: "The Agency appropriately credited a value of 2 to the respondent's conduct factor (R), because Mr. Ozeruga either knew or should have known that the siding he removed was asbestos containing material. Mr. Ozeruga holds a degree in Civil Engineering and formerly worked as a building inspector for the City of Portland."

Sometimes we think, if I know something… it is strange that the other person I am talking to about it, does not know it. In other words, if I hold a degree in Civil Engineering, it doesn't mean that I must know how to cook eggs, or if I am a Building Inspector, it doesn't mean I am supposed to know which eggs are from the natural store, or which eggs are from Fred Meyer, without the receipt. I really know what is asbestos and what is cement siding, but to know how much asbestos contains particular siding, can be determined only in a lab.

In the end of my letter I would like to apologize to everyone who read it. If I was not polite enough, or gave a bad example, or wrote something else not quite appropriate. I ask Commission to consider this case more closely and be more sensitive to me in this situation. This happened first time in my life and it was not done purposely; and I think there were a lot of misunderstandings in communication.

According to these policies the Agency sent to me, you have the right to dismiss the case. Therefore, I apologize one more time for what had happened and ask you, please, be flexible in resolving this case and if possible dismiss it.

Thank You
Sincerely,

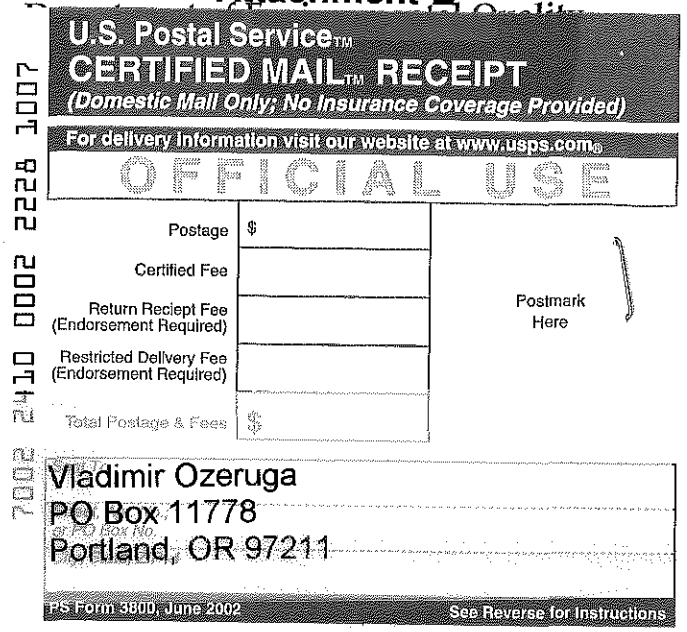


Vladimir Petrovich Ozeruga

cc: Bryan Smith, Oregon Department of Environment Quality

Oregon

Theodore R. Kulongoski, Governor



December 18, 2003

Via Certified Mail

Vladimir Ozeruga
P.O. Box 11778
Portland, OR 97211

RE: Agency Case No. AQ/AB-NWR-03-099

Dear Mr. Ozeruga:

On December 15, 2003, the Environmental Quality Commission received your timely request for Commission review of the Proposed Order for the above referenced case.

The Proposed Order outlined appeal procedures, including filing of exceptions and briefs. The hearing decision and Oregon Administrative Rules (OAR 340-011-0132) state that you must file exceptions and brief within thirty days from the filing of your request for Commission review, or January 14, 2004. Your exceptions should specify the findings and conclusions that you object to in the Proposed Order and include alternative proposed findings. Once your exceptions have been received, a representative of the Department of Environmental Quality may file an answer brief within thirty days. I have enclosed a copy of the applicable administrative rules for your information.

To file exceptions and briefs, please mail these documents to Mikell O'Mealy, on behalf of the Environmental Quality Commission, at 811 SW 6th Avenue, Portland, Oregon, 97204, with copies to Bryan Smith, Oregon Department of Environmental Quality, 811 SW 6th Ave., Portland, Oregon 97204.

After both parties file exceptions and briefs, this item will be set for Commission consideration at a regularly scheduled Commission meeting, and I will notify you of the date and location. If you have any questions about this process, or need additional time to file exceptions and briefs, please call me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy
Assistant to the Commission

cc: Bryan Smith, Oregon Department of Environmental Quality

please feel free to contact me with any questions.

Best regards,

Chuck Findley
Ross & Associates
206.447.1805

<<Summary of Directors call on Agricultural Issues.doc>> <<Proposed Topics for Regional Agriculture-Environment Work Group.doc>>

Oregon Administrative Rules 340-011-0132

Alternative Procedure for Entry of a Final Order in Contested Cases Resulting from Appeal of Civil Penalty Assessments

(1) Commencement of Review by the Commission:

(a) Copies of the hearing officer's Order will be served on each of the participants in accordance with OAR 340-011-0097. The hearing officer's Order will be the final order of the Commission unless within 30 days from the date of service, a participant or a member of the Commission files with the Commission and serves upon each participant a Petition for Commission Review. A proof of service should also be filed, but failure to file a proof of service will not be a ground for dismissal of the Petition.

(b) The timely filing of a Petition is a jurisdictional requirement and cannot be waived.

(c) The timely filing of a Petition will automatically stay the effect of the hearing officer's Order.

(d) In any case where more than one participant timely serves and files a Petition, the first to file will be the Petitioner and the latter the Respondent.

(2) Contents of the Petition for Commission Review. A Petition must be in writing and need only state the participant's or a Commissioner's intent that the Commission review the hearing officer's Order.

(3) Procedures on Review:

(a) Petitioner's Exceptions and Brief: Within 30 days from the filing of the Petition, the Petitioner must file with the Commission and serve upon each participant written exceptions, brief and proof of service. The exceptions must specify those findings and conclusions objected to, and also include proposed alternative findings of fact, conclusions of law, and order with specific references to the parts of the record upon which the Petitioner relies. Matters not raised before the hearing officer will not be considered except when necessary to prevent manifest injustice.

(b) Respondent's Brief: Each participant will have 30 days from the date of filing of the Petitioner's exceptions and brief, in which to file with the Commission and serve upon each participant an answering brief and proof of service. If multiple Petitions have been filed, the Respondent must also file exceptions as required in (3)(a) at this time.

(c) Reply Brief: Each participant will have 20 days from the date of filing of a Respondent's brief, in which to file with the Commission and serve upon each participant a reply brief and proof of service.

(d) Briefing on Commission Invoked Review: When one or more members of the Commission wish to review a hearing officer's Order, and no participant has timely filed a Petition, the Chairman will promptly notify the participants of the issue that the Commission desires the participants to brief . The Chairman will also establish the schedule for filing of briefs. The participants must limit their briefs to those issues. When the Commission wishes to review a hearing officer's Order and a participant also requested review, briefing will follow the schedule set forth in subsections (a), (b), and (c) of this section.

(e) Extensions: The Chairman or the Director, may extend any of the time limits contained in this rule except for the filing of a Petition under subsection (1) of this rule. Each extension request must be in writing and be served upon each participant. Any request for an extension may be granted or denied in whole or in part.

(f) Dismissal: The Commission may dismiss any Petition if the Petitioner fails to timely file and serve any exceptions or brief required by this rule.
(g) Oral Argument: Following the expiration of the time allowed the participants to present exceptions and briefs, the Chairman will schedule the appeal for oral argument before the Commission.
(4) Additional Evidence: A request to present additional evidence will be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the hearing officer. If the Commission grants the motion or decides on its own motion that additional evidence is necessary, the matter will be remanded to a hearing officer for further proceedings.
(5) Scope of Review: The Commission may substitute its judgment for that of the hearing officer in making any particular finding of fact, conclusion of law, or order except as limited by OAR 137-003-0665.

Stat. Auth.: ORS 183.335 & ORS 468.020
Stats. Implemented: ORS 183.430 & ORS 183.435
Hist.: DEQ 78, f. 9-6-74, ef. 9-25-74; DEQ 115, f. & ef. 7-6-76; DEQ 25-1979, f. & ef. 7-5-79; DEQ 7-1988, f. & cert. ef. 5-6-88; DEQ 1-2000(Temp), f. 2-15-00, cert. ef. 2-15-00 thru 7-31-00; DEQ 9-2000, f. & cert. ef. 7-21-00

(f) Dismissal: The Commission may dismiss any Petition if the Petitioner fails to timely file and serve any exceptions or brief required by this rule.
(g) Oral Argument: Following the expiration of the time allowed the participants to present exceptions and briefs, the Chairman will schedule the appeal for oral argument before the Commission.
(4) Additional Evidence: A request to present additional evidence will be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the hearing officer. If the Commission grants the motion or decides on its own motion that additional evidence is necessary, the matter will be remanded to a hearing officer for further proceedings.
(5) Scope of Review: The Commission may substitute its judgment for that of the hearing officer in making any particular finding of fact, conclusion of law, or order except as limited by OAR 137-003-0665.

Stat. Auth.: ORS 183.335 & ORS 468.020
Stats. Implemented: ORS 183.430 & ORS 183.435
Hist.: DEQ 78, f. 9-6-74, ef. 9-25-74; DEQ 115, f. & ef. 7-6-76; DEQ 25-1979, f. & ef. 7-5-79; DEQ 7-1988, f. & cert. ef. 5-6-88; DEQ 1-2000(Temp), f. 2-15-00, cert. ef. 2-15-00 thru 7-31-00; DEQ 9-2000, f. & cert. ef. 7-21-00

Attachment F

12-10-03

Environmental Quality Commission
C/O DEQ- Assistant to the Director
811 SW 6th Avenue
Portland, OR 97204

Vladimir Ozeruga
P.O Box 11778
Portland, OR 97211
OAH No. 110484
Agency Case No. AQ/AB-NWR-03-099

Petition for Review

Dear Assistant to the Director, I am not satisfied with this decision (# AQ/AB-NWR-03-099) and would like to petition the Environmental Quality Commission for review.

Thank You

Vladimir Ozeruga

RECEIVED
DEC 15 2003
Oregon DEQ
Office of the Director

BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
for the
DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF	)	**PROPOSED ORDER**
	)	
	)	
VLADIMIR PETROVITCH OZERUGA	)	OAH No. 110484
	)	Agency Case No. AQ/AB-NWR-03-099

HISTORY OF THE CASE

On July 3, 2003 the Department of Environmental Quality (the Agency) issued a Notice of Violation and Assessment of Civil Penalty (Notice) that imposed a fine of $8332. The Notice alleged that Mr. Ozeruga violated OAR 340-248-0110(2).

On July 20, 2003, Mr. Ozeruga filed a request for hearing. In that request, Mr. Ozeruga denied violating OAR 340-248-0110(2). The Agency referred the request to the Office of Administrative Hearings on August 25, 2003.

On or about October 7, 2003, a hearing was held on the matter. Mr. Ozeruga appeared and represented himself. Bryan Smith represented the Agency. David Wall appeared and testified on behalf of the Agency. Administrative Law Judge (ALJ) Jonathan Micheletti presided. The record closed on October 7, 2003.

ISSUES

(1) Whether Mr. Ozeruga allowed persons who were not licensed to perform asbestos abatement projects to engage in an asbestos abatement project on property owned by Mr. Ozeruga.

(2) Whether the civil penalty assessment proposed by the Agency is appropriate.

EVIDENTIARY RULING

The ALJ admitted Exhibits 1 through 10 into the record as evidence without objection.

FINDINGS OF FACT

(1) Mr. Ozeruga owns property located at 5633 NE 15 Avenue in Portland, Oregon. A home is located on the property. Mr. Ozeruga periodically purchases homes to resell for a profit. Mr. Ozeruga holds a degree in civil engineering from a Russian University. Mr. Ozeruga has extensive experience in construction. The City of Portland formerly employed Mr. Ozeruga as a building inspector. In early April 2003, Mr. Ozeruga engaged in a renovation of the property at 5633 NE 15 Avenue. (Test. of Ozeruga.)

(2) On or about April 11, 2003 Mr. Ozeruga, and approximately three other workers, removed cement siding and vinyl flooring from the home on the property. The workers placed some of the siding and flooring in bags but allowed some of the material to accumulate in the yard. The workers placed a majority of the construction waste in a large uncovered dump truck. (Test. of Ozeruga and Wall.)

(3) None of the individuals working on the project were licensed by the State of Oregon to perform asbestos abatement projects. (Test. of Ozeruga and Wall.)

(4) On or about April 11, 2003, a member of the public lodged a complaint with the Agency asserting that Mr. Ozeruga was removing cement siding, presumably containing asbestos, from the home on his property without taking appropriate precautions. Asbestos is a cancer causing material that poses a health hazard to individuals who are exposed to it. (Test. of Wall.) The complaint was referred to David Wall who is a Natural Resources Specialist for the Agency. Mr. Wall investigates complaints for the Agency. (Test. of Wall.)

(5) On April 14, 2003, Mr. Wall inspected the site to investigate the allegations contained in the complaint. Cement siding and sheet vinyl was strewn on the property and accumulated in a large uncovered dump truck. Mr. Wall suspected that the sheet vinyl and the cement siding was asbestos-containing waste material. The failure to correctly bag the material resulted in a potential for public exposure. Mr. Wall contacted Mr. Ozeruga and told him that the cement siding and vinyl flooring he removed from his home contained asbestos. Mr. Ozeruga disagreed with Mr. Wall. Mr. Wall impressed upon Mr. Ozeruga that in his experience the type of material he was removing from his home usually contained asbestos. Mr. Wall checked State records to confirm that the workers were not licensed asbestos abatement contractors. Mr. Wall estimated that the workers had removed 1000 to 2000 square feet of cement siding. (Test. of Wall.)

(6) Mr. Wall collected four samples of the siding and flooring debris in the yard and took photos of the site. On or about April 14, 2003, Mr. Wall submitted the samples to the Department of Environmental Quality (DEQ), Laboratory Division. The laboratory tested the samples for asbestos on April 14, 2003. (Test. of Wall.) The laboratory issued a preliminary report indicating that the samples did contain asbestos. (Ex. 3.) On April 30, 2003 the laboratory published an analytical report. That report indicated that the samples taken from the property contained asbestos. Asbestos comprised between 10 and 20 percent of the material tested. (Ex. 4 page 3.)

(7) Mr. Wall informed Mr. Ozeruga that the material removed contained asbestos. Mr. Ozeruga then hired licensed asbestos contractors to complete the removal of the material from the property at a cost of approximately $500. (Test. of Ozeruga.) Subsequently, Mr. Wall spoke with multiple licensed asbestos contractors to determine what it would have cost Mr. Ozeruga to have hired a licensed asbestos abatement contractor to complete the entire project. Mr. Wall concluded that it would have cost Mr. Ozeruga approximately $2,500 to perform the job based on the estimates provided by the licensed contractors. (Test. of Wall.) Based on the estimated figure, Mr. Ozeruga received an economic benefit of $1,132, by removing the flooring and siding himself. (Ex. 8.)

CONCLUSIONS OF LAW

(1) Mr. Ozeruga allowed unlicensed workers to perform an asbestos abatement project on his property.

(2) The civil penalty assessed by the Agency is not appropriate.

OPINION

Although the Agency asserted at hearing, and in its order, that Mr. Ozeruga violated several rules regarding asbestos abatement, the Agency only assessed a civil penalty for an alleged violation of OAR 340-248-0110(2). That will be the only violation addressed in this decision. The first issue is whether Mr. Ozeruga allowed workers without asbestos abatement certification to perform an asbestos abatement project on his property. If it is determined that Mr. Ozeruga did violate the rule, then the appropriateness of the civil penalty assessment will be addressed.

Liability

ORS 468A.715(1) states "[e]xcept as provided in subsection (2) of this section, an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects."

The first issue is whether Mr. Ozeruga is subject to the rule regarding asbestos licensed contractors. Mr. Ozeruga admitted at hearing that he is the owner of the property at 5633 NE 15 Avenue, in Portland, Oregon. Mr. Ozeruga argued that ORS 468A.715(1) does not apply to him because he is not an owner of a "facility." Mr. Ozeruga depended on the dictionary definition of the term facility to support this argument. However, OAR 340-248-0110(24) specifically defines the term "facility" for the purpose of enforcing ORS 468A.715(1). The rule states that "[f]acility means all or part of any public or private building, structure, installation, equipment, vehicle or vessel, including but not limited to ships." Mr. Ozeruga's home on NE 15 Avenue, is a private building. Mr. Ozeruga is the owner of that building, and as such, he is subject to the requirements in ORS 468A.715(1).

The next issue is whether workers performed an asbestos abatement project on Mr. Ozeruga's property. OAR 340-248-0110(6) states:

> "Asbestos abatement project" means any demolition, renovation, repair, construction or maintenance activity of any public or private facility that involves the repair, enclosure, encapsulation, removal, salvage, handling, or disposal of any asbestos-containing material with the potential of releasing asbestos fibers from asbestos-containing material into the air.

On or about April 11, 2003 Mr. Ozeruga and approximately three other workers removed cement siding and vinyl flooring from the property. Mr. Wall took samples of the siding and flooring after responding to a complaint. Mr. Wall delivered the samples to a DEQ laboratory to be tested for asbestos. The results indicated that the cement siding and vinyl

flooring both contained asbestos. Mr. Ozeruga engaged in an asbestos abatement project when he removed the asbestos-containing siding and flooring from his property.

Because it has been determined that Mr. Ozeruga engaged in an asbestos abatement project on his property, the next issue is whether the asbestos abatement project was performed by workers licensed to perform such work. Mr. Ozeruga admitted that none of the workers who removed the asbestos-containing material were licensed to do so. Mr. Wall noted that none of the workers who removed the asbestos-containing waste material were registered with the State as licensed to perform asbestos abatement projects.

The Agency provided sufficient evidence to establish that it is more probably true than not true that Mr. Ozeruga engaged in an asbestos abatement project and failed to use licensed asbestos abatement workers to perform the job in violation of ORS 468A.715(1). Therefore, I conclude that Mr. Ozeruga violated DEQ air quality regulations.

Civil Penalty Assessment

The Agency is authorized to impose civil penalties for air quality violations pursuant to OAR 340-012-0042, *et al.* OAR 340-012-0050 provides classifications for air quality violations and states:

> Violations pertaining to air quality shall be classified as follows:
>
> (1) Class One:
>
> * * * * *
>
> > (u) Failing to hire a licensed contractor to conduct an asbestos abatement project which results in the potential for public exposure to asbestos or release of asbestos into the environment.

The Agency appropriately concluded that Mr. Ozeruga committed a Class I violation, because Mr. Ozeruga failed to use licensed workers to perform an asbestos abatement project on his property which resulted in a potential for public exposure to asbestos.

OAR 340-012-0090 provides the magnitude categories to determine the appropriate civil penalty, and states:

> (1) Magnitudes for select violations pertaining to Air Quality may be determined as follows:
>
> * * * * *
>
> > (d) Asbestos violations:
> >
> > > (A) Major - More than 260 lineal feet or more than 160 square feet or more than 35 cubic feet of asbestos-containing material.

The Agency established that Mr. Ozeruga committed a Major Violation because his workers removed in excess of 160 square feet of asbestos-containing siding and flooring.

Mr. Ozeruga committed a Class I, Major violation. The Agency imposed a civil penalty of $8,332. The amount of the civil penalty assessed is determined through the use of a matrix and formula contained in OAR 340-012-0042. The Agency appropriately imposed a base penalty (BP) of $6000.00 for the Class I, Major magnitude violation under OAR 340-012-0042(1)(a). The Agency appropriately credited a value of 0 to the prior significant actions factor (P), because Mr. Ozeruga has no prior violations. The Agency appropriately credited a value of 0 to the past history factor (H), because Mr. Ozeruga has no prior violations. The agency appropriately credited a value of 0 to occurrence factor (O), because the violation only lasted for one day or less. The Agency appropriately credited a value of 2 to the respondent's conduct factor (R), because Mr. Ozeruga either knew or should have known that the siding he removed was asbestos containing material. Mr. Ozeruga holds a degree in civil engineering, and formerly worked as a building inspector for the City of Portland. Mr. Ozeruga's conduct was negligent at best. The Agency inappropriately credited a value of 0 to cooperativeness factor (C), because Mr. Ozeruga did cooperate with the Agency in cleaning the property after accumulating asbestos-containing material on it. Mr. Ozeruga was cooperative and made reasonable, affirmative efforts to minimize the effects of the violation. Mr. Ozeruga hired a licensed asbestos abatement contractor clean up the property at a cost of $500. The Agency appropriately credited an amount of $1,132 to the economic benefit factor (EB). The Agency completed a BEN calculation which is designed to determine what economic benefit, if any, is derived by failing to follow Agency regulations. The Agency presented reliable evidence indicating that Mr. Ozeruga benefited by $1,132 by not using a licensed asbestos abatement contractor.

Based on this record, the Agency's civil penalty assessment is reduced from $8,332 to $7,132.[1]

PROPOSED ORDER

It is hereby proposed that:

Vladimir Petrovich Ozeruga is subject to a civil penalty in the amount of $7,132 for violating ORS 468A.715(1) and OAR 340-248-0110(2).

Jonathan Micheletti, Administrative Law Judge

REVIEW

If you are not satisfied with this decision, you have the right to petition the Environmental Quality Commission for review. To have the decision reviewed you must file a "Petition for Review" within 30 days of the date of service of this Order, as provided in Oregon Administrative Rule (OAR) 340-011-0132(1) and (2). Service is defined in OAR 340-0110097, as the date the order is mailed to you, not the date you receive it. The Petition for Review must be filed with:

[1] The penalty calculation assessed is set out in full in the Appendix, which is incorporated by reference in this order as if fully set forth herein.

Environmental Quality Commission
C/o DEQ—Assistant to the Director
811 SW 6th Avenue
Portland, OR 97204

Within 30 days of the filling the Petition, you must also file exceptions and a brief as provided in OAR 340-011-0132(3).

APPENDIX

VIOLATION 1: Allowing a person other than a licensed asbestos abatement contractor to perform an asbestos abatement project, in violation of ORS 468A.715(1) and OAR 340-248-0110(2).

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of asbestos-containing waste material (ACWM) abated was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is: BP + [(0.1 x BP) x (P + H + O + R + C)] + EB

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a).

"P" is Mr. Ozeruga's prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0 because Mr. Ozeruga has no prior significant actions.

"H" is the past history of Mr. Ozeruga in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Mr. Ozeruga has no prior significant actions.

"O" is whether or not the violation was a single occurrence or was repeated or continuous during the period of the violation and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(C)(i) because the violation existed for one day or less and did not recur on the same day.

"R" is the cause of the violation and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(D)(ii), because Mr. Ozeruga's conduct was negligent. Mr. Ozeruga failed to take reasonable care to avoid the foreseeable risk of allowing a person other than a licensed asbestos abatement contractor to perform an asbestos abatement project. Mr. Ozeruga is the owner of the Property and failed to either analyze the cement siding and the sheet vinyl flooring for the presence of asbestos or to conduct an asbestos survey of the Property. Furthermore, Mr. Ozeruga has extensive construction knowledge and either knew or should have known that the siding and flooring contained asbestos.

"C" is Mr. Ozeruga's cooperativeness in correcting the violation and receives a value of -2 pursuant to OAR 340-012-0045(1)(c)(E)(ii), because Mr. Ozeruga was cooperative and made reasonable, affirmative efforts to minimize the effects of the violation. Mr. Ozeruga hired a licensed asbestos abatement contractor clean up the property at a cost of $500.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that the Mr. Ozeruga gained through noncompliance and receives a value of $1,132, which represents the amount Mr. Ozeruga saved by not having a licensed asbestos abatement contractor properly remove, package and label the ACWM. The economic benefit is calculated by the US EPA BEN computer model, pursuant to OAR 340-012-0045(1)(c).

PENALTY CALCULATION:

Penalty = BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 2 + -2)] + $1,132
= $6,000 + ($600 x 0) + $1,132
= $6,000 + 0 + $1,132
= $7,132

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CERTIFICATE OF SERVICE

I certify that on November 28, 2003, I served the attached Proposed Order by mailing certified and/or first class mail, in a sealed envelope, with first class postage prepaid, a copy thereof addressed as follows:

VLADIMIR PETROVITCH OZERUGA
PO BOX 11778
PORTLAND OR 97211

BY FIRST CLASS MAIL AND CERTIFIED MAIL
BY CERTIFIED MAIL RECEIPT # 7001 1940 0000 1117 5890

BRYAN SMITH
OREGON DEQ
OFFICE OF COMPLIANCE AND ENFORCEMENT
811 SW 6TH AVE
PORTLAND OR 97204

BY FIRST CLASS MAIL

Ann Redding

Ann Redding, Administrative Specialist
Office of Administrative Hearings
Transportation Hearings Division

Attachment H

Oregon

Theodore R. Kulongoski, Governor

Office of Administrative Hearings
Transportation Hearings Division
Employment Department
1905 Lana Avenue NE
Salem, OR 97314
(503) 945-5547
FAX (503) 945-5304
TTY 1-800-735-1232

NOTICE OF HEARING

Date Mailed: September 17, 2003

VLADIMIR PETROVITCH OZERUGA
PO BOX 11778
PORTLAND OR 97211

BRYAN SMITH
DEQ
811 SW 6TH AVE
PORTLAND OR 97204

BY FIRST CLASS AND CERTIFIED MAIL.
CERTIFIED MAIL RECEIPT #7001 1940 0000 1117 5531

RE: *In the Matter of Vladimir Petrovitch Ozeruga*
For the Oregon Department of Environmental Quality
Office of Administrative Hearings Case No. 110484
Agency Case No. AQ/AB-NWR-03-099

A hearing has been set in the above-entitled matter before the Office of Administrative Hearings.

Hearing Date:	**October 7, 2003**	**Hearing Time:**	**9:00 a.m.**
Location:	**DEQ** **811 SW 6th Avenue** **Portland, Oregon**		

The Office of Administrative Hearings is an impartial tribunal, and is independent of the agency for whom the hearing is held. Your case has been assigned to Administrative Law Judge Jon Micheletti, an employee of the Office of Administrative Hearings.

A request for reset of the hearing must be submitted in writing prior to the hearing. A postponement request will only be granted on a showing of good cause and with the approval of the administrative law judge.

If you are hearing impaired or need a language interpreter at the hearing, immediately notify the Office of Administrative Hearings at (503) 945-5547 or TDD at 1-800-735-1232. The Office of Administrative Hearings can arrange for an interpreter at the hearing. Interpreters must be certified or qualified in order to participate in a contested case hearing and may not have a conflict of interest with the hearing participants.

Please notify the Office of Administrative Hearings at (503) 945-5547 immediately if you change your address or telephone number at any time prior to a final decision in this matter.

DEPARTMENT OF ENVIRONMENTAL QUALITY HEARINGS

IMPORTANT INFORMATION FOR PREPARING FOR YOUR HEARING

NOTICE OF CONTESTED CASE RIGHTS AND PROCEDURES

Under ORS 183.413(2), you must be informed of the following:

1. Law that applies. The hearing is a contested case and it will be conducted under ORS Chapter 183 and Oregon Administrative Rules of the Department of Environmental Quality, Chapters 137 and 340.

2. Rights to an attorney. You may represent yourself at the hearing, or be represented by an attorney or an authorized representative, such as a partner, officer, or an employee. If you are a company, corporation, organization or association, you must be represented by an attorney or an authorized representative. Prior to appearing on your behalf, an authorized representative must provide a written statement of authorization. If you choose to represent yourself, but decide during the hearing that an attorney is necessary, you may request a recess. About half of the parties are not represented by an attorney. DEQ will be represented by an Assistant Attorney General or an Environmental Law Specialist.

3. Administrative law judge. The person presiding at the hearing is known as the administrative law judge. The administrative law judge is an employee of the Office of Administrative Hearings under contract with the Environmental Quality Commission. The administrative law judge is not an employee, officer or representative of the agency.

4. Appearance at hearing. If you withdraw your request for a hearing, notify either DEQ or the administrative law judge that you will not appear at the hearing, or fail to appear at the hearing, a final default order will be issued. This order will be issued only upon a prima facie case based on DEQ's file. No hearing will be conducted.

5. Address change or change of representative. It is your responsibility to notify DEQ and the administrative law judge of any change in your address or a withdrawal or change of your representative.

6. Interpreters. If you have a disability or do not speak English, the administrative law judge will arrange for an interpreter. DEQ will pay for the interpreter if (1) you require the interpreter due to a disability or (2) you file with the administrative law judge a written statement under oath that you are unable to speak English and you are unable to obtain an interpreter yourself. You must provide notice of your need for an interpreter at least 14 days before the hearing.

7. Witnesses. All witnesses will be under oath or affirmation to tell the truth. All parties and the administrative law judge will have the opportunity to ask questions of all witnesses. DEQ or the administrative law judge will issue subpoenas for witnesses on your behalf if you show that their testimony is relevant to the case and is reasonably needed to establish your position. You are not required to issue subpoenas for appearance of your own witnesses. If you are represented

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by an attorney, your attorney may issue subpoenas. Payment of witness fees and mileage is your responsibility.

8. Order of evidence. A hearing is similar to a court trial but less formal. The purpose of the hearing is to determine the facts and whether DEQ's action is appropriate. In most cases, DEQ will offer its evidence first in support of its action. You will then have an opportunity to present evidence to oppose DEQ's evidence. Finally, DEQ and you will have an opportunity to rebut any evidence.

9. Burden of presenting evidence. The party who proposes a fact or position has the burden of proving that fact or position. You should be prepared to present evidence at the hearing which will support your position. You may present physical, oral or written evidence, as well as your own testimony.

10. Admissible evidence. Only relevant evidence of a type relied upon by reasonably prudent persons in the conduct of their serious affairs will be considered. Hearsay evidence is not automatically excluded. Rather, the fact that it is hearsay generally affects how much the Commission will rely on it in reaching a decision.

There are four kinds of evidence:

a. Knowledge of DEQ and the administrative law judge. DEQ or the administrative law judge may take "official notice" of conclusions developed as a result of its knowledge in its specialized field. This includes notice of general, technical or scientific facts. You will be informed should DEQ or the administrative law judge take "official notice" of any fact and you will be given an opportunity to contest any such facts.

b. Testimony of witnesses. Testimony of witnesses, including you, who have knowledge of facts may be received in evidence.

c. Writings. Written documents including letters, maps, diagrams and other written materials may be received in evidence.

d. Experiments, demonstrations and similar means used to prove a fact. The results of experiments and demonstrations may be received in evidence if they are reliable.

11. Objections to evidence. Objections to the consideration of evidence must be made at the time the evidence is offered. Objections are generally made on one of the following grounds:

a. The evidence is unreliable;

b. The evidence is irrelevant or immaterial and has no tendency to prove or disprove any issue involved in the case;

c. The evidence is unduly repetitious and duplicates evidence already received.

12. Continuances. There are normally no continuances granted at the end of the hearing for you to present additional testimony or other evidence. Please make sure you have all your evidence ready for the hearing. However, if you can show that the record should remain open for additional evidence, the administrative law judge may grant you additional time to submit such evidence.

13. Record. A record will be made of the entire proceeding to preserve the testimony and other evidence for appeal. This will be done by tape recorder. This tape and any exhibits received in the record will be the whole record of the hearing and the only evidence considered by the administrative law judge. A copy of the tape is available upon payment of a minimal amount, as established by DEQ. A transcript of the record will not normally be prepared, unless there is an appeal to the Court of Appeals.

14. Proposed and Final Order. The administrative law judge has the authority to issue a proposed order based on the evidence at the hearing. The proposed order will become the final order of the Environmental Quality Commission if you do not petition the Commission for review within 30 days of service of the order. The date of service is the date the order is mailed to you, not the date that you receive it. The Department must receive your petition seeking review within 30 days. See OAR 340-011-0132.

15. Appeal. If you are not satisfied with the decision of the Commission, you have 60 days from the date of service of the order, to appeal this decision to the Court of Appeals. See ORS 183.480 *et seq.*

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Attachment I

July 20, 2003

To: Oregon Department of Environmental Quality
Stephanie Hallock
Deborah Nesbit
Bryan Smith

From: Vladimir Ozeruga
P.O. BOX 11778
Portland, OR 97211
Tel. (503)-969-8395
Fax. (503)-655-1322

Re: Notice of Violation and Assessment of Civil Penalty
No. AQ/AB-NWR-03-099
Multnomah County

Dear Department of Environmental Quality,
I am writing to:

1) Appeal the notice.
2) Want contestant case hearing.
3) Want an informal discussion.
4) Deny the allegations in the notice.

I believe that this notice should be cancelled. I met and talked with inspector Mr. Dave Wall at house. I followed all of his recommendations. In other words, siding was packed in special bags by "Lake Oswego Insulation Co." Then their people removed the remaining siding, cleaned the house, and truck. This company I found in the list of contractors provided by Mr. Dave Wall. Before they started this job they discussed an issue with Mr. Wall. Therefore, it is hard to understand why this notice contains information which is not quite correct.

1) Line 13. Property was mine and people who have been working on the property were my brother and two of my sons; Tony, Edward, and Roman Ozeruga.

2) Line 17. I have never seen any laboratory analysis. When representative from above mentioned company came, he determined that vinyl does not contain any asbestos. Nonetheless, in that particular time, I believed Mr. Wall and did everything that he recommended. But now, when I have this notice which contains inaccurate information, I am in doubt of Mr. Wall's laboratory analysis, if they even existed.

3) Line 21/24. Siding was never accumulated on the ground. Siding was accumulated on the truck. The next day after Mr. Wall visited the job site, siding was packed into special bags, labeled, and was delivered to the "Lake Oswego Company"

main office, and stored into special containers there. This same day, close to midday, Mr. Wall came again to the job site and saw the results of the job which was done. He also recommended special treatment to the truck and the house. I told him that this issue, I already discussed with contractor and that representative of this company will contact Mr. Wall for further instruction. A few days later, house, truck, and area around house was cleaned and treated by this company (two people). I spent lots of money for this activity and I am still in doubt about this siding containing asbestos without laboratory proof.

4) Line 26. As to me, this statement is incorrect. If "Lake Oswego Company" failed to properly package and label the ACWM, this issue has to be between Mr. Wall and "Lake Oswego Company." We did not pack nor label the ACWM. But I am a witness of how they packed the ACWM. As far as I know, before "Lake Oswego Company" started to do anything, they contacted Mr. Wall.

Now, I will go through the letter which contains three pages and will try to give my explanation for some of the issues here.

1) I have never seen laboratory analysis, but letter says that siding contains 10% asbestos and vinyl 20%. Like I mentioned earlier, contractor had different opinion about vinyl.
2) To me, the number of square feet seems incorrect.
3) Opposite information about wetting siding. When Mr. Wall came, the house was wet. He told us that we created even more problems by doing so. Now, he said, asbestos set into ground.
4) We did not package and label waste. We started the job and special contractor finished it.
5) Page 2 says: "You have failed to have an asbestos abatement contractor perform the asbestos abatement project of the property." This is not true. I hired an asbestos abatement contractor and they did 95% of the work. Mr. Wall knows it very well. I started the job and I apologize for that, I did not know that siding contained asbestos.

If you need any other confirmation of my allegations, please let me know. I am going to be out of the country until the 5th of August. If you need to send any written response, here is my address and fax number: P.O BOX 11778 Portland OR, 97211; Fax. (503)-655-1322, or you can call and leave a voicemail at (503)-969-8395. Thank you for your prompt attention to this matter.

Sincerely,

Vladimir Ozeruga

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

July 3, 2003

CERTIFIED MAIL NO. 7001 2410 0002 2229 6537

Vladimir Petrovitch Ozeruga
PO Box 11778
Portland, OR 97211

Re: Notice of Violation and Assessment of Civil Penalty
No. AQ/AB-NWR-03-099
Multnomah County

On April 11, 2003, the Department of Environmental Quality (the Department) received a complaint that asbestos-containing cement siding was being removed improperly at a building you own located at 5633 NE 15th in Portland, Oregon (the Property). Dave Wall of the Department inspected the Property on April 14, 2003 and spoke with you.

You explained that your workers removed cement siding and sheet vinyl flooring from the building during the course of a re-modeling project at the Property. Mr. Wall observed cement siding on the ground, and cement siding and sheet vinyl flooring in a flatbed truck in the driveway. Laboratory analysis revealed that the cement siding contained 10% chrysotile asbestos, while the sheet vinyl flooring contained 20% chrysotile asbestos.

Your workers removed approximately 1,500 square feet of asbestos-containing cement siding and approximately 20 square feet of sheet vinyl flooring. That removal constituted an asbestos abatement project. In addition, you told Mr. Wall that your workers did not wet the asbestos-containing material before removing it, which is a failure to follow proper safety precautions for the safe handling of asbestos.

Oregon Revised Statute (ORS) 468A.715(1) and Oregon Administrative Rule (OAR) 340-248-0110(2) require an owner or operator of a building that contains friable asbestos to ensure that anyone conducting an asbestos abatement project at the building is licensed by the Department. Allowing unlicensed workers to perform the asbestos abatement project is a Class I violation of Oregon's environmental laws.

In addition, your workers' failure to properly package and label the asbestos-containing waste material (ACWM) resulted in the open accumulation of ACWM, which is a violation of OAR 340-248-0205(1). This accumulation of ACWM likely released asbestos fibers into the air and exposed workers, the public and the environment to asbestos.

Asbestos fibers are a respiratory hazard proven to cause lung cancer, mesothelioma and asbestosis. Asbestos is a danger to public health and a hazardous air contaminant for which there

is no known safe level of exposure. To protect the public from asbestos exposure, the Department requires training and licensing for those who handle asbestos-containing material. You have failed to have an asbestos abatement contractor perform the asbestos abatement project at the Property.

You are liable for a civil penalty assessment because you violated Oregon environmental law. In the enclosed Notice, I have assessed a civil penalty of $8,332. In determining the amount of the penalty, I used the procedures set forth in Oregon Administrative Rule (OAR) 340-12-045. The Department's findings and civil penalty determination are attached to the Notice as Exhibit 1.

The steps you must follow to request a review of the Department's allegations and determinations in this matter are set forth in Section IV of the enclosed Notice. If you wish to have a hearing on this matter, you must specifically request a hearing in writing. Attached to the hearing request must be your Answer in which you admit or deny each of the facts alleged in Section II of the Notice. In your Answer, you should also allege all affirmative claims or defenses and provide reasons why they apply in this matter. You will not be allowed to raise these issues at a later time, unless you can later show good cause for your failure. The applicable rules are enclosed for your review. You need to follow the rules to ensure that you do not lose your opportunity to dispute the Department's findings (see OAR 340-011-0107 and OAR 137-003-0528). If the Department does not receive your request for a hearing and Answer within 20 calendar days from the date you received the Notice, a Default Order will be entered against you and the civil penalty will become due at that time. You can fax your request for hearing and Answer to the Department at (503) 229-6762.

If you wish to discuss this matter, or if you believe there are mitigating factors which the Department might not have considered in assessing the civil penalty, you may request an informal discussion by attaching your request to your appeal. Your request to discuss this matter with the Department will not waive your right to a contested case hearing.

I look forward to your cooperation in complying with Oregon environmental law in the future. However, if any additional violations occur, you may be assessed additional civil penalties.

Copies of referenced rules are enclosed. Also enclosed is a copy of the Department's internal management directive regarding civil penalty mitigation for Supplemental Environmental Projects (SEPs). If you are interested in having a portion of the civil penalty fund an SEP, you should review the enclosed SEP directive. Exceptional pollution prevention could result in partial penalty mitigation.

If you have any questions about this action, please contact Bryan Smith with the Department's Office of Compliance and Enforcement in Portland at (503) 229-5692 or toll-free at 1-800-452-4011.

Sincerely,

Stephanie Hallock

Stephanie Hallock
Director

Enclosures

cc: Dave Wall, Northwest Region, DEQ
Audrey O'Brien, Northwest Region, DEQ
Neil Mullane, Northwest Region, DEQ
Air Quality Division, DEQ
Oregon Department of Justice
Environmental Quality Commission
Multnomah County District Attorney

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF: VLADIMIR PETROVITCH OZERUGA, Respondent.	))))))	NOTICE OF VIOLATION AND ASSESSMENT OF CIVIL PENALTY No. AQ/AB-NWR-03-099 MULTNOMAH COUNTY

I. AUTHORITY

This Notice of Violation and Assessment of Civil Penalty (Notice) is issued to Respondent, Vladimir Petrovitch Ozeruga, by the Department of Environmental Quality (Department) pursuant to Oregon Revised Statutes (ORS) 468.126 through 468.140, ORS Chapter 183; and Oregon Administrative Rules (OAR) Chapter 340, Divisions 11 and 12.

II. VIOLATIONS

1. On or about April 11, 2003, Respondent allowed an unlicensed person to perform an asbestos abatement project on a facility he owns, in violation of ORS 468A.715(1) and OAR 340-248-0110(2). Specifically, Respondent owns a building located at 5633 NE 15th in Portland, Oregon (the Property) and allowed his workers to remove asbestos-containing cement siding and asbestos-containing sheet vinyl flooring from the Property. Respondent's workers were not licensed to perform asbestos abatement projects. According to OAR 340-012-0050(1)(u), this is a Class I violation, because the asbestos abatement project resulted in the potential for public exposure to asbestos or release of asbestos into the environment.

2. On or about April 11 through April 17, 2003, Respondent openly accumulated asbestos-containing waste material (ACWM) in violation of OAR 340-248-0205(1). Specifically, Respondent's workers removed asbestos-containing cement siding and asbestos-containing sheet vinyl flooring from the Property and left the ACWM on the ground around the residence and in a flat bed truck in the driveway of the Property. Respondent then failed to properly package and label the ACWM. This is a Class I violation according to OAR 340-012-

0050(1)(q), because such storage or accumulation of ACWM caused a potential for public exposure to asbestos or release of asbestos into the environment.

III. ASSESSMENT OF CIVIL PENALTIES

The Director imposes a civil penalty of $8,332 for Violation 1 cited in Section II. The findings and determination of Respondent's civil penalty pursuant to OAR 340-012-0045 are attached and incorporated as Exhibit No 1.

IV. OPPORTUNITY FOR CONTESTED CASE HEARING

Respondent has the right to have a contested case hearing before the Environmental Quality Commission (Commission) or its hearings officer regarding the matters contained in this Notice, provided Respondent files a written request for a hearing and an Answer within twenty (20) calendar days from the date of service of this Notice. If Respondent fails to file either a timely request for a hearing, a late filing will not be allowed unless the reason for the late filing was beyond Respondent's reasonable control. If Respondent fails to file a timely Answer, the late filing will not be allowed unless Respondent can show good cause for the late filing. (See OAR 340-011-0107 and OAR 137-003-0528)

The request for a hearing must either specifically request a hearing or state that Respondent wishes to appeal this Notice. In the written Answer, Respondent shall admit or deny each allegation of fact contained in this Notice, and shall specifically state all affirmative claims or defenses to the assessment of the civil penalty that Respondent may have and the reasoning in support of any claims or defenses. The contested case hearing will be limited to those issues raised in this Notice and in the Answer. Unless Respondent is able to show good cause:

1. Factual matters not disputed in a timely manner shall be presumed to be admitted;

2. Failure to timely raise a claim or defense will waive the ability to raise that claim or defense at a later time;

3. New matters alleged in the Answer will be presumed to be denied by the Department unless admitted in subsequent pleading or stipulation by the Department or Commission.

Send the request for hearing and Answer to: Deborah Nesbit, Oregon Department of Environmental Quality, 811 S.W. 6th Avenue, Portland, Oregon 97204 or via fax at (503) 229-6762. Following the Department's receipt of a request for hearing and an Answer, Respondent will be notified of the date, time and place of the hearing.

If Respondent fails to file a timely request for hearing and Answer, the Notice and Order shall become a final and enforceable Order of the Environmental Quality Commission by operation of law without any further action or proceeding. If the Order becomes final by operation of law, the right to judicial review, if any, is outlined within ORS 183.480.

Failure to file a timely request for hearing or an Answer may result in the entry of a Default Order for the relief sought in this Notice.

Failure to appear at a scheduled hearing may result in an entry of a Default Order.

The Department's case file at the time this Notice was issued may serve as the record for purposes of entering a Default Order.

V. OPPORTUNITY FOR INFORMAL DISCUSSION

In addition to filing a request for a contested case hearing, Respondent may also request an informal discussion with the Department by attaching a written request to the hearing request and Answer.

VI. PAYMENT OF CIVIL PENALTY

The civil penalty is due and payable ten (10) days after the Order imposing the civil penalty becomes final by operation of law or on appeal. Respondent may pay the penalty before that time. Respondent's check or money order in the amount of $8,332 should be made payable to "State Treasurer, State of Oregon" and sent to the **Business Office, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon 97204.**

7-3-03
Date

Stephanie Hallock
Stephanie Hallock, Director

EXHIBIT 1

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 1: Allowing a person other than a licensed asbestos abatement contractor to perform an asbestos abatement project, in violation of ORS 468A.715(1) and OAR 340-248-0110(2).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(u), because the violation resulted in the potential for public exposure to asbestos or the release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of asbestos-containing waste material (ACWM) abated was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:
$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a).

"P" is Respondent's prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was a single occurrence or was repeated or continuous during the period of the violation and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(C)(i) because the violation existed for one day or less and did not recur on the same day.

"R" is the cause of the violation and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(D)(ii), because Respondent's conduct was negligent. Respondent failed to take reasonable care to avoid the foreseeable risk of allowing a person other than a licensed asbestos abatement contractor to perform an asbestos abatement project. Respondent is the owner of the Property and failed to either analyze the cement siding and the sheet vinyl flooring for the presence of asbestos or to conduct an asbestos survey of the Property.

"C" is Respondent's cooperativeness in correcting the violation and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(E)(ii), because there is insufficient information to make a finding.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that the Respondent gained through noncompliance and receives a value of $1,132, which represents the amount Respondent saved by not having a licensed asbestos abatement contractor properly remove,

package and label the ACWM. The economic benefit is calculated by the US EPA BEN computer model, pursuant to OAR 340-012-0045(1)(c).

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 2 + 0)] + $1,132
= $6,000 + ($600 x 2) + $1,132
= $6,000 + $1,200 + $1,132
= $8,332

Exhibits from Hearing of October 7, 2003

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows back of house after siding removal.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows piece of cement siding attached to house after siding removal.

EXHIBIT # 1 pl 60

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows cement siding debris in yard around the house.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows more cement siding pieces around house foundation.

EXHIBIT # 1p2

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows debris pile at back of house with siding pieces.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows sheet vinyl remnants from debris pile in back of house.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows sample point for sheet vinyl. Sample # Z4401.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows debris in back of flat bed truck in driveway of house.

EXHIBIT # 104

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows close up of debris pile in back of flatbed truck in driveway and sample point for cement siding. Sample #Z4406.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows sample bag of sheet vinyl over old vinyl tile. Sample # Z4403.

EXHIBIT # 1 of 4

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows sample point for sheet vinyl in back of the flatbed truck in driveway. Sample #Z4405.

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 15, 2003 **TIME:** 2:30pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows flatbed truck moved from driveway.

EXHIBIT # 16

SITE NAME: Residential, 5633 NE 15th, Portland, Oregon 97211
DATE: April 14, 2003 **TIME:** 2pm **PHOTOGRAPHER:** Dave Wall **JOB#:** 28619
COMMENTS: Photo shows back of flatbed truck where asbestos contaminated debris was removed and put in garbage bags by contractor and owner of house.

EXHIBIT # 1p7

Attachment K-2

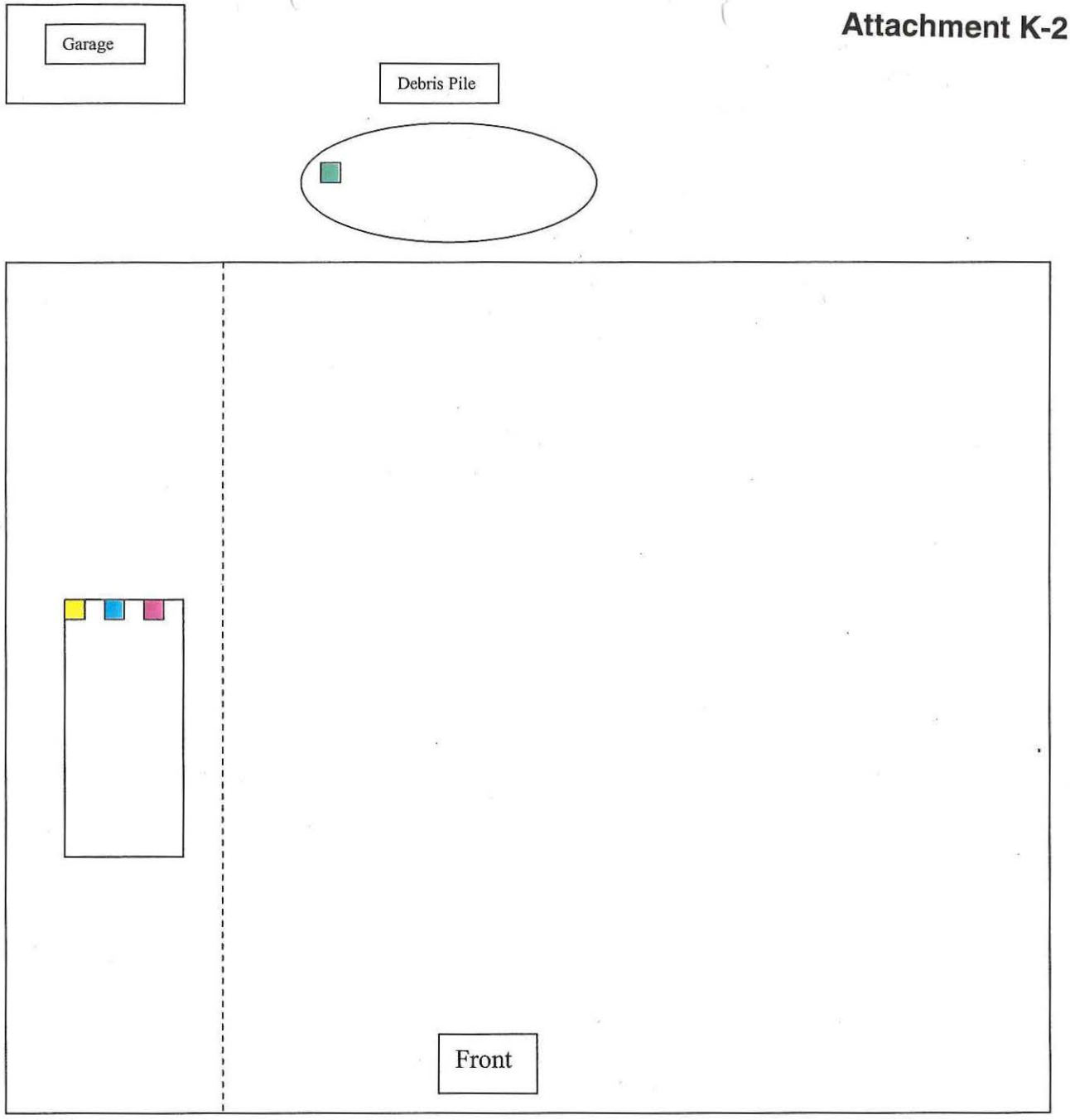

EXHIBIT # 2

Attachment K-3

WALL Dave

From: ECHEVERRIA Liliana
Sent: Tuesday, April 15, 2003 9:19 AM
To: WALL Dave
Subject: 20030314Preliminary asbestos results

Case No.20030314; Residence, 5633 NE 15th, Portland, OR

Item 1; Z4401: 20% chrysotile asbestos (found in backing only)

Item 2; Z4405: 20% chrysotile asbestos (found in backing only)

Item 3; Z4403: Tan layer: 20% chrysotile asbestos (found in backing only)
Blue layer: No asbestos found

Item 4; Z4406: 10% chrysotile asbestos

EXHIBIT # 3

written motion explaining why evidence was not presented to the hearing officer.[9]

Alternatives The Commission may:

1. As requested by Petitioner, reverse the ALJ's decision, based on the reasoning offered by Petitioner. Making this determination would require the Commission to make a finding that Petitioner's Exceptions are supported by the record and do not constitute new evidence.
2. As requested by the Department, uphold the ALJ's Proposed Order that Petitioner failed to require a Department-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owns and is liable for the $7,132 civil penalty. Making this determination would require the Commission to make a finding that the Department's Response to Petitioner's Exceptions is supported by the record and does not constitute new evidence.
3. Uphold the ALJ's decision, but adopt different reasoning.
4. Determine that the case cannot be decided without considering the new evidence, and therefore remand the case to the ALJ for a further proceeding to consider new evidence.

Attachments

A. Department's Response to Petitioner's Exceptions and Brief, dated February 19, 2004.
B. Letter from Mikell O'Mealy to Bryan Smith, dated February 17, 2004.
C. Letter from Bryan Smith to Mikell O'Mealy, dated February 12, 2004.
D. Petitioner's Exceptions and Brief, dated January 11, 2004.
E. Letter from Mikell O'Mealy to Petitioner, dated December 18, 2003.
F. Petitioner's Petition for Commission Review, dated December 10, 2003.
G. Proposed Order for Assessment of Civil Penalty, dated on or about November 28, 2003.
H. Notice of Hearing and Contested Case Rights, dated September 17, 2003.
I. Petitioner's Answer and Request For Hearing, dated July 20, 2003.
J. Notice of Assessment of Civil Penalty, dated July 3, 2003.
K. Exhibits from Hearing of October 7, 2003.
    1. Photographs taken by David Wall of the Department on April 14, 2003.
    2. Diagram of the house on the Property made by David Wall.
    3. Email from Liliana Echeverria to David Wall, dated April 15, 2003.

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[9] *Id.* at (4).

20030314

Analytical Report

5635 N.E. 15th, Portland, OR

Sampling Event: 20030314

Report to: Wall, Dave, Oregon Department of Environmental Quality **Print Date: 04/30/2003**

DEQ
State of Oregon
Department of
Environmental
Quality

Laboratory Division
1712 SW 11th Avenue
Portland, OR 97201
Phone: (503) 229-5983
(800) 452-4011
Fax: (503) 229-6924

www.deq.state.or.us

Final Report Approved by:

Mary Abrams, Laboratory Manager

Chris Redman, Laboratory QA Manager

EXHIBIT # 4 of

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

The official final laboratory report carries the original signatures of the laboratory Quality Assurance Officer and Division Administrator, and is retained by the laboratory. All unsigned and electronic copies of this report are unofficial copies of the original document. The title page of the report bears the name of the primary document recipient. Questions as to the integrity of the data contained in this report should be directed first to the report's primary recipient and second to the laboratory. The laboratory maintains all raw data and records from which this report has been generated for a period of no less than five years. Additional electronic and/or printed copies of this report can be obtained by contacting the laboratory.

The DEQ Laboratory employs in its operations standard analytical methods that have been adopted by governing agencies for their specific application to sample matrices and regulatory programs of interest. In cases where standard analytical methods have not been promulgated, the laboratory has developed "in-house" methods which are consistent with best laboratory operating practices that will result in data of a quality appropriate for the intended use of information. Furthermore, all data has been scrutinzed for adherence to established Quality Assurance/Quality Control (QA/QC) guidelines. Unless otherwise noted, the information contained in this report meets all the aforementioned requirements as documented in the laboratory's Quality Assurance Manual and Standard Operating Procedures. Specific deviations from these requirements are noted, as appropriate, in this report. Questions or concerns regarding the contents of this report can be addressed by contacting the DEQ laboratory at 503.229.5983.

Att: Request for Analysis

cc: DEQ Laboratory File

Sample Collector:
Dave Wall, Oregon Department of Environmental Quality

Analytical Laboratory:
Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

The official final laboratory report carries the original signatures of the laboratory Quality Assurance Officer and Division Administrator, and is retained by the laboratory. All unsigned and electronic copies of this report are unofficial copies of the original document. The title page of the report bears the name of the primary document recipient. Questions as to the integrity of the data contained in this report should be directed first to the report's primary recipient and second to the laboratory. The laboratory maintains all raw data and records from which this report has been generated for a period of no less than five years. Additional electronic and/or printed copies of this report can be obtained by contacting the laboratory.

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Att: Request for Analysis

cc: DEQ Laboratory File

Sample Collector:
Dave Wall, Oregon Department of Environmental Quality

Analytical Laboratory:
Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Sampling Event Summary

Sampling Subproject:

16 (26302) Asbestos Monitoring

Sample Summary

Item	QA	Station		Sample Matrix	Sample Date / Time
001	S	30203	5633 N.E. 15th, Portland, OR Backyard in roll, vinyl	Const. Material	14-Apr-2003 14:00
002	S	30203	5633 N.E. 15th, Portland, OR Truck #1	Const. Material	14-Apr-2003 14:00
003	S	30203	5633 N.E. 15th, Portland, OR Truck #2	Const. Material	14-Apr-2003 14:00
004	S	30203	5633 N.E. 15th, Portland, OR Truck #3	Const. Material	14-Apr-2003 14:00

Key to QA/QC Types

S = Sample

EXHIBIT # 12

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Item	Parameter	Method	Result

001 S 30203 5633 N.E. 15th, Portland, OR Backyard in roll, vinyl, 04/14/2003 14:00

General Chemistry

Percent Asbestos	DEQ Asbestos	Macro: Beige flooring with a paper-like backing. Micro: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material

002 S 30203 5633 N.E. 15th, Portland, OR Truck #1, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Beige flooring with a paper-like backing. Micro: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material

003 S 30203 5633 N.E. 15th, Portland, OR Truck #2, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Two layers Beige flooring with a paper-like backing and blue flooring with dark brown mastic. Micro: Beige layer: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material Blue layer: No asbestos found non-fibrous minerals synthetic material mastic

004 S 30203 5633 N.E. 15th, Portland, OR Truck #3, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Gray cementitious material with one surface grooved and painted greenish blue. Micro: 10% chrysotile asbestos carbonate material non-fibrous minerals

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Item	Parameter	Method	Result

001 S 30203 5633 N.E. 15th, Portland, OR Backyard in roll, vinyl, 04/14/2003 14:00

General Chemistry

Percent Asbestos	DEQ Asbestos	Macro: Beige flooring with a paper-like backing. Micro: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material

002 S 30203 5633 N.E. 15th, Portland, OR Truck #1, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Beige flooring with a paper-like backing. Micro: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material

003 S 30203 5633 N.E. 15th, Portland, OR Truck #2, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Two layers Beige flooring with a paper-like backing and blue flooring with dark brown mastic. Micro: Beige layer: 20% chrysotile asbestos (found in backing only) plant fiber non-fibrous minerals synthetic material Blue layer: No asbestos found non-fibrous minerals synthetic material mastic

004 S 30203 5633 N.E. 15th, Portland, OR Truck #3, 04/14/2003 14:00

Percent Asbestos	DEQ Asbestos	Macro: Gray cementitious material with one surface grooved and painted greenish blue. Micro: 10% chrysotile asbestos carbonate material non-fibrous minerals

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Item	Parameter	Method	Result

EXHIBIT # _____

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OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Request for Analysis

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Site (address or name): RESIDENCE 5635 NE 15th
PORTLAND, OREGON

LASAR Station Number: 30203

Lat/Long (decimal degrees): 45.5635 -122.650 (Only required if new LASAR Station) RUSH

Sampling Event#: 20030314

Collected By: Dave WALL

Date Collected: 4-14-03

Sampling Subproject (fund code): 26302

Item #	Sampling Location	Sample description	Bag or Container I.D.	Time	Tests Required	Comments
1	Back YARD in Roll VINYL	Sheet Vinyl Beige	Z 4401	2:00 pm	Micro for Asbestos	This was in OLD Remnant ROLL
2	TRuck	Sheet Vinyl Beige	Z 4405	2:00 pm	" " "	
3	TRUCK	Sheet Vinyl Redish w/Blue TILE	Z 4403	2:00 pm	" " "	
4	TRUCK	SIDING	Z 4406	2:00 pm	" " "	
5						
6						

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 3

Relinquished by: Dave Wall Date/Time: 4-14-03 3:36 pm

Received by: [signature] Date/Time: 4/14/03 3:36 PM

Received by analyst: [signature] Date/Time: 4/14/03 3:54 pm

or locked in Room US1B: Date/Time:

Comments:

End Report
04/30/2003 15:36

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030314 5635 N.E. 15th, Portland, OR

Request for Analysis

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Site (address or name): RESIDENCE 5635 NE 15TH PORTLAND, OREGON
LASAR Station Number: 30203
Lat/Long (decimal degrees): 45.5635 -122.6572 (only required if new LASAR Station)

Sampling Event: 20030314
Collected By: DAVE WALL
Date Collected: 4-14-03
Sampling Subproject (fund code): 26302

RUSH

Item #	Sampling Location	Sample description	Bag or Container I.D.	Time	Tests Required	Comments
1	Back YARD in Roll VINYL	Sheet Vinyl Beige	Z 4401	2:00 pm	Micro for Asbestos	This was in OLD Remnant ROLL
2	TRUCK	Sheet Vinyl Beige	Z 4405	2:00 pm	" " "	
3	TRUCK	Sheet Vinyl Reddish w/BLUE TILE	Z 4403	2:00 pm	" " "	
4	TRUCK	SIDING	Z 4406	2:00 pm	" " "	
5						
6						

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 3

Relinquished by: Dave Wall Date/Time: 4-14-03 3:36 pm
Received by: [signature] Date/Time: 4/14/03 3:36 PM
Received by analyst: [signature] Date/Time: 4/14/03 3:50 pm
or locked in Room 126 Rfr: Date/Time:

Comments:

End Report

INSPECTION REPORT **ASBESTOS FILE**

COUNTY: Multnomah **SOURCE NAME:** Residence

SOURCE ADDRESS: 5633 NE 15th
Portland, Oregon 97211

OFFICIAL (S) CONTACTED: Vladimir Ozeruga, owner

Source #: 28619 **Inspection Date:** April 14, 2003
Inspection #: 1 **Prep Time:** 5 min.
Trans Time: 15 min. **Inspection Time:** 40 min.
Paper Time: 1 hr. **Performance Reqts:** No
Monitoring & reporting: N

Violations: No notification, open accumulation, non licensed contractor, no wetting.
Safety Equipment Used: Gloves

ADDITIONAL INFORMATION:

This inspection was done because of a citizen complaint. The complainant said that workers were tearing off asbestos siding with no precautions and it was strewn all around the house.

When I got to the site I talked with several workers (Russian I think) who said they didn't know anything about the siding removal and they referred me to the owner Mr. Ozeruga. I walked around the house and found small pieces of cement siding and some remnant pieces of sheet vinyl. There was a Ford F550 flat bed truck there, license # ZMP 131, that had debris from the residence in it. I found two different types of sheet vinyl and cement siding. I sampled these materials. The sheet vinyl, samples Z4405 (reddish in color), Z4403 (beige), Z4401 (beige) all contained 20% asbestos. The cement siding, sample Z4406 contained 10% asbestos.

After collecting the samples I called Mr. Ozeruga and tried to explain to him what was going on. I related that he needed to hire a licensed asbestos contractor to clean up around the house and to decontaminate the truck. Ozeruga argued that the material did not contain asbestos and said he would have samples taken for analysis. I told him that was okay but that he needed to initiate clean up right away. He kept arguing that the material was not asbestos and then hung up.

I left one of Ozeruga's workers a list of asbestos contractors and a copy of our rules and explained to the worker that the stuff needed to be cleaned up. I'm not sure if I was successful explaining to the worker or to Ozeruga the gravity of the situation.

Signature: Dave Wall
Date: April 14, 2003

EXHIBIT # 5

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

April 21, 2003

VALDIMIR OZERUGA
PO BOX 11778
PORTLAND OR 97211

RE: **NOTICE OF NONCOMPLIANCE**
NWR-ASB-03-025
MULTNOMAH COUNTY

Dear Mr. Ozeruga:

On April 11 2003 DEQ received a complaint that asbestos-containing cement siding was being removed improperly by workers at the residence located at 5633 NE 15th in Portland, Oregon. I inspected the site on April 14, 2003. During that inspection I found evidence of cement siding on the ground around and in the driveway of the above residence. I also found sheet flooring and cement siding in a flatbed truck in the driveway of this residence. Sheet vinyl flooring and cement siding are known to contain asbestos. I sampled these materials and the DEQ lab made a determination that the sheet flooring contained 20% asbestos and that the cement siding contained 10% asbestos.

Asbestos fibers pose a significant health threat to public and the environment. Persons exposed to asbestos fibers can contract a number of diseases including asbestosis and cancer. DEQ asbestos regulations were written to prevent asbestos fiber release and exposure. Allowing your workers to remove or disturb asbestos containing material is a violation of the asbestos regulations. The specific violations are listed below:

Class of violation is meant to weigh the severity of the violation. A class I violation is the most severe and a class III violation is the least severe.

Class I Violations: OAR 340-012-050(1) (p) & (r)

OAR 340-248-0205(1)

No person may openly accumulate friable asbestos materials or asbestos-containing waste material.

EXHIBIT # 6

PAGE 74

OAR 340-248-0110(3)

Any contractor that performs an asbestos abatement project must be licensed by the Department under the provisions of OAR 340-248-120.

Class II Violation: OAR 340-012-050(1) (i)

OAR 340-248-0260

Except as provided for in OAR 340-248-0250, written notification of any asbestos abatement project must be provided to the Department on a form prepared by and available from the Department, accompanied by the appropriate fee.

I am sending you this notice to inform you about the violations of the asbestos rules. By allowing your workers to remove asbestos siding in a manner that rendered the siding into a friable condition and remove friable asbestos sheet flooring from the basement stairwell of the above residence several very serious violations of the asbestos rules were committed. This resulted in the likelihood of exposure to your employees and to neighboring residences.

These are Class I and Class II violations and are considered to be serious violations of Oregon environmental law. Therefore, we are referring this violation to the Department's Office of Compliance and Enforcement with a recommendation to initiate a formal enforcement action. A formal enforcement action may include a civil penalty assessment for each day of violation.

I have enclosed copies of our rules and other documents for your information and use. If you have any questions about this matter please contact me at (503) 229-5364.

Sincerely,

David E. Wall
Asbestos Control Analyst

DEW: d
Enclosure

cc: Enforcement Section, DEQ
Oregon OSHA, Region 1

OAR 340-248-0110(3)

Any contractor that performs an asbestos abatement project must be licensed by the Department under the provisions of OAR 340-248-120.

Class II Violation: OAR 340-012-050(1) (i)

OAR 340-248-0260

Except as provided for in OAR 340-248-0250, written notification of any asbestos abatement project must be provided to the Department on a form prepared by and available from the Department, accompanied by the appropriate fee.

I am sending you this notice to inform you about the violations of the asbestos rules. By allowing your workers to remove asbestos siding in a manner that rendered the siding into a friable condition and remove friable asbestos sheet flooring from the basement stairwell of the above residence several very serious violations of the asbestos rules were committed. This resulted in the likelihood of exposure to your employees and to neighboring residences.

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I have enclosed copies of our rules and other documents for your information and use. If you have any questions about this matter please contact me at (503) 229-5364.

Sincerely,

David E. Wall
Asbestos Control Analyst

DEW: d
Enclosure

cc: Enforcement Section, DEQ
Oregon OSHA, Region 1

Attachment K7

N

ASN 1 DEQ PROJECT NOTIFICATION FORM

For Removal or Encapsulation of Friable Asbestos-Containing Material

For DEQ use only
Date Received APR 16 2003
Amount Received 52.50
Check Number 26144
Project Number 28652

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any friable asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

PROJECT CATEGORY AND NOTIFICATION FEE

Per Dave Hall

✓ EMERGENCY (Emergency notifications require a 50% fee increase)

A. ✓ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material or for each residential abatement project.
B. ____ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
C. ____ $275 for projects from 260 to 1299 linear feet or 160 to 799 square feet of asbestos-containing material.
D. ____ $375 for projects from 1300 to 2599 linear feet or 800 to 1599 square feet of asbestos-containing material.
E. ____ $650 for projects from 2600 to 4999 linear feet or 1600 to 3499 square feet of asbestos-containing material.
F. ____ $750 for projects from 5000 to 9999 linear feet or 3500 to 5999 square feet of asbestos-containing material.
G. ____ $1,200 for projects from 10,000 to 25,999 linear feet or 6000 to 15,999 square feet of asbestos-containing material.
H. ____ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material.
I. ____ $2,500 for projects 260,000 linear feet or more or 160,000 square feet or more of asbestos-containing material.

1. Is this a revision to a previous notification? Yes ____ No ✓
2. Asbestos abatement project starting date: 4/17/03 Completion date: 4/17/03
3. Project site name: VLADIMIR OZERUGA RESIDENCE
   Address: 5633 NE 15TH AVE (Street Address) (Apt #, Floor #, Bldg #) PORT (City) MULT (County) 97211 (ZIP)
4. Property Owner: VLADIMIR OZERUGA
   Address: P.O. BOX 11778 (City) PORT. (State) OR. 97211 (ZIP)
5. Site Contact: VLADIMIR O. Phone: 503-969-8395
6. Type of structure: SINGLE STORY - WOOD - FRAMED HOUSE
7. Present use of structure: UNDER REMODEL FOR RESIDENCE
8. Was a survey performed? Yes: ____ No: ✓
   Who performed the survey? PRESUMED
9. Will this be a complete demolition? Yes: ____ No: ✓
   If yes, give demolition start date: N/A
10. Type of asbestos-containing material and where it is located in facility: REMNANT CAB SIDING AROUND EXT. PERIMETER, SHEET FLOOR GOODS BACK DOOR LANDING - HEPA VAC BACK OF TRUCK
11. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: ____ Square feet: 550
12. Abatement Contractor Name: LAKE OSWEGO INS. Co.
    Address: 0425 SW IOWA (City) PORT OR (State) 97239 (ZIP)
    Phone: 503-245-6460
    DEQ license number: FSC 513
13. Describe method of removal or encapsulation: MANUAL PICK UP OF REMNANT SIDING IN LAWN & FLOWER BEDS HEPA VAC TRUCK BED & DRIVE WAY FULL NEG PRES ENCLOSURE ON SHEET GOODS
14. Days of week and hours of day to be worked: THURSDAY - 8AM TO 12 NOON
15. Oregon Certified Supervisor on this project: GENE TRESILCOCK
    Oregon Certification #: 509393
16. Asbestos disposal site: HILLSBORO LANDFILL
    Address: 3205 SE MINTER BRIDGE RD
17. Waste Hauler: FLANNERY HAULING
    Phone: 503-777-2854
    Name of owner, operator, or abatement contractor: LAKE OSWEGO INSULATION CO.
19. Signature: [signature] Date: 4/16/03 Phone: 503-245-6460

Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office in Portland NWR (503) 229-5265, Bend ER (541) 388-8283, Medford WR (541) 776-6262, or Salem WR (503) 378-4196.

EXHIBIT # 7

(Revised 12/01)

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

Date: June 23, 2003
To: File
From: Les Carlough, Senior Policy Advisor, Office of Compliance and Enforcement
Subject: Ben calculation for Vladimir Petrovitch Ozeruga.

General Purpose and Authority

The economic benefit portion of the civil penalty formula is simply the monetary benefit that an entity gained by not complying with the law. It is designed to "level the playing field" by taking away any economic advantage the entity gained and to deter potential violators from deciding it is cheaper to violate and pay the penalty than to pay the costs of compliance.

Oregon Revised Statute 468.130(2)(c,h) directs the Environmental Quality Commission to consider economic conditions of the entity in assessing a penalty as well as other factors that Commission makes relevant by rule. Accordingly, the Commission specified in Oregon Administrative Rule (OAR) 340-012-0045(1)(c)(F) that the penalty will contain an "approximated dollar sum of the economic benefit." That rule also specifies that, "[i]n determining the economic benefit component of a civil penalty, the Department may use the U.S. Environmental Protection Agency's BEN computer model . . ." and must use it on request of a respondent.

Theory of Economic Benefit

Compliance with environmental regulations may require an entity to expend financial resources. These expenditures support the public goal of better environmental quality, but often do not yield direct financial return to the entity. "Economic benefit" represents the financial gain that a violating entity accrues by delaying and/or avoiding such expenditures. Funds not spent on environmental compliance are available for other profit-making activities or, alternatively, the entity avoids the costs associated with obtaining additional funds for environmental compliance (opportunity cost). Economic benefit is the amount by which an entity is financially better off from not having complied with environmental requirements in a timely manner.

Economic benefit is "no fault" in nature. An entity need not have deliberately chosen to delay compliance (for financial or any other reasons), or in fact even have been aware of its noncompliance, for it to have accrued the economic benefit of noncompliance.

An appropriate economic benefit calculation represents the amount of money that would make the entity indifferent between compliance and noncompliance. If DEQ does not recover, through a civil penalty, at least this economic benefit, then the entity will retain a gain.

EXHIBIT # 8

Because of the precedent of this retained gain, other regulated companies may see an economic advantage in similar noncompliance, and the penalty will fail to deter potential violators. Economic benefit is designed to be neither punitive nor tort damage, but instead is the minimum amount by which the entity must be penalized so as to return it to the position it would have been in had it complied on time.

Basis of the Costs Considered

Mr. Ozeruga should have hired an asbestos abatement contractor to remove asbestos-containing siding and flooring at a cost of approximately $2,500, Instead, he had his workers perform that work. The cost of cleaning up the area after the work was done incorrectly was $500, yielding a net avoided cost of $2,000. By avoiding $2,000 in costs of the project, Mr. Ozeruga benefited by **$1,132**.

Applicability of Standard Rates Presumed by Rule

The BEN model relies on income tax rates, inflation rates, and discount rates. The model allows the operator to input particular rates, but in the absence of operator input, the BEN model uses standard values based on the entity's corporate status, whether it acted for profit, and the state where the violations occurred. It calculates inflation rates from the Plant Cost Index published by the magazine *Chemical Engineering* and from the Consumer Price Index. EPA updates the standard values annually.

Pursuant to OAR 340-012-0045(1)(c)(F)(iii), the "model's standard values for income tax rates, inflation rate and discount rate shall be presumed to apply to all Respondents unless a specific Respondent can demonstrate that the standard value does not reflect the Respondent's actual circumstance."

Description of the Attached Run

BEN calculates the economic benefits gained from delaying and avoiding required environmental expenditures. Such expenditures can include: (1) capital investments (*e.g.*, larger pollution control or monitoring equipment, costs of design and installation), (2) one-time nondepreciable expenditures (*e.g.*, permit fees, clean-up costs, setting up a reporting system, acquiring land needed for a capital improvement), (3) annually recurring costs (*e.g.*, routine operating and maintenance costs, utilities). Each of these expenditures can be either delayed or avoided. BEN's baseline assumption is that capital investments and one-time nondepreciable expenditures are merely delayed over the period of noncompliance, whereas annual costs are avoided entirely over this period.

Because of the precedent of this retained gain, other regulated companies may see an economic advantage in similar noncompliance, and the penalty will fail to deter potential violators. Economic benefit is designed to be neither punitive nor tort damage, but instead is the minimum amount by which the entity must be penalized so as to return it to the position it would have been in had it complied on time.

Basis of the Costs Considered

Mr. Ozeruga should have hired an asbestos abatement contractor to remove asbestos-containing siding and flooring at a cost of approximately $2,500, Instead, he had his workers perform that work. The cost of cleaning up the area after the work was done incorrectly was $500, yielding a net avoided cost of $2,000. By avoiding $2,000 in costs of the project, Mr. Ozeruga benefited by **$1,132**.

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The calculation incorporates the economic concept of the "time value of money." Stated simply, a dollar today is worth more than a dollar tomorrow, because you can invest today's dollar to start earning a return immediately. Thus, the further in the future the dollar is, the less it is worth in "present-value" terms. Similarly, the greater the time value of money (*i.e.*, the greater the "discount" or "compound" rate used to derive the present value), the lower the present value of future costs. To calculate an entity's economic benefit, BEN uses standard financial cash flow and net-present-value analysis techniques based on modern and generally accepted financial principles, which were subjected to extensive national notice-and-comment processes.[1]

Inputs to the model include costs specific to the situation of the entity as well as the presumed standard indexes and rates described in the section above. These values are listed in the lower three-quarters of the table. Using these values, BEN makes a series of calculations listed at the top of the table as follows:

A) On-Time Capital & One-Time Costs. What compliance would have cost had the entity complied on-time, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
B) Delay Capital & One Time Costs. What late compliance did cost, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period. This value will be zero if the costs were avoided.
C) Avoided Annually Recurring Costs. This sum is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
D) Initial Economic Benefit (A – B+C). The delayed-case present value is subtracted from the on-time-case present value plus the sum of the avoided costs to determine the initial economic benefit as of the noncompliance date.

---

[1] *See* Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Request for comment, 61 Fed. Reg. 53025-53030 (Oct. 9, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Extension of time for request for comment, 61 Fed. Reg. 65391 (Dec. 12, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 32947-32972 (June 18, 1999); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 39135-39136 (July 21, 1999).

EXHIBIT #

E) Final Economic Benefit at Penalty Payment Date. BEN compounds the initial economic benefit forward to the penalty payment date at the same cost of capital to determine the final economic benefit of noncompliance.

Calculated Economic Benefit Likely an Underestimate

The economic benefit calculated above may underestimate the total economic benefit that the respondent received to date because it does not address uncertain indirect financial benefits, including:

- *Advantage-of-risk* – the value of (1) the risk of never getting caught and (2) keeping future options open by delaying a decision to institute a process or purchase capital.
- *Competitive advantage* – (1) beginning production earlier than would be possible if in compliance; (2) attracting clients by avoiding compliance costs, having a higher profit margin and therefore being able to offer goods or services at a lower cost than competitors; (3) keeping those clients attracted by lower prices because of brand loyalty or high switching costs; or (4) using the time or money saved to increase production.
- *Illegal profits* – selling illegal products or services.

However, I consider these other economic benefits to be "de minimis" in light of the difficulties in calculation. Pursuant to OAR 340-012-0045(1)(c)(F)(ii), the Department need not calculate an economic benefit if that benefit is de minimis.

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Run Name =	one
Present Values as of Noncompliance Date (NCD),	11-Apr-2003
A) On-Time Capital & One-Time Costs	$1,097
B) Delay Capital & One-Time Costs	$0
C) Avoided Annually Recurring Costs	$0
D) Initial Economic Benefit (A-B+C)	$1,097
E) Final Econ. Ben. at Penalty Payment Date,	
01-Aug-2003	**$1,132**
For-Profit (not C-Corp.) w/ OR tax rates	
Discount/Compound Rate	10.8%
Discount/Compound Rate Calculated By:	BEN
Compliance Date	01-Aug-2003
Capital Investment:	
Cost Estimate	$0
Cost Estimate Date	N/A
Cost Index for Inflation	N/A
# of Replacement Cycles; Useful Life	N/A; N/A
Projected Rate for Future Inflation	N/A
One-Time, Nondepreciable Expenditure:	avoided
Cost Estimate	$2,000
Cost Estimate Date	18-Jun-2003
Cost Index for Inflation	PCI
Tax Deductible?	Y
Annually Recurring Costs:	
Cost Estimate	$0
Cost Estimate Date	N/A
Cost Index for Inflation	N/A
User-Customized Specific Cost Estimates:	N/A
On-Time Compliance Capital Investment	
Delay Compliance Capital Investment	
On-Time Compliance Replacement Capital	
Delay Compliance Replacement Capital	
One-Time Compliance Nondepreciable	
Delay Compliance Nondepreciable	

EXHIBIT #

Attachment K-9

SMITH Bryan

From: WALL Dave
Sent: Wednesday, June 18, 2003 1:19 PM
To: SMITH Bryan
Cc: WALL Dave

Okay here it is.

I called Lake Oswego Insulation (They did the clean up) and Ken Brien told me that he charged Mr. Ozeruga $500.00 for the clean up. The clean up consisted of workers picking up what was left of the CAB pieces around the house, HEPA vacuuming the back stairwell and landing (kitchen to basement), and cleaning the flat bed truck. The material that was in the truck had been removed and put into garbage bags by Ozeruga and taken to Lake Oswego's Office where Brien provided Ozeruga with bags so he could repackage the material. (Brien did not tell him to bring the stuff over, Ozeruga just showed up.

Brien told me he thought they would have charged about $2500.00 to remove the siding and flooring.

I estimated the flooring at 20 to 30 square feet and the siding to 1500-2000 square feet.

I still don't think Ozeruga knew that there was asbestos in these materials.

Let me know if you need anything else.

Dave Wall

(503) 229-5364
wall.dave@deq.state.or.us

EXHIBIT # 9

84

In his Conclusions of Law, the ALJ found that:

1. Petitioner allowed unlicensed workers to perform an asbestos abatement project on his property.
2. The civil penalty assessed by the agency was not appropriate.

Issues On Appeal:

In his Exceptions and Brief (Attachment D), Petitioner requests that the Commission adopt alternate findings of fact and alternate conclusions of law, and reverse the Administrative Law Judge's conclusion that Petitioner is liable for the violation.

In its Response Brief (Attachment A), the Department requests that the Commission uphold the Proposed Order.

Petitioner's First Exception

First, Petitioner argues that the house is not a "facility" because it is not equipped to serve others, and therefore not subject to the requirements of ORS 468A.715(1), which provides, in relevant part, that "an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects."

The Department responds that the house owned by Petitioner is a facility because the relevant definition of "facility" at OAR 340-248-0110(24) includes "all or part of any public or private building…".

The ALJ found that Petitioner is the owner of the house, and therefore subject to the requirements of ORS 468.715(1). (see Attachment G, p. 3)

Petitioner's Second Exception

Petitioner argues that the people who helped him perform the asbestos abatement project were not "workers" because they were his family members. Petitioner also argues that he and his family members do not need to be licensed by the state of Oregon to conduct an asbestos abatement project on his house.

The Department replies that the relevant rules do not distinguish between workers and family members; ~~therefore~~ family members are considered workers

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
811 SW 6th Avenue
Portland, OR 97204

Number _____

Attachment K-10
Date Resolved _____

POLLUTION COMPLAINT

Pollution Type:

AQ X WQ ____ HW ____ SW ____
Odor ____ BYB ____ Oil ____ OSS ____

Date: 4-11-03

Time: _____

Date and Time Observed: 4-11-03

Source: NEIGHBOR REMOVING Siding. USING NO precautions. Putting waste in dumpster

Location: 5635 NE 15th ½ Block off Killingsworth

Description: No containment — no wetting — no Bagging. DEBRIS IN YARD

Reported by: Name: TED SNYDER

Address: _____

City: _____ Zip _____

County: _____ Home Phone: 282-7435 Work Phone: _____

In person ☐ Letter ☐ Phone ☑ Complaint taken by Susan Patterson

Referred to: (Agency or Person) Dave Wall

Action Taken: Site visit — violation sent NCN and Referring for CPA.

EXHIBIT # 10

DEQ/RO-100-12/87

State of Oregon
Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item D: Contested Case No. AQ/AB-NWR-03-134 regarding William M. McClannahan, October 22, 2004 EQC Meeting

Appeal to EQC

On May 11, 2004, William M. McClannahan (Petitioner) appealed the Proposed Order (Attachment I) which assessed him a $10,000 civil penalty for failing to require a Department-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owned.

Background

The Department issued Petitioner a Notice of Civil Penalty Assessment (Notice) (Attachment L). The Notice alleged that Petitioner violated Oregon Revised Statute (ORS) 468A.715(1) and Oregon Administrative Rule (OAR) 340-248-0110(2) by allowing Palmer's & Sons Construction, Inc., an unlicensed contractor, to perform an unlicensed asbestos abatement project on a facility he owned.

On September 23, 2003, Petitioner appealed the Notice. On March 4, 2004, a contested case hearing was held, and on April 19, 2004, the Administrative Law Judge (ALJ) issued a Proposed Order (Attachment I) holding that Petitioner was liable for the violation and upholding the Department's $10,000 civil penalty. Petitioner filed a petition for Environmental Quality Commission (the Commission) review of the Proposed Order on May 11, 2004.

Findings of Fact (FOF) made by the ALJ in her Proposed Order are summarized as follows:

Petitioner owns property located at Theater Lane, off of Highway 395, in Hermiston, Oregon (the Property). The Property includes a drive-in-theater. (see FOF 1 in Attachment I) The theater's movie screen was approximately 60 feet wide by 100 feet high, and was composed of friable asbestos- containing material (ACM). The movie screen was badly weathered, and some of the screen panels had fallen to the ground of the Property. (see FOF 2)

On or about May 1, 2003, Petitioner entered into a contract with Palmer's & Sons Construction, Inc. (Palmer's)[1] for demolition and removal of the movie screen.

[1] The Department assessed Palmer's a civil penalty of $9,600 for the open accumulation of asbestos-containing waste material. A contested case hearing was held and the ALJ upheld the

(FOF 4) On or about May 7, 2003, Palmer's and its agents demolished the screen and then piled the broken pieces of the friable asbestos-containing waste material (ACWM) in the back of Palmer's open truck. (FOF 6)

On or about May 7, 2003, Patty Jacobs of the Department inspected the Property and observed a large quantity of broken pieces of theater screen in the back of Palmer's truck. Denis Palmer of Palmer's told Ms. Jacobs that a laboratory had already confirmed that the screen contained asbestos, but he believed that the screen was non-friable. Ms. Jacobs was concerned that the pieces of the screen were friable because they were irregularly broken. (FOF 6)

Ms. Jacobs took a sample of the theater screen, with Mr. Palmer's permission. (FOF 6) Laboratory analysis confirmed that the screen material contained 10% chrysotile asbestos. (FOF 8) Ms. Jacobs did not order Mr. Palmer to stop the demolition project because Mr. Palmer indicated to her that this was the "last load." (FOF 7) The asbestos-containing theater screen material in the truck caused the potential for public exposure to asbestos or the release of asbestos into the environment. (FOF 9)

Tom Hack of the Department determined that Petitioner was the owner of the property. Mr. Hack also learned that Denis Palmer had hired Maurice McDaniel as the foreman for the demolition project, and that Palmer's had also hired six workers from Atkinson Reforestation (Atkinson), a temporary labor service, to help perform the demolition project. Mr. Hack checked the Department's database and confirmed that neither Mr. Palmer, Mr. McDaniel, nor the six workers from Atkinson were licensed to perform asbestos abatement projects. (FOF 10)

On June 9, 2003, Mr. Hack contacted Petitioner, who acknowledged being the owner of the property. Petitioner also acknowledged that his son had told him that the screen might contain asbestos, and that the screen had become badly weathered. On June 9, 2003, Mr. Hack sent Petitioner a Notice of Noncompliance (NON) (Exhibit A6) for allowing Palmer's to perform an unlicensed asbestos abatement project. (FOF 11)

Department's assessment of the civil penalty. Palmer's appealed to the EQC, but failed to file its Exceptions and Briefs by the EQC's deadline. The Department filed a Motion to Dismiss Palmer's appeal, and that Motion is pending.

On June 11, 2003, Mr. Hack inspected the Property and observed approximately sixty square feet of broken screen material on the ground at an entirely different part of the Property than where Palmer's had demolished the screen. Mr. Hack took samples of the material, and laboratory analysis confirmed that the screen material contained 10% chrysotile asbestos. (FOF 12)

On June 25, 2003, Mr. Hack sent Petitioner a second NON. (Exhibit A14) This NON ordered Petitioner to have the remaining screen material abated from the Property by a licensed asbestos abatement contractor by June 30, 2003.

On July 1 and July 3, 2003, Becky Hillwig of the Oregon Occupational Safety and Health Administration (OSHA) inspected the Property and observed screen material on the ground of the property. Ms. Hillwig sampled the screen material, and laboratory analysis confirmed that the screen material contained between 10% and 20% chrysotile asbestos. (FOF 16)

On August 22, 2003, Mr. Hack inspected the Property and observed that the screen material was still present. (FOF 17) On August 27, 2003, Mr. Hack sent Petitioner a third NON (Exhibit A10) ordering him to immediately have the screen material abated from the Property by a licensed asbestos abatement contractor. (FOF 18)

On November 7, 2003, Mr. Hack inspected the property with Petitioner's attorney. The Property had been significantly altered due to construction on the adjoining parcel. Mr. Hack and Petitioner's attorney were unable to determine where Mr. Hack had previously seen the asbestos-containing screen material on the ground on June 11 and August 22, 2003. (FOF 19)

In order to determine the economic benefit that Petitioner received through failing to hire a licensed asbestos abatement contractor to properly demolish the theater screen, Mr. Hack spoke with a licensed asbestos abatement contractor who estimated that the cost to have a licensed asbestos abatement contractor properly abate and dispose of the theater screen would have been between $16,000 and $18,000. (FOF 21)

In her Conclusions of Law, the ALJ found that:

1. Petitioner allowed unlicensed asbestos abatement contractors to perform an asbestos abatement project on his property.

2. Petitioner allowed the open accumulation of asbestos-containing materials on his property.
3. The samples taken by the Department were properly tested to determine that they contained more than one percent asbestos by weight.
4. The Department's civil penalty assessment is appropriate.

Issues On Appeal:

In his Exceptions and Brief (Attachment F), Petitioner requests that the Commission adopt alternate findings of fact and alternate conclusions of law, and reverse the Administrative Law Judge's conclusion that Petitioner is liable for the violation.

In its Reply Brief (Attachment A), the Department requests that the Commission uphold the Proposed Order.

Petitioner's First Exception

Petitioner argues that the screen could have been legally demolished by an unlicensed contractor because the screen was non-friable due to its weight and composition, as Palmer's "took a sample of the material to a scale and weighed it and by the volume to be removed it was less than ½ the amount allowed." Petitioner also adds that "proof of this is in the receipt from the disposal site."

The Department responds that even if the record included this new evidence, the evidence would be irrelevant because it would not be possible to estimate a percent asbestos by weight in the manner suggested by Petitioner. Further, the Department maintains that the ALJ found that the samples taken by the Department were properly tested to determine that they contained more than one percent asbestos by weight. (Conclusion of Law 3)

The Department also maintains that this is new evidence that was not introduced at the hearing and was not considered by the ALJ. Only the ALJ can consider new evidence. (OAR 137-003-0655(5)) The Commission's rules require that a request to present additional evidence must be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the ALJ. (OAR 340-011-0132(4)) Petitioner did not submit a motion or a statement specifying the reason for his failure to present this evidence to the ALJ.

Petitioner has the burden of demonstrating that evidence supporting his assertion is in the record. (ORS 183.450(2)) The Petitioner has not submitted the record or a portion of the record showing this purported evidence. If the Commission determines that the assertions in Petitioner's Exceptions are based on evidence that is not in the existing record, it may not consider this evidence when evaluating Petitioner's Exceptions.

Petitioner's Second Exception

Petitioner argues that he was not liable for the violation of open accumulation of friable asbestos-containing material because the screen material was loaded onto a truck, immediately wrapped, and taken directly to the licensed landfill.

The Department replies that Petitioner's arguments are directly contradicted by the ALJ's Findings of Fact and the evidence in the record. The ALJ found that the screen material was not securely wrapped or packaged. (FOF 6) The ALJ did not find that the screen material was immediately taken to the landfill. Ultimately the ALJ concluded that Petitioner allowed the open accumulation of asbestos-containing materials on his property. (Conclusion of Law 2)

Petitioner has the burden of demonstrating that evidence supporting his assertion is in the record. (ORS 183.450(2)) The Petitioner has not submitted the record or a portion of the record showing this purported evidence. If the Commission determines that the assertions in Petitioner's Exceptions are based on evidence that is not in the existing record, it may not consider this evidence when evaluating Petitioner's Exceptions.

The Department notes that Petitioner was not penalized for the open accumulation of friable asbestos-containing material.

Petitioner's Third Exception

Petitioner states that "DEQ was contacted and asked if a special license was required" and the Department replied that no special license was required.

The Department maintains that this is new evidence that was not introduced at the hearing and was not considered by the ALJ. Only the ALJ can consider new evidence, and OAR 340-011-0132(4) requires that a request to present additional evidence must be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the ALJ. Petitioner

did not submit a motion or a statement specifying the reason for his failure to present this evidence to the ALJ.

Petitioner has the burden of demonstrating that this new evidence is in the record. The Petitioner has not submitted the record or a portion of the record showing that this purported evidence is in the record. If the Commission determines that Petitioner's new evidence is not based upon evidence in the existing record, it may not consider this evidence when evaluating Petitioner's Exception.

The Department also argues that the ALJ did not find that the Petitioner or Petitioner's contractor contacted the Department prior to demolishing the screen.

EQC Authority

The Commission has the authority to hear this appeal under OAR 340-011-0132.

The Department's contested case hearings must be conducted by an ALJ.[2] The Proposed Order was issued under current statutes and rules governing the ALJ Panel.[3]

Under ORS 183.600 to 183.690, the Commission's authority to change or reverse an ALJ's proposed order is limited.

The most important limitations are as follows:

(1) The Commission may not modify the form of the ALJ's Proposed Order in any substantial manner without identifying and explaining the modifications.[4]
(2) The Commission may not modify a recommended finding of historical fact unless it finds that the recommended finding is not supported by a preponderance of the evidence.[5] Accordingly, the Commission may not modify any historical fact unless it has reviewed the entire record or at least all portions of the record that are relevant to the finding.

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[2] ORS 183.635.
[3] ORS 183.600 to 183.690 and OAR 137-003-0501 to 137-003-0700.
[4] ORS 183.650(2).
[5] ORS 183.650(3). A historical fact is a determination that an event did or did not occur or that a circumstance or status did or did not exist either before or at the time of the hearing.

(3) The Commission may not consider any new or additional evidence, but may only remand the matter to the ALJ to take the evidence.[6]

The rules implementing these statutes also have more specific provisions addressing how Commissioners must declare and address any *ex parte* communications and potential or actual conflicts of interest.[7]

In addition, the Commission has established by rule a number of other procedural provisions, including:

(1) The Commission will not consider matters not raised before the ALJ unless it is necessary to prevent a manifest injustice. [8]
(2) The Commission will not remand a matter to the ALJ to consider new or additional facts unless the proponent of the new evidence has properly filed a written motion explaining why evidence was not presented to the hearing officer.[9]

Alternatives The Commission may:

1. As requested by Petitioner, reverse the ALJ's decision, based on the reasoning offered by Petitioner. Making this determination would require the Commission to make a finding that Petitioner's Exceptions are supported by the record and do not constitute new evidence.
2. As requested by the Department, uphold the ALJ's Proposed Order that Petitioner failed to require a Department-licensed asbestos abatement contractor to conduct an asbestos abatement project on a facility he owns and is liable for the $10,000 civil penalty. Making this determination would require the Commission to make a finding that the Department's Response to Petitioner's Exceptions is supported by the record and does not constitute new evidence.
3. Uphold the ALJ's decision, but adopt different reasoning.
4. Determine that the case cannot be decided without considering the new evidence, and therefore remand the case to the ALJ for a further proceeding to consider new evidence.

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[6] OAR 137-003-0655(5).
[7] OAR 137-003-0655(7), referring to ORS Chapter 244; OAR 137-003-0660.
[8] OAR 340-011-0132(3)(a).
[9] *Id.* at (4).

Attachments

A. Department's Response to Petitioner's Exceptions and Brief, dated August 10, 2004.
B. Letter from Andrea Bonard to Bryan Smith, dated July 22, 2004.
C. Letter from Bryan Smith to Mikell O'Mealy, dated July 22, 2004.
D. Letter from Mikell O'Mealy to Petitioner, dated July 9, 2004.
E. Letter from Petitioner to Mikell O'Mealy, dated July 7, 2004
F. Petitioner's Exceptions and Brief, dated June 16, 2004.
G. Letter from Mikell O'Mealy to Petitioner, dated May 18, 2004.
H. Petitioner's Petition for Commission Review, dated May 11, 2004.
I. Proposed Order for Assessment of Civil Penalty, dated on or about April 19, 2004.
J. Notice of Hearing and Contested Case Rights, dated February 10, 2004.
K. Petitioner's Answer and Request For Hearing, dated September 25, 2003.
L. Notice of Assessment of Civil Penalty, dated September 12, 2003.
M. Exhibits from Hearing of March 4, 2004.
    - R1. Sample of possible asbestos-containing material (not included with Staff Report).
    - R2. Facsimile of correspondence between Pamela and Maurice McDaniels, on Palmer's & Son's Construction, Inc. letterhead, dated May 10, 2003.
    - R3. Special Waste Permit and Instructions, signed by Pamela Pawelek, dated March 2 and April 30, 2003.
    - R4. Letter written by Denis Palmer, undated.
    - R5. Diagram of the Property.
    - A1. Asbestos sampling results, received by the Department on June 20, 2003.
    - A2. Photographs taken by Patty Jacobs on May 7, 2003.
    - A3. Umatilla County Assessment & Taxation documents sent from Tom Hack to Bryan Smith on February 25, 2004.
    - A4. Insurance Policy for Palmer's, and Contract between Palmer's and Petitioner, received by the Department on June 9, 2003.
    - A5. Phone memo written by Tom Hack, dated June 9, 2003.
    - A6. Notice of Noncompliance sent by Tom Hack to Petitioner on June 9, 2003, and certified mail receipt signed by Petitioner June 11, 2003, received by the Department on June 12, 2003.
    - A7. Photographs taken by Tom Hack on June 11, 2003.
    - A8. Asbestos sampling results, received by the Department on July 11, 2003.
    - A9. Asbestos sampling results for asbestos samples taken by Rebecca Hillwig, sent from Kermit McCarthy to Bryan Smith on February 25, 2004.

A10. Notice of Noncompliance sent by Tom Hack to Petitioner on August 27, 2003.
A11. Photographs taken by Tom Hack on November 7, 2003.
A12. Phone memo written by Tom Hack, dated June 30, 2003.
A13. Memo regarding Petitioner's Economic Benefit, written by Les Carlough, dated September 2, 2003.
A14. Notice of Noncompliance sent by Tom Hack to Petitioner on June 25, 2003, and Certified mail receipt signed by Petitioner on June 30, 2003, received by the Department on July 1, 2003.
A15. Email sent from Tom Hack to Petitioner, dated June 16, 2003.

Report Prepared by: Mikell O'Mealy
Assistant to the Commission
Phone: (503) 229-5301

Attachment A

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF: WILLIAM M. McCLANNAHAN,	)	DEPARTMENT'S ANSWERING BRIEF No. AQ/AB-ER-03-134
PETITIONER,	)	UMATILLA COUNTY

The Department of Environmental Quality (Department) submits this Answering Brief to the Environmental Quality Commission (Commission) for its consideration in the appeal of the Proposed Order in Notice of Violation, Department Order, and Assessment of Civil Penalty (Notice and Order) No. AQ/AB-ER-03-0134, filed by William M. McClannahan (Petitioner).

I. CASE HISTORY

1. Petitioner is the owner of property located on Theater Lane, off of Highway 395, in Hermiston, Oregon (the Property). The Property included a drive-in-theater. The theater's movie screen was approximately 60 feet wide by 100 feet high, and was composed of friable asbestos-containing material (ACM). The movie screen was badly weathered, and some of the screen panels had fallen to the ground of the Property. On or about May 1, 2003, Petitioner entered into a contract with Palmer's & Sons Construction, Inc. (Palmer's), for demolition and removal of the movie screen. On or about May 7, 2003, Palmer's and its agents demolished the screen. Palmer's and its agents then piled the broken pieces of the friable asbestos-containing waste material (ACWM) in the back of Palmer's' open truck, and did not package or label the friable ACWM. The demolition of the movie screen was an asbestos abatement project, and Palmer's and its agents were not licensed to perform asbestos abatement projects.

2. On September 12, 2003, the Department assessed Petitioner a civil penalty of $10,000 for allowing unlicensed contractors to perform an asbestos abatement project on property he owned. Petitioner appealed and a contested case hearing was held on March 4, 2004. On April 19, 2004, the Administrative Law Judge's (ALJ) issued a Proposed Order finding that Petitioner

/////

allowed unlicensed contractors to perform an asbestos abatement project on property he owned. The Proposed Order upheld the Department's assessment of a $10,000 civil penalty.

II. COMMISSION ACTION REQUESTED

The Department requests that the Commission issue a Final Order upholding the Administrative Law Judge's Proposed Order.

III. ADMINISTRATIVE LAW JUDGE'S CONCLUSIONS

The Administrative Law Judge concluded that: (1) Petitioner allowed unlicensed contractors to perform an asbestos abatement project on property he owned, and (2) Petitioner is subject to a civil penalty in the amount of $10,000.

IV. ARGUMENTS

A. ***The Screen Material was Friable Asbestos-Containing Material:*** Petitioner argues that the screen could have been legally demolished by an unlicensed contractor because the screen was non-friable due to its weight and composition. Petitioner argues that Palmer's "took a sample of the material to a scale and weighed it and by the volume to be removed it was less than ½ the amount allowed." Petitioner also adds that "Proof of this is in the receipt from the disposal site." However, this is new evidence that was not introduced at the hearing, and OAR 340-011-0132(4) requires that a request to present additional evidence must be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the hearing officer. Petitioner's request does not comply with this requirement. This new evidence would also be irrelevant because it would not be possible to estimate a percent asbestos by weight in the manner suggested by Petitioner. The ALJ, in evaluating all the evidence admitted at the hearing, determined that the movie screen was composed of 10% chrysotile asbestos by weight, and that the movie screen was friable.

B. ***Petitioner is Liable for the Open Accumulation of Friable Asbestos-Containing Material:*** Petitioner argues that he was not liable for the violation of open accumulation of friable asbestos-containing material because the screen material was loaded onto a truck, immediately wrapped, and taken directly to the licensed landfill. As support for this argument,

Petitioner argues that the Department's inspector said that when she left Petitioner's property the material was wrapped, labeled and driven to the landfill. Petitioner's arguments are contradicted by the ALJ's opinion and the evidence in the record. The ALJ found that the screen material was not securely wrapped, or even packaged, and was not immediately taken to the landfill. Additionally, the ALJ did not find that the Department's inspector testified that the screen material was wrapped and labeled when she left the Property. Instead, the ALJ found that the Department's inspector testified that she before she left the Property she told Palmer's to securely wrap and label the material, and further encouraged Palmer's to wet the material, because the screen material was unpackaged and unlabeled. The ALJ concluded that Petitioner was liable for the open accumulation of the screen material, causing the potential for public exposure to asbestos.

C. ***The Department Did Not Inform Petitioner that an Unlicensed Contractor Could Demolish the Movie Screen:*** Petitioner states that some unnamed person at the Department was contacted and asked if a special license was required in order to demolish the movie screen, and that the unnamed person replied that such a license was not required. This is new evidence that was not introduced at the hearing, and OAR 340-011-0132(4) requires that a request to present additional evidence must be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the hearing officer. Petitioner's request does not comply with this requirement. The ALJ did not find that Petitioner, or Petitioner's contractor, Palmer's, contacted the Department prior to demolishing the movie screen.

V. CONCLUSION

When friable asbestos-containing material is ripped or broken, microscopic asbestos fibers are released and become airborne. These fibers float with air currents and may be inhaled into the lungs, where they may cause asbestosis, mesothelioma, lung cancer, and other serious illnesses. The danger of contracting these diseases increases with the amount of exposure, but there is no known safe level of exposure. In reviewing the evidence and the testimony, the ALJ found that Petitioner allowed unlicensed contractors to perform an asbestos

abatement project on property he owns, causing the potential for public exposure to asbestos, and that Petitioner is liable for a civil penalty in the amount of $10,000. For the reasons stated above, the Department asks the Commission to issue a Final Order upholding the Proposed Order.

8/10/04
Date

Bryan Smith
Bryan Smith, Environmental Law Specialist

Attachment B

Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

July 22, 2004

Via Personal Delivery

Bryan Smith
Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

RE: AQ/AB-ER-03-134

Dear Mr. Smith:

Today, the Environmental Quality Commission received your request for clarification on the deadline for submitting the Department's reply brief in the above referenced case. You are correct that on July 9, 2004, the Commission granted William McClannahan's request for an extension of filing time of his exceptions and briefs until July 17, 2004. The Department now has 30 days, or until August 16, 2004 to submit a reply brief.

If you have any questions, please contact me at 503-229-5990.

Sincerely,

Andrea Bonard

Andrea Bonard
Acting Assistant to the Commission

cc: William McClannahan, P.O. Box 224, Umatilla, OR 97882

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

July 22, 2004

Department of Environmental Quality
Office of the Director
Mikell O'Mealy
811 SW 6th Avenue
Portland, OR 97204

Re: William M. McClannahan
Notice of Violation, Department Order and Assessment of Civil Penalty
No. AQ/AB-ER-03-134
Umatilla County

Dear Ms. O'Mealy:

On July 9, 2004, you sent a letter to William McClannahan informing him that in response to his July 7, 2004 letter, the Environmental Quality Commission (the Commission) has granted his request for an extension of filing time for his Exceptions and Briefs in this case until July 17, 2004.

Accordingly, my understanding of this letter is that, as the lay representative for the Department of Environmental Quality (the Department) in this case, I have until August 17, 2004, to file the Department's Response to Mr. McClannahan's Exceptions and Briefs.

Please inform me whether the Department's deadline is August 17, 2004, or some other date.

Sincerely,

Bryan Smith

Bryan Smith
Environmental Law Specialist

Attachment D

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

July 9, 2004

Via Certified Mail

William McClannahan
P.O. Box 224
Umatilla, OR 97882

RE: Agency Case Number AQ/AB-ER-03-134

Dear Mr. McClannahan:

On July 8, 2004, the Environmental Quality Commission (Commission) received your July 7, 2004 letter asking for a new hearing date. Based on my telephone conversation with you on July 7, I understand that you mean to ask for an extension of time to file your exceptions and briefs in the above-referenced case, because you misunderstood the filing deadline. Your exceptions and briefs were due on June 14, 2004, and you filed them on July 17, 2004. The Commission's legal counsel has advised that the Commission may grant an extension of filing time "after the fact," to accept your exceptions and briefs in this case and thus proceed with the appeal.

In response to your July 7 letter, the Commission has granted your request for an extension of filing time to July 17, 2004, and accepts your exceptions and briefs in this case. The Department now has the opportunity to file a reply brief, and you will receive a copy of this document. If you have any questions about this process, please call me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy
Assistant to the Commission

cc: Bryan Smith, Oregon Department of Environmental Quality

Oregon Administrative Rules 340-011-0575

Review of Proposed Orders in Contested Cases

(1) For purposes of this rule, filing means receipt in the office of the director or other office of the department.

(2) Following the close of the record for a contested case hearing, the administrative law judge will issue a proposed order. The administrative law judge will serve the proposed order on each participant.

(3) Commencement of Review by the Commission: The proposed order will become final unless a participant or a member of the commission files, with the commission, a Petition for Commission Review within 30 days of service of the proposed order. The timely filing of a Petition is a jurisdictional requirement and cannot be waived. Any participant may file a petition whether or not another participant has filed a petition.

(4) Contents of the Petition for Commission Review. A petition must be in writing and need only state the participant's or a commissioner's intent that the commission review the proposed order. Each petition and subsequent brief must be captioned to indicate the participant filing the document and the type of document (for example: Respondents Exceptions and Brief; Department's Answer to Respondent's Exceptions and Brief).

(5) Procedures on Review:

(a) Exceptions and Brief: Within 30 days from the filing of a petition, the participant(s) filing the petition must file written exceptions and brief. The exceptions must specify those findings and conclusions objected to, and also include proposed alternative findings of fact, conclusions of law, and order with specific references to the parts of the record upon which the participant relies. The brief must include the arguments supporting these alternative findings of fact, conclusions of law and order. Failure to take an exception to a finding or conclusion in the brief, waives the participant's ability to later raise that exception.

(b) Answering Brief: Each participant, except for the participant(s) filing that exceptions and brief, will have 30 days from the date of filing of the exceptions and brief under subsection (5)(a), in which to file an answering brief.

(c) Reply Brief: If an answering brief is filed, the participant(s) who filed a petition will have 20 days from the date of filing of the answering brief under subsection (5)(b), in which to file a reply brief.

(d) Briefing on Commission Invoked Review: When one or more members of the commission wish to review the proposed order, and no participant has timely filed a Petition, the chair of the commission will promptly notify the participants of the issue that the commission desires the participants to brief. The participants must limit their briefs to those issues. The chair of the commission will also establish the schedule for filing of briefs. When the commission wishes to review the proposed order and a participant also requested review, briefing will follow the schedule set forth in subsections (a), (b), and (c) of this section.

(e) Extensions: The commission or director may extend any of the time limits contained in section (5) of this rule. Each extension request must be in writing and filed with the commission before the expiration of the time limit. Any request for an extension may be granted or denied in whole or in part.

(f) Dismissal: The commission may dismiss any petition, upon motion of any participant or on its own motion, if the participant(s) seeking review fails to timely file the exceptions or brief required under subsection (5)(a) of this rule. A motion to dismiss made by a participant must be filed within 45 days after the filing of the Petition. At the time of dismissal, the commission will also enter a final order upholding the proposed order.

(g) Oral Argument: Following the expiration of the time allowed the participants to present exceptions and briefs, the matter will be scheduled for oral argument before the commission.

(6) Additional Evidence: A request to present additional evidence must be submitted by motion and must be accompanied by a statement showing good cause for the failure to present the evidence to the administrative law judge. The motion must accompany the brief filed under subsection (5)(a) or (b) of this rule. If the commission grants the motion or decides on its own motion that additional evidence is necessary, the matter will be remanded to an administrative law judge for further proceedings.

(7) Scope of Review: The commission may substitute its judgment for that of the administrative law judge in making any particular finding of fact, conclusion of law, or order except as limited by OAR 137-003-0655 and 137-003-0665.

(8) Service of documents on other participants: All documents required to be filed with the commission under this rule must also be served upon each participant in the contested case hearing. Service can be completed by personal service, certified mail or regular mail.

Stat. Auth.: ORS 183.341 & 468.020
Stats. Implemented: ORS 183.460, 183,464 & ORS 183.470
Hist.: DEQ 78, f. 9-6-74, ef. 9-25-74; DEQ 115, f. & ef. 7-6-76; DEQ 25-1979, f. & ef. 7-5-79; DEQ 7-1988, f. & cert. ef. 5-6-88; DEQ 1-2000(Temp), f. 2-15-00, cert. ef. 2-15-00 thru 7-31-00; DEQ 9-2000, f. & cert. ef. 7-21-00; Renumbered from 340-011-0132 by DEQ 18-2003, f. & cert. ef. 12-12-03

(e) Extensions: The commission or director may extend any of the time limits contained in section (5) of this rule. Each extension request must be in writing and filed with the commission before the expiration of the time limit. Any request for an extension may be granted or denied in whole or in part.

(f) Dismissal: The commission may dismiss any petition, upon motion of any participant or on its own motion, if the participant(s) seeking review fails to timely file the exceptions or brief required under subsection (5)(a) of this rule. A motion to dismiss made by a participant must be filed within 45 days after the filing of the Petition. At the time of dismissal, the commission will also enter a final order upholding the proposed order.

(g) Oral Argument: Following the expiration of the time allowed the participants to present exceptions and briefs, the matter will be scheduled for oral argument before the commission.

(6) Additional Evidence: A request to present additional evidence must be submitted by motion and must be accompanied by a statement showing good cause for the failure to present the evidence to the administrative law judge. The motion must accompany the brief filed under subsection (5)(a) or (b) of this rule. If the commission grants the motion or decides on its own motion that additional evidence is necessary, the matter will be remanded to an administrative law judge for further proceedings.

(7) Scope of Review: The commission may substitute its judgment for that of the administrative law judge in making any particular finding of fact, conclusion of law, or order except as limited by OAR 137-003-0655 and 137-003-0665.

(8) Service of documents on other participants: All documents required to be filed with the commission under this rule must also be served upon each participant in the contested case hearing. Service can be completed by personal service, certified mail or regular mail.

Stat. Auth.: ORS 183.341 & 468.020
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Hist.: DEQ 78, f. 9-6-74, ef. 9-25-74; DEQ 115, f. & ef. 7-6-76; DEQ 25-1979, f. & ef. 7-5-79; DEQ 7-1988, f. & cert. ef. 5-6-88; DEQ 1-2000(Temp), f. 2-15-00, cert. ef. 2-15-00 thru 7-31-00; DEQ 9-2000, f. & cert. ef. 7-21-00; Renumbered from 340-011-0132 by DEQ 18-2003, f. & cert. ef. 12-12-03

Attachment E

July 7, 2004

Ms. Mikell O'Mealy
Environmental Quality Commission
811 SW 6th Ave.
Portland, OR 07204

Dear Ms. O'Mealy:

I regret that I sent my request for a hearing late and I apoligize for any inconvenience this has caused..

I would like to ask the board of the Environmental Quality Commission for a new hearing date. Your consideration will be appreciated.

Sincerely,

Wm. McClannahan

Home office 541-922-3894
work 541-922-3256

RECEIVED
JUL 09 2004
Oregon DEQ
Office of the Director

WMM/vj

Attachment F

June 16, 2004

Mikell O'Mealy
Environmental Quality Commission
811 SW 6th Ave.
Portland, OR 07204

Dear Mr. O'Mealy:

In regards to the 60 square foot of material Mr. Hock claimed to have found, where he said it was, was not on my property. The other areas shown in the pictures he presented were also not on my property. Mr. Hock apparently was not aware of my property boundaries and refused to let me go with him onto the property.

Later Mr. Hock lied about it in a conference call with Mr. Brian Smith, Attorney Tom Ditton and myself, stating that I had told him that I had other meetings and was unable to meet him there. This can be substantiated.

Respectfully,

Wm. McClannahan

WMM/vj
cc: Bryan Smith

Answers to issues

1 weather Respondent allowed unlicenced contractors to perform an abatement project. The DEQ guidelines stated that a licenced contractor may not be required for non friable material depending on the weight and the composition of the material being disposed of.
Palmers & Sons took a sample of the material to a scale and weighed it and by the volume to be removed it was less than ½ the amount allowed.
Proof of this is in the receipt from the disposal sight.
The material was inspected and was deemed non friable by several qualified people and by DEQ guidelines,(to be friable it must be able to be broken to dust with hand pressure.)
The material is concrete and could not be broken by hand. There for no license was required

2. Wether Respondent allowed the open accumulation of asbestos containing material. The material in question was picked up of the ground and loaded onto a truck immediately wrapped and taken directly to the licenced land fill. It is not possible to pick anything up and place it in a sealed container without first having it open. The DEQ rep who was present said the material was mostly on the truck when she was there and when she left the material on the truck was wrapped labeled and driven to the dump. The material was neither accumulated or stored, and it was a non friable. Cement based product.

3. Some of the material in question contained asbestos. By DEQ guidelines it was and remained non friable. Friable was and is the issue not weather it contained asbestos as DEQ guidelines are for Friable asbestos containing material.

4. There can not be a penalty for doing everything required by DEQ rules and if interpretation is allowed then the regulations need rewritten. How can any one be fined when the questions are asked of those officials responsible and all of the requirements are met or exceeded.

1 DEQ was contacted and asked if a special license was required the reply was (not required because of

1 the volume

2 it was not friable

3 it was disposed of as recommended and in a fast efficient manner

in addition

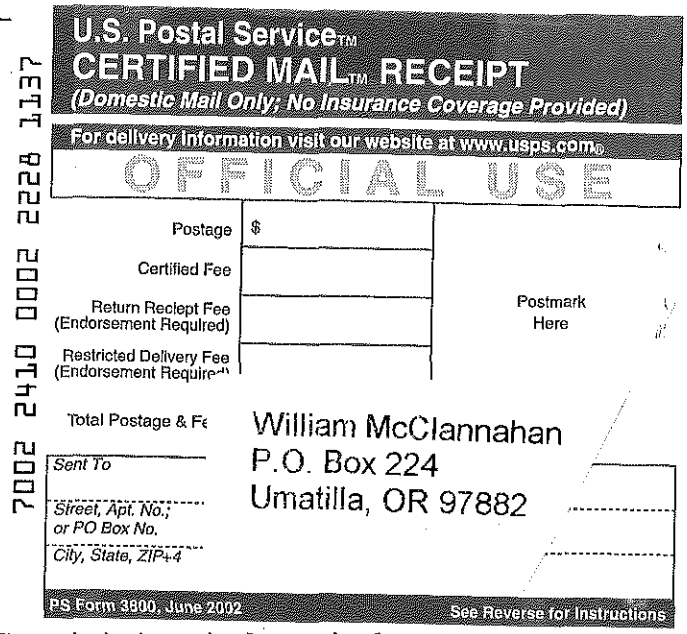
DEQ was not present more than 30 minutes and at least one DEQ agent lied and we have proof recorded and in testimony and in pictues.

If a fine is to be issued it must be to the DEQ agent who lied. I am required to be responsible for my actions and the actions of those I hire. Therefore DEQ must be responsible for their actions and actions and lies of those hired also.

Attachment G

Oregon

Theodore R. Kulongoski, Governor



May 18, 2004

Via Certified Mail

William McClannahan
P.O. Box 224
Umatilla, OR 97882

RE: Agency Case Number AQ/AB-ER-03-134

Dear Mr. McClannahan:

On May 14, 2004, the Environmental Quality Commission (Commission) received your timely request for Commission review of the Proposed Order for the above-referenced case.

The Proposed Order outlined appeal procedures, including filing of exceptions and briefs. The hearing decision and Oregon Administrative Rules (OAR 340-011-0575) state that you must file exceptions and brief within thirty days from the filing of your request for Commission review, or June 14, 2004. Your exceptions must specify the findings and conclusions in the Proposed Order that you object to, and also include proposed alternative findings of fact, conclusions of law, and an alternative order with specific references to the parts of the record upon which you rely. The brief must include the arguments supporting these alternative findings of fact, conclusions of law and order. Failure to take an exception to a finding or conclusion in the brief waives your ability to later raise that exception. Once your exceptions have been received, a representative of the Department of Environmental Quality may file an answering brief within thirty days. The Commission may extend any of the time limits contained in OAR 340-011-0575(5) if an extension request is made in writing and is filed with the Commission before the expiration of the time limit. I have enclosed a copy of the applicable administrative rules for your information.

To file exceptions and briefs, please mail these documents to Mikell O'Mealy, on behalf of the Environmental Quality Commission, at 811 SW 6th Avenue, Portland, Oregon, 97204, with a copy to Bryan Smith, Oregon Department of Environmental Quality, 811 SW 6th Avenue, Portland, Oregon 97204. If you fail to timely file the exceptions or brief, the Commission may dismiss your petition for review. At the time of dismissal, the Commission will also enter a final order upholding the proposed order.

After both parties file exceptions and briefs, this item will be set for Commission consideration at a regularly scheduled Commission meeting, and I will notify you of the date and location. If you have any questions about this process, or need additional time to file exceptions and briefs, please call me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy

Mikell O'Mealy
Assistant to the Commission

cc: Bryan Smith, Oregon Department of Environmental Quality

May 11, 2004

Environmental Quality Commission
C/o DEQ – Assistant to the Director
811 SW 6th Avenue
Portland, OR 97204

RE: OAH Case No. 112574
Agency Case Number AQ/AB-ER-03-134

PETITION FOR REVIEW

I do hereby request that the Commission review the proposed order.

William McClannahan

BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
STATE OF OREGON
for the
ENVIRONMENTAL QUALITY COMMISSION

IN THE MATTER OF:	) **PROPOSED AND FINAL ORDER**
	)
WILLIAM M. MCCLANNAHAN,	)
Respondent,	)
	) OAH Case No. 112574
	) Agency Case Number AQ/AB-ER-03-134
	) Umatilla County

HISTORY OF THE CASE

On September 12, 2003, the Department of Environmental Quality (Department) issued a Notice of Assessment of Civil Penalty (Notice) to Respondent William M. McClannahan. The Notice alleged that Respondent violated ORS 468A.715(1)[1], OAR 340-248-0110(2)[2] and 340-248-0205(1)[3].

On September 23, 2003, Respondent requested a hearing, which was held on March 4, 2004, in Pendleton, Oregon. Andrea H. Sloan, from the Office of Administrative Hearings, presided as the Administrative Law Judge (ALJ). Respondent William M. McClannahan appeared in person with counsel Thomas J. Ditton, and testified at the hearing. Also testifying on behalf of Respondent was Walter Curry. Environmental Law Specialist Bryan Smith represented the Department. Witnesses for the Department were Tom Hack and Patty Jacobs.

ISSUES

(1) Whether Respondent allowed unlicensed contractors to perform an asbestos abatement project on property he owned.

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[1] ORS 468A.715 provides as follows:

> (1) Except as provided in subsection (2) of this section, an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects.
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> (2) A facility owner or operator whose own employees maintain, repair, renovate or demolish the facility may allow the employees to work on asbestos abatement projects only if the employees comply with the training and certification requirements established under ORS 468A.730.

[2] OAR 340-248-0110(2) provides that "An owner or operator of a facility may not allow any persons other than those employees of the facility owner or operator who are appropriately certified or a licensed asbestos abatement contractor to perform an asbestos abatement project in or on that facility."

[3] OAR 340-248-0205(1) provides that "No person may openly accumulate friable asbestos material or asbestos-containing waste material."

(2) Whether Respondent allowed the open accumulation of asbestos-containing material on property he owned.

(3) Whether the Department properly determined that the samples taken from Respondent's property contained more than one percent by weight of asbestos; and

(4) If so, whether the civil penalty assessment calculated by the Department is appropriate.

EVIDENTIARY RULINGS

Department Exhibits A1 through A15 and Respondent's Exhibits R1 through R5 were admitted into the record. Respondent objected to Exhibits A9 and A12, arguing lack of foundation, and to Exhibit A13, arguing that the exhibit was entitled to little weight. These exhibits were admitted over objection and the record was closed at the end of the hearing.

FINDINGS OF FACT

(1) Respondent is the owner of property located on Theater Lane, off of Highway 395, in Hermiston, Umatilla County, Oregon. The property is commonly referred to as the Hermiston Drive-In Theater. (Ex. A3, testimony of Hack and Respondent.)

(2) Respondent purchased the drive-in theater approximately 20 years ago. The drive-in had been in existence for about 50 years, and consisted of a large screen (approximately 60 feet high by 100 feet wide, including a ten foot "skirt" at the bottom of the screen), a concession building, and a projection building. Throughout the years, a few screen panels were replaced with panels that did not contain asbestos, although the majority of the screen was made up of the original panels. About six to eight years ago, Respondent decided to close the drive-in theater. During the intervening years, the theater screen was not maintained and experienced weathering and deterioration. As a result, some of the screen's panels broke off and fell to the ground. (Testimony of Respondent and Hack.)

(3) In 2000, Respondent sold some of the drive-in property to Bruce Humphrey. Respondent retained ownership of about six acres, including the land where the drive-in screen was located. (Testimony of Respondent.)

(4) Respondent became concerned about the deterioration of the screen because he knew that "hobos" camped out on his property and he was worried that someone would be injured if the screen fell down. Denis L. Palmer, owner of Palmers & Sons Construction, Inc, a local company, had previously done work for Respondent. On or about May 1, 2003, Respondent entered into a contract with Palmers & Sons for demolition and removal of the screen. Mr. Palmer wrote the contract that both he and Respondent signed. Respondent contracted to pay Palmers & Sons $5,000, and agreed that "any and all usable materials removed become the property of Palmers and Son's Inc." (Ex. A4-3; testimony of Respondent.)

(5) On May 7, 2003, Patty Jacobs, an environmental engineer with the Department,[4] received a call from Frank Messina, with the Department's air quality program office in Bend. Mr. Messina reported receiving an anonymous complaint about an asbestos project in Hermiston. Mr. Messina asked Ms. Jacobs to investigate the complaint because she was much closer to Hermiston than he was. (Testimony of Jacobs.)

(6) During the early afternoon of May 7, 2003, Ms. Jacobs arrived at the drive-in property with a digital camera. She noticed a large truck and about three or four people near the truck. She approached and contacted Mr. Palmer, who identified himself as the foreman on the project. Mr. Palmer explained that he was demolishing and removing the movie screen, which he said was about 60 feet by 100 feet in size. Ms. Jacobs observed a large black plastic tarp on the ground near the truck. She saw piles of broken lumber on the tarp and pry bars nearby. Ms. Jacobs also saw a large amount of broken gray and white material, which she understood to be pieces of the theater screen, in the bed of the truck. The pieces of screen were of varying size. Mr. Palmer told Ms. Jacobs that this was the "last load," and that they were almost done with the project. Mr. Palmer also told Ms. Jacobs that he was taking the load to the Boardman dump. Because Mr. Palmer indicated that this was the "last load," Ms. Jacobs surmised that other "loads" had already been taken to the dump. Mr. Palmer told Ms. Jacobs that a laboratory had tested the screen and that he believed the screen was made of non-friable asbestos-containing material (ACM). Ms. Jacobs was concerned that the pieces of screen in the truck were actually friable ACM because they were irregularly broken.[5] Mr. Palmer gave Ms. Jacobs permission to take a sample of the screen material from the back of the truck. Ms. Jacobs reached into the truck and broke off a corner piece of the screen material by hand. Before she left, Ms. Jacobs took several digital photographs. (Ex. A2-1-5 and testimony of Jacobs.)

(7) Ms. Jacobs did not order Mr. Palmer to stop work on the theater site because it was clear to her that most of the screen had already been removed before she arrived. And, Mr. Palmer's statement that the truck contained the "last load" confirmed her belief that the job was mostly complete. Ms. Jacobs did not see any screen material other than what was in the truck. Ms. Jacobs was new to the job and did not know whether she had authority to shut down the work site. The material in the truck was not wet, and Ms. Jacobs did not see a source for water near the truck. Ms. Jacobs advised Mr. Palmer to securely wrap and label the material. She further encouraged Mr. Palmer to wet the material. Ms. Jacobs knew that requiring Mr. Palmer to remove the pieces of screen from the truck could increase the risk of exposure to friable ACM to the people nearby and to the environment. (Ex. A2-5 and testimony of Jacobs.)

(8) Ms. Jacobs returned to her office with the sample. She contacted Mr. Messina, told him what she had seen and sent him the sample. Mr. Messina then sent the sample to the Department's laboratory for analysis. The laboratory determined that the sample taken from the

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[4] Ms. Jacobs joined the Department's Pendleton office on April 22, 2003. Her previous experience was as an engineer responsible for overseeing removal of asbestos from the Hyperion Waste Water Treatment Plant in Los Angeles, California. (Testimony of Jacobs.)

[5] Ms. Jacobs does not have specific training or experience in identifying asbestos, but she suspected, because the pieces in the truck were irregularly broken and dusty and based on what Mr. Palmer had told her, that the ACM was friable. (Testimony of Jacobs.)

drive-in contained 10 percent chrysotile asbestos. (Exs. A1, A2-6 and testimony of Jacobs and Hack.)

(9) The ACM in the truck has the potential for public exposure to asbestos or for the release of asbestos into the environment. (Testimony of Jacobs.)

(10) Tom Hack, a natural resource specialist for the Department, spoke with Ms. Jacobs shortly after May 12, 2003. Ms. Jacobs showed Mr. Hack the photographs she had taken at the drive-in and explained what she had seen during her May 7, 2003 inspection. Mr. Hack reviewed the laboratory analysis report. Mr. Hack believed, based on the photographs and on his training and experience, that the ACM in the truck was friable. Mr. Hack determined, through Umatilla County records, that Respondent was the owner of the drive-in property. Mr. Hack also learned that Denis Palmer was in charge of the demolition project, that Maurice McDaniel was the job foreman, and that Atkinson Reforestation, a temporary labor service, provided workers for the job. Mr. Atkinson provided Mr. Hack with the names of six workers from his company that had worked for Mr. Palmer and Mr. McDaniel on the drive-in demolition job. Mr. Hack confirmed, by checking Department databases,[6] that neither Mr. Palmer nor Mr. McDaniel were licensed asbestos abatement contractors, and that none of the six workers provided by Atkinson Reforestation were certified asbestos abatement workers. (Testimony of Hack.)

(11) On June 9, 2003, Mr. Hack contacted Respondent, who acknowledged being the owner of the property. Respondent further acknowledged that his son had told him that the screen might contain asbestos. Respondent told Mr. Hack that he had a contract with Denis Palmer that released Respondent of all liability. Respondent also told Mr. Hack that the screen had become badly weathered. After speaking with Respondent, Mr. Hack sent him a Notice of Noncompliance (NON), dated June 9, 2003. (Exs. A5 and A6 and testimony of Hack.)

(12) On June 11, 2003, Mr. Hack inspected the drive-in property. The site was cleaned "fairly well," but he saw approximately 60 square feet of broken screen material on the ground in the southeast corner of the property. The material Mr. Hack saw was comparable to the material Ms. Jacobs saw in the truck during her inspection on May 7, 2003. Mr. Hack concluded that the material on the ground looked friable. He took digital photographs and collected two samples of the material. The material was irregularly broken and left powdery residue inside of the sample bags. Mr. Hack submitted the samples to the Department's laboratory, which determined that the samples each contained 10 percent chrysotile asbestos. Mr. Hack believed that the ACM he saw on the ground had the potential to expose the public to asbestos, or to release asbestos into the environment. (Exs. A7 and A8 and testimony of Hack.)

(13) After receiving the June 9, 2003 NON, Respondent decided to visit the drive-in site. Respondent asked Walter Curry, whom he had known for 30 years, to accompany him. Mr. Curry had previously done work for Respondent at the drive-in, although he had not been on the property for several years. Respondent told Mr. Curry that he was being "bothered" by DEQ and that he wanted a "disinterested party" to inspect the site with him. Respondent and Mr. Curry

[6] The Department maintains a database of all licensed abatement contractors and all certified abatement workers. A certified worker is required to complete 40 hours of asbestos abatement training. A licensed contractor must also complete 80 hours of supervisory training. (Testimony of Hack.)

visited the drive-in on June 18, 2003 and they searched the area directly under where the screen would have fallen. Respondent found and removed a small, very hard piece of material that he believed was from the screen.[7] Respondent never sent the piece of material that he picked up to a laboratory to determine if the piece contained asbestos. (Ex. R1 and testimony of Respondent and Curry.)

(14) Following his June 11, 2003 inspection, Mr. Hack sent Respondent a second NON on June 25, 2003, advising Respondent that he was in violation of Oregon Environmental law by openly accumulating ACM on his property. Respondent was ordered to have all remaining ACM abated from his property by an Oregon licensed abatement contractor no later than June 30, 2003. Mr. Hack also emailed Respondent with the results of his inspection and the laboratory analysis results, and advised Respondent that the ACM on his property was friable. (Exs. A14 and A15 and testimony of Hack.)

(15) Respondent did not contact the Department following the second NON. The Department did not receive notification from an Oregon licensed abatement contractor that the ACM on Respondent's property had been abated. (Testimony of Hack.)

(16) On July 1 and July 3, 2003, Becky Hillwig, an inspector with the Oregon Occupational Safety and Health Administration (OSHA), inspected Respondent's drive-in property. Mr. Hack contacted OSHA because workers had been exposed to ACM during the screen demolition job. Ms. Hillwig also found broken screen material on the ground. Ms. Hillwig took three samples of the material, which was tested by the Oregon Department of Consumer and Business Services Occupational Health Laboratory on July 24, 2003. The laboratory determined that each of the samples contained between 10 and 20 percent chrysotile asbestos. (Ex. A9 and testimony of Hack.)

(17) On August 22, 2003, Mr. Hack returned to Respondent's property and determined that the ACM he had seen earlier was still on the ground in the southeast corner of the drive-in property. (Testimony of Hack.)

(18) On August 27, 2003, Mr. Hack sent a third NON, advising Respondent that he was in violation of Oregon Environmental law by continuing the open accumulation of ACM on his property. Mr. Hack also advised Respondent of OSHA's inspection, and noted that, since the second NON, all of Mr. Hack's attempts to contact Respondent had been unsuccessful. Mr. Hack advised Respondent that he was required to immediately hire an Oregon licensed abatement contractor to remove the ACM from the property. (Ex. A10 and testimony of Hack.)

(19) On November 7, 2003, Mr. Hack and Respondent's attorney, Mr. Ditton, viewed the property. Between August 22, 2003 and November 7, 2003, the property had been significantly altered due to construction on the adjoining parcel. The drive-in property had been graded and cleared and in some areas, graveled, and the frame for a large cinema had been erected. The property did not look as it had on August 22, 2003. Mr. Hack and Mr. Ditton were not able to

[7] Mr. Ditton brought the piece to hearing, where it was admitted as Exhibit R1. Respondent never had Exhibit R1 tested by a laboratory to determine whether or not it contained asbestos. Exhibit R1 is very hard and could not be broken by hand pressure alone. Exhibit R1 is not painted.

determine where Mr. Hack had twice seen ACM on the ground. (Ex. A11 and testimony of Hack.)

(20) Respondent did not contact Mr. Hack or the Department in response to the NONs because he disagreed with everything the Department said and was "disgusted." After his June 18, 2003 inspection Respondent did not contact Mr. Hack or the Department to say that he did not seen any ACM on his property. (Testimony of Respondent.)

(21) Mr. Hack spoke with Fred Kubrik, a project manager with Tektonics in Walla Walla, Washington. Mr. Kubrik has experience removing asbestos-containing movie screens. He estimated that the cost of proper abatement of a screen comparable in size to Respondent's screen would be approximately $15,000. He further estimated that disposal costs would add another $1,000 to $3,000 to the cost of the project. The total estimated cost would be between $16,000 and $18,000. (Exhibits A12, A13 and testimony of Hack.

CONCLUSIONS OF LAW

(1) Respondent allowed unlicensed asbestos abatement contractors to perform an asbestos abatement project on his property.

(2) Respondent allowed the open accumulation of asbestos-containing materials on his property.

(3) The samples taken by the Department were properly tested to determine that they contained more than one percent by asbestos by weight.

(4) The Department's civil penalty assessment is appropriate.

OPINION

Respondent argued that the Department's action was improper for a number of reasons. First, Respondent contended that he did not own the screen at the time of the demolition project, and thus was not liable for any violation resulting from the project. Second, Respondent argued that the screen material was not friable, based on the Exhibit R1. Third, Respondent contended that he was cooperative with the Department, and that the penalty assessment should reflect this fact. Finally, Respondent asserted that the record does not contain sufficient evidence to establish that the first sample tested by the Department contained more than one percent by weight of asbestos.

"The burden of presenting evidence to support a fact or position in a contested case rests on the proponent of the fact or position." ORS 183.450(2). Here, the Department has the burden of proving its allegations by a preponderance of the evidence. *See Harris v. SAIF*, 292 Or 683, 690 (1982) (general rule regarding allocation of burden of proof is that the burden is on the proponent of the fact or position.); *Cook v. Employment Div.*, 47 Or App 437 (1980) (in the absence of legislation adopting a different standard, the standard in administrative hearings is preponderance of the evidence). Proof by a preponderance of evidence means that the fact

finder is persuaded that the facts asserted are more likely true than false. *Riley Hill General Contractors v. Tandy Corp.*, 303 Or 390 (1989). In this case, the Department has the burden. After reviewing the record, I conclude that the Department has met its burden.

Asbestos abatement project

The legislature has given the Environmental Quality Commission authority to "adopt such rules and standards as it considers necessary and proper in performing the functions vested by law in the commission." ORS 468A.020(1). In addition, ORS 468A.707 requires the Environmental Quality Commission to promulgate rules to "(a) Establish an asbestos abatement program that assures the proper and safe abatement of asbestos hazards through contractor licensing and worker training." Within this authority, the Environment Quality Commission developed rules relating to environmental quality issues, including rules relating to asbestos abatement and the definition of applicable statutory terms.

The Department defines an "asbestos abatement project" as follows:

> [A]ny demolition, renovation, repair, construction or maintenance activity of any public or private facility that involves the repair, enclosure, encapsulation, removal, salvage, handling, disturbance, or disposal of any asbestos containing material with the potential of releasing asbestos fibers from asbestos containing material[8] into the air.

OAR 340-248-0010(6).

The record in this case establishes that Respondent hired Palmers & Sons Construction to demolish and remove the drive-in theater screen on Respondent's property. At that time, Respondent knew that all but a few of the screen panels probably contained asbestos-containing material. Department testing established that the samples taken by Ms. Jacobs and Mr. Hack were, in fact, ACM. Palmers & Sons were not licensed asbestos abatement contractors, and none of the workers they hired through Atkinson Reforestation were licensed asbestos abatement workers. Generally, licensed abatement contractors and workers must conduct all asbestos abatement projects. The Department has carved out exceptions to this requirement at OAR 340-248-0250(2),[9] but based on the facts adduced at hearing, the demolition of the drive-in screen does not qualify as an exception under this rule. The demolition of the screen was, therefore, an asbestos abatement project.

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[8] "Asbestos-containing material" is defined at OAR 340-248-0010(8) to include "any material, including particulate material, that contains more than one-percent of asbestos as determined using the method specified in 40 CFR Part 763 Appendix E, Subpart E, Section 1, Polarized Light Microscopy."

[9] OAR 340-248-0250(2) exempts the following projects from the general requirements OAR 340 division 248: asbestos abatement conducted within a single private residence; abatement conducted outside of a single property if the residence is not a rental property, a commercial business, or intended to be demolished; residential buildings with less than four dwelling units (constructed after 1987); projects removing "mastics and roofing products that are fully encapsulated with a petroleum-based binder and are not hard, dry, or brittle;" projects involving removal of less than three square feet or three linear feet of ACM; and projects to remove ACM that are sealed "from the atmosphere by a rigid casing;"

I reject Respondent's argument that he had no liability for the demolition project because he was not the owner of the screen. ORS 468A.715(1) requires that "an owner or operator of a facility containing asbestos shall require only licensed contractors to perform asbestos abatement projects." The statute does not define "owner or operator," however, that phrase is defined by the Department's administrative rules. "'Owner or operator' means any person who owns, leases, operates, controls or supervises a facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both." OAR 340-248-0010(33). The Department has established that Respondent was the owner of the drive-in theater property. The fact that Denis Palmer was allowed to salvage the screen materials after demolition does not transfer ownership of the screen from Respondent to Mr. Palmer. Respondent was ultimately responsible for ensuring that the screen demolition was done in compliance with environmental law.

For this particular violation, I do not have to decide whether the ACM samples were friable because friability is not required within the definition of an asbestos abatement project.

Open accumulation of ACM

I do, however, need to decide whether the material sampled by the Department is friable in order to determine whether Respondent openly accumulated ACM. There is no statutory definition of "open accumulation." Within its statutory authority, the Department has defined "open accumulation" of ACM as "any accumulation, including interim storage, of friable asbestos-containing material or asbestos-containing waste material other than material securely enclosed and stored as required by this chapter." OAR 340-248-0010(32).

The Department alleges that the ACM found on the ground on Respondent's property during Mr. Hack's June 11, 2003 and August 22, 2003 inspections was openly accumulated, in violation of environmental rules. Respondent counters that he did not see any ACM, other than Exhibit R1, during his inspection of the property on June 18, 2003. Respondent further argues that Exhibit R1 is not friable.

I must first determine whether the samples taken from Respondent's property were friable ACM. Both Ms. Jacobs and Mr. Hack testified that the samples they took from Respondent's property were friable. Ms. Jacobs testified that she easily broke off the sample she took from a larger piece of material. She further testified that she used one hand to break off her sample. Mr. Hack testified that he believed that the material in the truck was friable based on his review of Ms. Jacob's photographs, and on his discussion with her. He also relied on his experience with ACM. Mr. Hack determined that the material he saw on the ground looked friable. He further testified that this material was similar in appearance to the material Ms. Jacobs saw in the truck. The pieces on the ground, and in the truck, were irregularly broken. Mr. Hack's samples left a powdery residue inside of the sample bags.

Respondent argues that Exhibit R1 is a representative sample of the material tested by the Department, and it is not friable because it cannot be broken by hand pressure. I note, however,

that Respondent never sent Exhibit R1 to a laboratory to determine whether it contained asbestos.

ORS 468A.700(8) defines "friable asbestos material" as "any asbestos-containing material that hand pressure can crumble, pulverize or reduce to powder when dry." The Department's definition of "friable asbestos material" mirrors the statutory definition. OAR 340-248-0070(25).

The samples taken by the Department meet the definition of "friable asbestos material" because the samples were breakable by hand. The record does not support Respondent's argument that the material tested by the Department was not friable because Respondent's Exhibit R1 cannot be broken by hand pressure. Both Mr. Hack and Ms. Jacobs testified that Exhibit R1 looked similar to the samples they collected, but there is no evidence before me that Exhibit R1 is from the same source as the Department's samples, or that it contains ACM. By contrast, there is evidence that the samples taken by the Department contained 10 percent chrysotile asbestos. Thus, the Department has established that the samples collected from Respondent's property contained "friable asbestos material." And, because the ACM in the truck and on the ground was not "securely enclosed and stored," it was openly accumulated in violation of environmental law. OAR 340-248-0205(1) ("No person may openly accumulate friable asbestos material or asbestos-containing waste material.")

Results of laboratory testing

Respondent further argues that the Department failed to prove that the samples tested by the Department's laboratory contained more than one-percent asbestos *by weight*, as required by statute. ORS 468A.700(5) defines "asbestos-containing material" as "any material containing more than one-percent asbestos by weight." The Department's rules mirror the statutory definition.

According to Exhibit A1, the Department's laboratory determined that the sampled taken by Ms. Jacobs contained "10% chrysotile asbestos." Exhibit A8 indicates that the two samples taken by Mr. Hack also contained "10% chrysotile asbestos." OAR 340-248-0205(4) provides that "[t]he content of asbestos in any asbestos-containing material must be determined using the method specified in 40 CFR Part 763, Subpart E, Appendix E, Section 1, Polarized Light Microscopy or another method approved by the Department." Page two of Exhibit A8 contains the following explanation: "For asbestos analysis, samples are quantified by matrix reduction and visual estimation by microscopic examination using a dissecting microscope and *polarized light microscope*." (Emphasis added.)

I am persuaded that the Department has established, by a preponderance of the evidence, that the Department's laboratory analysis complied with regulations, and that the samples tested contained ACM, in violation of environmental law.

Assessment of Civil Penalty

Finally, Respondent argues that the penalty assessed by the Department is incorrect. Specifically, Respondent questioned the propriety of the Department's finding that he was not cooperative, and the amount of the economic benefit used by the Department.

The Director of the Department is authorized to assess civil penalties for any violations of the Department's rules or statutes. OAR 340-012-0042. The amount of civil penalties assessed is determined through use of a matrix and formula contained in OAR 340-012-0045.

In this case, the Department determined that Respondent was liable for $10,000 in civil penalties based on Respondent allowing unlicensed persons to conduct an asbestos abatement project on his property. The Department did not seek a penalty for Respondent's open accumulation of ACM. The penalty was determined by calculating the base penalty (BP) and considering other factors, such as prior significant actions (P), past history (H), the number of occurrences (O), the cause of the violation (R), Respondent's cooperation (C), and the economic benefit that Respondent gained by noncompliance with the Department's rules and statutes. The formula for determining civil penalties in this case is expressed as follows: "BP + [(0.1 x BP) x (P + H + O + R + C)] + EP."

Because the violation had the potential for public exposure to asbestos, or to the release of asbestos into the environment, the Department determined that the based penalty (BP) should be $6,000.[10] Respondent challenged the determination that he committed a major magnitude, Class 1 violation. He argued that Mr. Hack and Ms. Jacobs could not have been concerned about exposure of the public to asbestos, or about release of asbestos into the environment, because they did not quarantine the site, or require Respondent to repackage the material in the truck. Ms. Jacobs satisfactorily explained why she did not shut down the work site or require Respondent to repackage the ACM in the truck. Respondent's argument is not persuasive. The Department's determination of this factor was correct.

The Department also determined that the P, H and O factors should all be assigned values of "0." Respondent did not challenge these determinations. The Department concluded that the R factor should be assigned a value of 2 because Respondent was negligent in committing this violation. I agree. Respondent knew that most of the screen panels contained asbestos, but he did not hire a licensed abatement contractor to demolish the screen. Respondent did not specifically challenge this determination, which was correctly made.

Respondent did, however, challenge the Department's determination that the C factor was properly assigned a value of 2. Specifically, Respondent argued that he *did* cooperate with the Department, but Mr. Hack was rude to him and prevented him from attending the inspections. Mr. Hack testified that he left several messages, by telephone and email, for Respondent in addition to sending Respondent three NONs which detailed the violations and the corrective

[10] According to OAR 340-012-0050(1)(u), "Failing to hire a licensed contractor to conduct an asbestos abatement project which results in the potential for public exposure to asbestos or to the release of asbestos into the environment" is a Class 1 violation. This violation was determined to be major (rather than minor or moderate) because the amount of asbestos improperly abated was more than 160 square feet. OAR 340-012-0090(1)(d)(A). This Class 1 major magnitude violation is assigned a base penalty of $6,000. OAR 340-012-0042(1)(a).

action that the Department expected Respondent to take. Respondent testified that he was "disgusted" with the Department and that he chose not to respond to Mr. Hack or anyone else from DEQ. He further testified that he did not see any reason to tell Mr. Hack that he was unable to find any ACM during his June 18, 2003 inspection of the property. Because Respondent did not contact the Department in response to the three NONs, the Department is justified in determining that Respondent was uncooperative. Respondent's argument to the contrary is not persuasive.

Respondent also argued that the economic benefit (EB) calculation[11] was incorrect because Respondent did not save any money by having Palmers & Sons remove the screen. Respondent argued that he paid $5,000 and allowed Mr. Palmer to keep any materials that he could salvage from the job. The EB value used by the Department is based on a finding that Respondent would have spent between $16,000 and $18,000 for a proper asbestos abatement of the screen. The Department chose to apply the lower figure in this case. Respondent's argument is contrary to regulations and without merit.

The Department actually calculated a penalty of $14,697 for this violation.[12] ORS 468.140(3)(b) provides, however, that no more than $10,000 may be assessed for each penalty per day. Because the Department considered Respondent's violation to be completed on one day, the Department reduced Respondent's penalty from $14,697 to $10,000.

Based on this record, the civil penalty assessment of $10,000 is warranted.

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[11] An economic benefit is "the monetary benefit that an entity gained by not complying with the law." ORS 468.130(2)(h) authorizes the Department to consider "any relevant rule of the commission" in calculating the economic benefit. The Department is required to include in its penalty assessments an "approximated dollar sum of the economic benefit." OAR 340-012-0045(1)(c)(F). The Department "may use the U.S. Environmental Protection Agency's BEN computer model" to calculate the economic benefit component of a penalty assessment. OAR 340-012-0045(1)(c)(F)(iii).

[12] The penalty was calculated as follows:

penalty = $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 2 + 2)] + $6,297
= $6,000 + ($600 x 4) + $6,297
= $6,000 + $2,400 + $6,297
= $14,697

PROPOSED ORDER

I propose that the Board issue the following order:

Respondent is subject to a civil penalty in the amount of $10,000.

Andrea H. Sloan
Administrative Law Judge
Office of Administrative Hearings

ISSUANCE AND MAILING DATE: April 19, 2004

REVIEW

If you are not satisfied with this decision, you have a right to petition the Environmental Quality Commission for review. To have the decision reviewed, you must file a "Petition for Review" within 30 days of the date of service of this Order, as provided in Oregon Administrative Rule (OAR) 340-011-0132(1) and (2). Service is defined in OAR 340-011-0097, as the date the Order is mailed to you, not the date you receive it. The Petition for Review must be filed with:

Environmental Quality Commission
c/o DEQ – Assistant to the Director
811 SW 6th Avenue
Portland OR 97204

Within 30 days of filing the Petition, you must also file exceptions and a brief as provided in OAR 340-011-0132(3).

CERTIFICATE OF SERVICE

I certify that on April 19, 2004, I served the attached Proposed and Final Order by mailing certified and/or first class mail, in a sealed envelope, with first class postage prepaid, a copy thereof addressed as follows:

WILLIAM M MCCLANNAHAN
PO BOX 224
UMATILLA OR 97882

BY FIRST CLASS MAIL AND CERTIFIED MAIL
BY CERTIFIED MAIL RECEIPT # 7002 2410 0001 7411 0752

THOMAS J DITTON
ATTORNEY AT LAW
PO BOX 802
HERMISTON OR 97838

BY FIRST CLASS MAIL AND CERTIFIED MAIL
BY CERTIFIED MAIL RECEIPT # 7002 2410 0001 7411 0769

BRYAN SMITH
OREGON DEQ
OFFICE OF COMPLIANCE AND ENFORCEMENT
811 SW 6TH AVE
PORTLAND OR 97204

BY FIRST CLASS MAIL

DEBORAH NESBIT
OREGON DEQ
OFFICE OF COMPLIANCE AND ENFORCEMENT
811 SW 6TH AVE
PORTLAND OR 97204

BY FIRST CLASS MAIL

Ann Redding

Ann Redding, Administrative Specialist
Office of Administrative Hearings
Transportation Hearings Division

Attachment J

Oregon

Theodore R. Kulongoski, Governor

Office of Administrative Hearings
Transportation Hearings Division
Employment Department
1905 Lana Avenue NE
Salem, OR 97314
(503) 945-5547
FAX (503) 945-5304
TTY 1-800-735-1232

NOTICE OF HEARING

Date Mailed: February 10, 2004

THOMAS J DITTON
ATTORNEY AT LAW
PO BOX 802
HERMISTON OR 97838

BRYAN SMITH
DEQ
811 SW 6TH AVE
PORTLAND OR 97204

BY FIRST CLASS AND CERTIFIED MAIL.
CERTIFIED MAIL RECEIPT #7001 1940 0000 1117 6972

RE: *In the Matter of William M. McClannahan*
For the Oregon Department of Environmental Quality
Office of Administrative Hearings Case No. 112574
Agency Case No. AQ/AB-ER-03-134

A hearing has been set in the above-entitled matter before the Office of Administrative Hearings.

Hearing Date:	**March 4, 2004**	**Hearing Time:**	**8:30 a.m..**
Location:	**DEQ Office** **700 SE Emigrant, Ste 330** **Pendleton or 97801**		

The Office of Administrative Hearings is an impartial tribunal, and is independent of the agency for whom the hearing is held. Your case has been assigned to Administrative Law Judge Andrea H. Sloan, an employee of the Office of Administrative Hearings.

A request for reset of the hearing must be submitted in writing prior to the hearing. A postponement request will only be granted on a showing of good cause and with the approval of the administrative law judge.

If you are hearing impaired or need a language interpreter at the hearing, immediately notify the Office of Administrative Hearings at (503) 945-5547 or TDD at 1-800-735-1232. The Office of Administrative Hearings can arrange for an interpreter at the hearing. Interpreters must be certified or qualified in order to participate in a contested case hearing and may not have a conflict of interest with the hearing participants.

Please notify the Office of Administrative Hearings at (503) 945-5547 immediately if you change your address or telephone number at any time prior to a final decision in this matter.

WILLIAM M McCLANNAHAN
PO BOX 224
UMATILLA OR 97882

BY FIRST CLASS AND CERTIFIED MAIL.
CERTIFIED MAIL RECEIPT #7001 1940 0000 1117 6989

DEPARTMENT OF ENVIRONMENTAL QUALITY HEARINGS

IMPORTANT INFORMATION FOR PREPARING FOR YOUR HEARING

NOTICE OF CONTESTED CASE RIGHTS AND PROCEDURES

Under ORS 183.413(2), you must be informed of the following:

1. Law that applies. The hearing is a contested case and it will be conducted under ORS Chapter 183 and Oregon Administrative Rules of the Department of Environmental Quality, Chapters 137 and 340.

2. Rights to an attorney. You may represent yourself at the hearing, or be represented by an attorney or an authorized representative, such as a partner, officer, or an employee. If you are a company, corporation, organization or association, you must be represented by an attorney or an authorized representative. Prior to appearing on your behalf, an authorized representative must provide a written statement of authorization. If you choose to represent yourself, but decide during the hearing that an attorney is necessary, you may request a recess. About half of the parties are not represented by an attorney. DEQ will be represented by an Assistant Attorney General or an Environmental Law Specialist.

3. Administrative law judge. The person presiding at the hearing is known as the administrative law judge. The administrative law judge is an employee of the Office of Administrative Hearings under contract with the Environmental Quality Commission. The administrative law judge is not an employee, officer or representative of the agency.

4. Appearance at hearing. If you withdraw your request for a hearing, notify either DEQ or the administrative law judge that you will not appear at the hearing, or fail to appear at the hearing, a final default order will be issued. This order will be issued only upon a prima facie case based on DEQ's file. No hearing will be conducted.

5. Address change or change of representative. It is your responsibility to notify DEQ and the administrative law judge of any change in your address or a withdrawal or change of your representative.

6. Interpreters. If you have a disability or do not speak English, the administrative law judge will arrange for an interpreter. DEQ will pay for the interpreter if (1) you require the interpreter due to a disability or (2) you file with the administrative law judge a written statement under oath that you are unable to speak English and you are unable to obtain an interpreter yourself. You must provide notice of your need for an interpreter at least 14 days before the hearing.

7. Witnesses. All witnesses will be under oath or affirmation to tell the truth. All parties and the administrative law judge will have the opportunity to ask questions of all witnesses. DEQ or the administrative law judge will issue subpoenas for witnesses on your behalf if you show that their testimony is relevant to the case and is reasonably needed to establish your position. You are not required to issue subpoenas for appearance of your own witnesses. If you are represented

by an attorney, your attorney may issue subpoenas. Payment of witness fees and mileage is your responsibility.

8. Order of evidence. A hearing is similar to a court trial but less formal. The purpose of the hearing is to determine the facts and whether DEQ's action is appropriate. In most cases, DEQ will offer its evidence first in support of its action. You will then have an opportunity to present evidence to oppose DEQ's evidence. Finally, DEQ and you will have an opportunity to rebut any evidence.

9. Burden of presenting evidence. The party who proposes a fact or position has the burden of proving that fact or position. You should be prepared to present evidence at the hearing which will support your position. You may present physical, oral or written evidence, as well as your own testimony.

10. Admissible evidence. Only relevant evidence of a type relied upon by reasonably prudent persons in the conduct of their serious affairs will be considered. Hearsay evidence is not automatically excluded. Rather, the fact that it is hearsay generally affects how much the Commission will rely on it in reaching a decision.

There are four kinds of evidence:

a. Knowledge of DEQ and the administrative law judge. DEQ or the administrative law judge may take "official notice" of conclusions developed as a result of its knowledge in its specialized field. This includes notice of general, technical or scientific facts. You will be informed should DEQ or the administrative law judge take "official notice" of any fact and you will be given an opportunity to contest any such facts.

b. Testimony of witnesses. Testimony of witnesses, including you, who have knowledge of facts may be received in evidence.

c. Writings. Written documents including letters, maps, diagrams and other written materials may be received in evidence.

d. Experiments, demonstrations and similar means used to prove a fact. The results of experiments and demonstrations may be received in evidence if they are reliable.

11. Objections to evidence. Objections to the consideration of evidence must be made at the time the evidence is offered. Objections are generally made on one of the following grounds:

a. The evidence is unreliable;

b. The evidence is irrelevant or immaterial and has no tendency to prove or disprove any issue involved in the case;

c. The evidence is unduly repetitious and duplicates evidence already received.

12. Continuances. There are normally no continuances granted at the end of the hearing for you to present additional testimony or other evidence. Please make sure you have all your evidence ready for the hearing. However, if you can show that the record should remain open for additional evidence, the administrative law judge may grant you additional time to submit such evidence.

13. Record. A record will be made of the entire proceeding to preserve the testimony and other evidence for appeal. This will be done by tape recorder. This tape and any exhibits received in the record will be the whole record of the hearing and the only evidence considered by the administrative law judge. A copy of the tape is available upon payment of a minimal amount, as established by DEQ. A transcript of the record will not normally be prepared, unless there is an appeal to the Court of Appeals.

14. Proposed and Final Order. The administrative law judge has the authority to issue a proposed order based on the evidence at the hearing. The proposed order will become the final order of the Environmental Quality Commission if you do not petition the Commission for review within 30 days of service of the order. The date of service is the date the order is mailed to you, not the date that you receive it. The Department must receive your petition seeking review within 30 days. See OAR 340-011-0132.

15. Appeal. If you are not satisfied with the decision of the Commission, you have 60 days from the date of service of the order, to appeal this decision to the Court of Appeals. See ORS 183.480 *et seq.*

Attachment K

ATTORNEY
THOMAS J. DITTON

THOMAS J. DITTON, P. C.
ATTORNEY AT LAW
P. O. BOX 802
OFFICE ADDRESS
210 EAST MAIN STREET
HERMISTON, OREGON 97838

TELEPHONE
(541) 567-8365
Fax (541) 567-2055

September 23, 2003

State of Oregon
Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390

Re: Case No. AQ/AB-ER-03-134

William M. McClannahan does hereby request a review hearing on the Notice of Violation dated September 23, 2003.

Issues as defenses are as follows:

1. There was not any significant amount of asbestos removed.

2. The theater screen did not belong to Mr. McClannahan. The asbestos did not belong to him. He has nothing to do with its removal.

3. Proper disposal permits were obtained by the owner of the screen.

4. The screen was removed in a safe manner by the owner of the screen so as to ensure no particles escaped.

5. No weathering of the asbestos occurred after removal. No fibers were released.

6. DEQ Inspector Jacobs told the owner of the screen the removal process looked fine to her and did not see any problems with the process being used.

7. There is no justification for the fine.

8. The right to a contested case hearing is reserved.

Dated Sept 25, 2003.

Thomas J. Ditton #74078
Attorney for William McClannahan

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

September 12, 2003

CERTIFIED MAIL NO. 7001 1140 0002 3546 6604

William M. McClannahan
PO Box 224
Umatilla, OR 97882

Re: Notice of Violation, Department Order and Assessment of Civil Penalty
No. AQ/AB-ER-03-134
Umatilla County

On May 5, 2003, the Department of Environmental Quality (the Department) received a complaint concerning the demolition of the former drive-in theater screen, located on Theater Lane, just off of Highway 395 in Hermiston, Oregon (the Property). The complaint alleged that the screen, which was one hundred (100) feet wide and sixty (60) feet tall, contained asbestos and was being improperly demolished. You are the owner of the Property, and the theater screen.

On May 7, 2003, Patty Jacobs of the Department responded to the complaint and inspected the demolition project taking place at the Property. Ms. Jacobs observed an open-ended truck containing at least three (3) cubic yards of badly broken up white screen material mixed with a black tar material. Ms. Jacobs took a sample of the screen material, and laboratory analysis revealed that the screen material contained 10% chrysotile asbestos.

During her inspection, Ms. Jacobs spoke with Denis Palmer, who told her that the demolition project was completed by Maurice McDaniel and a labor crew of workers hired from Atkinson Reforestation Inc. (Atkinson). Mr. Palmer also stated that he and Mr. McDaniel were aware that the screen contained asbestos prior to arranging its demolition.

You hired Mr. Palmer to perform this demolition project, and he made arrangements with Mr. McDaniel and Atkinson to complete the project. Mr. Palmer supervised the workers as they used pry bars to demolish the screen, rendering it friable. Because the demolition constituted an asbestos abatement project, the workers were required to be licensed to conduct asbestos abatement projects. None of the workers were licensed.

On June 9, 2003, Tom Hack of the Department sent you a Notice of Noncompliance (NON) informing you that allowing unlicensed workers to perform the asbestos abatement project is a Class I violation of Oregon's environmental laws. The NON also informed you that you would be referred to the Department's Office of Compliance and Enforcement with a recommendation to initiate a formal enforcement action.

On June 11, 2003, Mr. Hack inspected the Property to ensure that all asbestos-containing waste material (ACWM) had been properly cleaned up by a licensed asbestos abatement contractor. However, Mr. Hack observed approximately sixty (60) square feet of screen material on the ground of the Property. Mr. Hack took a sample of the screen material, and laboratory analysis revealed that the screen material contained 10% chrysotile asbestos.

On June 16, 2003, Mr. Hack sent you an email explaining that this screen material was asbestos-containing and must be abated by a licensed asbestos abatement contractor, and on June 25, 2003, Mr. Hack sent you a second NON informing you that you were in violation of OAR 340-248-0205(1), which prohibits the open accumulation of friable asbestos-containing material. This is a Class I violation of Oregon's environmental laws.

This NON also requested that you arrange for the material to be abated no later than June 30, 2003, and to then provide the Department with a receipt for this abatement no later than three days after completion of the abatement project.

However, you did not provide the Department with a receipt for an asbestos abatement project, and on July 1 and July 3, 2003, Rebecca Hillwig, an industrial hygienist of the Oregon Occupational Safety and Health Administration's Bend office observed that the screen material had not been abated. On August 22, 2003, Mr. Hack observed that the screen material still had not been abated.

I am especially concerned at the length of time you have left the ACWM lying exposed. Weathering of the ACWM likely released asbestos fibers into the air and exposed workers, the public and the environment to asbestos.

Asbestos fibers are a respiratory hazard proven to cause lung cancer, mesothelioma and asbestosis. Asbestos is a danger to public health and a hazardous air contaminant for which there is no known safe level of exposure. To protect the public from asbestos exposure, the Department requires training and licensing for those who handle asbestos-containing material.

You are liable for a civil penalty assessment for the failure to require a licensed asbestos abatement contractor to perform an asbestos abatement project on a facility you own. In the enclosed Notice and Order, I have assessed a civil penalty of $10,000. In determining the amount of the penalty, I used the procedures set forth in Oregon Administrative Rule (OAR) 340-012-0045. The Department's findings and civil penalty determination are attached to the Notice and Order as Exhibit 1.

In addition to the civil penalty assessment, the enclosed Order requires you to immediately make arrangements for a licensed asbestos abatement contractor to abate all the asbestos-containing theater screen material on your property, and to send the receipt for this abatement project to the Department's Pendleton Office, located at 700 SE Emigrant, Suite 330, Pendleton, OR 97801.

The steps you must follow to request a review of the Department's allegations and determinations in this matter are set forth in Section VI of the enclosed Notice and Order. If you wish to have a hearing on this matter, you must specifically request a hearing in writing.

Attached to the hearing request must be your Answer in which you admit or deny each of the facts alleged in Section III of the Notice and Order. In your Answer, you should also allege all affirmative claims or defenses and provide reasons why they apply in this matter. You will not be allowed to raise these issues at a later time, unless you can later show good cause for your failure. The applicable rules are enclosed for your review. You need to follow the rules to ensure that you do not lose your opportunity to dispute the Department's findings (see OAR 340-011-0107 and OAR 137-003-0528). If the Department does not receive your request for a hearing and Answer within 20 calendar days from the date you received the Notice and Order, a Default Order will be entered against you and the civil penalty will become due at that time. You can fax your request for hearing and Answer to the Department at (503) 229-6762.

If you wish to discuss this matter, or if you believe there are mitigating factors which the Department might not have considered in assessing the civil penalty, you may request an informal discussion by attaching your request to your appeal. Your request to discuss this matter with the Department will not waive your right to a contested case hearing.

I look forward to your cooperation in complying with Oregon environmental law in the future. However, if any additional violations occur, you may be assessed additional civil penalties.

Copies of referenced rules are enclosed. Also enclosed is a copy of the Department's internal management directive regarding civil penalty mitigation for Supplemental Environmental Projects (SEPs). If you are interested in having a portion of the civil penalty fund an SEP, you should review the enclosed SEP directive. Exceptional pollution prevention could result in partial penalty mitigation.

If you have any questions about this action, please contact Bryan Smith with the Department's Office of Compliance and Enforcement in Portland at (503) 229-5692 or toll-free at 1-800-452-4011, extension 5692.

Sincerely,

Stephanie Hallock

Stephanie Hallock
Director

Enclosures

cc: Tom Hack, Pendleton Office, DEQ
Patty Jacobs, Pendleton Office, DEQ
Rebecca Hillwig, Bend Office, OR-OSHA
Peter Brewer, AQ Manager, Bend Office, DEQ
Joni Hammond, Eastern Region Administrator, Pendleton Office, DEQ
Air Quality Division, DEQ
Oregon Department of Justice

Environmental Quality Commission
Umatilla County District Attorney

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF: WILLIAM M. McCLANNAHAN, Respondent.	)))))))	NOTICE OF VIOLATION, DEPARTMENT ORDER, AND ASSESSMENT OF CIVIL PENALTY No. AQ/AB-ER-03-134 UMATILLA COUNTY

I. AUTHORITY

This Notice of Violation and Assessment of Civil Penalty (Notice) is issued to Respondent, William M. McClannahan, by the Department of Environmental Quality (Department) pursuant to Oregon Revised Statutes (ORS) 468.126 through 468.140, ORS Chapter 183; and Oregon Administrative Rules (OAR) Chapter 340, Divisions 11 and 12.

II. FINDINGS OF FACT

1. On or about May 5, 2003, Respondent allowed unlicensed persons to perform an asbestos abatement project on property located at Theater Lane, just off of Highway 395 in Hermiston, Oregon (the Property).

2. Respondent owns the Property.

3. On May 7, 2003, Patty Jacobs of the Department observed an open-ended truck containing at least three (3) cubic yards of badly broken up white theater screen material mixed with a black tar material. Ms. Jacobs took a sample of the screen material, and laboratory analysis revealed that the screen material contained 10% chrysotile asbestos.

4. Respondent's workers used pry bars to demolish the asbestos-containing theater screen on the Property, and then stored the ACWM in an open-ended truck and on the ground of the Property.

5. Respondent's workers failed to properly package and label the ACWM.

6. On June 11, 2003, Tom Hack of the Department inspected the Property and observed approximately sixty (60) square feet of theater screen material openly accumulated on the ground of the Property. Mr. Hack took a sample of the screen material, and laboratory

analysis revealed that the screen material contained 10% chrysotile asbestos.

7. On June 25, 2003, Mr. Hack sent Respondent a Notice of Noncompliance (NON) informing Respondent that he was in violation of OAR 340-248-0205(1). The NON requested that Respondent arrange for the material to be abated no later than June 30, 2003, and to then provide the Department with a receipt for this abatement no later than three days after completion of the abatement project.

8. Respondent did not have the ACWM abated by June 30, 2003.

9. On August 22, 2003, Mr. Hack observed that the screen material still had not been abated.

10. On August 27, 2003, Mr. Hack sent Respondent a NON informing Respondent that he was in violation of OAR 340-248-0205(1), and requesting that Respondent arrange for the material to be abated immediately.

11. To date, Respondent has not had the ACWM abated.

III. VIOLATIONS

1. On or about May 5, 2003, Respondent allowed unlicensed persons to perform an asbestos abatement project on a facility he owns, in violation of ORS 468A.715(1) and OAR 340-248-0110(2). Specifically, Respondent owns property located at Theater Lane, just off of Highway 395 in Hermiston, Oregon (the Property). Specifically, Respondent allowed workers to demolish an asbestos-containing theater screen on the Property. The workers used pry bars to demolish the asbestos-containing theater screen on the Property and were not licensed to perform asbestos abatement projects. According to OAR 340-012-0050(1)(u), this is a Class I violation, because the asbestos abatement project resulted in the potential for public exposure to asbestos or release of asbestos into the environment.

2. On or about May 5, 2003, through the present, Respondent openly accumulated asbestos-containing waste material (ACWM) in violation of OAR 340-248-0205(1). Specifically, Respondent's workers demolished an asbestos-containing theater screen on the Property. Respondent's workers used pry bars to demolish the asbestos-containing theater

screen on the Property, and then stored the ACWM in an open-ended truck and on the ground of the Property. Respondent's workers failed to properly package and label the ACWM. Respondent then allowed the ACWM to openly accumulate in the open-ended truck and on the ground of the Property. This is a Class I violation according to OAR 340-012-0050(1)(q), because such storage or accumulation of ACWM caused a potential for public exposure to asbestos or release of asbestos into the environment.

IV. DEPARTMENT ORDER

Based upon the foregoing FINDINGS AND VIOLATIONS, Respondent is hereby ORDERED TO:

1. Immediately initiate actions necessary to correct all of the above-cited violations and come into full compliance with Oregon's laws and rules.

2. Within twenty (20) days of the Order, have a licensed asbestos abatement contractor abate all the asbestos-containing theater screen material on the Property. Evidence of proper abatement and disposal must be provided to the Department within five (5) days of completion. All submissions under this Order should be sent to Department of Environmental Quality, 700 SE Emigrant, Suite 330, Pendleton, OR 97801.

V. ASSESSMENT OF CIVIL PENALTIES

The Director imposes a civil penalty of $10,000 for Violation 1 cited in Section III. The findings and determination of Respondent's civil penalty pursuant to OAR 340-012-0045 are attached and incorporated as Exhibit No 1.

VI. OPPORTUNITY FOR CONTESTED CASE HEARING

Respondent has the right to have a contested case hearing before the Environmental Quality Commission (Commission) or its hearings officer regarding the matters contained in this Notice, provided Respondent files a written request for a hearing and an Answer within twenty (20) calendar days from the date of service of this Notice. If Respondent fails to file either a timely request for a hearing, a late filing will not be allowed unless the reason for the late filing was beyond Respondent's reasonable control. If Respondent fails to file a timely Answer, the

late filing will not be allowed unless Respondent can show good cause for the late filing. (See OAR 340-011-0107 and OAR 137-003-0528)

The request for a hearing must either specifically request a hearing or state that Respondent wishes to appeal this Notice. In the written Answer, Respondent shall admit or deny each allegation of fact contained in this Notice, and shall specifically state all affirmative claims or defenses to the assessment of the civil penalty that Respondent may have and the reasoning in support of any claims or defenses. The contested case hearing will be limited to those issues raised in this Notice and in the Answer. Unless Respondent is able to show good cause:

1. Factual matters not disputed in a timely manner shall be presumed to be admitted;

2. Failure to timely raise a claim or defense will waive the ability to raise that claim or defense at a later time;

3. New matters alleged in the Answer will be presumed to be denied by the Department unless admitted in subsequent pleading or stipulation by the Department or Commission.

Send the request for hearing and Answer to: Deborah Nesbit, Oregon Department of Environmental Quality, 811 S.W. 6th Avenue, Portland, Oregon 97204 or via fax at (503) 229-6762. Following the Department's receipt of a request for hearing and an Answer, Respondent will be notified of the date, time and place of the hearing.

If Respondent fails to file a timely request for hearing and Answer, the Notice and Order shall become a final and enforceable Order of the Environmental Quality Commission by operation of law without any further action or proceeding. If the Order becomes final by operation of law, the right to judicial review, if any, is outlined within ORS 183.480.

Failure to file a timely request for hearing and Answer may result in the entry of a Default Order for the relief sought in this Notice and Order.

Failure to file a timely request for hearing or an Answer may result in the entry of a Default Order for the relief sought in this Notice.

Failure to appear at a scheduled hearing may result in an entry of a Default Order.

The Department's case file at the time this Notice was issued may serve as the record for purposes of entering a Default Order.

VII. OPPORTUNITY FOR INFORMAL DISCUSSION

In addition to filing a request for a contested case hearing, Respondent may also request an informal discussion with the Department by attaching a written request to the hearing request and Answer.

VIII. PAYMENT OF CIVIL PENALTY

The civil penalty is due and payable ten (10) days after the Order imposing the civil penalty becomes final by operation of law or on appeal. Respondent may pay the penalty before that time. Respondent's check or money order in the amount of $10,000 should be made payable to "State Treasurer, State of Oregon" and sent to the **Business Office, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon 97204**.

9-12-03
Date

Stephanie Hallock
Stephanie Hallock, Director

EXHIBIT 1

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 1: Allowing persons other than a licensed asbestos abatement contractor to perform an asbestos abatement project, in violation of ORS 468A.715(1) and OAR 340-248-0110(2).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(u), because the violation resulted in the potential for public exposure to asbestos or the release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of asbestos-containing waste material (ACWM) abated was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:
$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a).

"P" is Respondent's prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was a single occurrence or was repeated or continuous during the period of the violation and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(C)(i) because the violation existed for one day or less and did not recur on the same day.

"R" is the cause of the violation and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(D)(ii), because Respondent's conduct was negligent. Respondent failed to take reasonable care to avoid the foreseeable risk of allowing a person other than a licensed asbestos abatement contractor to perform an asbestos abatement project. Respondent was aware that his theater screen contained asbestos, yet failed to hire a licensed asbestos abatement contractor to perform an asbestos abatement project on the theater screen.

"C" is Respondent's cooperativeness in correcting the violation and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(E)(iii), because Respondent was uncooperative and did not take reasonable efforts to correct the violation or minimize the effects of the violation. Respondent was notified in writing on June 25, 2003, and August 27, 2003, that the ACWM must be cleaned up by a licensed asbestos abatement contractor, yet Respondent has failed to arrange for a proper abatement of the ACWM.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that the Respondent gained through noncompliance and receives a value of $6,297, which represents the amount Respondent saved by not having a licensed contractor properly remove, package and label the ACWM. The economic benefit is calculated by the US EPA BEN computer model, pursuant to OAR 340-012-0045(1)(c).

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 2 + -2)] + $6,297
= $6,000 + ($600 x 4) + $6,297
= $6,000 + $2,400 + $6,297
= $14,697

Pursuant to ORS 468.140(3)(b), the amount of a penalty may not exceed $10,000 per day. Therefore, the penalty for this violation is reduced to $10,000.

= $10,000 is the total amount of Respondent's penalty for Violation 1.

Exhibits from Hearing of March 4, 2004

Attachment R-2

D
R-2

Palmers & Son's Construction, Inc.
CCB # 151885

TO Maurice
@ 541-564-0179

Our Plan for removal of the asbestos siding on the old theater screen in Hermiston is to place plastic sheeting on the ground cover the sheeting with lumber to protect the sheeting and drop the screen onto the protective lumber then disassemble the screen loading the wooden structure onto one truck and all debris and asbestos siding onto a different truck to be taken to the disposal sight in Boardman Oregon, the siding will be contained in a plastic tarp during transport. If there are any corrections to this procedure please advise.

Thank you
Maurice

Maurice -
There are currently no regulations on the packaging of Non-friable Asbestos. The objective is to keep non friable from becoming airborne. You may want to wet down the asbestos siding on the screen. Make sure the tarp is secured. It would be even better if the asbestos was wrapped and taped in plastic. (JUST a suggestion)

Pamela

32218 Stanfield Meadows Rd. • Stanfield, OR • 97875 • (541) 449-3556 • fax (541) 449-3515

Attachment R-3

FINLEY BUTTES LANDFILL COMPANY

P.O. BOX 61726
VANCOUVER, WA 98666
503/288-7844 • 360/695-4858
FAX 360/695-5091

R-3 (A)

SPECIAL WASTE PERMIT AND INSTRUCTIONS

- The generator must determine if the waste is hazardous or dangerous before completing a permit application.
- The special waste permit application must be in the name of the generator of the waste and signed by an authorized representative who is responsible for the accuracy of all information submitted.
- Recertification is required for on-going special waste streams prior to the expiration date.
- A copy of the approved special waste permit must be shown to the gatehouse attendant upon delivery at the facility.

- To be completed by disposal company -

Generator: McDavid, Maurice

Customer: Same

Waste: Non-Friable Asbestos Siding per customer Non-Friable – Columbia Self-Propelled Tipper Only

Instructions: As required by OAR 340-248-290 temporary rules – Non-friable Asbestos. Any waste that contains nonfriable asbestos material must be handled and disposed of using methods that will prevent the release of airborne asbestos-containing material. All asbestos containing waste must be accompanied by DEQ waste shipment record (form ASN-4).

Date: April 30, 2003

Permit No: 1-03-039

Expiration date: July 31, 2003

New/Recert: New (Copy to Sales)

Previous No: Not Applicable

Landfill report: Yes

Environmental approval: Pamela Spawlek

Attachment R-4

To whom it may concern:
Case # AQ /AB-ER-03-128

1 Mr Mc Clannahan noticed a hazard on some property he owned but because he is over 80 years old he was not physically able to remove the hazard. Mr. Mc Clannahan contacted a Contractor friend.

2 On or about May 1st ,2003 . I did obtain the theater screen and support structure. In a contract with Mr. Mc Clannahan.

3. I and or any agent of mine have at no time accumulated any asbestos containing material

4. I at no time or have I had any workers disassemble asbestos containing material using crow bars or any other tool.

5. Before obtaining the theater screen I had my agent check out the requirements, obtain the required permits, and verify any procedures I was going to use.

6. There was no asbestos abatement project.

7. A. The ground where the theater screen was dismantled was entirely covered pith a plastic barrier.

B. The screen was dropped onto this barrier, the structure was removed from the back side of the screen material.

C. Leaving the 1x6 tong and groove boards and paper some asbestos containing boards and the plastic barrier then the ground.

D. The workers then removed the 1x6 tong and groove boards using no tools simply lifted them up and carried them over and stacked them up and started pulling nails.

E. Workers put a plastic bed liner into the truck this liner was large and extended out the back of the truck and over the sides and over the front of the truck so as to be able to completely envelope any material loaded into the truck

F. Workers then loaded some non asbestos containing material into the truck.
At this point Ms Jacobs visited our sight and ask if she could have a sample of the material we thought might contain asbestos I said yes. She said every thing looked fine and left with her sample of my material.

G. My wife Kathy and I and our boys loaded the asbestos containing panels carefully onto Our truck witch had a plastic liner placed in the bed and over top of the non asbestos containing items previously loaded. None of the asbestos containing boards were broken by the disassembly or the loading of them into the truck.

H. the plastic barrier from the ground was then rolled up by my wife and me. The rolled up plastic barrier was loaded on top of the asbestos containing boards.

I. All the items in Our Truck were then wrapped in the plastic liner it was taped closed and labeled asbestos containing waste. The truck was immediately driven to the disposal sight as per our permit and instructions.

J. The wood material that was stacked on the premises was then cleaned up and hauled to my place for use afterwards the areas where work was performed were cleaned of all wood materials and metal that we had removed from the screen.

All allocations presented in this case are false, and misrepresentation of the true facts. All the statements in this are documented photographically. And will be presented if this is not dropped and action taken against Mr Hack for his fabrication of lies to make a case. And an apology for our inconvenience and loss of business opportunities.

R-4 (1)

2

points in this case

1. Licensed contractors are required except as noted, a facility owner or operator whose own employees demolish may allow employees to

our observance of this part indicates employees must be certified but omits the owner. Therefor the owner may at his or her discretion remove the material in question. As long as the proper disposal permits are obtained, and all precautions are observed. We did the work of the asbestos removal as owners of the material.

2. Accumulation no material was added to this location, and open storage nom material was stored openly or otherwise, the entire loading and removal process took only a couple hours and was completed in a truck, that had both sides and a tailgate, and all the material in the truck asbestos containing and otherwise was wrapped in plastic the plastic was then taped closed to eliminate the possibility of any leakage,

3. The age of the truck, the tailgate being removed to facilitate loading and other items presented in this case are blatant fabrications and anyone who uses his or her office to threaten or do monetary damage to anyone should be brought before the courts for disciplinary action.

your attention in this case must be forthcoming.

Denis L. Palmer pres. Owner
Palmers and Sons Construction Inc.

3

Attachment R-5

RS

Attachment A-1

20030409

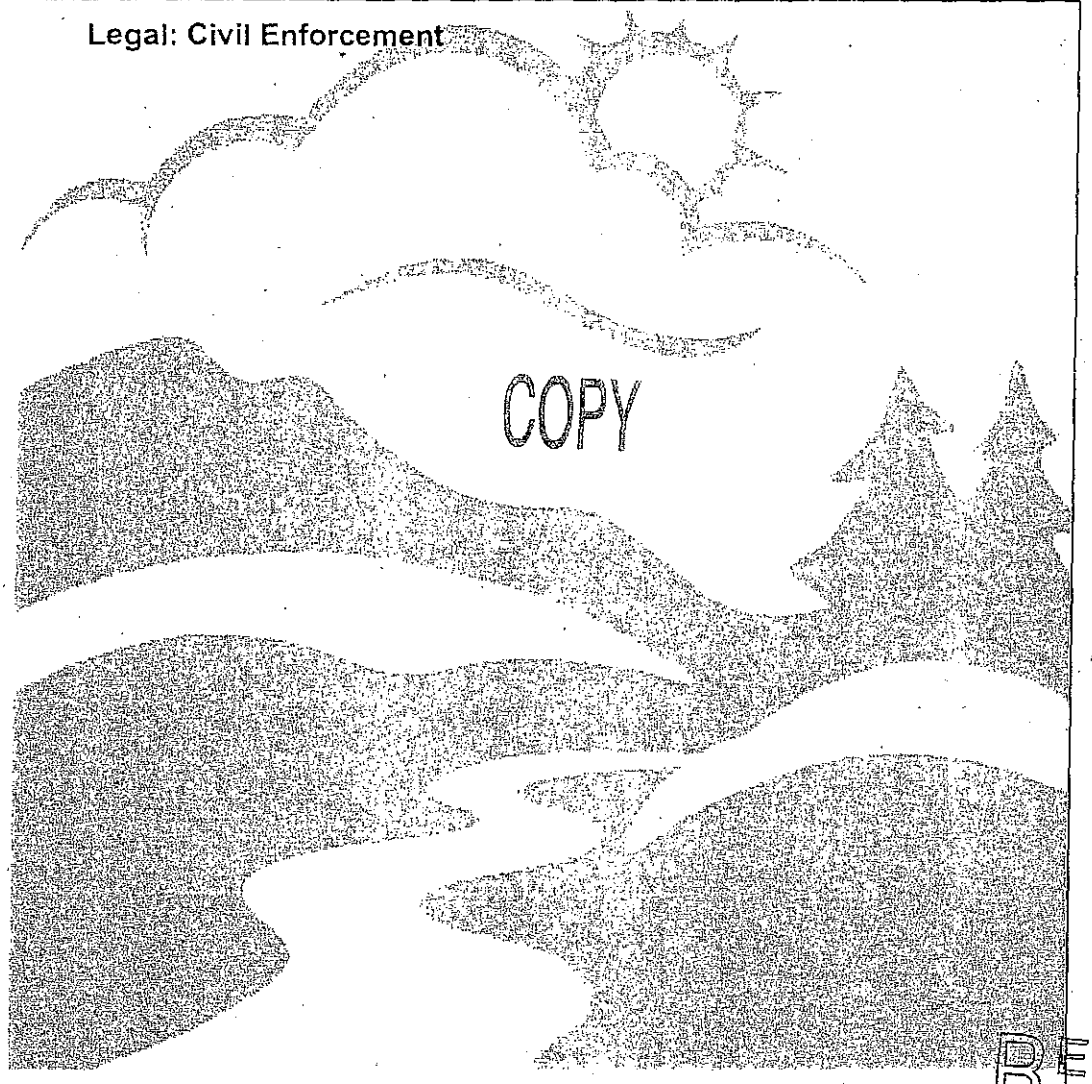
Analytical Report

Hermiston Cinema

Sampling Event: 20030409

Report to: Messina, Frank, Oregon Department of Environmental Quality **Print Date: 06/03/2003**

Legal: Civil Enforcement



COPY

DEQ

State of Oregon
Department of
Environmental
Quality

Laboratory Division
1712 SW 11th Avenue
Portland, OR 97201
Phone: (503) 229-5983
(800) 452-4011
Fax: (503) 229-6924

www.deq.state.or.us

Final Report Approved by:

Jeffrey M Smith for mma — Christopher L Redman

Mary Abrams, Laboratory Manager

Chris Redman, Laboratory QA Manager

A

A1

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030409 Hermiston Cinema

Sampling Event Summary

Sampling Event Comment:

Preliminary results by E-mail 05-15-03.

Sampling Subproject:

16 (26302) Asbestos Monitoring

Sample Summary

Item	QA	Station	Sample Matrix	Sample Date / Time
001	S	10000 Old theater screen sample, dumpster	Const. Material	07-May-2003 13:30

Key to QA/QC Types

S = Sample

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030409 Hermiston Cinema

Item	Parameter	Method	Result

001 S 10000 Old theater screen sample, dumpster, 05/07/2003 13:30

General Chemistry

Percent Asbestos	DEQ Asbestos	Macro: Gray cementitious material with one surface painted white. Micro: 10% chrysotile asbestos carbonate material non-fibrous minerals paint

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030409 Hermiston Cinema

Request for Analysis

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Site (address or name): Hermiston Cinema Hwy 395 & Theater Lane Hermiston, OR

LASAR Station Number:

Lat/Long (decimal degrees): ? (Only required if new LASAR Station)

Sampling Event#: 20030409

Collected By: Patty Jacobs

Date Collected: 5/7/03

Sampling Subproject (fund code): 26302

Item #	Sampling Location	Sample description	Bag or Container I.D.	Time	Tests Required	Comments
1	Hot Theater screen - sample dumpster	White CAB	Z4186	1:30pm	Micro for Asbestos	
2						
3						
4						
5						
6						

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 1

Relinquished by: Frank Measina Date/Time 5/12/03, 10:30pm

Received by: [signature] Date/Time 5/14/03 11:50

Received by analyst: [signature] Date/Time 5/14/03 1553

or locked in Room U31B: Date/Time

Comments: please send copy of the results to Frank Measina

RECEIVED
JUN 20 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

End Report
06/02/2003 13:31

Hermiston Cinema
Hwy 395 & Theater Lane
Hermiston, OR

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Sampling Event# 20030409

Site (address or name): _____

Collected By: Patty Jacobs

Date Collected: 5/7/03

LASAR Station Number: _____

Sampling Subproject (fund code): 26302

JUN 08 2003

Lat/Long (decimal degrees): ? (Only required if new LASAR Station)

Sampling Location	Sample description	Bag or Container I.D.	Time	Tests Required	Comments
old Theater screen - Sample dumpster	White CAB	Z4186	1:30pm	Micro for Asbestos	

RECEIVED
JUN 20 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 1

Relinquished by: Frank Measina Date/Time 5/12/03, 10:30pm

Received by: _____ Date/Time 5/14/03 11:50

Received by analyst: _____ Date/Time 5/14/03 1653

Stored or locked in Room U51B: _____ Date/Time _____

Comments: please send copy of the results to Frank Measina

Attachment A-2

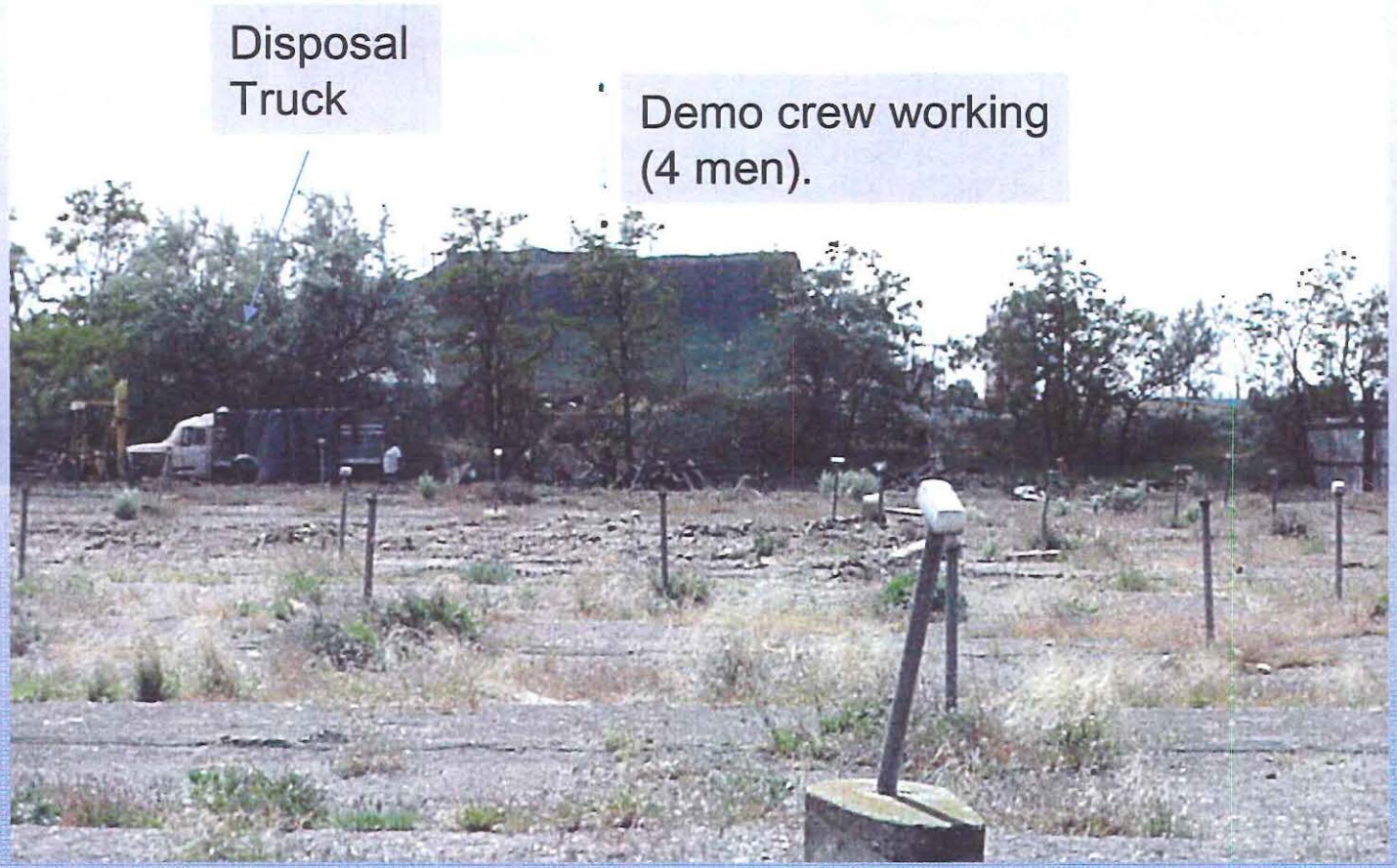
A 2 81

Hermiston Theatre Asbestos Removal

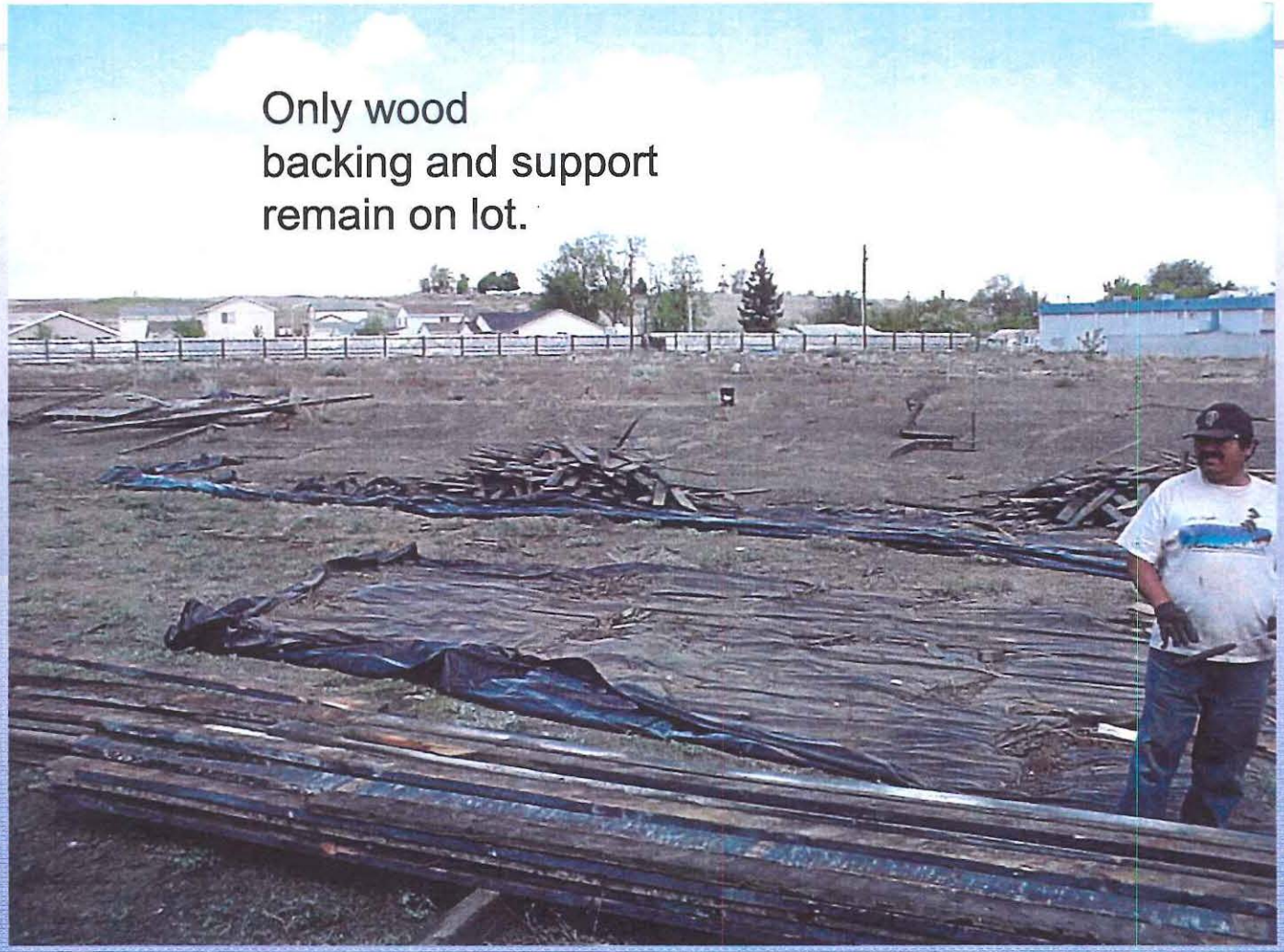
5/7/03 Observations

Theatre Overview

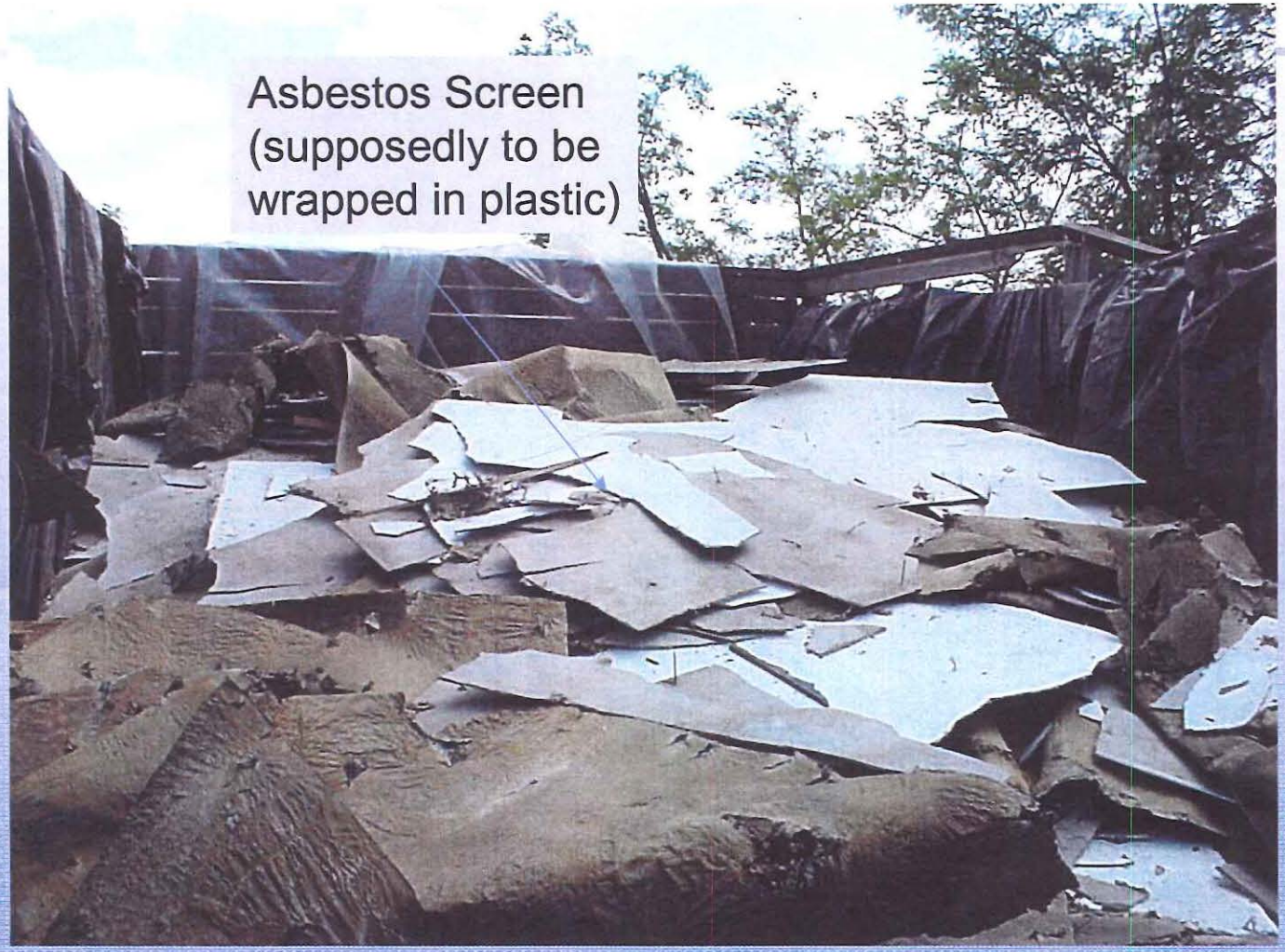
Drive-In

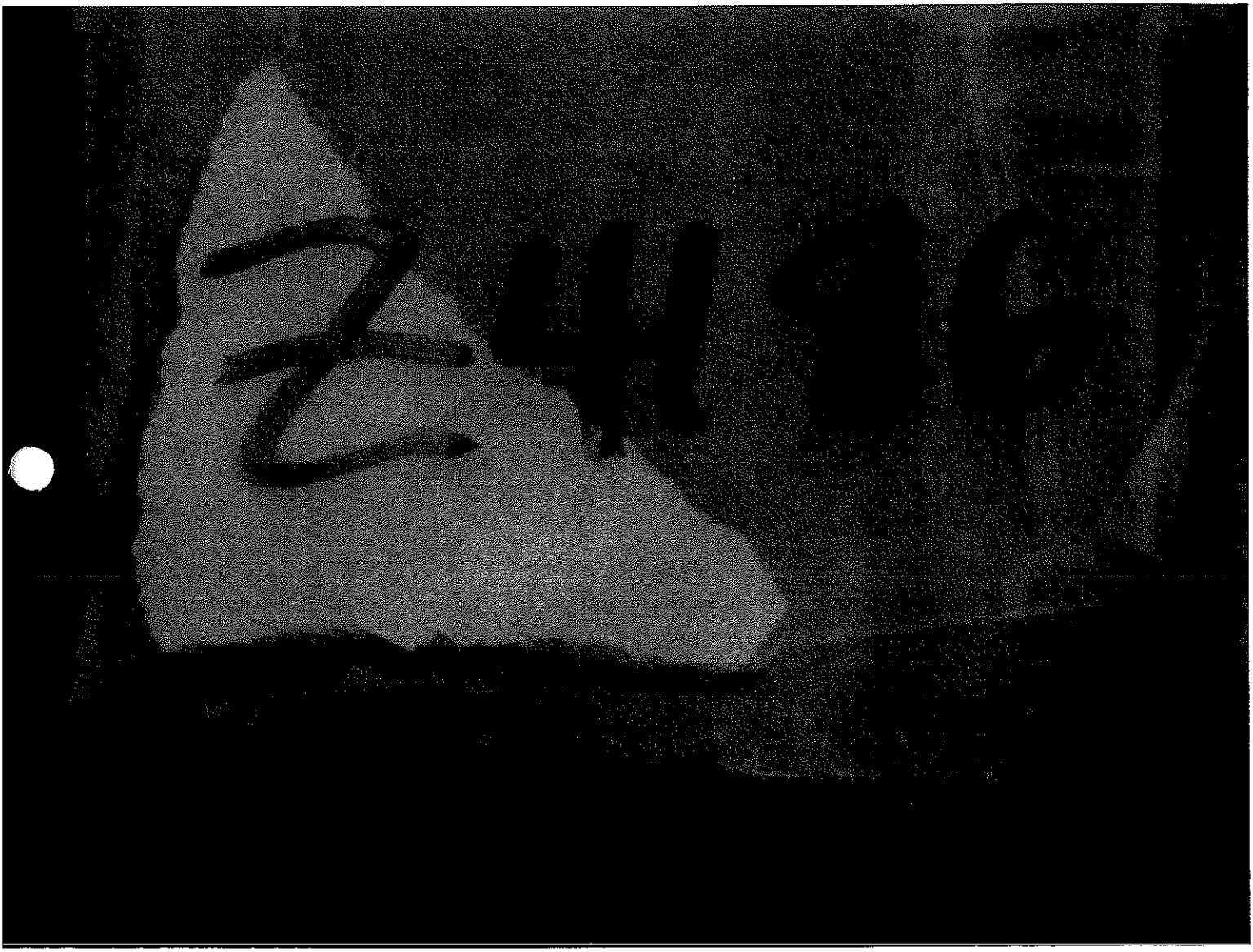


Demo of screen



Disposal Truck





Attachment A-3

UMATILLA COUNTY ASSESSMENT & TAXATION USE ONLY
AT8.2 118737 R 08-01 4N2803-D0-01200 11:39:00 Feb 25 2004

'CLANNAHAN WILLIAM M

THRU: MCCLANNAHAN WILLIAM M
LOAN#

PO BOX 224
UMATILLA OR 97882

PROP CLASS 300 MAINT AREA 3 STUDY AREA 1
APPR# 29 PLNG ZONE M-1

	AT	OOPR	CLASS	ACRES	VALUE
L1	OSD				3,540
L2	L			5.95	342,070
*				5.95	345,610

	2003 (CURRENT) TOTAL R.M.V.	2003 (CURRENT) TOTL ASSESSD	2002 (PRIOR) TOTAL R.M.V.	2002 (PRIOR) TOTL ASSESSD
---- NON-OOPR ----		100.00%		100.00%
LAND VALUE:	345,610		439,640	
TOTAL VALUE:	345,610	154,660	439,640	150,160

	LAND	BLDG & ETC.	MFD STRUCT
APPRAISAL YEAR:	01		
TREND PERCENT:	4%		

2003 BALANCE DUE 0.00 ADVAL TAX 3,242.30

TRN DATE	BTCH	RECEIVED	INT/DISC	JRNL	RCPT#	DESCRIPTION
11-15-03	233	-3,145.03	-97.27	C	90 38388	

`02 BALANCE DUE 0.00 ADVAL TAX 2,998.15

TRN DATE	BTCH	RECEIVED	INT/DISC	JRNL	RCPT#	DESCRIPTION
11-15-02	224	-2,908.21	-89.94	C	90 37642	

2001 BALANCE DUE 0.00 ADVAL TAX 2,986.88

TRN DATE	BTCH	RECEIVED	INT/DISC	JRNL	RCPT#	DESCRIPTION
11-15-01	226	-2,897.27	-89.61	C	90 32993	

- END -

Post-it® Fax Note 7671	Date 2/25	# of pages ▶ 2
To Bryan Smith	From T. Hack	
Co./Dept. OC & E	Co. AQ - Pendleton	
Phone #	Phone # 278-4626	
Fax # 229-6762	Fax #	

A3

UMATILLA COUNTY ASSESSMENT & TAXATION USE ONLY
AT8.2 118737 R 08-01 4N2803-D0-01200 10:18:24 Jun 06 2003

CLANNAHAN WILLIAM M

THRU: MCCLANNAHAN WILLIAM M
LOAN#

PO BOX 224
UMATILLA OR 97882

PROP CLASS 300 MAINT AREA 3 STUDY AREA 1
APPR# 29 PLNG ZONE M-1

	AT	OOPR	CLASS	ACRES	VALUE
L1	OSD				3,540
L2	L			5.95	436,100
*				5.95	439,640

	----- 2003 (CURRENT) ----- TOTAL R.M.V.	TOTL ASSESSD	------ 2002 (PRIOR) ------ TOTAL R.M.V.	TOTL ASSESSD
---- NON-OOPR ----		100.00%		100.00%
LAND VALUE:	439,640		439,640	
TOTAL VALUE:	439,640	NO CURR.AV	439,640	150,160

	LAND	BLDG & ETC.	MFD STRUCT
APPRAISAL YEAR:	01		
TREND PERCENT:			

2002 BALANCE DUE	ADVAL TAX			
0.00	2,998.15			
TRN DATE BTCH	RECEIVED	INT/DISC	JRNL	RCPT# DESCRIPTION
11-15-02 224	-2,908.21	-89.94	C 90	37642

01 BALANCE DUE	ADVAL TAX			
0.00	2,986.88			
TRN DATE BTCH	RECEIVED	INT/DISC	JRNL	RCPT# DESCRIPTION
11-15-01 226	-2,897.27	-89.61	C 90	32993

2000 BALANCE DUE	ADVAL TAX			
0.00	3,016.98			
TRN DATE BTCH	RECEIVED	INT/DISC	JRNL	RCPT# DESCRIPTION
11-15-00 255	-2,926.47	-90.51	C 90	34471

- END -

Attachment A-4

ATT TOM HACK
541-278-4626
FROM W. MCCLAMAHAN

A4

By: _____

AMERICAN FAMILY MUTUAL INSURANCE COMPANY
MADISON, WISCONSIN 53783-0001
COMMERCIAL GENERAL LIABILITY COVERAGE PART
DECLARATIONS

POLICY NUMBER
36 X10762-01

COMPANY CODE
0000-BLBK-OR

NAMED INSURED: PALMERS & SONS C STRUCTION IN

MAILING ADDRESS: 32218 STANFIELD MEADOWS RD
STANFIELD OR 97875-5022

LIMITS OF INSURANCE

GENERAL AGGREGATE LIMIT (OTHER THAN PRODUCTS-COMPLETED OPERATIONS)	$1,000,000
PRODUCTS-COMPLETED OPERATIONS AGGREGATE LIMIT	$1,000,000
PERSONAL & ADVERTISING INJURY LIMIT	$500,000
EACH OCCURRENCE LIMIT	$500,000
DAMAGE TO PREMISES RENTED TO YOU LIMIT - ANY ONE PREMISES	$100,000
MEDICAL EXPENSE LIMIT - ANY ONE PERSON	$5,000

LOCATION OF ALL PREMISES YOU OWN, RENT OR OCCUPY

LOCATION 0001 PREMISES 001

32218 STANFIELD MEADOWS RD
STANFIELD UMATILLA COUNTY OR 97875-5022

CLASSIFICATION

CODE	DESCRIPTION	PREMIUM BASIS	RATE ALL OTHER	RATE PR/CO	ADVANCE PREMIUM ALL OTHER	ADVANCE PREMIUM PR/CO
91340	CARPENTRY - CONSTRUCTION OF 1-4 FAMILY DWELLINGS	12	34.333	(INCL)	$412.00	(INCL)
		(8)	(D)			
8=EMPLOYEE MONTH			D=PER EMPLOYEE MONTH			
			TOTAL ADVANCE PREMIUM		$412.00	

Forms and endorsements applying to this coverage part and made part of this policy at time of issue:

CG 00 01 07 98 CG 74 01 01 88 CG 21 47 07 98 CG 21 50 09 89 IL 00 21 04 98
IL 75 02 06 99 CG 21 60 09 98 CG 00 57 09 99 CG 74 02 10 97 CG 77 13 04 02
CG 77 14 04 02 CG 21 69 01 02 CG 22 80 07 98 CG 77 12 05 00 CG 03 00 01 96

AUTHORIZED REPRESENTATIVE

COUNTERSIGNED LICENSED RESIDENT AGENT

AGENT 007-506
JON D THACKER
254 E MAIN ST
HERMISTON OR 9 -1840

PAGE 01
BRANCH SKW 01-12
ENTRY DATE 09/04/2002

CONTRACT

This Agreement (this "Agreement") is made effective as of May 1, 2003, by and between William McClannahan, of 124 Reo Senda Dr, Umatilla, Oregon, and Palmers & Sons Construction, Inc. CCB# 151885, of 32218 Stanfield Meadows Rd., Stanfield, Oregon. In this Agreement, the party who is contracting to receive the services shall be referred to as "Mac", and the party who will be providing the services shall be referred to as "P&S".

1. **DESCRIPTION OF SERVICES.** Beginning on May 1, 2003, P&S will provide the following services, (collectively, the ("Services"): Demolition and removal of outside theater screen to ground level, not included as removal of any material below grade and any concrete. Included are all labor, tools and equipment used. Hauling of debris and disposal of such, and Disposal fees. Sight will be completely cleaned of material from demolishing screen and structure; any and all usable materials removed become the property of Palmers and Son's Inc.

2. **PAYMENT FOR SERVICES.** Mac will pay compensation to P&S for the Services in the amount of $5000.00. This compensation shall be payable $1000.00 deposit and $4000.00 upon completion. Inspection will be completed within 24 hours of completion, and payment upon satisfactory inspection. Any and all costs & liabilities of removing the outdoor theater screen shall be P&S.

3. **ENTIRE AGREEMENT.** This agreement contains the entire agreement of the parties, and there are no other promises or conditions in any other agreement whether oral or written.

4. **SEVERABILITY.** If any provision of this Agreement shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of this Agreement is invalid or unenforceable, but that by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

Party Contracting Services:
William McClannahan

By: W E McClannahan May 1 - 2003
William McClannahan

RECEIVED
JUN 09 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

Service Provider:
Palmers & Sons Construction, Inc. CCB# 151885

By: May 1, 2003
Palmers & Sons Construction, Inc. CCB# 151885

Attachment A-5

File: _____

MEMO D

State of Oregon
Department of
Environmental
Quality

Phone Memo

Department of Environmental Quality
Eastern Region - Pendleton Office

Project: Hermiston Drive-In Enforcement Case
Date: 6/09/2003 Time: 3:40 p.m.
Call To / From: William McClannahan / Tom Hack
Title & Company: Property owner
Address: P.O. Box 224, Umatilla, OR 97882 Phone: 922-3256
Subject: McClannahan's role in the project.

Summary of Call: Mr. McClannahan said he was the owner of the property. He recalls his son telling him some time ago the screen may have contained asbestos. However, he said he saw the crew wearing dust masks during part of the project.

Otherwise, he didn't seem to know much about the screen or the project. He said he entered into a signed contract with Palmer which released McClannahan of all liability associated with the project.

By: Thomas G. Hack cc: _____

A5

Attachment A-6

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

WILLIAM MCCLANNAHAN
PO BOX 224
UMATILLA OR 97882

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☒ Addressee

B. Received by (Printed Name) | C. Date of Delivery 6-11

RECEIVED
JUN 12 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from servi) 7002 0510 0003 5951 2581

PS Form 3811, August 2001 Domestic Return Receipt Tom 102595-02-M-1035

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Eastern Region
700 SE Emigrant
Suite 330
Pendleton, OR 97801
(541) 276-4063 Voice/TTY
FAX (541) 278-0168

June 9, 2003

William M. M°Clannahan
P.O. Box 224
Umatilla, OR 97882

RE: **NOTICE OF NONCOMPLIANCE**
No. AQ-ERP-03-032
Allowing the Conduct of a Friable Asbestos Abatement project on Your Property by Unlicensed Workers.
AQ Asbestos – Umatilla County

Dear Mr. M°Clannahan:

On May 5, 2003, the Department received a complaint concerning the demolition of the former Hermiston drive-in theater screen, located on Theater Lane, just off Highway 395 in Hermiston. The complaint alleged the screen contained asbestos and was being improperly demolished and loaded into an old truck by a work crew.

In response to the complaint, Patty Jacobs of the DEQ Pendleton Office, arrived at the site on the afternoon of May 7, 2003 to conduct an investigation. She arrived at the site toward the end of the project. She observed several unidentified wrapped packages on the ground. Then she observed an open-ended truck containing badly broken up white screen material mixed with a black tar material. A plastic liner was observed in the bed of the truck partially wrapping the material. Ms. Jacobs estimated the volume of friable asbestos in the truck to be approximately three (3) cubic yards.

While at the site, Ms. Jacobs discussed the project with Mr. Denis Palmer. Mr. Palmer said the project was being completed by Mr. Maurice McDavid and a labor crew of four workers hired from Atkinson Reforestation. Mr. Palmer informed her the screen had the dimensions of 160' x 60' and was presently in the process of being hauled to Finley Buttes Landfill. He informed her that he knew the screen contained asbestos. She obtained a sample of the screen material to be analyzed for asbestos content. On May 15, 2003 the DEQ Laboratory in Portland reported the sample to contain 10% asbestos in the chrysotile form.

On May 19, 2003 I contacted Mr. Palmer concerning the project. He explained that other than loaning Mr. McDavid his CCB license number, he had very little involvement with the project. He informed me that he had made very brief site visits. He was aware the screen contained asbestos in advance of the project. He also informed me the screen had been cracked and naturally weathered over the years. He felt the natural weathering of the screen was the primary reason for breakage rather than the work crew. Furthermore, it was his belief the screen was not entirely comprised of asbestos. Over the years, portions of the screen had been replaced with a non-asbestos material painted to blend in with the color of the asbestos screen material.

After conducting some research at the Umatilla County Courthouse, it was confirmed that you are the owner of the property where the project took place.

We discussed the project on June 9, 2003. You informed me the screen was more than thirty years old. You said much of the screen had been badly weathered, cracked, and broken over time. Many of the pieces had previously been blown off by the wind. You also believed that some portions of the screen had worn away and was replaced with a non-asbestos material.

VIOLATION:

Allowing the conduct of a friable asbestos abatement project on your property by uncertified workers is a violation of Oregon Administrative Rules (OAR) 340-248-0110(2). Please note that although the broken portions of the screen had probably been broken due to weathering and age, the portions of broken screen was still in a friable condition and was required to be abated by an Oregon-licensed asbestos abatement contractor.

This is a Class I violation and is considered to be a significant violation of Oregon Environmental law. Therefore, we are referring your case to the Department's Office of Compliance and Enforcement with a recommendation to proceed with a formal enforcement action which may result in a civil penalty assessment. Civil penalties can be calculated for each day of violation.

The hazards of asbestos have been known for over twenty years. When the fibers are inhaled, terminal illnesses such as asbestosis, mesothelioma, and lung cancer may develop. Therefore, it is prudent for friable asbestos to be handled by trained contractors using appropriate safety equipment.

Should you have any questions concerning this Notice, please feel free to contact me in Pendleton at (541) 278-4626.

Sincerely,

Thomas G. Hack

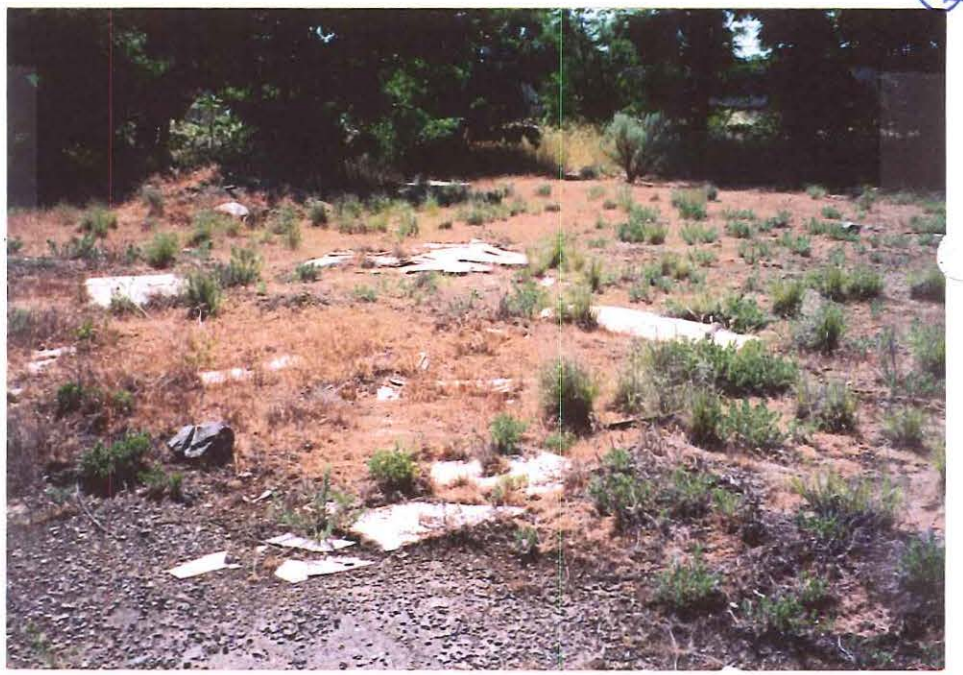
Thomas G. Hack
Air Quality Program
ER – Pendleton

cc: Peter Brewer, AQ Manager, ER-Bend
Bryan Smith, Office of Compliance & Enforcement, HQ
Michelle Butler, AQ Program Development, HQ
Roy Kroker, OR OSHA, Salem
Oregon Construction Contractor's Board

Attachment A-7

Hermiston Drive-In Enforcement Case Investigation of June 11, 2003 by Tom Hack, AQ Program - Pendleton

Facing the NE from SE Corner of the Property.



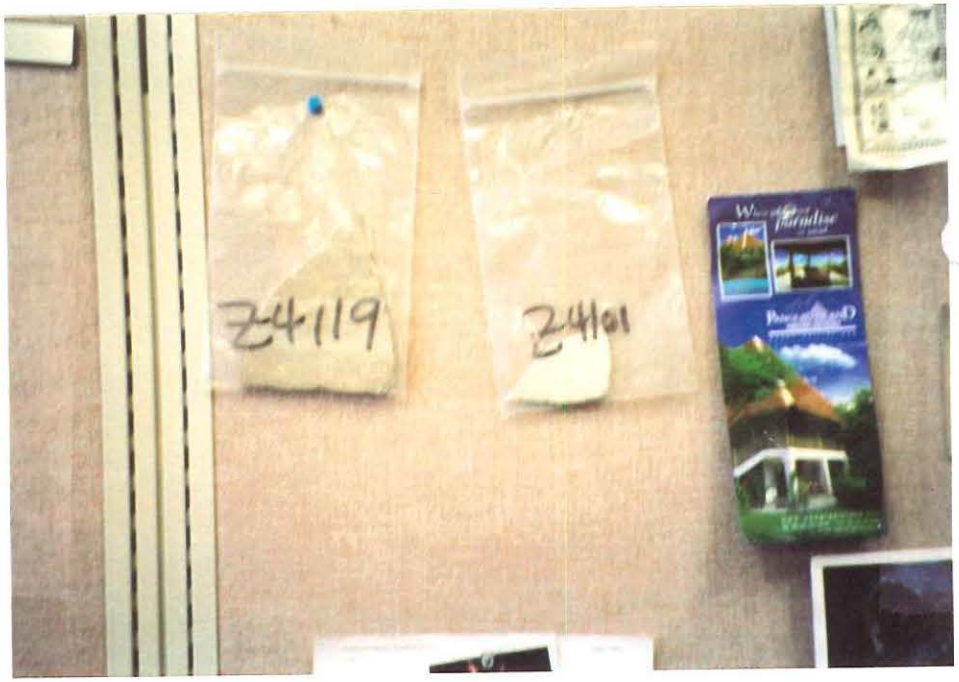
Facing the SE from the SE Corner of the property.

On 6/11/2003 I returned to the site to determine whether it had been cleaned up. I observed approximately 60 sq. feet (rough estimate) of the material remaining in the SE Corner of the property. The Samples came back as positive (10% Chrysotile).

As the material is in a "friable" condition, it will need to be abated by an OR licensed asbestos abatement contractor.

Hermiston Drive-In Enforcement Case Investigation of June 11, 2003 by Tom Hack, AQ Program - Pendleton

Another view from the SE Corner of the property.



I observed some gray & white material during my 6/11/2003 inspection. A sample of each color was collected. Both samples came back as 10% asbestos in the chrysotile form.

Attachment A-8

Analytical Report

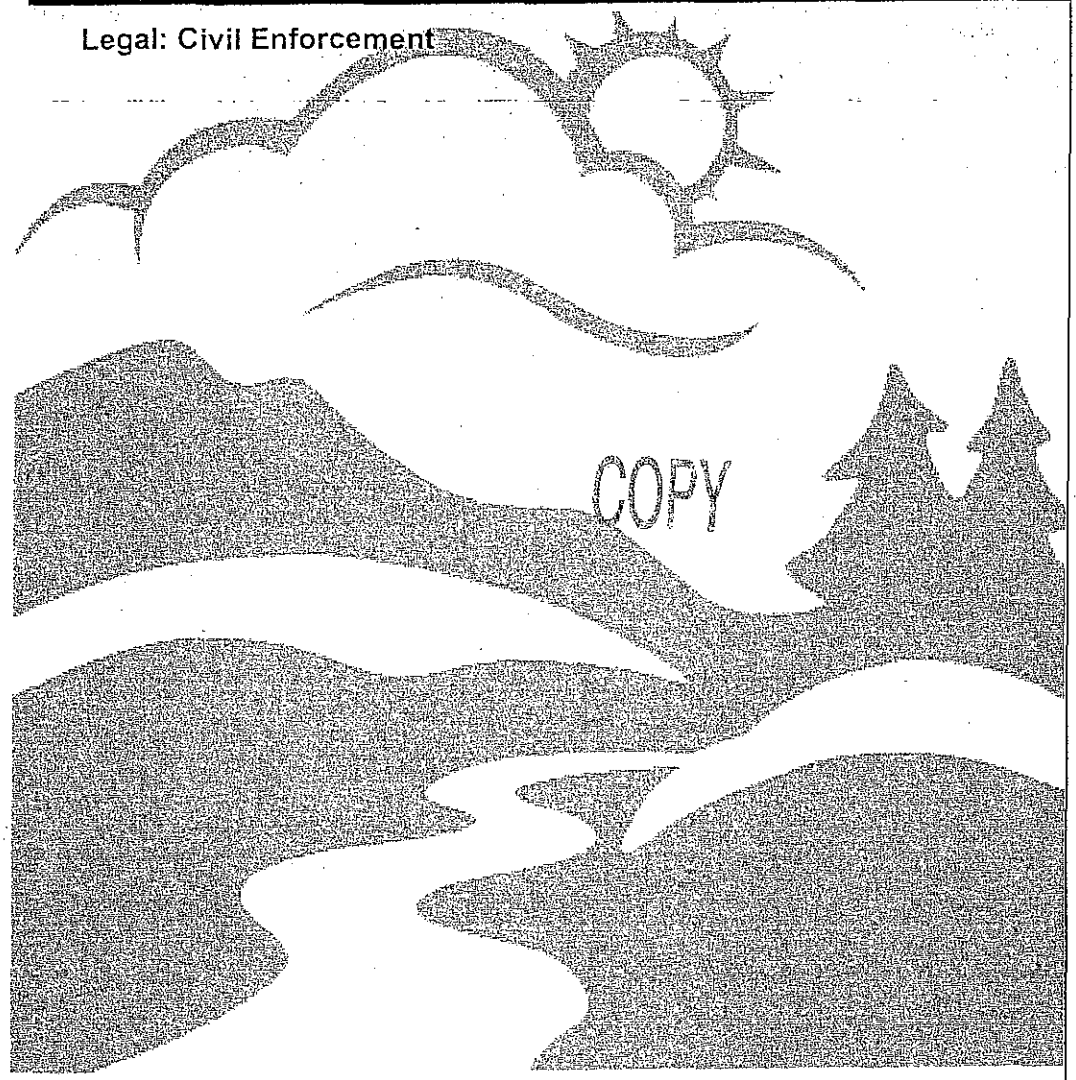
Former Hermiston Drive-In Theater

Sampling Event: 20030515

20030515

Report to: Hack, Tom, Oregon Department of Environmental Quality **Print Date: 07/01/2003**

Legal: Civil Enforcement



DEQ
State of Oregon
Department of
Environmental
Quality

Laboratory Division
1712 SW 11th Avenue
Portland, OR 97201
Phone: (503) 229-5983
(800) 452-4011
Fax: (503) 229-6924

www.deq.state.or.us

Final Report Approved by:

Mary Abrams, Laboratory Manager

Chris Redman, Laboratory QA Manager

A8

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

The official final laboratory report carries the original signatures of the laboratory Quality Assurance Officer and Division Administrator, and is retained by the laboratory. All unsigned and electronic copies of this report are unofficial copies of the original document. The title page of the report bears the name of the primary document recipient. Questions as to the integrity of the data contained in this report should be directed first to the report's primary recipient and second to the laboratory. The laboratory maintains all raw data and records from which this report has been generated for a period of no less than five years. Additional electronic and/or printed copies of this report can be obtained by contacting the laboratory.

The DEQ Laboratory employs in its operations standard analytical methods that have been adopted by governing agencies for their specific application to sample matrices and regulatory programs of interest. In cases where standard analytical methods have not been promulgated, the laboratory has developed "in-house" methods which are consistent with best laboratory operating practices that will result in data of a quality appropriate for the intended use of information. Furthermore, all data has been scrutinzed for adherence to established Quality Assurance/Quality Control (QA/QC) guidelines. Unless otherwise noted, the information contained in this report meets all the aforementioned requirements as documented in the laboratory's Quality Assurance Manual and Standard Operating Procedures. Specific deviations from these requirements are noted, as appropriate, in this report. Questions or concerns regarding the contents of this report can be addressed by contacting the DEQ laboratory at 503.229.5983.

For asbestos analysis, samples are quantified by matrix reduction and visual estimation by microscopic examination using a dissecting microscope and polarized light microscope (PLM). The DEQ Laboratory participates in quarterly Bulk Asbestos Proficiency Testing which is offered by the American Industrial Hygiene Association (AIHA).

Att: Request for Analysis

cc: DEQ Laboratory File

Sample Collector:
Tom Hack, Oregon Department of Environmental Quality

Analytical Laboratory:
Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

The official final laboratory report carries the original signatures of the laboratory Quality Assurance Officer and Division Administrator, and is retained by the laboratory. All unsigned and electronic copies of this report are unofficial copies of the original document. The title page of the report bears the name of the primary document recipient. Questions as to the integrity of the data contained in this report should be directed first to the report's primary recipient and second to the laboratory. The laboratory maintains all raw data and records from which this report has been generated for a period of no less than five years. Additional electronic and/or printed copies of this report can be obtained by contacting the laboratory.

The DEQ Laboratory employs in its operations standard analytical methods that have been adopted by governing agencies for their specific application to sample matrices and regulatory programs of interest. In cases where standard analytical methods have not been promulgated, the laboratory has developed "in-house" methods which are consistent with best laboratory operating practices that will result in data of a quality appropriate for the intended use of information. Furthermore, all data has been scrutinzed for adherence to established Quality Assurance/Quality Control (QA/QC) guidelines. Unless otherwise noted, the information contained in this report meets all the aforementioned requirements as documented in the laboratory's Quality Assurance Manual and Standard Operating Procedures. Specific deviations from these requirements are noted, as appropriate, in this report. Questions or concerns regarding the contents of this report can be addressed by contacting the DEQ laboratory at 503.229.5983.

For asbestos analysis, samples are quantified by matrix reduction and visual estimation by microscopic examination using a dissecting microscope and polarized light microscope (PLM). The DEQ Laboratory participates in quarterly Bulk Asbestos Proficiency Testing which is offered by the American Industrial Hygiene Association (AIHA).

Att: Request for Analysis

cc: DEQ Laboratory File

Sample Collector:
Tom Hack, Oregon Department of Environmental Quality

Analytical Laboratory:
Oregon Department of Environmental Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

Sampling Event Summary

Sampling Event Comment:

Preliminary results by E-mail 06-16-03. LE

Sampling Subproject:

16 (26302) Asbestos Monitoring

Sample Summary

Item	QA	Station	Sample Matrix	Sample Date / Time
001	S	30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing	Const. Material	11-Jun-2003 11:30
002	S	30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing	Const. Material	11-Jun-2003 11:30

Key to QA/QC Types

S = Sample

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

Item	Parameter	Method	Result	Notes

001 S 30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing, 06/11/2003 11:30

General Chemistry

Percent Asbestos		DEQ Asbestos	Macro: Gray cementitious material with one surface painted white. Micro: 10% chrysotile asbestos non-fibrous minerals carbonate material paint

002 S 30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing, 06/11/2003 11:30

Percent Asbestos		DEQ Asbestos	Macro: Gray cementitious material with one surface painted white. Micro: 10% chrysotile asbestos non-fibrous minerals carbonate material paint

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

Item	Parameter	Method	Result	Notes
001 S 30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing, 06/11/2003 11:30				
General Chemistry				
	Percent Asbestos	DEQ Asbestos	Macro: Gray cementitious material with one surface painted white. Micro: 10% chrysotile asbestos non-fibrous minerals carbonate material paint	
002 S 30530 Former Hermiston Drive-In Theater Possible piece of screen, gray smooth surface white backing, 06/11/2003 11:30				
	Percent Asbestos	DEQ Asbestos	Macro: Gray cementitious material with one surface painted white. Micro: 10% chrysotile asbestos non-fibrous minerals carbonate material paint	

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY LABORATORY

Analytical Report

Sampling Event: 20030515 Former Hermiston Drive-In Theater

Request for Analysis

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Former Hermiston Drive-in Theater

Site (address or name): Theater Lane
Hermiston, OR

LASAR Station Number: 30530

Lat/Long (decimal degrees): N 45.5567 W -119.2809 (Only required if new LASAR Station)

Sampling Event: 20030515

Collected By: Tom Hack, AQ Program - Pendleton

Date Collected: 6/11/2003

Sampling/Subproject fund code: 26302

Item #	Sampling Location	Sample description	Bag or Container I.D.	Time	Tests requested	Comments
1	SE Corner of Drive-in Property, laying on the ground	Possible piece of Screen, gray smooth surface with white backing.	Z419	11:30 a.m.	Micro for Asbestos	
2	SE Corner of Drive-in property, laying on the ground	Possible piece of screen, white smooth surface, with gray backing.	Z4101	11:30 a.m.	micro for asbestos	
3						
4						
5						
6						

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 2

Relinquished by: Tom Hack Date/Time: 6/13/2003 @ 8:00 a.m. p.m.

Received by: [signature] Date/Time: 6/16/2003 @ 11:00 AM

Received by analysis: [signature] Date/Time: 6/16/2003 @ 11:00 AM

Stored in Room US15 Date/Time:

Comments:

RECEIVED
JUL 11 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

DEPARTMENT OF ENVIRONMENTAL QUALITY
Laboratory Division

Former Hermiston Drive-in Theater

Sampling Event# 20030515

Site (address or name): Theater Lane
Hermiston, OR

Collected By: Tom Hack, AQ Program - Pendleton

Date Collected: 6/11/2003

LASAR Station Number: 30530

Sampling Subproject (fund code): 26302

Lat/Long (decimal degrees): N 45.8567 W -119.2907 (Only required if new LASAR Station)

JUL 02 2003

Item #	Sampling Location	Sample description	Bag or Container I.D.	Time	Tests Required	Comments
1	SE Corner of Drive-in Property, laying on the ground	Possible piece of Screen. gray Smoothe surface with white backing.	Z4119	11:30 a.m.	Micro for Asbestos	
2	SE Corner of Drive-in property, laying on the ground	Possible Piece of screen White Smoothe surface. with gray backing.	Z4101	11:30 a.m.	Micro for asbestos	
3						
4						
5						
6						

LEGAL SAMPLE: Chain of Custody Record

Total # of containers: 2

Relinquished by: Tom Hack Date/Time 6/13/2003 @ 8:00 a.m.

Received by: [signature] Date/Time 6/16/2003 @ 11:00 AM

Received by analyst: [signature] Date/Time 6/16/2003 @ 11:00 AM

or locked in Room U51B: _____ Date/Time _____

Comments:

RECEIVED
JUL 11 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

Attachment A-9

Laboratory Report
Fax Cover Sheet

Department of Consumer and Business Services Oregon
Occupational Safety and Health Division (OR-OSHA)
505 SE 12th Ave, Portland, OR 97214-2408
Phone: (503) 731-8398 • Fax: (503) 731-8388

Date: 2/25/04 **Number of pages (including this page):** 3

To: Bryan Smith

Office: DEQ

Fax Number: 503 229-6762

From: Kermit McCarty

Phone: (503) 731-8398

Comments/message: **These pages that have been faxed are confidential records. If they have been faxed to the wrong address, please notify the Lab at the phone number listed above and destroy the faxed pages. Thank you.**

To get more information on this inspection call 1-800-922-2689 and ask for the RMU (Records management Unit). Reference the inspection report # included in the following pages

A9

Departm .t of Consumer and Busines(Services
Occupational Health Laboratory
505 SE 12th Ave, Portland OR, (503) 731-8398

LABORATORY ANALYSIS REPORT

Chain of Custody

Date Received: 7/14/03
Received by: CN
Analyst: [signature]
Analysis Date: 7/24/03
Date Reported: 7/23/03
Lab Supervisor: [signature]
Kermit McCarthy

Firm: Palmer & Sons construction, Inc.
Location: Hermiston, OR
OSH Specialist: Becky Hillwig
Inspection Report No.: L0855-030-03
Date Sampled: 7/ 1/03

Lab No.	Test Results	Concentration	Method
03-A001517	Sample Description:		
	Employee Name : Bulk of old movie screen		
	Sampler Number : Bulk 1		
	Sample Condition Acceptable: Yes		
	Chrysotile	~10-20%	1006
03-A001518	Sample Description:		
	Employee Name : Bulk of old movie screen		
	Sampler Number : Bulk 2		
	Sample Condition Acceptable: Yes		
	Chrysotile	~10-20%	1006
03-A001519	Sample Description:		
	Employee Name : Bulk of old movie screen		
	Sampler Number : Bulk 3		
	Sample Condition Acceptable: Yes		
	Chrysotile	~10-20%	1006

FEB-25-2004 11:52 OCCUPATIONAL HEALTH LAB 503 731 8388 P.03/03

DEPARTMENT OF CONSUMEF ND BUSINESS SERVICES
Oregon Occupational Safety and Health Division

Seals Intact? ☒ Yes ☐ No		
Chain of Custody:		
Rec'd in Lab	7/14/03	
Rec'd by Analyst	7/23/03	
Analysis Complete	7/24/03	
Calc Checked	7/27/03	
Lab Manager	7/27/03	

FIELD & LABORATORY ANALYSIS REPORT

Firm Name: Palmer & Sons Construction, Inc.
Location/Address: Hermiston, OR
Industrial Hygienist: Rebecca Hillburg
Inspection Report No.: L0855-030-03
SIC/NAICS Code: 1523

Date Sampled: 7/1/03
Sample Type: ☐ Air ☒ Bulk ☐ Wipe
Sample Media:
Analyze for: asbestos

Lab Number	Sample Number	Pump Number	Flow Rate (liters/min)	Sampling Time Start	Stop	Min	Volume (liters)	Employee's Name	Occ Code	Process	Job Description/ Bulk Sample Description
03A-1517	#1									abatement of old drive	Bulk of old movie screen
03A-1518	#2									in movie theatre	Bulk of old movie screen
03A-1519	#3									Screen	Bulk of old movie screen

TOTAL P.03

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Eastern Region
700 SE Emigrant
Suite 330
Pendleton, OR 97801
(541) 276-4063 Voice/TTY
FAX (541) 278-0168

August 27, 2003

William M. M°Clannahan
P.O. Box 224
Umatilla, OR 97882

RE: **NOTICE OF NONCOMPLIANCE**
No. AQ-ERP-03-066
The Continuing Open Accumulation of a Friable Asbestos – Containing Material.
AQ Asbestos – Umatilla County

Dear Mr. M°Clannahan:

On June 9, 2003 you were issued a Notice of Noncompliance (NON) No. AQ-ERP-03-032 for allowing the conduct of a friable asbestos abatement project (demolition of an asbestos-containing drive-in screen) by unlicensed contactors at the former Hermiston Drive-In Theater property. The property was found to be owned by you and located on Theater Lane in Hermiston. The project took place in early May, 2003 and was discovered the Department in response to a complaint.

On June 11, 2003 I returned to the property to determine whether the asbestos-screen material had been completely removed from the property. The site looked relatively clean. However, I observed that approximately sixty (60) square feet of broken screen material at the southeast corner of the property. On June 25, 2003, you were issued NON No. AQ-ERP-03-040. This NON was issued for the open accumulation of an asbestos-containing material. The NON required the material to be abated by an Oregon-licensed asbestos abatement contractor by no later than June 30, 2003. I included a list of asbestos abatement contractors with the NON.

An inspector from Oregon Occupational Safety and Health Administration (OSHA) inspected the site on July 1 and July 3, 2003. She found the broken screen material present at the property. Since the second NON was issued, all my attempts to contact you by telephone and e-mail have failed.

On August 22, 2003 I returned to the site. I observed the broken screen material to remain at the site. It was in the same location and configuration as it was during my inspection of June 11, 2003.

A10

VIOLATION:

This is the continuing open accumulation of a friable asbestos-containing material, and is a violation of Oregon Administrative Rules (OAR) 340-248-0205(1).

This is a continuing Class I violation and is considered to be a significant violation of Oregon Environmental law.

REQUIRED ACTION:

You are required to immediately hire an Oregon-licensed asbestos abatement contractor to abate the remaining screen material on the property. I have enclosed another list of Oregon asbestos abatement contractors. Please commence the hiring process and have the material abated in an expedient manner.

Should you have any questions concerning this Notice, please feel free to contact me in Pendleton at (541) 278-4626.

Sincerely,

Thomas G. Hack

Thomas G. Hack
Air Quality Specialist
ER-Pendleton

enclosure: List of Licensed Oregon Asbestos Abatement Contractors

cc (without enclosures): Peter Brewer, AQ Manager, ER-Bend
Bryan Smith, Office of Compliance & Enforcement, HQ
Michelle Butler, AQ Program Development, HQ
Becky Hillwig, OR OSHA

Attachment A-11

Hermist Drive-In Enforcement Referral Inspection of 11/07/2003

A-11

"X" marks the spot of where I believe the broken asbestos was.

11/07/2003 I met with Thomas Ditton, Bill McClanahan's attorney, at approximately 3:30 PM. The site had changed completely since my last inspection of 8/22/2003. Fenced had been removed, land had been cleared and graded, and the frame of the large theater had been erected. We did not find any remains of the broken asbestos on the ground.

From old landmarks of the theater still remaining, I had a rough idea where the asbestos was. But since the site had changed so much, I wasn't sure.

Attachment A-12

File:

MEMO E

Phone Memo

State of Oregon
Department of
Environmental
Quality

OFFICE OF COMPLIANCE
AND ENFORCEMENT
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED
SEP 02 2003

Post-it® Fax Note 7671 | Date 9/2 | # of pages 1
To Bryan Smith | From T. Hack
Co./Dept. DEQ | Co. AQ-Pendleton
Phone # | Phone # 278-4626
Fax # 276-7262

Department of Environmental Quality
Eastern Region - Pendleton Office

Project: Hermiston Drive-In Enforcement Case
Date: 6/30/2003 Time: 4:40 p.m.
Call To / From: Fred Kubrik, Tektonics / Hack
Title & Company: Project Manager, Walla Walla, WA
Address: 160 West Moore St. Phone: (509) 529-8424, ext. 1310
Subject: Economic Benefit for the Case.

Summary of Call: I explained to Fred the Screen was 60'x 100' and the screen was 10% chrysotile asbestos. I also explained to him the screen was old and weathered and would probably need to be abated as a friable project. I asked him whether he could give me a rough cost estimate for the abatement.
Mr. Kubrik said he had experience removing asbestos theater Screens. He Said the best way to complete the project would be to drape a large plastic sheet around the Screen. He would then send a crew of five underneath the containment on Scissorlifts. They would remove the Screen in Sheets. Any broken Sheets would be contained. He believes a crew of five working at $3,000/day could have the project completed in 5 days ($15,000). Adding the cost of disposal, he guessed the project would run $16,000 - $18,000

By: Thomas G. Hack cc:

By the way Mr Kubrik said he

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

Date: September 2, 2003
To: File
From: Les Carlough, Senior Policy Advisor, Office of Compliance and Enforcement
Subject: Ben calculation for William McClannahan.

General Purpose and Authority

The economic benefit portion of the civil penalty formula is simply the monetary benefit that an entity gained by not complying with the law. It is designed to "level the playing field" by taking away any economic advantage the entity gained and to deter potential violators from deciding it is cheaper to violate and pay the penalty than to pay the costs of compliance.

Oregon Revised Statute 468.130(2)(c,h) directs the Environmental Quality Commission to consider economic conditions of the entity in assessing a penalty as well as other factors that Commission makes relevant by rule. Accordingly, the Commission specified in Oregon Administrative Rule (OAR) 340-012-0045(1)(c)(F) that the penalty will contain an "approximated dollar sum of the economic benefit." That rule also specifies that, "[i]n determining the economic benefit component of a civil penalty, the Department may use the U.S. Environmental Protection Agency's BEN computer model . . ." and must use it on request of a respondent.

Theory of Economic Benefit

Compliance with environmental regulations may require an entity to expend financial resources. These expenditures support the public goal of better environmental quality, but often do not yield direct financial return to the entity. "Economic benefit" represents the financial gain that a violating entity accrues by delaying and/or avoiding such expenditures. Funds not spent on environmental compliance are available for other profit-making activities or, alternatively, the entity avoids the costs associated with obtaining additional funds for environmental compliance (opportunity cost). Economic benefit is the amount by which an entity is financially better off from not having complied with environmental requirements in a timely manner.

Economic benefit is "no fault" in nature. An entity need not have deliberately chosen to delay compliance (for financial or any other reasons), or in fact even have been aware of its noncompliance, for it to have accrued the economic benefit of noncompliance.

An appropriate economic benefit calculation represents the amount of money that would make the entity indifferent between compliance and noncompliance. If DEQ does not recover, through a civil penalty, at least this economic benefit, then the entity will retain a gain.

Because of the precedent of this retained gain, other regulated companies may see an economic advantage in similar noncompliance, and the penalty will fail to deter potential violators. Economic benefit is designed to be neither punitive nor tort damage, but instead is the minimum amount by which the entity must be penalized so as to return it to the position it would have been in had it complied on time.

Basis of the Costs Considered

William McClannahan should have had a licensed asbestos abatement contractor to properly demolish and dispose of the asbestos containing waste from a theater screen on property he owned at an estimated cost of $16,000. Instead Mr. McClannahan paid $5,000 for an improper demolition by an unlicensed contractor. By avoiding a net cost of $11,000, Mr. McClannahan benefited by **$6,297**.

Applicability of Standard Rates Presumed by Rule

The BEN model relies on income tax rates, inflation rates, and discount rates. The model allows the operator to input particular rates, but in the absence of operator input, the BEN model uses standard values based on the entity's corporate status, whether it acted for profit, and the state where the violations occurred. It calculates inflation rates from the Plant Cost Index published by the magazine *Chemical Engineering* and from the Consumer Price Index. EPA updates the standard values annually.

Pursuant to OAR 340-012-0045(1)(c)(F)(iii), the "model's standard values for income tax rates, inflation rate and discount rate shall be presumed to apply to all Respondents unless a specific Respondent can demonstrate that the standard value does not reflect the Respondent's actual circumstance."

Description of the Attached Run

BEN calculates the economic benefits gained from delaying and avoiding required environmental expenditures. Such expenditures can include: (1) capital investments (*e.g.*, larger pollution control or monitoring equipment, costs of design and installation), (2) one-time nondepreciable expenditures (*e.g.*, permit fees, clean-up costs, setting up a reporting system, acquiring land needed for a capital improvement), (3) annually recurring costs (*e.g.*, routine operating and maintenance costs, utilities). Each of these expenditures can be either delayed or avoided. BEN's baseline assumption is that capital investments and one-time nondepreciable expenditures are merely delayed over the period of noncompliance, whereas annual costs are avoided entirely over this period.

The calculation incorporates the economic concept of the "time value of money." Stated simply, a dollar today is worth more than a dollar tomorrow, because you can invest today's dollar to start earning a return immediately. Thus, the further in the future the dollar is, the less it is worth in "present-value" terms. Similarly, the greater the time value of money (*i.e.*, the greater the "discount" or "compound" rate used to derive the present value), the lower the present value of future costs. To calculate an entity's economic benefit, BEN uses standard financial cash flow and net-present-value analysis techniques based on modern and generally accepted financial principles, which were subjected to extensive national notice-and-comment processes.[1]

Inputs to the model include costs specific to the situation of the entity as well as the presumed standard indexes and rates described in the section above. These values are listed in the lower three-quarters of the table. Using these values, BEN makes a series of calculations listed at the top of the table as follows:

A) On-Time Capital & One-Time Costs. What compliance would have cost had the entity complied on-time, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
B) Delay Capital & One Time Costs. What late compliance did cost, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period. This value will be zero if the costs were avoided.
C) Avoided Annually Recurring Costs. This sum is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
D) Initial Economic Benefit (A – B+C). The delayed-case present value is subtracted from the on-time-case present value plus the sum of the avoided costs to determine the initial economic benefit as of the noncompliance date.

---

[1] *See* Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Request for comment, 61 Fed. Reg. 53025-53030 (Oct. 9, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Extension of time for request for comment, 61 Fed. Reg. 65391 (Dec. 12, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 32947-32972 (June 18, 1999); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 39135-39136 (July 21, 1999).

E) Final Economic Benefit at Penalty Payment Date. BEN compounds the initial economic benefit forward to the penalty payment date at the same cost of capital to determine the final economic benefit of noncompliance.

Calculated Economic Benefit Likely an Underestimate

The economic benefit calculated above may underestimate the total economic benefit that the respondent received to date because it does not address uncertain indirect financial benefits, including:

- *Advantage-of-risk* – the value of (1) the risk of never getting caught and (2) keeping future options open by delaying a decision to institute a process or purchase capital.
- *Competitive advantage* – (1) beginning production earlier than would be possible if in compliance; (2) attracting clients by avoiding compliance costs, having a higher profit margin and therefore being able to offer goods or services at a lower cost than competitors; (3) keeping those clients attracted by lower prices because of brand loyalty or high switching costs; or (4) using the time or money saved to increase production.
- *Illegal profits* – selling illegal products or services.

However, I consider these other economic benefits to be "de minimis" in light of the difficulties in calculation. Pursuant to OAR 340-012-0045(1)(c)(F)(ii), the Department need not calculate an economic benefit if that benefit is de minimis.

Run Name =	one
Present Values as of Noncompliance Date (NCD),	07-May-2003
A) On-Time Capital & One-Time Costs	$6,042
B) Delay Capital & One-Time Costs	$0
C) Avoided Annually Recurring Costs	$0
D) Initial Economic Benefit (A-B+C)	$6,042
E) Final Econ. Ben. at Penalty Payment Date,	
01-Oct-2003	**$6,297**
For-Profit (not C-Corp.) w/ OR tax rates	
Discount/Compound Rate	10.8%
Discount/Compound Rate Calculated By:	BEN
Compliance Date	01-Oct-2003
Capital Investment:	
Cost Estimate	$0
Cost Estimate Date	N/A
Cost Index for Inflation	N/A
# of Replacement Cycles; Useful Life	N/A; N/A
Projected Rate for Future Inflation	N/A
One-Time, Nondepreciable Expenditure:	avoided
Cost Estimate	$11,000
Cost Estimate Date	30-Jun-2003
Cost Index for Inflation	PCI
Tax Deductible?	Y
Annually Recurring Costs:	
Cost Estimate	$0
Cost Estimate Date	N/A
Cost Index for Inflation	N/A
User-Customized Specific Cost Estimates:	N/A
On-Time Compliance Capital Investment	
Delay Compliance Capital Investment	
On-Time Compliance Replacement Capital	
Delay Compliance Replacement Capital	
One-Time Compliance Nondepreciable	
Delay Compliance Nondepreciable	

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

William McClannahan
PO Box 224
Umatilla, OR 97882

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☒ Addressee

B. Received by (Printed Name) Wm. McClannahan
C. Date of Delivery 6/30/03

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

RECEIVED
JUL 01 2003
State of Oregon
Dept. of Environmental Quality
Eastern Region - Pendleton

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7002 0510 0003 5951 2505

PS Form 3811, August 2001 Domestic Return Receipt 102595-02-M-1035

A-14

Attachment A-14

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Eastern Regic
700 SE Emigrai
Suite 3
Pendleton, OR 978
(541) 276-4063 Voice/TT
FAX (541) 278-016

NON # 2

June 25, 2003

William McClannahan
P.O. Box 224
Umatilla, OR 97882

RE: **NOTICE OF NONCOMPLIANCE**
No. AQ-ERP-03-040
The Open Accumulation of a Friable Asbestos-Containing Material.
AQ – Umatilla County

Dear Mr. McClannahan:

On June 9, 2003 you were issued a Notice of Noncompliance (NON) No. AQ-ERP-03-032 for allowing the conduct of a friable asbestos abatement project on your property by a work crew and a supervisor not licensed to handle asbestos. This project took place in early May, 2003.

As part of my investigation, I interviewed several individuals, including you, regarding their involvement in the project. From speaking with everyone it was my understanding the project was completed and all asbestos-containing screen material had been removed from the property.

On June 11, 2003 I returned to the property to conduct a site clean-up inspection. For the most part the site looked relatively clean. However, I observed approximately sixty (60) square feet of broken white and gray material on the ground in the southeast corner of the property. This looked very similar to the material in the photographs taken by Patty Jacobs, of the Department, on May 7, 2003 and testing positive for asbestos. I obtained two samples and sent them to the DEQ Laboratory in Portland for analysis. On June 16, 2003, both samples were reported to contain 10% asbestos in the chrysotile form.

The same day I sent you an e-mail reporting my findings. In the e-mail I explained the screen material at the site contains asbestos and must be abated by an Oregon-licensed asbestos abatement contractor. I also recommended that you continue to prevent public access to the property as you have been doing.

VIOLATION:

This is open accumulation of a friable asbestos-containing material and is a violation of Oregon Administrative Rules (OAR) 340-248-0205(1).

This is a Class I violation and is considered to be a significant violation of Oregon Environmental law. Therefore we are referring your case to the Department's Office of Compliance and Enforcement with a recommendation to proceed with a formal enforcement action which may result in a civil penalty assessment. Civil penalties can be calculated for each day of violation.

CORRECTIVE ACTION:

By no later than **June 30, 2003** all remaining asbestos-containing material at the site must be abated by an Oregon licensed asbestos abatement contractor. For your information I have once again enclosed a list of Oregon licensed asbestos abatement contractors. Please submit a copy of the receipt for the work to the Department no later than three days following completion of the abatement.

Please be aware the Department considers the OR CCB licensed contractor, Denis Palmer, the unlicensed contractor, Maurice McDavid, and the owner of the temporary labor service, Mike Atkinson, equally responsible for the violations taking place in early May, 2003.

Should you have any additional questions concerning this Notice, please feel free to contact me in Pendleton at (541) 278-4626.

Sincerely,

Thomas G. Hack

Thomas G. Hack
Air Quality Program
ER-Pendleton

enclosure: List of Oregon-Licensed Asbestos Abatement Contractors

cc (without enclosures): Peter Brewer, AQ Manager, ER-Bend
Bryan Smith, Office of Compliance & Enforcement, HQ
Michelle Butler, AQ Program Development, HQ
Stan Thomas, OR OSHA, Salem

DEQ-001

(C)

HACK Tom

From: HACK Tom
Sent: Monday, June 16, 2003 5:36 PM
To: 'selectri@selectricinc.com'
Subject: Hermiston Drive-In Screen Demolition Project

Hello Mr. McClannahan:

On June 11, 2003 I returned to the Hermiston drive-in property. I entered from the west end as you had requested. For the most part the site looked relatively clean and I was hoping not to find any screen material remaining at the site. However, I observed some (approximately 60 square feet) of broken white and gray material at the southeast corner of the property. It looked very similar to the broken screen material photographed by Ms. Jacobs during her May 5, 2003 inspection. I took two samples and sent them to the DEQ Laboratory in Portland for analysis. Today the samples were reported to me as 10% asbestos in the chrysotile form.

This message is to inform you the asbestos-containing screen material at the site is in a broken (friable) state. Therefore, under Oregon environmental law, it can not legally be handled or abated by anyone who is not an Oregon-licensed asbestos abatement contractor. In the near future I will send you a follow-up letter with a clean-up timeline in addition to a list of Oregon-licensed asbestos abatement contractors. However, in the meantime you are strongly urged to avoid or allow contact of the material by anyone who does not have the proper license. Continuing to prevent public access to the site, as you are doing, is also a good means to protect the public.

Thank you for your attention to this matter. Please feel free to call me with any questions you may have. We'll be in touch again soon.

Tom Hack, ODEQ
Air Quality Program
ER-Pendleton
Telephone: (541) 278-4626

A15

State of Oregon
Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item E: Overview of Proposed Changes in Environmental Enforcement and Compliance Rules (Division 12, Phase I)

Purpose of Item

To update the Environmental Quality Commission (EQC, Commission) on a proposal by the Department of Environmental Quality (DEQ, Department) to amend the Department's rules governing the procedures for enforcing Oregon's environmental regulations and statutes, including civil penalty assessments and orders (specifically, Oregon Administrative Rules (OAR) Chapter 340, Division 12; referred to as "Division 12"). In July, you each received a copy of the public notice version of the Division 12 rules. It may be helpful for you to have that with you for the October meeting, and if you would like another copy, please contact Mikell O'Mealy or Anne Price, DEQ Office of Compliance and Enforcement Administrator. At the October 22 EQC meeting, Anne Price will briefly describe the history of this rulemaking, key issues and next steps, as outlined below, while leaving time for your questions and comments.

Presentation Outline

Background – How did we get here?

1) In 2002, the Department initiated a review of its enforcement process to ensure implementation of an effective compliance and enforcement program that is understandable, equitable, encourages compliance, and appropriately responds depending on the severity of the violation.
2) After an initial round of public comment on a rulemaking package at the end of 2003, the Department proposed revisions to certain parts of the Division 12 rules (Phase I) and saved other proposed revisions for a Phase II rulemaking.
   a) Phase II rulemaking (scheduled to begin in 2005) will cover the selected magnitude and violation classification issues.
   b) Phase I will cover everything else. The key changes are described below.
3) Two of the main objectives for this Phase I rulemaking are to provide greater clarity to the regulated community on the enforcement process and to evaluate potential inequities associated with the penalty calculation formula.

Key Proposed Changes to Division 12

1) Divides the former Notice of Noncompliance into two types of informal enforcement notices – warning letters and pre-enforcement notices.
2) Improves overall rule organization to follow the flow of the civil penalty calculation process.
3) Creates an umbrella section of violations relating to all programs.
4) Changes a few classifications to address key issues and recent program rule changes (e.g., on-site program rule changes); also reorganizes some of the classifications for clarity (e.g., breaks out dry cleaner violations into a separate section).
5) Adds a new mid-range ($6,000) base penalty matrix; increases values in the $10,000 matrix (now called the $8,000 matrix); provides a set penalty for Class III violations in each matrix.
6) Provides greater differentiation of violations across different matrices. Smaller or potentially less sophisticated violators are assigned to lower penalty matrices. Some penalties will be lower as a result of these base penalty changes; others (especially for larger, potentially more sophisticated violators) will be higher.
7) Provides a greater range of options for a respondent to get credit for addressing past violations (the "history" factor).
8) Provides a greater range of options under the "occurrence" factor (number of days or number of occurrences of the violation).
9) Proposes language to the "mental state" factor to better clarify what will be considered to assess whether a party knew or should have known it was committing a violation.
10) Provides that a respondent can receive a broader range of credit for efforts to correct the current violation (the "cooperativeness" factor).
11) Allows Department to increase the penalty matrix by a level if doing so achieves specific deterrence.
12) Gives the Department discretion to increase any penalty assessed pursuant to Division 12 to $10,000 per violation per day of violation based upon the facts and circumstances of the individual case.
13) Gives the Department discretion to decline to issue a formal enforcement action if the Department determines that it has caused excessive delay in issuance.

Rulemaking Process Update

1) Two public hearings were held, one in Portland and one in Salem, and no one testified on the record; 11 attended the informational sessions before the hearings.
2) The public Comment period was extended to respond to a request, and closed on September 10th. Ten parties provided comments, including: Center for Environmental Equity, Weyerhauser, Center for Tribal Water Advocacy, U.S. Army (Umatilla Chemical Depot), Northwest

Pulp and Paper Association, Associated Oregon Industries, Oregon Association of Clean Water Agencies, Water Watch, U.S. Environmental Protection Agency, and Boise Cascade Corporation.

3) DEQ is now developing the response to comments and the staff report.

What will be in the EQC package?

1) All the main rule package components (e.g., the rule, staff report, response to comments).
2) An implementation plan (e.g., enforcement guidance, staff training and database improvements).
3) A copy of the draft enforcement guidance.

Other Issues to Highlight

1) Underground Storage Tanks Rule Proposal - This rulemaking proposal also includes amendments to OAR Chapter 340, Division 150, the rules pertaining to expedited enforcement of underground storage tank (UST) rules. Those amendments will allow the Department to consider whether some Class I violations will be handled through the expedited enforcement field ticket program. The proposed amendments set a field penalty amount of $100 for all Class I violations and $50 for all Class II violations handled in the expedited enforcement process (field penalties for some Class II violations are currently set at $75).
2) Effective Date of the Rule – To effectively train all relevant staff and to ensure the database changes are made prior to the effective date, the Department will be proposing a rule amendment at the December EQC meeting to create a delayed effective date for the Warning Letter (WL)/Pre-Enforcement Notice (PEN) portions of the rule. Should the EQC promulgate these rules in December:
   a) The proposed effective date for the WL/PEN portion of the rule will be April 1, 2005, or possibly later.
   b) All other parts of the rule will be proposed as effective immediately upon filing with the Secretary of State.

Guidance from the Commission

1) Is there anything in particular you would like have emphasized or addressed?
2) Do you have any issues or concerns?

EQC Involvement

The Department plans to bring Phase I of the Division 12 rules to the Commission for adoption at the December 9-10, 2004 EQC meeting.

Report Prepared By: Anne Price
Phone: (503) 229-6585

State of Oregon
Department of Environmental Quality Memorandum

To: Environmental Quality Commission **Date:** October 20, 2004

From: Paul Slyman, Deputy Director

Subject: Director's Dialogue

Updates on DEQ's 2005-2007 Budget and Legislative Concepts

Budget In May and July 2004, Director Hallock and Lauri Aunan, DEQ Legislative and Budget Coordinator, briefed the Commission on DEQ's 2005-2007 budget request. In August, Chair Reeve certified our request and we submitted our budget to the Department of Administrative Services (DAS) by their September 1 deadline. DAS is now reviewing our budget (along with all other state agency budgets), and will make recommendations to the Governor in November. The Governor will then review DAS' recommendations, together with information from the agencies and the public, and make decisions to craft his "Governor's Recommended Budget" reflecting his top priorities. State law requires the Governor to present a balanced budget – that is, one in which proposed expenditures balance projected revenues.

As part of developing his Recommended Budget, the Governor announced his "Oregon Principles" Budget earlier this month based on six principles that he feels are the basis for a prosperous Oregon – Education, Health, Economy, Livability, Safety and Accountability (see Attachment A for a description of each). The Governor's website[1] provides budget "worksheets" listing agency programs under each principle, and DEQ programs fall under Health, Economy, Livability and Safety. The Governor plans to take public comments on his principles and budget worksheets to inform his decisions on his Recommended Budget.

During the July EQC meeting, we talked about the list of potential General Fund cuts that we were required to submit with our budget request (see Attachment B), and briefed you on our requests for additional General Funds (see Attachment C). Because the State faces a projected budget shortfall of up to $1 billion for 2005-2007, DAS will recommend ten percent General Fund cuts for all state agencies and denial of any requests for new General Funds. DEQ will have the opportunity to appeal DAS' recommendations to the Governor in November.

A top priority for appeal is our water quality permit program budget request. The Blue Ribbon Committee[2] strongly recommended "keeping the program whole" and adding five additional staff over the next two biennia to support long-term program health. The Committee supported a mix of public and fee funding increases to achieve this, and affirmed that these resources "will enable the

[1] http://www.governor.state.or.us/Gov/budget/future.shtml

[2] In April 2003, Director Hallock launched an initiative to reduce permit backlogs in DEQ's wastewater program and identify long-term solutions for adequate funding and managing program workload. As part of that effort, we formed a Blue Ribbon Committee of stakeholders on wastewater permitting to identify needed improvements, including streamlining permit processes, restructuring fees, and identifying rule or statute changes needed for long term program health. In July 2004, the Committee finished their work and unanimously agreed to findings and recommendations to ensure the DEQ's wastewater program health.

wastewater permitting program to effectively and efficiently fulfill its responsibilities under state and federal law to protect Oregon's water quality."

Funding to cover increased Laboratory costs is also a top priority. DEQ reduced its 2005-2007 debt service requirements by more than $900,000 through good bond management, and we have asked to shift this ongoing savings to pay for increased program costs incurred by relocating the Laboratory. Without this funding, programs – particularly Water Quality programs that use Laboratory services more than other DEQ programs – will have to reduce existing work even more than we have thus far as a result of previous and expected future General Fund cuts.

Legislative Concepts DEQ has five legislative concepts, listed in Attachment D, that are now being drafted by Legislative Counsel. The Governor's Office will make decisions in December on which concepts will be submitted to the Legislature.

Building Purchased for Relocating the DEQ Laboratory

As you know, we have been working with the DAS and the Oregon Public Health Laboratory (PHL) over the last two years to relocate the DEQ Laboratory and PHL in a combined facility. In July, DAS entered a sales agreement on a new, vacant building in Hillsboro with enough space to house DEQ's 75 lab staff and PHL's 75 staff. Since then, DAS successfully completed the due-diligence review on the new building and no problems were discovered. In early October, DAS reached a milestone by successfully finalizing the purchase agreement and taking ownership of the building. In addition, DAS received approval from the Legislative Emergency Board to issue about $22.5 million in bonds for design and construction of the building's interior. We are on track to reach our goal of moving into the new facility in late 2006 or early 2007.

Governor, Mark Reeve Announce West Coast Diesel Collaborative

In late September, Governor Kulongoski, Environmental Protection Agency (EPA) officials, and EQC Chair Mark Reeve and others came together to announce the West Coast Diesel Emissions Reduction Collaborative – a joint effort of federal, state and local government agencies, private-sector interests and non-profit organizations from California, Oregon, Washington, Alaska and British Columbia to reduce emissions from diesel sources. The new collaborative arose in part out of the Global Warming Initiative the West Coast Governors launched in 2003 to address the issues of global warming and greenhouse emissions. EPA identified this effort as an opportunity to create a West Coast corridor program for truck stops as part of a larger effort to reduce diesel emissions in several sectors, including marine and railroads.

As part of the Collaborative, Governor Kulongoski highlighted Oregon's Truck Stop Electrification Project to reduce truck idling at commercial truck stops along I-5. Kevin Downing, DEQ's Diesel Emissions Coordinator, has been the lead on this project to provide new technology eliminating the need for overnight or extended idling when professional truck drivers stop to rest at commercial truck stop areas. When connected to a hook-up, trucks can access electricity, heating/cooling systems, phones, and the internet without the use of their engines. Oregon's goal is to equip 600 parking spaces at truck stops along I-5 in Oregon with electrification technology, providing truck drivers a net savings of $1.8 million per year in reduced fuel costs and engine wear and tear. The electrified spaces will reduce carbon dioxide emissions by over 33,000 tons per year and reduce carbon monoxide, nitrogen oxides, hydrocarbons and particulate matter by over 852 tons per year. These reductions translate to public health and environmental benefits of at least $6.6 million per year. The media event succeeded in drawing attention to the Collaborative and

Oregon's truck stop electrification work.

West Coast states are now beginning to identify diesel projects to be part of a future federal funding proposal, and DEQ and truck stop electrification partners are moving forward to solicit nominations for the 600 parking spaces that will be electrified.

Draft Report from the Governor's Advisory Group on Global Warming Now Available
In September, Director Hallock briefed you on the work of the Governor's Advisory Group on Global Warming, consisting of approximately 30 business, community, and environmental leaders, elected officials, and agency heads. Director Hallock represents DEQ as a member of the Advisory Group, which is charged with recommending actions to the Governor that Oregon should pursue to reduce our contribution to greenhouse gases. The Group is supported by seven technical subcommittees that have looked at energy conservation, electricity generation, transportation, forestry/agriculture, materials/wastes, government operations, and other emission sources. DEQ staff David Allaway and Pat Vernon have chaired the subcommittees on materials/wastes and government operations (respectively). The Oregon Department of Energy is the lead agency on the entire project.

This month, the Advisory Group released their draft report including approximately 60 program and policy actions. The Group will take public comments on the report this fall and produce final recommendations for the Governor by year's end. The report is available on the Energy Department web site at http://www.energy.state.or.us/climate/warming/Draft_Intro.htm, and we will send you a copy if you are interested.

Innovative TMDLs Released for Public Comment
DEQ is seeking public comments on two new Total Maximum Daily Loads (TMDLs) for the Willamette and Sandy River Basins. Both TMDLs incorporate new and innovative approaches, as described below.

Willamette TMDLs available for public comment on October 25
Next Monday, DEQ's Water Quality Division will release proposed Willamette TMDLs for public comment. These TMDLs address three main pollutants – temperature, mercury and bacteria – and are DEQ's first basin-scale TMDLs covering all twelve subbasins in the Willamette (previous TMDLs focused only on a single or series of subbasins). They are the culmination of four years of hard work by a dedicated team of DEQ staff, working in partnership with a broad stakeholder group including representatives from agriculture, forestry, municipalities, environmental groups, the Tribes, recreational and commercial fishing interests, industry, and state and federal agencies. They represent significant progress in our strategic priority to take a "watershed approach" to protecting water quality in Oregon. Informational meetings and outreach will be held throughout the Willamette basin in November and December, and public hearings will be held in early January. After the public comment period closes on January 14, DEQ will revise the TMDLs based on public input and issue the TMDLs as orders. EPA will then have 30 days to approve the TMDLs.

Sandy River Basin TMDLs released for public input on September 27
Through December 3, DEQ is seeking comments on the Sandy River Basin TMDLs, which address temperature and bacteria problems in innovative ways. The temperature TMDL is the first

to be released under DEQ's new temperature standard, which was adopted by the Commission in December 2003, and the two major sources of elevated water temperatures addressed are dams. To lower river temperatures as directed by the TMDL, PGE has proposed to decommission dams in the Sandy and Little Sandy River in 2007 and 2008 that now divert flows and raise water temperatures in certain reaches. In addition, the City of Portland is proposing to release more water from the Bull Run System, which provides Portland area drinking water, and construct multiple elevation intakes to lower water temperatures in the lower Bull Run River and meet Endangered Species Act (ESA) requirements for fish. DEQ used a number of innovative approaches in developing both the temperature and bacterial TMDLs, and the work was done ahead of schedule with funding from the City of Portland, US Forest Service and Bureau of Land Management. The TMDL was also done in conjunction with ESA work in the basin. Greg Geist, water quality specialist in DEQ's Northwest Region Office, did an outstanding job on this TMDL. We plan to hold a public hearing in Sandy on November 9.

Comments on Proposed Medford-Ashland Air Quality Plan Available for Review
At the December 9-10, 2004 EQC meeting, DEQ Air Quality staff will propose for adoption an updated PM10 (air particulates) plan for the Medford-Ashland area. Public hearings on the initial plan proposal were held in late 2003 and early 2004, and DEQ received a tremendous public response – over 5,000 comments. We have carefully reviewed those comments this year and will bring a comment summary and the Department's response to you for consideration in December (consistent with our process for all rulemaking items). In response to some stakeholder requests, however, we have committed to make available to you the actual public record of complete comments received. This includes over 5,000 emails, petition cards, phone call records, and letters from the public, stakeholders and local government in the Rogue Valley. The comments are organized in three full binders, and copies are available for your review. Please let us know if you'd like a copy.

Replacing a Member of the Air Toxics Science Advisory Committee
In October 2003, the Commission adopted rules to establish a new state air toxics program targeting urban-area air toxic emissions from mobile and other small sources of pollution, complementing the industrial focus of the federal program that DEQ has implemented since 1990. The state program is taking a community-based approach by adopting concentration limits for certain air pollutants, identifying high-risk areas of the state, and implementing local emission reduction plans. DEQ is applying the program first to the Portland area and then plans to move to other cities statewide as resources allow.

The October 2003 air toxics rules establish a standing technical committee, called the Air Toxics Science Advisory Committee (ATSAC), of five to seven people to provide scientific advice on developing the program. Based on stakeholder recommendations, the air toxics rules specify that ATSAC members will be appointed by the Director with concurrence by the Commission. In May 2004, the EQC concurred with appointment of the seven new ATSAC members, and the committee began meeting in September 2004. Members of the ATSAC have expertise in certain disciplines, including toxicology, environmental science, risk assessment, epidemiology, public health and air pollution sciences.

One of the ATSAC members, Dr. Catherine Neumann, is now unable to work on the committee because of unexpected new work demands. Because the Department wants to maintain full

membership on the ATSAC, it recommends replacing Dr. Neumann with a previously qualified candidate with expertise in environmental science and toxicology. In recommending ATSAC candidates to the EQC in May 2004, the Department identified Dr. Staci Simonich as a potential alternate candidate. Based on advice from the Department of Justice, Dr. Simonich could be added as a replacement ATSAC member following appointment by the Director, concurrence by the Commission, and an opportunity for public comment as posted on the web and to electronic lists. The Director is now seeking the Commission's concurrence with this appointment. Attachment E provides more information about Dr. Simonich and her work.

Attachment A

Governor's Principles for a Prosperous Oregon

Governor Ted Kulongoski believes that the future of Oregon will be determined by the investments we make in our children, our economy and our quality of life. The following principles are the foundation of a prosperous future for Oregon.

EDUCATION - Children's basic educational needs are met and adults have opportunities to develop career skills through training and higher education.

To be successful, children must be ready to learn by the time they enter school and the education they receive must prepare them to be successful in college or in the workforce. Communities should be engaged in supporting children and their families so they will be safe, healthy, educated and productive.

We must invest in post-secondary education to enable future economic prosperity. As our economy grows and changes, adults must have opportunities to receive training and education that permits access to family wage employment.

HEALTH - Oregon's most vulnerable have their basic health, food and shelter needs met.

A prosperous Oregon is a place where we value taking care of those who are the most vulnerable, including children, seniors and people with disabilities. All of us benefit and our communities are healthier when our citizens' basic health, food and shelter needs are met.

ECONOMY - Oregon has a positive business climate and invests in economic development in order to create and retain sustainable businesses and family-wage jobs.

The future of Oregon depends on the number of jobs that we can create and growing the capacity of our economy. We must foster and encourage business development and create receptive conditions for business to create and retain enduring jobs for Oregonians.

LIVABILITY - Oregon has a healthy balance between growth, infrastructure development and environmental protection.

Oregon's environment and its economic health are inextricably linked. We must enhance and protect our natural resources while also contributing to Oregon's economic growth through responsible infrastructure development.

SAFETY - Oregonians are safe in their homes, communities and in state institutions.

Public safety is essential to our citizens. We must hold criminals accountable for their actions, prevent crime and reduce recidivism. We must also provide for safe buildings and places of work, prevent fraud and abuse, and maintain the ability to prepare for and swiftly respond to emergencies to preserve life and property.

ACCOUNTABILITY - State government is stable, responsive and accountable to Oregonians.

There is no more business as usual with state government. We have to be responsible stewards of the public's money. This means we must work in a cooperative and coordinated manner with our partners in the private sector and with local government - counties, cities, and special districts. We serve the same constituency and they must know that our mutual goal is to provide them with superior customer service.

See the Governor's website for more information: http://governor.oregon.gov/Gov/budget/future.shtml

Attachment B

HOUSE BILL 3182 REDUCTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT AND FUND TYPE	RANK AND JUSTIFICATION
Water Quality (002) – F319 (move to grant)	Shifts position (319 coordinator) onto the 319 grant with a commensurate reduction in available grant funds. Position would continue to oversee grant distribution and administration. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $142,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet.	**GR01** - Shift to federal funds to administer federal grants.
Air Quality (001) - Rules coord. & financial oversight	Reduces training and other support for air quality rulemakings. Increases rules coordination work for technical staff. Reduced oversight of time accounting, expenditures, position management and grant administration may result in financial errors or interruption of federal funds. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $169,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR02** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery.

HOUSE BILL 3182 REDUCTIONS

Air Quality (001) - Clerical support HQ/NWR	Reduces air quality clerical support at Headquarters and Northwest Region, shifting work to other staff and increase wait time to the public when they request file reviews. 0 positions amounting to 0.85 FTE is reduced in 2005-07 and 2007-09.	GF - $117,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR03** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Land Quality (003) - Hazardous Waste Technical Assistance and Data Management	Cuts .25 FTE of direct technical assistance to businesses and .25 FTE of data collection and management work. Business will lose non-regulatory assistance to come into compliance with regulations. Lack of access to environmental data decreases the ability to target compliance and technical assistance efforts and decreases customer service. A total.50 FTE (0 positions) are reduced in 2005-07 and 2007-09.	GF - $130,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR04** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery

HOUSE BILL 3182 REDUCTIONS

Air Quality (001) – Lane Regional Air Pollution Authority	Reduces General Fund support for Lane Regional Air Pollution Authority by 18%.	GF - $21,380	**GR05** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Water Quality (002) - Reduce Standards and Data Management.	Stops development of biological criteria as a water quality standard. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $202,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR06** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Air Quality (001) - Planning & Emission Inventories	Delays the Salem ozone attainment plan technical work beyond 05-07 and delays beyond 07-09 DEQ's commitment to lead stakeholder outreach for the Columbia River Gorge Visibility project. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $250,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR07** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery

HOUSE BILL 3182 REDUCTIONS

Air Quality (001) - PM10 Sampling Frequency	Reduces PM 10 sampling frequency by 50% in the winter season. Less sampling reduces likelihood of sampling on days of high particulate levels, the days of highest interest and impact. Zero positions amounting to 0.25 FTE is reduced in 2005-07 and 2007-09.	GF - $50,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR08** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Air Quality (001) - CO/PM10 monitoring	Eliminates 1 of 2 carbon monoxide (CO) measurement sites and a PM 10 site in Medford. These sites provide useful information on pollution levels to a community with a long history of CO problems. Eliminates only CO site in Klamath Falls, a former CO non-attainment area. (Requires EPA approval.). 1 position amounting to 0.375 FTE is reduced in 2005-07 and 2007-09.	GF - $71,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR09** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery

HOUSE BILL 3182 REDUCTIONS

Water Quality (002) – Program Support	Reduces training and other support for water quality rulemakings. Increases rules coordination work for technical staff. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $272,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR10** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Water Quality (002) - 401 Dredge & Fill	Removes all General Fund from the program, which now pays for DEQ review of smaller 401 projects (under 500 cubic yards of dredge removal or 2 acres of fill) to ensure the projects will not harm water quality. Certification of these projects would be waived; DEQ would no longer evaluate their effects on water quality. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $207,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR11** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery

HOUSE BILL 3182 REDUCTIONS

Air Quality (001) - NWR Community Outreach	Reduces to .5 FTE Northwest Region's outreach work with business associations and neighborhood groups targeted at voluntary reductions of air toxics. Cuts in half technical assistance to small sources of air pollution. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $216,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR12** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Water Quality (002) – Data Management	Reduce work to develop and maintain small database systems such as the septic system and 303d databases. 1 position amounting to 1 FTE is reduced in 2005-07 and 2007-09.	GF - $202,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR13** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery
Air Quality (001) - Air Toxics grant writing & ATSAC support	Eliminates air toxics grant writing (e.g. grant writing that resulted in $500,000 toxics monitoring grant in 03-05). Reduces technical support for air toxics monitoring, delaying data available for sound scientific decision making, and delaying reduction of air toxics in Oregon. 0 positions and 0.6 FTE reduced in 2005-07 and 2007-09.	GF - $150,000 Additional General Funds in the form of Other Funds for the payment of Agency Management Indirect charges appear as reductions on the Other Funds reduction worksheet	**GR14** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to staff and service delivery

Attachment C

2005-07 Agency Request Budget Policy Package List

Pkg #	Title	Funding	FTE	Short Description
	General Fund			
120	Restore and Enhance Wastewater Program	$419,906 GF $544,372 OF Phase in fee increase 7%/05;	Continue 4 existing FTE, add 1.25 FTE in mid-2006	Implements Blue Ribbon Committee recommendations. Continues 4 existing staff; adds staff to reduce wastewater permit backlog; issue permits by watershed; improve compliance & inspections; implement streamlining & accountability efforts.
121	Clean and Healthy Willamette River Basin	$835,558 GF	4.5 FTE to continue Willamette River clean water plan	Carry out the Willamette River clean water plan (TMDL) by helping businesses and cities reduce pollution from their operations, stormwater runoff and mercury. Develop streamlined compliance procedures and assistance for small communities along the Willamette. Ensure that DEQ's innovative approaches meet tough legal review from EPA and third parties.
133	Clean Up Willamette Basin Orphan Sites	$5,000,000 OF	...	Cleans up Willamette Basin contaminated orphan sites, including industrial lands & abandoned mines
193	Will. Orphans - Debt Service	$200,000 GF		0507 Bond Debt service (GF) for $7 million bond.
194	Will.Orphans - Bonds	$120,000 OF		Funds bond issuance cost
171 AQ 172 WQ 173 LQ	Laboratory Rent increase	$273,165 AQ $445,921 WQ $46,631 LQ Total shift of $774,717 GF savings	...	DEQ reduced its 0507 debt service requirements by more than $900,000, through good bond management. We request to shift this ongoing savings to pay for increased program costs incurred by relocating our Laboratory from existing space at PSU (approved by the 2003 Legislature). Without this funding, programs will have to reduce existing work to pay for increased costs.
	Fees			
113	Continue Staff for Vehicle Inspection Program	existing $21 fee	Continue 36 existing FTE	Maintain Vehicle Inspection Program
130	Maintain Underground Storage Tank Program	existing fee (reinstates $85/tank fee)	Continue 5 existing FTE	Funds federally required work to prevent leaks and contamination from gasoline storage tanks; allows DEQ to continue to seek delegation to implement the federal tanks law in Oregon.
	Federal Fund			
123	Drinking Water Protection	$584,511 federal grant	Continue 4 existing staff (3 FTE)	Help communities protect public drinking water supplies.
126	Coastal beach bacteria monitoring	$199,306 federal grant	Add 1 LD FTE	Monitor Oregon's coastal beaches for bacteria pollution.
151	Environmental Information Exchange Network	$304,476 federal grant	Continue 1.75 existing FTE	Allows completion of project to simplify and improve environmental reporting required by the federal EPA.
152	Homeland Security - Terrorism Response	$662,365 federal grant	Continue 1 existing FTE	Funds chemist and $500,000 of specialized equipment to help DEQ, the Public Health Laboratory, Oregon State Police, and local responders plan, train, and implement Oregon's response to chemical terrorism events.
191	Clean Water State Revolving Fund - Bond Debt Service	$9,010,000 OF	...	Full Debt Service of $9M bond sale to provide match for Federal grant.
192	CWSRF - Loans	Federal as Other		$30 million in federal grants used for low interest loans to local governments for wastewater treatment improvements. $90k of bond issuance costs.

Attachment D

DEQ's 2005 Legislative Concepts
October 11, 2004

DEQ is discussing these legislative concepts with interested and affected parties. These concepts are subject to approval by the Governor. Our goal is to work with interested and affected parties to reach agreement before the 2005 Legislative Session. For more information, contact Lauri Aunan, 503-229-5327.

1. LC 656: Effective Wastewater Program: Recommendations from DEQ's Blue Ribbon Wastewater Committee

DEQ's Blue Ribbon Wastewater Committee included representatives of industry, local governments and environmental organizations. The Committee comprehensively reviewed the state's wastewater program and made recommendations for improving program effectiveness. Based on these recommendations, DEQ has budget and legislative proposals that will achieve the following results:

- Reduce the wastewater permit backlog (currently it is 34% for "major" permitted facilities and 25% for "minor" permitted facilities)
- Improve accountability including annual permit issuance plans and tracking; annual inspection plans and tracking, and individual performance expectations.
- Issue permits by watershed, resulting in improved emphasis on key water quality problems and more holistic watershed based solutions
- Timely review of compliance data and increased compliance inspections
- Regulatory streamlining by allowing General Permits to be issued as an order rather than through rulemaking

2. LC 629: Streamlining the Toxics Use Reduction Law

The 1989 Oregon Legislature passed a law (ORS 465.003 to .037) requiring users of large amounts of toxic substances to develop plans on how to reduce that use. The Toxics Use Reduction law was updated by the 1997 Legislature after DEQ reviewed it with stakeholders. During the 2003 legislative session, DEQ committed to again review the law. We have taken public input through meetings and the web, and have had a series of meetings with our hazardous waste stakeholder work group.

Based on this input, DEQ proposes to update the Toxic Use Reduction law by better matching Oregon's law to reporting already required under federal law; recognizing an environmental management system as a replacement for a toxics use reduction plan; and moving to web-based reporting of what actions companies have taken to reduce their use of toxics, which will be valuable information for other businesses and DEQ's technical assistance staff as they work to reduce the use of toxics and the generation of hazardous waste.

3. LC 630: Ratification of Water Quality Fee Changes (*bill should be introduced by DAS*)

Oregon Revised Statute 291.055 provides that any new state agency fees or fee increases adopted after July 1 of any odd-numbered year "are rescinded on July 1 of the next following odd-numbered year, or on adjournment sine die of the regular session of the Legislative Assembly meeting in that year, whichever is later, unless otherwise authorized by enabling legislation setting

forth the approved fees."
The Department of Administrative Services typically introduces fee ratification legislation. This is a placeholder to ensure that any fees adopted by the Environmental Quality Commission during 2004 that fall under this statute and are not already authorized in statute, are addressed in a legislative concept.
Fees that may be covered include:

- Advisory Committee approved changes to make the fee schedule more equitable for Clean Water Act §401 dredge and fill certification fees
- Technical change in small municipal separate storm sewer systems (MS4) fees
- Septic system ("onsite" wastewater treatment) fees that were changed as a result of advisory committee recommendations for program improvements including streamlining and efficiencies

4. LC 658: Maintain Underground Storage Tank Assistance and Oversight
In the late 1980s, the U.S. Congress and Oregon passed laws to respond to leaking underground gasoline storage tanks that were contaminating land and water. The laws required tanks to be upgraded and maintained to prevent leaks. The Oregon law also set a "per tank" fee to pay for DEQ's tanks work. The 2001 Legislature modified the law and set the annual per-tank fee at $85 until December 31, 2005, when the fee is repealed. The law directed DEQ to gain program delegation from EPA. DEQ and fee payers agreed to the fee and the repeal, and agreed to discuss the tanks program and fee prior to the 2005 legislative session. A legislative change is needed to continue the tanks fee so that DEQ can continue federally required work to prevent leaks and contamination, and seek delegation to implement the federal law in Oregon. DEQ has been working closely with fee payers on this concept.

5. LC 352: Increase maximum loan repayment term for Clean Water State Revolving Fund
The Clean Water State Revolving Fund uses proceeds from bond sales as a match for federal grants, and funds low-interest loans to local governments for wastewater treatment improvements.

This concept changes the Clean Water State Revolving Fund statute to redefine the maximum term for repayment of loans from "any period not to exceed 20 years" to "not later than 20 years after project completion." The statute does not currently allow for the most favorable loan terms as intended under EPA's regulations. The change will add approximately 2-5 years to the loan repayment term for wastewater treatment plant construction projects, making loan terms consistent with EPA's expectations and more favorable for borrowers.

Attachment E

ATSAC Membership

Background: In October 2003, the Oregon State Air Toxics Program (OAR 340-246-0010) was adopted by the Environmental Quality Commission. This rule was the result of a five-year process guided by two stakeholder advisory committees. It requires DEQ to form, *with the concurrence of the EQC*, an Air Toxics Science Advisory Committee (ATSAC).

The purpose of the ATSAC is to provide DEQ, and in its jurisdiction, the Lane Regional Air Pollution Authority, with advice on the state air toxics program that is scientifically and technically sound, independent, balanced, useful, and timely. The ATSAC addresses technical, risk assessment, and engineering issues, as well as the adequacy of the scientific foundation on which a DEQ policy position is based. It does not address policy issues, risk management decisions; or the non-technical aspects of any DEQ policy position. The ATSAC is intended solely as a technical advisory body and not as a committee designed to reflect stakeholder views.

Per OAR 340-246-0070(2), the ATSAC must have at least 5, but no more than 7, members with relevant air toxics experience in the following six disciplines: (1) toxicology; (2) environmental science or engineering; (3) risk assessment; (4) epidemiology & biostatistics; (5) public health medicine (physician); and (6) air pollution modeling, monitoring, meteorology or engineering. One member could have more than one field of expertise (e.g., toxicology and risk assessment) or more than one member could be in the same general field but possess different specialties (e.g., air pollution engineering and air pollution modeling).

This spring the EQC concurred with the Director's 7 appointments to the ATSAC.

Replacing a Vacancy: Unfortunately, committee member Dr. Catherine Neumann had to resign from ATSAC at about the same time the committee started meeting. Dr. Staci Simonich was on DEQ's original list of qualified candidates meeting similar expertise and the Department recommends that the EQC concur with the Director's appointment of Dr. Simonich to fill the vacancy on the ATSAC.

Candidate Biographical Information:

Dr. Staci Simonich is currently an Assistant Professor at Oregon State University with a joint appointment in the Department of Environmental and Molecular Toxicology and Department of Chemistry. Dr. Simonich received her Ph.D. in Chemistry from Indiana University in 1995. Her graduate research focused on the global and regional atmospheric transport of persistent organic pollutants and their removal from the atmosphere by natural vegetation. This research resulted in publications in the journals Science, Nature, and Environmental Science and Technology.

Following graduate school, Dr. Simonich worked for six years as a Senior Environmental and Atmospheric Chemist for the Procter & Gamble Company in Cincinnati, Ohio. Her research there focused on the environmental and atmospheric fate of high production volume fragrance materials

that are used in consumer products and resulted in publications in the journals Environmental Science and Technology and Environmental Toxicology and Chemistry.

She joined Oregon State University in 2001. Dr. Simonich's expertise is primarily in the area of air pollution monitoring and environmental science. Her 10-member research group at OSU is focused on studying the trans-Pacific and regional atmospheric transport and deposition of air toxics (primarily persistent organic pollutants) to high elevation ecosystems. Her laboratory's air monitoring research sites include Marys Peak in Oregon's Coast Range, the Olympic Peninsula of Washington, and a site on Mt. Bachelor. The air monitoring research sites are funded through a 5-year grant from the National Science Foundation. Dr. Simonich's laboratory is also studying the atmospheric deposition of air toxics to high elevation ecosystems located in eight Western U.S. National Parks.

Dr. Simonich is also experienced in the fields of toxicology and risk assessment because of her past employment at the Procter & Gamble Company in Consumer Product Safety and her appointment in OSU's Department of Environmental and Molecular Toxicology. Dr. Simonich is actively involved in the Society of Environmental Toxicology and Chemistry and has served on several committees, including the planning committee for the World Congress meeting in Portland, Oregon in 2004.

State of Oregon
Department of
Environmental
Quality

Umatilla Chemical Demilitarization Program
Status Update
Environmental Quality Commission
October 22, 2004
(Agenda Item G)

Umatilla Chemical Demilitarization Program

Significant Permit Modification Requests (PMRs) Under Review:

- Liquid Incinerator 1 GB Agent Trial Burn Plan – UMCDF hopes to conduct the GB agent trial burn in April 2005.
- Deactivation Furnace System GB Agent Trial Burn Plan – UMCDF hopes to conduct the drained rocket agent trial burn in January 2005 and the gelled rocket agent trial burn in May 2005.
- New Airborne Exposure Limits (AELs) – The new AELs go into effect on January 1, 2005 for GB and VX. The new AELs go into effect for mustard on July 1, 2005.

Agent Operations

On September 7, 2004, the first pallet of 15 GB rockets was removed from a storage igloo and transported to UMCDF. On September 8 (after a delay of several hours due to an inadvertent activation of a stop feed switch), one rocket was processed: two drain holes and one vent hole were punched in the rocket, the chemical agent was drained from the rocket and collected in the agent holding tank, the rocket was chopped into eight pieces, and each piece was dropped into the rotary kiln of the deactivation furnace system (DFS) and destroyed. The resulting DFS ash (a combination of ash plus aluminum and fiberglass residues) was collected in the heated discharge conveyor bin.

Over the next few days, UMCDF proceeded slowly in processing more rockets on both the A and B processing lines. The Department has maintained a significant on-site presence to observe the loading and transport of rockets from UMCD to UMCDF and the processing of rockets at UMCDF since the start of chemical agent operations.

On September 14, UMCDF initiated a safety stand down due to incidents that had occurred during the first week of operation, including a brine spill from the brine reduction area (BRA) surge tank into a secondary containment area and the entry of site personnel into the Toxic Cubicle (the room where the chemical agent holding tank is located) while only wearing level C personal protective gear. Fortunately for the workers, the concentration of chemical agent in the Toxic Cubicle was low enough that their respirators and protective clothing were sufficient to prevent their exposure to GB.

During the safety stand down a root cause analysis was performed of the site entry incident and several corrective measures were implemented prior to resumption of operations to ensure that such a situation would not recur. Since the resumption of operations following the stand down, reports from UMDCF have indicated that subsequent entries have gone well and there have been no further worker entries into areas with inadequate levels of personal protective gear.

Although there have been a variety of mechanical problems with the rocket processing equipment (a couple of rockets got stuck in the rocket metering machine that moves the rockets onto the conveyor system and difficulties have occurred with the agent drain/quantification system on the A line), the DFS has worked very well and feed rates up to 24 rockets/hour have been sustained for short time periods (a couple of hours) on the B line. The problem with the rocket metering machine appears to have been corrected, but UMCDF is still troubleshooting the agent quantification system for the A line.

As of October 10, UMCDF had processed 660 GB rockets (which leaves 90,715 to be destroyed). On October 11, UMCDF began a maintenance outage (projected to last 4 – 5 days) while the first batch of liquid agent was being analyzed in anticipation of it being destroyed in the liquid incinerator #1 (LIC1). LIC1 has already been used successfully to process 12,000 lbs. of spent decontamination solution in its secondary combustion chamber and no operational difficulties were encountered. On October 15 or 16, UMCDF plans to incinerate the first batch (approximately 500 gallons) of liquid agent. Approximately one gallon of chemical agent is drained per rocket and it was necessary to accumulate more than 500 gallons in the agent collection system prior to beginning the destruction of liquid agent in LIC1.

The BRA seems to be working well and the site has been able to process all brines generated from processing rockets thus far.

Agent Monitoring

In response to preliminary information from the investigation into ACAMS monitoring problems experienced at the Tooele Chemical Agent Disposal Facility (TOCDF), UMCDF has reported that they have taken several actions:

- Ensured that the air monitoring technicians challenge the ACAMS units with an agent standard before they make any adjustments during calibration checks and after any adjustments are made.
- Provided additional staff training on laboratory ethics in general and on the specifics of the TOCDF ACAMS monitoring issues.
- Increased tracking and trend analysis of adjustments made to all ACAMS units.
- Increased oversight of air monitoring technicians by the laboratory quality control department during ACAMS challenges.

UMCDF will also review future investigation reports from TOCDF and associated oversight agencies regarding this issue to identify additional correction actions that should be implemented.

After the investigation reports from the incident at TOCDF are made available, the Department will evaluate the need for any further regulatory action to minimize the potential for improper adjustments being made to the agent monitors at UMCDF.

Other Topics of interest

Approval for Off-site Disposal of Demilitarization Residues
A temporary authorization has been granted to Chemical Waste Management's hazardous waste landfill in Arlington so they can accept DFS ash and BRA salt for disposal while a Class 2 permit modification is processed for the Arlington landfill to accept the waste codes for chemical demilitarization residues on a permanent basis. All off-site shipments of hazardous wastes must be agent-free.

Umatilla Chemical Depot (UMCD) Power Outage Problems
UMCD has implemented several measures and will continue to complete other measures to minimize the disruption of power supplied to the emergency operations center (EOC) and to ensure that all critical functions of the EOC are maintained in support of chemical operations at UMCD and UMCDF. Chemical operations at UMCD and UMCDF are suspended in the event of power outages at the EOC or the loss of critical EOC functions.

The installation of a separate new power line to the EOC from the offsite power supplier should be completed in November. Uninterruptible power supplies have been provided to critical EOC equipment necessary for preparing plume dispersion models and communicating with the off-post community. Contracting is underway for other electrical upgrades that will further minimize potential power disruptions. The Depot Commander has assured the Department that funding is available for all of the actions identified to resolve the power outage problems.

State of Oregon
Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item H, Informational Item: Portland Area Carbon Monoxide Plan and the Oxygenated Fuel Requirement.
October 22, 2004 EQC Meeting

Purpose of Item

At the December meeting of the Environmental Quality Commission (EQC), the Department of Environmental Quality (DEQ) will present the Portland Area Carbon Monoxide (CO) Maintenance Plan for consideration. A controversial element of the plan is whether or not it will continue the existing oxygenated fuel requirement. This agenda item is to inform the EQC of issues related to that element of the proposed plan.

Background

CO is a colorless, odorless, poisonous gas. It decreases the oxygen-carrying capacity of blood. High concentrations can severely impair the function of oxygen-dependent tissues including the brain, heart and muscle. The major human-caused source of CO is incomplete combustion of fossil fuels, primarily from gasoline-powered motor vehicles. Oregon's most serious CO problems occur during the winter in urban areas when CO from traffic is trapped near the ground where humans are readily exposed. CO is one of six criteria pollutants regulated under the Clean Air Act.

The use of oxygenated fuel lowers CO emissions from motor vehicles by providing additional oxygen to gasoline that improves fuel combustion. It is especially effective at reducing emissions in older vehicles and during winter when CO emissions are highest. Oxygenated fuel was originally mandated for the Portland area and three other Oregon communities by the 1990 Clean Air Act Amendments and was first required in 1992. The requirement only applies from the beginning of November through the end of February. The history of oxygenated fuel in Oregon is detailed in Attachment 1.

CO levels in the Portland area improved as a result of the oxygenated fuel requirement and more significantly due to federal new motor vehicle emissions standards. In 1996, DEQ developed an air quality plan demonstrating how CO levels in the region would remain below the air quality standard.

This plan supported DEQ's request that the Environmental Protection Agency (EPA) redesignate the Portland area from nonattainment to attainment for CO. At that time, DEQ's analysis showed that the oxygenated fuel requirement was no longer necessary to meet CO standards. When DEQ proposed the plan for public comment prior to EQC adoption, DEQ suggested a range of options for continuing or phasing out the oxygenated fuel requirement. The majority of responses favored keeping the oxygenated fuel requirement for a number of reasons, including the additional safety margin in achieving the air quality standard and a perceived oxygenated fuel benefit of reducing emissions of air toxics. After considering comments, DEQ noted that the new "enhanced" vehicle inspection program would further decrease motor vehicle emissions and recommended to the EQC that they repeal the oxygenated fuel requirement after the winter of 1997-1998. Given stakeholder interest in the benefits of oxygenated fuel, the EQC decided to retain the oxygenated fuel requirement and directed DEQ to reevaluate it in two years (1998). In November 1997, the EPA redesignated the Portland area to attainment for CO with the oxygenated fuel requirement in place.

DEQ's 1998 analysis again showed that oxygenated fuel was not needed to maintain compliance with CO standards, but stakeholder support for oxygenated fuel remained strong as a way to provide an added margin of safety. DEQ recommended retaining the program for an additional two years (through 2000), at which time it would be reevaluated again. The 2000 assessment would take into account the benefit of the new enhanced vehicle emissions test, and incorporate improvements to EPA's computer model for estimating motor vehicle emissions. Due to delays in the release of EPA's new motor vehicle emissions model, DEQ decided to incorporate the next evaluation of the oxygenated fuel program into the 2004 CO plan.

Over the years, CO concentrations in the Portland area have decreased substantially as shown by the graph in Attachment 1. Much of this is due to emission improvements in newer vehicles that are equipped with more efficient catalytic converters and computerized engine controls that automatically provide correct combustion conditions.

A consequence of these improvements is that oxygenated fuel has become less effective in providing additional CO reductions. As a result, recent CO maintenance plans adopted for Grants Pass, Klamath Falls and Medford all eliminated the oxygenated fuel requirement. In those communities, DEQ received no comments that oxygenated fuel should be retained.

Key Issues

DEQ met with stakeholders in the Portland area to discuss eliminating the oxygenated fuel requirement as part of the 2004 Portland Area CO Maintenance Plan. Despite showing that oxygenated fuel is not needed to meet the CO standard, some stakeholders still favor keeping this requirement for the following reasons:

- If oxygenated fuel is discontinued, total wintertime CO levels will increase approximately 5%, (but will remain less than half the CO standard).
- Ethanol (the oxygenate used in Oregon) may reduce greenhouse gas emissions.[1]
- Ethanol is renewable and promotes energy independence.
- Ethanol may slightly reduce air toxics from motor vehicle emissions.

There are economic and technical reasons why ethanol may still be used that are independent of the current wintertime oxygenated fuel requirement. The most significant reasons for doing so are that ethanol boosts a fuel's octane rating, and that ethanol used as fuel enjoys a federal subsidy of 52¢ per gallon. On the other hand, fuel oxygenated with ethanol has the disadvantage of lowering fuel efficiency 2% (approximate average).

A repeal of the oxygenated fuel requirement would allow increased flexibility in fuel storage and distribution, and potentially provide economic benefits for the petroleum industry and consumers.

Other Issues

The timing of the Portland Area CO Maintenance Plan's proposal for adoption is driven by two issues:

- The Clean Air Act (and an existing commitment to EPA) requires Oregon to adopt a new CO maintenance plan by the end of 2004.
- The current emissions allowance for transportation sources in the Portland area needs to be updated using new growth projections and EPA's latest computer model for estimating motor vehicle emissions. This revision is necessary to ensure that Metro and local jurisdictions can continue to approve transportation projects without delays.

Next Steps

The proposed plan is open to public comment from September 7th through October 25th, with a public hearing in Portland scheduled for October 20th. The plan is due to be considered by the EQC for

[1] The use of ethanol can reduce greenhouse gases, however, estimates of the reduction vary widely, and there is no consensus among researchers as to the benefit. The Oregon Department of Energy cites a study showing the greenhouse gas benefit of ethanol to range from zero to 70% depending on the type of feedstock and source of energy used for ethanol production.

adoption in December 2004.

EQC Involvement This informational item will be discussed at the October 22, EQC meeting. Further information is available in the Notice of Proposed Rulemaking for the Portland CO Maintenance Plan on DEQ's website.

Attachments A graph of Portland area CO concentrations and chronology of oxygenated fuel in the Portland area is shown in Attachment 1.

Approved:

Section: _____

Division: _____

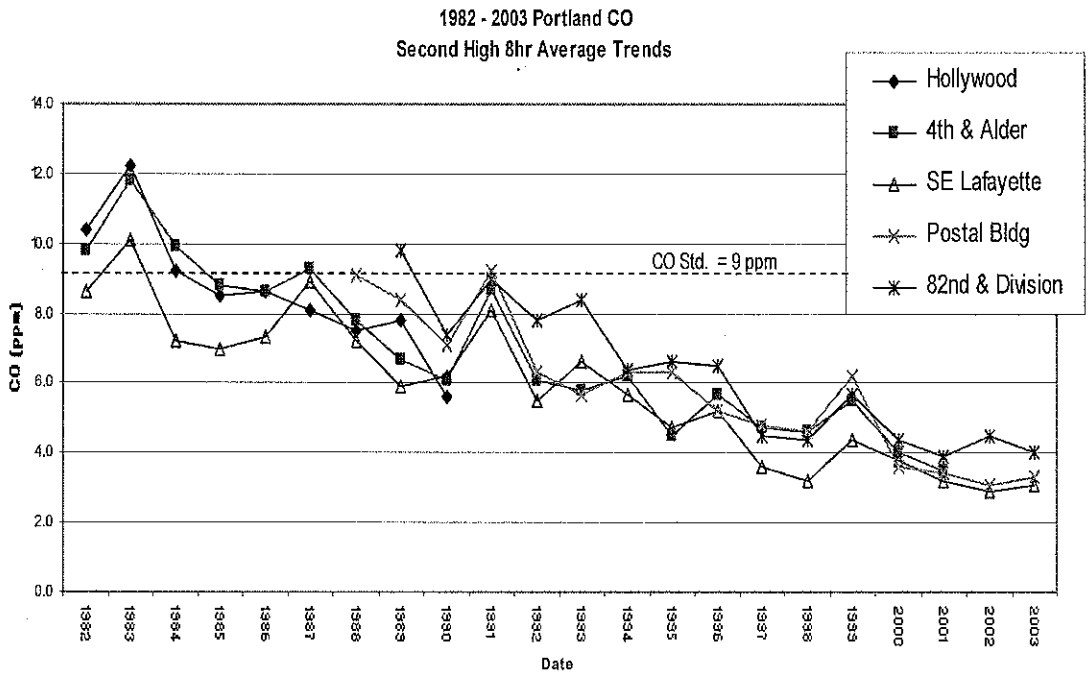
Report Prepared By: Dave Nordberg

Phone: (503) 229-5519

Agenda Item H - Attachment 1
Oct. 22, 2004 EQC Meeting

Portland Area Oxygenated Fuel Carbon Monoxide Reduction Strategies A Chronology

Ambient carbon monoxide (CO) concentrations in the Portland area decreased dramatically over the last several decades. CO levels of more than twice the air quality standard in the early 1970s are less than half the standard today. CO concentrations for the last two decades in relation to the 9 ppm federal health standard are shown below:



Following is a general chronology of the CO reduction strategy and key milestones for the oxygenated fuel requirement in Portland:

1972 The Portland area exceeds the CO standard approximately 1 out of 3 days. Motor vehicles produce the overwhelming majority of CO emissions.

Ongoing Federal standards for new vehicle emissions tighten repeatedly since the 1960s and produce the largest improvements in air quality. Lower federal emission standards for motor vehicles continue to reduce emissions throughout the 1980s and 1990s.

1975 The Department of Environmental Quality (DEQ) begins a vehicle emissions testing program in the Portland area.

1975 Portland adopts the Downtown Parking and Circulation Policy (including the parking lid) to decrease CO concentrations by reducing downtown traffic.

1990 Despite years of steadily reducing CO concentrations, the Portland area still fails to meet CO standards and is designated as a CO nonattainment area under the 1990 Clean Air Act Amendments. The Clean Air Act Amendments require CO nonattainment areas to use oxygenated fuel during the coldest months.

1992 Oxygenated fuel requirements take effect Nov. 1st in Portland, Grants Pass, Medford and Klamath Falls.

1996 The Portland area complies with CO standards for the fifth consecutive year. DEQ develops the first Portland Area CO Maintenance Plan and applies to EPA for redesignation to attainment. DEQ evaluates the need to continue the oxygenated fuel program. Key points from DEQ's 1996 assessment include:

- Oxygenated fuel is no longer needed to maintain good air quality. The safety margin for compliance without oxygenated fuel is projected to be 11% in 1997, 28% in 1999 and 21% in 2007.
- The proposed CO maintenance plan published for public comment offers several options for the oxygenated fuel program.
- Approximately 2 out of 3 comments favor keeping oxygenated fuel requirements in place. Oxygenated fuel proponents include many local elected officials.
- DEQ reports to the Environmental Quality Commission (EQC) that oxygenated fuel is no longer needed as a CO reduction strategy and recommends that the oxygenated fuel requirement be repealed after the winter of 1997-1998. DEQ also proposed to conduct an evaluation of actual CO air quality data by March 1998, and based on that assessment, recommend to the EQC whether to maintain the repeal or reinstate the oxygenated fuel program.
- The EQC adopts the Portland CO plan and decides on the basis of public comment to continue the oxygenated fuel requirement. The EQC asks DEQ to reevaluate the need for oxygenated fuel after the winter of 1997-1998.

1997 EPA approves the Portland area CO plan and redesignates the area to attainment for CO.

1998 DEQ presents an update to the EQC on the need to continue the oxygenated fuel program (report requested by the EQC in 1996).

- DEQ reports that oxygenated fuel is not needed to maintain compliance with the CO standard but notes many elected officials support keeping the oxygenated fuel program.
- DEQ suggests further evaluation after the winter of 2000-2001 when the enhanced vehicle testing program is fully implemented, and after EPA's finalizes a new computer model for estimating motor vehicle emissions. EPA's new model will allow a more accurate evaluation of CO concentrations and the need for oxygenated fuel.
- The EQC concurs and asks DEQ to return with updated information when it becomes available.

2000 Oxygenated fuel is discontinued in Grants Pass with no opposition.

2001 The release of EPA's new Mobile6 emission factor model is delayed repeatedly. DEQ discontinues an oxygenated fuel advisory committee effort when decreased resources cause DEQ to reevaluate discretionary work. Reconsideration of oxygenated fuel is deferred until the CO maintenance plan is updated in 2004.

2001 Oxygenated fuel is discontinued in Klamath Falls with no opposition.

2002 Oxygenated fuel is discontinued in Medford with no opposition.

2004 DEQ develops the second CO maintenance plan. Emission projections demonstrate that CO levels in the Portland area will remain less than half the CO standard even if oxygenated fuel is eliminated. The oxygenated fuel requirement provides an approximate 5% reduction in total CO emissions. If oxygenated fuel is discontinued, wintertime CO levels will increase approximately 5% but still remain less than half the 9 ppm CO standard. Oxygenated fuel is no longer needed as a CO reduction strategy. DEQ proposes the Portland area CO plan for public comment from September 7th through October 25th. The plan includes a proposal to repeal oxygenated fuel effective October 31, 2005. DEQ will hold a public hearing on the plan October 20th, and the EQC will hear information related to the oxygenated fuel requirement at their meeting on October 22nd. That meeting will be held in Tillamook,

Oregon and will offer the public an opportunity to speak directly to the EQC. Adoption of the Portland CO maintenance plan is scheduled for consideration by the EQC during their December 9-10, 2004 meeting in Portland.

State of Oregon

Department of Environmental Quality Memorandum

Date: September 30, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item I, Rule Adoption: Pollution Control Facilities Tax Credit, Permanently Align Rule to Statue
October 22, 2004 EQC Meeting

Department Recommendation

The Department of Environmental Quality (DEQ, Department) recommends that the Environmental Quality Commission (EQC, Commission) permanently adopt Pollution Control Facilities Tax Credit (PCTC) rule OAR 340-016-0055.

Background and Need for Rulemaking

The Commission adopted a temporary rule on May 21, 2004, to align filing deadlines in rule with state statute (ORS 468.165(6) and 468.170(4)). The temporary rule is effective through December 5, 2004. The proposed rule, identical to the temporary rule, would permanently align filing deadlines in rule with state statute.

The inconsistency between the PCTC statute and the tax credit rules had to do with filing deadlines and the sunset dates that changed in 2001. The 2001 law shortened the time for filing an application from two years to one year after construction of a facility is substantially completed. The law also extended the last date to file an application (sunset) to December 31, 2008. Prior to adopting the temporary rule, DEQ rules required the taxpayer to file the application within two years after construction is substantially completed but no later than December 31, 2003.

Prior to adoption of the temporary rules, an applicant that relied solely on DEQ's rules without reference to the statute, the website, or application documents, could have mistakenly thought they had two years after completion to file, or that they missed the filing deadline (sunset) altogether.

The Commission is responsible for adopting rules and providing policy direction for the PCTC program. The Commission also has direct responsibility for certifying all pollution control investments before an Oregon taxpayer may use the credit to reduce their Oregon tax liability.

Effect of Rule

The proposed rule, like the temporary rule, would permanently align:

- OAR 340-016-0055(2) with ORS 468.170(4)(d) by changing the time for filing an application from two years to one year and changing the final date to file an application from December 31, 2003, to December 31, 2008.
- OAR 340-016-0055(6) with ORS 468.165(6) by changing the last date that the Commission may extend the filing deadline from December 31, 2003, to December 31, 2008.

Commission Authority

The Commission has authority to take this action under ORS 468.020.

Stakeholder Involvement

Stakeholder involvement was unnecessary because the proposed rule merely conforms to statute.

Public Comment

The public comment period opened on June 15, 2004, and closed at 5:00 PM on July 15, 2004. The Department of Environmental Quality did not receive any written comments and there was no public hearing.

Key Issues

Failure to adopt the proposed permanent rule could result in prejudice to the interest of applicants for certification of pollution control facilities. This issue cannot be fully resolved without amending the rule.

If the temporary rule expires without a permanent rule in effect:

- An applicant with an otherwise qualifying facility could miss the one-year application deadline if they relied solely on DEQ's rules even though the one-year application deadline is in statute, in DEQ's application materials, and on DEQ's website.
- An applicant relying solely on DEQ's rules could mistakenly determine that it is ineligible for certification after December 31, 2003, and forego applying for a certification to which it might otherwise be entitled. The rule would indicate that an application would be rejected if the applicant submits it after December 31, 2003. It also indicates that the Commission may not extend the application deadline beyond December 31, 2003.

Next Steps

The proposed effective date of the permanent rule is upon filing with the Secretary of State. There is no need for an implementation plan. In the first quarter of 2002, the Department included the correct dates on all applications, Fact Sheets, and on the website.

Attachments

A. Proposed Rule Revisions (redlined version)
B. Statement of Need and Fiscal and Economic Impact
C. Land Use Evaluation Statement
D. Relationship to Federal Requirements Questions

Available Upon Request

1. ORS 468.150 to 468.190
2. Cover Memorandum from Public Notice
3. Rule Implementation Plan

Approved:

Section: Maggie Vandehey

Division: Lydia Fottridge

Report Prepared By: Maggie Vandehey
Phone: (503) 229-6878

Attachment A

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION 16
POLLUTION CONTROL TAX CREDITS

340-016-0055

Application Procedures

Any Oregon taxpayer may apply for the certification of a pollution control facility to take relief from their Oregon tax liability. The applicant and the facility shall be eligible under ORS 307.405, ORS 315.304, and ORS 468.150 to 468.190. The applicant shall submit the application to the Department on the application form provided by the Department.

(1) Application for Preliminary Certification. An applicant may apply for preliminary certification of a pollution control facility to determine if a future facility would meet the certification requirements as set forth in OAR 340-016-0060. The applicant may submit the optional preliminary application anytime before the construction of the pollution control facility is complete. If the Commission issues a preliminary certificate and if the applicant constructs the facility as represented on the preliminary application and the preliminary certificate then the facility shall meet the requirements as set forth in OAR 340-016-0060. The preliminary certification of a facility does not exempt the applicant from submitting a timely application for final certification as set forth in section (2) of this rule.

(2) Application for Final Certification. The applicant shall submit all information, exhibits and substantiating documents requested on the application for final certification. The Department shall reject the application for final certification if the applicant fails to submit the application:

(a) After the construction of the facility is substantially complete and the facility is placed in service;

(b) Within ~~two years~~ one year after construction of the facility is substantially completed; and

(c) On or before December 31, ~~2003~~2008.

(3) Complete Application. The applicant shall submit to the Department an application as set forth in section (1) or section (2) that is complete and ready to process. For an application to be complete and ready to process, the applicant shall:

(a) Complete all required application fields;

(b) Provide all appropriate exhibits;

(c) Explain how the facility is eligible for a pollution control tax credit as set forth in OAR 340-016-0060. The applicant shall include supporting documentation if the facility is eligible for certification based upon orders or permit limitations;

(d) Include the appropriate fees established in OAR 340-016-0065;

(e) Provide documentation that substantiates the facility cost as claimed on the application for final certification and as set forth in OAR 340-016-0070;

(f) Contain a statement that the facility is in compliance with Department statutes, rules and standards, and any documentation regarding non-compliance;

(g) Sign the application certifying that all claims made on the application are true and accurate;

(h) Provide a copy of a written agreement between the lessor and lessee designating the party to receive the tax credit if the applicant is claiming a tax credit for a leased facility. The applicant shall provide a copy of the cover, first and signature pages of the complete and current lease agreement for the facility. The Department may request a copy of the complete agreement; and

(i) Provide a copy of a written and signed agreement between the owners designating the party or parties to receive the tax credit certificate if the applicant is claiming the tax credit for a facility with more than one owner.

(4) Department Notification. The Department shall notify the applicant in writing when:

(a) Rejecting an application for the applicant's failure to file a timely application as set forth in sections (1) and (2) of this rule or rejecting an application for failure to provide a timely response as set forth in subsection (5)(a) of this rule.

(b) Requiring additional information from the applicant. The Department shall request additional information within 60 days from the date the Department received the application if the Department is unable to complete the review;

(c) Requiring additional information, for applications for final certification only, if the Department is unable to determine the actual cost of the facility or the portion of the actual cost of the facility properly allocable to pollution control;

(d) Notifying the applicant of the date, time and place of the Commission meeting where the Commission shall take action on the application; and

(e) Notifying the applicant of the action taken by the Commission. If the Commission rejects an application for certification; certifies a lesser actual cost of the facility; or certifies a lesser portion of the actual cost properly allocable to pollution control, material recovery or recycling than the applicant claimed in the application for certification, the Commission shall cause written notice of its action, and a concise statement of the findings and reasons therefore, to be sent by registered or certified mail to the applicant.

(5) Applicant Response to Notification. The applicant:

(a) Shall respond to the Department within 60 days of receipt of the Department's written notification when the Department requests additional information as set forth in section (4) of this rule. The applicant shall respond by providing the additional information requested or by submitting a written estimate of the time needed to provide the information necessary to complete the application.

(b) May appeal from the rejection or reduction as provided in ORS 468.170(3) and ORS 468.110.

(6) Extension of Time. The Commission may grant an extension of time to submit an application for final certification. An extension of time:

(a) Shall only be considered for applications that may exceed the time limits set forth in section (2) of this rule;

(b) Shall not extend the period for filing an application beyond December 31, ~~2003~~2008; and

(c) Shall only be granted for circumstances beyond the control of the applicant that would make filing a timely application unreasonable.

[ED. NOTE: The Application referenced in this rule is available from the agency.]

Stat. Auth.: ORS 468.~~150~~020
Stats. Implemented: ORS 468.~~150~~165 and ORS 468.~~190~~170
Hist.: DEQ 5-1998, f. 4-24-98, cert. ef. 5-1-98

Attachment B

DEPARTMENT OF ENVIRONMENTAL QUALITY
Chapter 340
Proposed Rulemaking
STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT
This form accompanies a Notice of Proposed Rulemaking

Title of Proposed Rulemaking:	Pollution Control Facilities Tax Credit – Align Rule to Statute Oregon Administrative Rule Chapter 340, Division 16
Need for the Rule(s)	The proposed amendment would make permanent the Pollution Control Facilities Tax Credit (PCTC) temporary rule adopted by the Environmental Quality Commission (EQC) on May 21, 2004. The temporary rule and this permanent rule address inconsistencies between Oregon Administrative Rule (OAR) 340-016-0055 and state statute [Oregon Revised Statute (ORS) 468.165(6) and 468.170(4)]. The inconsistency has to do with filing deadlines and the sunset dates that changed in 2001. The 2001 law shortened the time for filing an application from two years to one year after construction of the facility is substantially completed. The law also extended the last date to file an application (sunset) to December 31, 2008. The Department of Environmental Quality (Department) rule says that the taxpayer must file the application within two years after construction is substantially completed but no later than December 31, 2003.
Documents Relied Upon for Rulemaking	The Department relied upon state statute [ORS 468.165(6) and 468.170(4)] and Department rule (OAR 340-016-0055). These documents are located at http://www.oregon.gov or at the offices of the Department of Environmental Quality at 811 S.W. 6th Avenue, Portland, Oregon. Please contact Maggie Vandehey for times when the printed documents are available for review.
Fiscal and Economic Impact	
Overview	The Department requests written public comment. There is no public hearing for this minor alignment of the rule to statute. The proposed rule does not have a negative financial impact on business. ORS 183.335(2)(G) Oregon taxpayers may use the credit to reduce their Oregon income tax liability to the state, thereby, reducing tax revenues collected. Cooperatives and non-profit corporations may use the credit against ad valorem taxes, thereby, reducing property tax revenues collected. These revenue reductions diminish the amount of revenue available for other services. This proposed rule amendment would eliminate the inconsistency between the statute and the rule. It does not change the amount of the credit or any process for obtaining a credit.
General public	The proposed rule does not change the impact on the general public.
Small Business	The proposed rule does not change the impact on small businesses.

Large Business	The proposed rule does not change the impact on large businesses.
Local Government	The proposed rule does not change the impact on local governments. Local governments cannot use the PCTC because they do not have an Oregon tax liability. Generally, any change in tax credit benefits could potentially result in an increase or decrease in ad valorem tax collections by local governments. Additionally, any change could affect the amount of the General Fund revenue available to support local government efforts.
State Agencies	The proposed rule amendment does not affect operating revenue, expenses or FTE of any state agency.
DEQ	The proposed rule amendment has no significant impact on DEQ. Program materials currently reflect the dates in the statute.
Other agencies	The Department of Revenue processes the credits submitted with income tax reporting forms. The proposed rule does require any form or system modifications.
Assumptions	This proposed rule amendment is minor because it aligns the dates in the rule with the dates in the statute.
Housing Costs	The Department has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single-family dwelling on that parcel.
Administrative Rule Advisory Committee	The Department did not use an Advisory Committee in the development of this proposed rule. The proposed amendment would permanently adopt the PCTC temporary rule that aligns dates in Department rule with dates in state statutes. The EQC adopted the temporary rule on May 21, 2004.

Maggie Vandehey — Prepared by — Maggie Vandehey (Printed name) — 5/6/04 (Date)

Jim Roys — Approved by DEQ Budget Office — Jim Roys (Printed name) — 5/14/04 (Date)

Attachment C

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for

Pollution Control Facilities Tax Credit – Align Rule to Statue

Land Use Evaluation Statement

1. Explain the purpose of the proposed rules.

The Department proposes permanently amending the Pollution Control Facilities Tax Credit (PCTC) rule temporarily adopted by the Environmental Quality Commission (EQC) on May 21, 2004. The temporary rule and this proposed permanent rule address inconsistencies between Oregon Administrative Rule (OAR) 340-016-0055 and state statute [Oregon Revised Statute (ORS) 468.165(6) and 468.170(4)].

2. Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?

Yes___ No_X_

a. If yes, identify existing program/rule/activity:

b. If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?

Yes____ No____ (if no, explain):

c. If no, apply the following criteria to the proposed rules.

Staff should refer to Section III, subsection 2 of the SAC document in completing the evaluation form. Statewide Goal 6 - Air, Water and Land Resources is the primary goal that relates to DEQ authorities. However, other goals may apply such as Goal 5 - Open Spaces, Scenic and Historic Areas, and Natural Resources; Goal 11 - Public Facilities and Services; Goal 16 - Estuarine Resources; and Goal 19 - Ocean Resources. DEQ programs and rules that relate to statewide land use goals are considered land use programs if they are:

1. Specifically referenced in the statewide planning goals; or

2. Reasonably expected to have significant effects on
   a. resources, objectives or areas identified in the statewide planning goals, or
   b. present or future land uses identified in acknowledged comprehensive plans.

In applying criterion 2 above, two guidelines should be applied to assess land use significance:

- The land use responsibilities of a program/rule/action that involved more than one agency, are considered the responsibilities of the agency with primary authority.
- A determination of land use significance must consider the Department's mandate to protect public health and safety and the environment.

In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.

The PCTC is not a land use program. The proposed rules do not affect land use.

3. **If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.**

Office of the Director
Division

Intergovernmental Coord.

5-13-04
Date

Attachment D

Relationship to Federal Requirements

Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from federal requirements. The questions are required by OAR 340-011-0029.

1. Are there federal requirements that are applicable to this situation? If so, exactly what are they?

The Pollution Control Facilities Tax Credit is a state program and there are no applicable federal rules. The rules provide a credit against an Oregon taxpayer's state tax liability, or for Cooperatives and non-profit corporations, a credit against ad valorem taxes.

2. Are the applicable federal requirements performance based, technology based, or both with the most stringent controlling?

Not applicable.

3. Do the applicable federal requirements specifically address the issues that are of concern in Oregon? Was data or information that would reasonably reflect Oregon's concern and situation considered in the federal process that established the federal requirements?

Not applicable.

4. Will the proposed requirement improve the ability of the regulated community to comply in a more cost effective way by clarifying confusing or potentially conflicting requirements (within or cross-media), increasing certainty, or preventing or reducing the need for costly retrofit to meet more stringent requirements later?

Not applicable.

5. Is there a timing issue which might justify changing the time frame for implementation of federal requirements?

Not applicable.

6. Will the proposed requirement assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth?

Not applicable.

7. Does the proposed requirement establish or maintain reasonable equity in the requirements for various sources? (level the playing field)

Not applicable.

8. Would others face increased costs if a more stringent rule is not enacted?

Not applicable.

9. Does the proposed requirement include procedural requirements, reporting or monitoring requirements that are different from applicable federal requirements? If so, Why? What is the "compelling reason" for different procedural, reporting or monitoring requirements?

No.

10. Is demonstrated technology available to comply with the proposed requirement?

Not applicable.

11. Will the proposed requirement contribute to the prevention of pollution or address a potential problem and represent a more cost effective environmental gain?

Not applicable.

State of Oregon
Department of Environmental Quality Memorandum

Date: October 1, 2004

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item J, Action Item: Trojan Independent Spent Fuel Storage Installation Tax Credit
October 22, 2004 EQC Meeting

Department Recommendation

The Department of Environmental Quality (DEQ, Department) requests that the Environmental Quality Commission (EQC, Commission) provide direction to the Department on the breadth and depth of discussion desired at the December 9, 2004 EQC meeting with regard to the Independent Spent Fuel Storage Installation (ISFSI) tax credit. The Commission granted preliminary certification to the ISFSI as a pollution control tax credit facility in September 2000, and will consider final certification of the facility at its December 9 meeting.

At the December 9 meeting, should the Department provide discussion on:

1. Only those facts necessary to grant final certification; or
2. All options available to the EQC, including denial of final certification?

The Department asks for this direction because of the nature of and circumstances surrounding both the preliminary certification and the application for final certification, including:

1. Four years have elapsed since the EQC reviewed the preliminary application;
2. The Commission granted the preliminary certification by a split vote on September 29, 2000;
3. Commission membership has changed;
4. The Commission may want to explore the full range of legal options;
5. The claimed facility cost is $62.6 million. It is the second largest claimed cost in the Pollution Control Facilities Tax Credit's 37-year history.

Background

In September 2000, the EQC granted preliminary certification for four of six major components of the ISFSI, located at the Trojan Nuclear Power Plant site in Rainier, Oregon.

The ISFSI provides storage of radioactive waste generated during the plant's energy production years between 1975 and 1992.

The preliminary Pollution Control Facilities Application is an option available to any applicant. Applicants file it before completing the construction of a facility, often to gain some confidence that the facility will qualify for a tax credit when completed. The Department's review for preliminary certification is limited to whether:

a. The facility meets the definition of a pollution control facility, and

b. The facility is necessary to satisfy the intents and purposes of DEQ administered regulations.

ORS 468.170(4)(a) provides guidance for the technical qualifications of facilities claimed on preliminary and final applications. The preliminary review is limited to a facility's technical qualifications. It does not include an examination of what costs should be allocated toward any potential tax credit. That review takes place after an applicant files an application for final certification.

The Department's staff report for the September 29, 2000 EQC meeting recommended that the Commission deny preliminary certification based primarily on staff's conclusion that the ISFSI did not have a pollution control purpose, which is part of the definition of a pollution control facility in ORS 468.155(1)(a). The Department concluded that the installation did not meet:

1. the principal purpose test because neither the DEQ nor EPA regulate radioactive waste; or

2. the sole purpose test because the applicant does not use the claimed facility exclusively for pollution control and the claimed facility would not reduce a *significant quantity* of pollution.

After discussion with the applicant and Department representatives, the Commission concluded that parts of the installation *would* qualify as a pollution control facility, and by a vote of three in favor and two against, granted preliminary certification for four of the six major components of the ISFSI.

The EQC issued the Final Order for the preliminary certification on March 15, 2001, as shown in Attachment A.

When the EQC approves the preliminary application, the taxpayer must then file the final application within one year after constructing the facility. The applicant completed construction of the ISFSI on September 3, 2003, and submitted a final tax credit application for the four preliminarily certified components within the required period.

Key Issues

Key issues:

1. When the Commission approves a preliminary application, the approval is prima facie evidence that the approved facility qualifies as a pollution control facility. It does not ensure that the facility will receive the final certification under the tax credit regulations. The Commission has the authority to make a different determination than reached in the preliminary certification.

2. Should the Commission wish to explore the full range of options, there are at least three pathways to consider:

    a. Approve all four components that received preliminary certification;
    b. Approve only a portion of the four components for final certification; or
    c. Deny final certification for the entire facility.

    For options (a) and (b) above, the Commission would need to verify that the applicant constructed the approved components as preliminarily certified and then determine the eligible cost of those components and the percentage of that cost allocable to pollution control.

    For option (c), the Commission would need to notify the applicant by certified mail of the denial that includes a concise statement of the Commission's findings and the reasons for the findings.

3. If the Commission revisits the technical eligibility of any of the four components, the burden of proof will shift to the Commission to justify the findings and conclusions that the facility does not meet the definition of a pollution control facility or the facility is not necessary to satisfy the intents and purposes of the DEQ administered regulations.

EQC Action Alternatives

For the December 9, 2004 EQC meeting, the Commission may direct the Department to:

1. Limit the discussion to:
   a. determining if the applicants constructed the ISFSI according to the EQC's order; and
   b. determining the eligible facility cost and the percentage of those costs allocated to pollution control, with the assumption that the eligibility determined in the preliminary certification holds; or
2. Revisit the eligibility of the ISFSI as a pollution control facility. If the Commission provides this direction, the Department would present its conclusions about the ISFSI and its components and whether they meet the definition of a pollution control facility. The Department would determine if the ISFSI is necessary to satisfy the intents and purposes of DEQ administered regulations. The Department, with EQC Counsel, would present and explain the various legal options available to the Commission.

Attachments

Attachment A: Application No. 5009; Findings of Fact, Conclusions of Law and Final Order dated March 15, 2001
Attachment B: Agenda Item B, September 29, 2000 EQC meeting
Attachment C: Transcript September 29, 2000 EQC meeting
Attachment D: Excerpt from pertinent regulations

Approved:

Section: Maggie Vandehey

Division: For Helen Lottridge

Report Prepared By: Maggie Vandehey

Phone: (503) 229-6878

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

IN THE MATTER OF THE TAX CREDIT APPLICATION OF PORTLAND GENERAL ELECTRIC COMPANY	APPLICATION NO. 5009 FINDINGS OF FACT, CONCLUSIONS OF LAW AND FINAL ORDER

I. INTRODUCTION/CONTENTS

This order provides final agency disposition of an application by Portland General Electric Company (PGE or the applicant) for preliminary certification of a pollution control facility. The contents of the order are as follows:

II. BACKGROUND AND PROCEDURES
A. The 1995 Legislation and Implementing Rules
B. Agency Review of and Decision on the Application
III. FINDINGS OF FACT
IV. LEGAL STANDARDS, CONCLUSIONS AND STATEMENT OF REASONS
A. Sole Purpose Test and Alternative Methods
B. Exclusions, Including "Insignificant Contribution"
V. CONCLUSION AND ORDER

II. BACKGROUND AND PROCEDURES

A. The 1995 Legislation and Implementing Rules

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In 1995, the Oregon Legislative Assembly amended the pollution control tax credit statutes to include an optional preliminary certification process.[1] 1995 Or. Laws, Chapter 746 (the new statutory provision, which is codified as ORS 468.167, is set forth in its entirety in Appendix A).

The EQC adopted new rules implementing the 1995 legislation, and the rules became effective on May 1, 1998. PGE filed this application for preliminary certification the day before, on April 30, 1998. Therefore, DEQ reviewed PGE's application under the "old" rules. DEQ's position is that the rules on preliminary certification, although not legally binding, may still be examined for guidance.

B. Agency Review of and Decision on the Application

DEQ received PGE's application for preliminary certification on April 30, 1998. DEQ met with representatives of PGE, explained the scope of review for a preliminary certification, and informed them about the type of questions staff would be asking during review of the application. On November 18, 1999, the EQC held a work session to learn about the project in question and to provide initial guidance to staff. The EQC heard presentations from Maggie Vandehey, Tax Credit Manager for DEQ, and Dave Stewart-Smith with the Oregon Office of Energy. After receiving additional information from PGE, DEQ determined that the application was substantially complete on April 27, 2000.

The application was then scheduled for consideration and possible action at the September 29, 2000, meeting of the EQC. After hearing further from staff and PGE

[1] The 1995 legislation primarily uses the term "precertification," although the term "preliminary certification" is used at least once. ORS 468.167(2)(c). The agency preferred the term "preliminary certificati two terms should be considered interchangeable, this order uses the term "preliminary certifica

representatives, the EQC deliberated on the matter and ultimately voted (3-2) to approve the application with the exclusions discussed below. This final order memorializes that decision.

III. FINDINGS OF FACT

1. The claimed facility consists of a vertical dry cask storage system, which will provide temporary storage of spent nuclear fuel assemblies, fuel debris and radioactive waste materials.

2. Fission product gamma rays, which are emitted from the spent fuel, are a continuing source of radiation after shutdown of a reactor. The spent fuel assemblies are currently stored in the spent fuel pool. A spent fuel assembly typically consists of 264 spent fuel pins. The spent fuel pins are about one centimeter in diameter (less than 1/2 inch) and 12 feet long. Each pin is a zirconium alloy tube sealed at each end and filled with ceramic uranium fuel pellets. If the seal of a pin is broken, water will enter and become contaminated with radioactive materials in the form of fission products. These fission products emit gamma rays, alpha particles and beta particles. Some of the fission products are gaseous, including krypton 85 and xenon isotopes, primarily tritium. Tritium is a radioactive form of hydrogen that is chemically indistinguishable from regular hydrogen, so it easily forms water molecules. Therefore, the fission products may become airborne in the gaseous space above the spent fuel pool. The total amount of radioactive gaseous effluents amount to about 50 curies per year.

3. Radiation is unique and different from the substances regularly encountered by DEQ in the tax credit program. It not only interacts with the body on a chemical basis, it directly impinges upon genetic material. The scientific principle underlying radiation protection is that the only safe exposure is zero. Radiation causes genetic damage that may be latent in some individuals but still threatens several succeeding generations.

4. The spent fuel pool and supporting plant systems are being dismantled and

Attachment A – Page 3

decontaminated as part of the ongoing decommissioning of the Trojan Nuclear Plant. The dry cask storage system will take the place of the spent fuel pool until the spent fuel assemblies can be transferred to a federally operated disposal site. The dry cask storage system eliminates approximately 1200 gallons of contaminated resin used annually to process the water that circulated throughout the pool.

5. The applicant claimed the following major components as part of the pollution control facility:

a. Thirty-four PWR (pressurized water reactor) and two GTCC (greater than class C) sealed metal baskets used to store radioactive materials. The baskets are about 16 feet tall and 5-1/2 feet in diameter. The outside of the basket is made of ¾-inch thick stainless steel. The PWR baskets are capable of storing up to 24 spent fuel assemblies. The GTCC baskets are capable of storing up to 28 individual canisters containing other radioactive waste.

b. A vacuum drying system used to remove water from each basket following loading of radioactive waste. Each PWR basket is loaded with up to 24 spent fuel assemblies underwater in the spent fuel pool, and therefore each has residual water.

c. A semi-automatic welding system used to seal weld the baskets. A structural lid is welded onto the baskets and a shield lid is welded on after the contents are dry.

d. A ventilated concrete storage cask for each basket. Each cask is made of high density concrete about 29 inches thick and provides structural support for the basket. It also provides shielding of the radiation produced by the radioactive materials in the spent fuel.

e. A transfer station and associated transfer equipment. The transfer station is used for basket transfer operations. Lateral and vertical support is provided with the transfer station to prevent a loaded cask from overturning or falling during transfer operations. A transfer cask is used to move a loaded basket from the spent fuel pool to the concrete cask. It is also designed to be used to transfer a basket to a shipping cask or to a basket overpack. An air pad system is used to move a loaded cask. Air pads are inserted under the cask and inflated with an air compressor. A specially modified vehicle would then be used to move the concrete cask from one location to another.

f. A reinforced concrete storage pad used to support the storage system baskets. The storage pad is 170 foot by 105 foot and 18 inches thick. The concrete casks will be on the pad until the U.S. Government is prepared to take the spent fuel.

6. The ISFSI is not required under any law. PGE voluntarily chose to decommission and once that decision was made, it was then required to comply with applicable statutes and regulations to provide safe storage of spent nuclear fuel and high level radioactive waste. While not required, ISFSI-type dry interim storage of spent fuel is preferred over active spent fuel storage by the NRC. It is also being installed to comply with Chapter 26 of OAR 345, administered by the Oregon Office of Energy for spent nuclear fuel storage.

7. Even when compared to the wet storage system (the spent fuel pool) rather than no storage facility, elements of the ISFSI significantly decrease the risk of the radioactive material polluting the waters of the state. The Columbia River provided a source of emergency cooling water during operation. Sealing the radioactive spent fuel waste in the ISFSI stainless steel

canisters eliminates the source of perpetual generation of liquid and gaseous radioactive waste. While the ISFSI reduces this aspect of the risk, some risk remains as long as there is any radioactive waste on site. The risk is elevated by the fact that, because of problems in siting a permanent disposal site, a dry storage facility is going to be needed at this site for 30-50 years and possibly more.

IV. LEGAL STANDARDS, CONCLUSIONS AND STATEMENT OF REASONS

A.1. Sole Purpose Test and Alternative Methods

The applicant asserts that the ISFSI is an eligible pollution control facility by virtue of the "sole purpose" test of the tax credit statutes. Under this test, a facility is eligible if its "sole purpose" is "to prevent, control or reduce a substantial quantity of air, water or noise pollution or solid or hazardous waste . . . ." ORS 468.155(1)(a)(B). The applicant asserts that it meets the sole purpose test by controlling, preventing or reducing a substantial quantity of air and water pollution.

In addition to the sole purpose test, the applicant must demonstrate that the pollution prevention, control or reduction is achieved by one of the alternative methods recognized by the tax credit statutes and rules. In this case, PGE contends that it complies with the method of disposal or elimination of industrial waste and the use of treatment works for industrial waste. OAR 340-016-0025(2)(a). PGE further contends that the claimed facility will be used to detect, deter or prevent spills or unauthorized releases, a method recognized in the EQC rules. OAR 340-016-0025(2)(g).

A.2. EQC Conclusion

A majority of the Commission concludes that the sole purpose of the facility is to prevent and control a substantial quantity of water pollution. Such prevention and control is

accomplished by the disposal and elimination of industrial waste and the use of treatment works for industrial waste.

A.3. Statement of Reasons/Analysis

DEQ and the EQC have tried to distinguish between the basic purpose of a facility and the secondary or incidental benefits that commonly come with projects, such as the operation and maintenance cost savings often associated with controlling pollution. In this case, the claimed facility appears to have a number of "pluses," including significant financial savings over the long term. Nonetheless, a majority of the Commission is persuaded that these pluses are the secondary benefits to the facility's sole purpose of preventing, controlling or reducing water pollution.

A majority of the Commission is satisfied that the approved elements reduce a substantial quantity of water pollution, especially when compared to the spent fuel pool. The ISFSI eliminates 50 curies of radioactive gases and tritium released annually into the atmosphere by the spent fuel pool. The ISFSI would encapsulate both the source and the means of production of these radioactive substances. Without this encapsulation, the radioactive gases will continue to form into water molecules that will then fall back to the surrounding waters, primarily the Columbia River. Tritium is especially susceptible to forming water molecules as it is a radioactive form of hydrogen that easily forms water molecules. In addition, the ISFSI eliminates approximately 1200 gallons of contaminated resin used annually in the spent fuel pool. Finally, the ISFSI reduces the risk of pollution from catastrophic occurrences, and such occurrences should be a legitimate concern in appropriate cases. In this case, because of the unique dangers in a release of radioactive material, such concern is appropriate. It is these

circumstances that distinguish this case from other cases in which the EQC has declined to approve facilities with limited pollution control function.

B.1. Exclusions, Including "Insignificant Contribution"

In the definition of "pollution control facility," the statutes expressly exclude certain items from eligibility. In addition, the statutes eliminate from eligibility "[a]ny distinct portion of a pollution control facility that makes an insignificant contribution to the ...sole purpose of the facility . . . ." ORS 468.155(3)(d).

B.2. EQC Conclusion

A majority of the Commission concludes that the ISFSI's baskets, concrete storage casks, vacuum drying equipment and welding system make a significant contribution to the pollution control purpose. At the same time, a majority of the Commission concludes that the ISFSI's concrete storage pad and transfer system do *not* make the requisite contribution.

B.3. Statement of Reasons/Analysis

The purpose of the concrete storage pad is to maintain structural integrity for the weight of the casks and to provide structural integrity for the baskets in the event of a natural event such as an earthquake or flood. The pad does not contribute significantly to any pollution control.

The purpose of the transfer system is to provide for material handling during the transfer of PWR baskets from the spent fuel pool to the concrete casks and from the concrete casks to the transportation containers. Material handling is not a pollution control purpose, and therefore, the transfer system is excluded from eligibility.

The other elements of the ISFSI, specifically the baskets, the concrete storage casks, the vacuum drying equipment, and the welding system, are more integral to the pollution control

purpose and therefore make the requisite contribution.

V. CONCLUSION AND ORDER

A majority of the Commission has determined that Portland General Electric Company and the elements of the ISFSI will be eligible for tax relief under ORS 307.405 or 315.304 if the elements are erected, constructed, reconstructed, added to, installed, improved or used in accordance with this application for preliminary certification. Therefore, under ORS 468.167(3), the EQC hereby grants preliminary certification for the facility by approving the designated elements of the application with the exceptions and conditions discussed above.

It is so ordered:

Dated this 15th day of March, 2001.

Melinda S. Eden, Chair
Environmental Quality Commission

NOTICE OF JUDICIAL REVIEW: You are entitled to judicial review of this order. Judicial review is pursuant to the provisions of ORS 468.167(5), 468.170(3) and 468.110.

APPENDIX A

468.167 Application for precertification. (1) Any person proposing to apply for certification for tax relief under ORS 468.155 to 468.190 may apply, before the completion of a pollution control facility, for precertification of the facility with the Environmental Quality Commission.

(2)(a) The application shall be made in writing in a form prescribed by the Department of Environmental Quality. The application shall contain the following information:

(A) A statement of the purpose of prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or recycling or appropriate disposal of used oil served or to be served by the facility.

(B) A description of the materials for incorporation into the facility or incorporated into the facility, machinery and equipment to be made or made a part of the facility and the proposed or existing operational procedure of the facility.

(C) Any further information the Director of the Department of Environmental Quality considers necessary before precertification is issued.

(b) The application need not contain information on the actual cost of the facility or the portion of the actual cost properly allocable to the prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or to recycling or appropriately disposing of used oil.

(c) The application shall be accompanied by a fee as provided under ORS 468.165 (5). The fee may be refunded if the application for preliminary certification is rejected.

(3) If the commission determines that the person and the pollution control facility will be eligible for tax relief under ORS 307.405 or 315.304 if the facility is erected, constructed, reconstructed, added to, installed, improved or used in accordance with the application for precertification, the commission shall precertify the facility by approving the application.

(4) If the facility is erected, constructed, reconstructed, added to, installed, improved or used as proposed in the application for precertification, the commission's approval of the application shall be prima facie evidence that the facility is qualified for certification for tax relief under ORS 468.170. However, precertification shall not ensure that a facility erected, constructed, reconstructed, added to, installed, improved or used by the precertified person will receive certification under ORS 468.170 or tax relief under ORS 307.405 or 315.304.

(5) If the commission fails or refuses to precertify a person and facility, the person may appeal as provided in ORS 468.170 (3). [1995 c.746 s.6]

GEN70755

Attachment B

Environmental Quality Commission
☐Rule Adoption Item
X Action Item
☐Information Item

Agenda Item B
September 29, 2000 Meeting

Title: Preliminary Certification Denial
Application 5009 – Independent Spent Fuel Storage Installation
Portland General Electric Company

Summary: Staff recommends the denial of tax credit application number 5009.

Portland General Electric Company requested the preliminary certification of their Independent Spent Fuel Storage Installation (ISFSI) as a pollution control facility for tax credit purposes. PGE is constructing the ISFSI to replace the spent fuel storage pool that will be dismantled and decontaminated as part of the Trojan Nuclear Power Plant decommissioning plan.

Staff recommends that the Commission deny application number 5009 because the claimed facility does not meet the definition of a pollution control facility in ORS 468.155(1) in that it does not:

1. Control a substantial quantity of air and water pollution over what is currently being provided in the spent fuel storage pool.

2. Have an exclusive purpose of pollution control, prevention or reduction.

3. Make a significant contribution to the sole purpose.

Please read the transcript in Attachment C for a full description of the ISFSI.

Deny preliminary certification of the facility presented on application number 5009 as presented in the Staff Report and supporting documents.

Margaret C. Vandehey — MDV — Langdon Marsh

Report Author | Division Administrator | Director

September 1, 2000

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

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

Date: September 1, 2000

To: Environmental Quality Commission

From: Langdon Marsh, Director

Subject: Agenda Item B, September 29, 2000, EQC Meeting
Denial of Preliminary Certification
Application 5009 -- Independent Spent Fuel Storage Installation
Portland General Electric Company

Statement of the Need for Action

This report presents staff's analysis of preliminary application number 5009 and their recommendation for Commission action. Portland General Electric Company (PGE) requested the preliminary certification of their Independent Spent Fuel Storage Installation (ISFSI) under the "pollution control facility tax credit" laws.

Legislation approved in 1995 provided for the preliminary certification of any facility that would otherwise be eligible for a pollution control facility tax credit. The Environmental Quality Commission is the authority that approves or denies preliminary certification that a claimed facility is, in fact, a pollution control facility according to ORS 468.155 to 468.190.

Preliminary Applications

On May 1, 1998 rules (new rules) became effective that implemented 1995 legislation. This legislation reinstated the preliminary certification process. The Department reviewed PGE's preliminary application according to the 1995 legislation and the 1990 rules (old rules) that were in effect on April 30, 1998 – the date PGE submitted their application.

An applicant may submit a preliminary application anytime prior to completing the construction of a facility. PGE submitted their preliminary application within this timing.

The Department reviewed the claimed facility to determine if it met the definition of a pollution control facility. The Department did not review any financial details.

The Commission's approval of a preliminary application is prima facie evidence that the facility meets the definition of a pollution control facility under ORS 468.170. However, it does not ensure that the facility will receive certification under ORS 468.170 or tax relief under ORS 307.405 or 315.304.

Should the claimed facility be approved for preliminary certification and if the applicant builds the facility as planned then the final application would be reviewed under the new rules and would

focus on the facility cost and the percentage of the cost allocable to pollution control.

Background of the Claimed Facility

PGE is constructing the ISFSI to replace a spent fuel storage pool that will be dismantled and decontaminated as part of the Trojan Nuclear Power Plant decommissioning plan.

The claimed facility is a dry storage system that will provide temporary storage of spent nuclear fuel assemblies, fuel debris, and radioactive waste materials. The ISFSI consists of the following major components.

1. Thirty-four sealed metal baskets used to store the sealed zirconium tubes containing the radioactive waste.
2. A vacuum drying system used to remove water from each basket following loading of the sealed zirconium tubes containing the radioactive waste.
3. A semi-automatic welding system used to seal-weld the baskets.
4. A ventilated concrete storage cask for each basket.
5. A transfer station and associated transfer equipment. A transfer cask is used to move a loaded basket from the spent fuel pool to the concrete cask. It is also designed to be used to transfer a basket to a shipping cask, or to a basket overpack.
6. A reinforced concrete storage pad used to support the storage system baskets.

The facility is further described in the attachments to the Staff Report.

PGE permanently ceased operating the Trojan Nuclear Power Plant in 1992 and is required to decommission Trojan. PGE must provide for the temporary safe-storage of spent nuclear fuel until the federal government provides a permanent storage site for its disposal. The U.S. Department of Energy estimates that it will not begin accepting spent nuclear fuel until after 2010. On November 18, 1999, staff briefed the Environmental Quality Commission regarding the physical aspects of claimed facility, the background of the Trojan Nuclear Power Plant, the nature of the spent fuel and PGE's decommissioning plan. The transcript from that session is in Attachment B.

Definition of a Pollution Control Facility

For a claimed facility to be certified for tax credit purposes it must meet the definition of a "pollution control facility" in ORS 468.155(1) but it must not be excluded from the definition as set out in ORS 468.155(2).

There are two parts to the definition of a pollution control facility — the first part must apply to the claimed facility before the second part is considered. The first part defines the purpose of the facility and the second part defines how the pollution control must be accomplished.

Part 1 Pollution Control Purpose

The claimed facility must have a "principal purpose" or a "sole purpose" of pollution control.

- If the Commission determines that the claimed facility or any distinct portion of the claimed facility has a pollution control purpose then the Commission must consider how the pollution control would be accomplished as described in Part 2.

  Any distinct portions of the claimed facility that do not have a pollution control purpose are not eligible for preliminary certification and are not provided a second opportunity to be eligible under Part 2.

  > The statute also provides exclusions from the definition of a pollution control facility in ORS 468.155(2). One of those exclusions is for any distinct portion of a claimed facility that makes an "insignificant contribution" to the principal or sole purpose of the facility.

- If the Commission determines that the claimed facility does not have a pollution control purpose then the claimed facility must be denied preliminary certification as a pollution control facility. If the Commission determines that distinct portions of the claimed facility make an insignificant contribution to pollution control those portions must be removed from consideration.

Part 2 How Pollution Control is Accomplished

The pollution control must be accomplished in a specific manner.

- If the Commission determines that the pollution control would be accomplished in one of the specific manners described in statute and rule then the Commission must issue preliminary certification.

- If the pollution control is not accomplished in a specific manner described in statute and rule then the Commission must deny the claimed facility preliminary certification.

Part 1 – Purpose of the Facility

DEQ, the federal Environmental Protection Agency (EPA) or a regional air pollution authority does not require the ISFSI. Therefore, it is not a "principal purpose" facility. The applicant claimed the "sole purpose" of the installation is to control, prevent, or reduce a substantial quantity of air and water pollution. To meet the definition of Part 1 of the definition of a pollution control facility, the ISFSI must meet each of the items below.

Media Protected	The claimed facility must control[1] air pollution as defined by air quality statute or water pollution as defined by water quality statute.
Substantial Quantity	The claimed facility must control a substantial quantity of air or water pollution.
Exclusive Purpose	The claimed facility must have an exclusive pollution control purpose.

If items 1, 2, and 3 above are met for ISFSI as a whole then the ISFSI has a pollution control purpose.

If items 1, 2, and 3 above are met for any distinct portions of the facility that make a significant contribution to the sole purpose of pollution control then those distinct portions have a pollution control purpose.

If any one of items 1, 2, or 3 above is not met then the ISFSI does not meet the definition of a pollution control facility and must be denied certification.

Media Protected The applicant claims the sole purpose of the ISFSI is pollution control, and that it controls air and water pollution. The spent fuel assemblies in the spent fuel pool contain radioactive substances. Radioactive substances meet the definition of a water pollutant (ORS 468B.005) and an air pollutant (ORS 468A.005.) Radioactive material is specifically excluded from the definition of a Hazardous Waste in ORS 466.005.

The Department concludes that radioactive waste may meet the definition of an air pollutant as defined by the air quality statute or water pollution as defined by the water quality statute.

Substantial Quantity To meet the second "sole purpose" criteria, the ISFSI must control a substantial quantity of air or water pollution.

Dry storage controls, prevents, or reduces a substantial quantity of pollution control over no

[1] "Control" is used as a shortened form of "prevent, control or reduce." For used oil facilities it means "to recycle or appropriately dispose of."

storage as indicated by 10 CFR 20 (Standards For Protection Against Radiation.) However, the applicant did not provide evidence that dry storage would control, prevent, or reduce a substantial quantity of air or water pollution over what is provided by the existing wet storage system.

Policy Implication

- For final certification, the Department compares conditions that existed prior to installation of the pollution control with the conditions that exist as a result of the installation of the pollution control.
- For preliminary certification, the Department compares the conditions that currently exist to the conditions that would exist as a result of installing the pollution control.

Ignoring the conditions that existed or currently exist prior to the installation of the claimed facility would deviate from previous program implementation. The Department considers that this would expand the program.

The application requires that the applicant describe how the impact on the environment would be reduced or minimized. The application also requires the applicant provide quantitative data if it is available.

In the case of application number 5009, the applicant did not provide evidence that releases from the spent fuel pool to the atmosphere or spills to waters of the state is more than infinitesimal. In the spent fuel pool, the vast majority of any possible releases would be captured by the water treatment systems for disposal. The balance would be gaseous fission-products but the applicant did not provide a discussion of how this would pose a threat to the environment. In the ISFSI, the spent fuel assemblies would be encapsulated in the baskets and casks.

The Department did not review any part of the claimed facility from the perspective of protecting the environment from pollution occurring as a result of a catastrophic events such as earthquakes; terrorist attacks.

Policy Implication

The Department considers that it is at the discretion of the Commission to determine when protecting the environment from catastrophic events is within the scope of the pollution control facility tax credit program.

The Department considers that reviewing applications from this perspective would expand the program.

The Department concludes that the ISFSI would not control a substantial quantity of pollution as compared to what is provided by the existing wet storage system.

Exclusive Purpose

To meet the third "sole purpose" criteria, the ISFSI must have an "exclusive" pollution control purpose.

Concern for public health and safety as relates to nuclear materials was specifically separated from other types of environmental concerns:

> On June 1, 1976, the U.S. Supreme Court held that pollutants subject to regulation under the Federal Water Pollution Control Act do not include source, byproduct, and special nuclear materials,..." *Train v. Colorado PIRG, 426 U.S. 1 at 25.*
>
> *10 CFR 51, Subpart A – National Environmental Policy Act – Regulations Implementing Section 102 (2)*
>
> In Oregon, the regulatory agency that applies the Federal Rules governing the release of radioactive materials into the environment is the Oregon Health Division, Radiation and Protection Services. The Health Division established the standard for levels of safety for releases of radioactive material to the atmosphere.

Safe storage of the spent and failed fuel is required under 10 CFR 20 (Standards For Protection Against Radiation.) Safe storage meets the requirements of OAR 345-026-0390 for Spent Nuclear Fuel Storage as administered by the Oregon Office of Energy. The requirements are, in part, for protection of the environment.

There is no regulatory requirement for PGE to install a dry storage system in place of a wet

storage system other than the legal obligation to implement its decommissioning plan approved by the NRC and the Oregon Energy Facility Siting Council (EFSC.) Both dry storage and wet storage meet the requirements for safe storage set out in the U.S. NRC's Standards For Protection Against Radiation, 10 CFR 20.

PGE's Decommissioning Plan includes the Independent Spent Fuel Storage Installation. The Oregon criteria under which the plan was approved are contained in Division 26 of OAR 345. Now that the plan has been approved, the applicant is legally bound to meet these conditions or request approval of an amendment to the plan from the Energy Facility Siting Council (EFSC).

As a result of the installation, most of the Trojan site would be available for unrestricted use. At that time, PGE would operate the facility under a Part 72 license – Licensing Requirements for the Independent Storage of Nuclear Fuel and High Radioactive Waste (10 CFR 72). The site is a prime Oregon location; transportation is readily available with a rail line running through the property, access to the I-5 corridor and sited on the Columbia River. The site is suitable to be used as a power plant fueled by natural gas and the applicant is considering donating most of the site for recreational purposes.

The cost savings appear to be a significant factor in PGE's decision to move from wet storage to dry storage at this time. The decommissioning plan tracks the costs associated with operation and maintenance of the independent spent fuel storage installation ($3.6 million a year) and the spent fuel pool ($10.4 million a year), which represent a savings of $6.8 million per year.

The applicant is required to provide safe storage of spent nuclear fuel and high level radioactive waste, and is legally obligated to meet the conditions of the approved decommissioning plan. The financial benefits to decommissioning seem to be significant as they are set out in the Trojan Decommisisoning Plan.

Part 1 - Discussion of the Significant Contribution of Distinct Portions

The applicant identified the following distinct portions of the facility and the Department reviewed each portion to determine if they each made a significant contribution to the sole purpose of the pollution control as follows.

Baskets

The purpose of 34 PWR and two GTCC sealed metal-baskets is for temporary storage of the spent fuel assemblies while in Oregon, during transportation within and outside Oregon, and then for permanent storage at the federal repository. The sealed metal-baskets would provide the secondary containment for the spent fuel pellets should the primary containment (sealed zirconium tubes) fail. Currently, the majority of any releases within the spent fuel pool would be captured by the water treatment system. The remaining releases would be gaseous fission-products but the applicant did not demonstrate that this would pose a threat to the environment.

The applicant did not demonstrate the probability and the conditions under which the current system could release contaminants to the atmosphere or spill to public waters.

Vacuum Drying Equipment

The purpose of the vacuum drying equipment is to remove residual water from each basket after they are loaded with the spent fuel assemblies within the spent fuel pool. The Department concludes that the vacuum drying equipment makes an insignificant contribution. The equipment has a one-time use. The 1998 rule formalized the Commission's practice to remove the cost of equipment purchased for the purpose of installing the pollution control because that equipment makes an insignificant contribution to the purpose of the facility — OAR 340-0016-0070 (3)(o).

Welding System

The purpose of the semi-automatic welding system is to weld the baskets closed. The Department concludes that the welding system makes an insignificant contribution to the pollution control purpose and it does not have an exclusive pollution control purpose. The 1998 rule formalized the Commission's practice to remove the cost of equipment purchased for the purpose of installing the pollution control because that equipment makes an insignificant contribution to the purpose of the facility — OAR 340-0016-0070 (3)(o).

Concrete Storage Casks

The concrete storage casks have openings in the top and bottom to allow air to circulate through the inside of the cask. They do not have the ability to prevent, control, or eliminate releases to air or water pollution should the spent fuel assemblies and baskets fail. The purpose of the concrete storage casks is to provide shielding of gamma-rays and to provide structural integrity for the baskets to withstand a man-made or natural catestrophic event such as an earthquake, flood, tsunami or tornado etc.

Policy Implication
Shielding has not previously been approved for tax credit purposes. Approval would mean medical and industrial x-ray shielding would then become eligible for a tax credit. Tertiary containment has not been approved for tax credit purposes. – The Department considers that providing a pollution control facility tax credit for sheilding and terciary containment would expand the program.

Transfer Station
The transfer station and associated transfer equipment provides for the safe movement of the spent fuel during the transfer of spent fuel assemblies from the spent fuel pool to the baskets and then during transportation to the federal repository. The transfer station must remain with the storage system as long as the fuel is on site. The transfer station provides an essential material handling function. Though essential, material handling is not a pollution control purpose.[2] The Department concludes that the transfer station provides an insignificant contribution to the pollution control purpose.

Policy Implication
The Department considers that the approval of this type of material handling system would expand the program.

Concrete Storage Pad:
The concrete storage pad is not capable of preventing, controlling or reducing releases to the air or spills to the water should the spent fuel assemblies and the baskets fail. The pad provides structural support for the casks.

Part 1 Conclusion Considering each of the factors in Part 1, the Department concludes that the claimed facility does not have a pollution control purpose. Staff also concludes that the ISFSI includes distinct portions that make an insignificant contribution to the pollution control purpose. For these reasons the Department concludes that these other purposes are more than incidental and that the applicant has not demonstrated that the exclusive purpose of the facility is pollution control.

Because the facility does not meet all three of the "sole purpose" criteria, the Department concludes that the ISFSI does not meet the definition of a pollution control facility, and recommends the Commisision deny certification.

[2] Material handling is allowable in the material recovery or alternatives to open field burning parts of the tax credit program.

Part 2 - How the Pollution Control Is Accomplished

Should the Commission determine that the ISFSI (or any distinct portions) does have a pollution control purpose, then the Commission must also determine whether the facility accomplished the pollution control by one of the methods in statute. The statute explicitly provides five categories of pollution control. ORS 468.155(b)(A).

The Department offers the following analysis of several systems and their ability to accomplished the prescribed pollution control even though the Department concludes that the ISFSI does not have a pollution control purpose.

The applicant claimed the facility as an air and water pollution control facility that prevents spills or unauthorized releases. The pollution control facility tax credit statute specifically identifies how pollution control must be accomplished for both air and water pollution control facilities. The applicant claims that the facility accomplishes the pollution control by preventing spills and unauthorized releases as provided in rule.

Air Pollution Control
The air pollution control must be accomplished by disposing of or eliminating air contaminants, air pollution or air contaminant sources. The pollution control must also be accomplished by the use of air cleaning devices.

The Department concludes that the ISFSI does not meet the definition of an air-cleaning device because it does not remove, reduce, or render the air contaminants less noxious prior to discharge to the atmosphere. The radioactive waste is only stored until it can be removed from Oregon and rendered less noxious to Oregonians over time and distance.

Water Pollution Control
Water pollution control must be accomplished by disposing of or eliminating industrial waste. The pollution control must also be accomplished by the use of a treatment works.

Baskets
The 34 PWR and two GTCC sealed metal-baskets serve as a secondary containment for the spent fuel with the spent fuel assemblies serving as primary containment. The spent fuel assemblies will permanently reside in the baskets. The baskets would meet the definition of "disposal" because they are the permanent container for the spent fuel assemblies, though Oregon is not the permanent location for the baskets. The baskets would be considered a "treatment works" because they hold waste.

The Department determined that the baskets would accomplish pollution control as prescribed in statute.

Concrete Storage Casks
The concrete storage casks do not eliminate or dispose of industrial waste and they do not meet the definition of a treatment works. They are not capable of "holding" industrial waste should the primary and secondary containment fail.

Concrete Storage Pad
The concrete storage pad does not eliminate or dispose of industrial waste. The pad does not meet the definition of a treatment works because it does not treat, stabilize or hold wastes as required in the definition of "treatment works."

Spills or Unauthorized Release Prevention

The applicant claims that the sole purpose of the claimed facility is accomplished by detecting, deterring, or preventing spills or unauthorized releases as provided by this rule. [OAR 340-016-0025(2)(g) – 1990] There is no longer any express authority in the tax credit statutes for this particular rule. However, legal counsel has advised the Department that the EQC may have sufficient general rulemaking authority to support such a rule and, further, that agencies must generally presume their own rules to be valid.

Other Tax Credits Issued at Trojan

The EQC certified the following seven facilities located at the Trojan site in Rainier during 1983 and 1984. Staff concludes that the ISFSI or any of its distinct portion are not considered replacement facilities as defined in ORS 468.155(2).

App. No.	Description of Facility	Certified Cost	Percent Allocable
1603	AIR POLLUTION CONTROL: Radioactive emission controls associated with the containment building.	$13,243,985	100%
1604	WATER POLLUTION CONTROL: A 499' high natural draft cooling tower and a circulating cooling water system.	$10,355,754	100%
1606	WATER POLLUTION CONTROL: Dechlorination system consisting of 2 sampler pumps, 2 pH sampler pumps, sulfite injection equipment, an instrument panel, piping, valves and instruments.	$210,778	100%
1638	AIR POLLUTION CONTROL: Radioactive emission controls associated with fuel and auxiliary buildings:	$4,774,207	100%
1639	WATER POLLUTION CONTROL: A liquid waste radioactivity control system consisting of five subsystems: • A clean radioactive waste treatment system • A dirty radioactive waste treatment system • A steam generator blowdown treatment system • A solid radwaste system • A liquid radiation monitoring system.	$6,927,850	100%
1675	WATER POLLUTION CONTROL: A water treatment filter backwash solids settling system consisting of: • A 70,000 gal reinforced concrete basin • A wet well discharge pumping station with two 5-hp pumps • A sludge collection system and 3-hp pumps • Electrical flow panels, flow recorders, and alarms	$628,971	100%
1677	AIR POLLUTION CONTROL: Certain elements of the containment building consist of containment– cleanup re-circulating units, spray system, cooling-water system and isolation valves.	$7,263,820	100%

Conclusions
Staff concludes that the claimed facility does not meet the definition of a pollution control facility. The Department concludes that staff's recommendation is consistent with statutory provisions and administrative rules related to the pollution control facility tax credit program.

Recommendation for Commission Action
The Department recommends the Commission deny certification of the facility claimed on application number 5009 and as represented in this Agenda Item.

Intended Follow-up Actions
Staff will notify applicant of the Environmental Quality Commission's action by Certified Mail.

Attachments

Attachment A	Review Report – Application 5009
Attachment B	Department Position on PGE letter to Commission
Attachment C	Transcript from November 18, 1999 Commission Briefing
Attachment D	Relevant Citations

Reference Documents (available upon request)
1. ORS 468.150 through 468.190.
2. OAR 340-016-0005 through 340-016-0050.

Approved:

Section: _____

Division: _____

Report Prepared by: Margaret Vandehey
Phone: (503) 229-6878
Date Prepared: September 1, 1999

0009_Staff Report.doc

Tax Credit Review Report

EQC 0009

PRELIMINARY APPLICATION

Director's Recommendation: **DENY**

Applicant	**Portland General Electric**
Application No.	**5009**
Estimated Facility Cost	**$ 55,000,000**
Claimed Useful Life	**10 years**

Pollution Control Facility: Water and Air
ORS 468.150 -- 468.190
OAR 340-016-0005 -- 340-016-0050

Applicant Identification
The applicant is a C corporation operating an **electric utility company**. The applicant's taxpayer identification number is 93-0256820 and their address is:

121 SW Salmon Street
Portland, OR 97204

Facility Identification
The applicant claimed the following facility:

An Independent Spent Fuel Storage Installation.

The applicant is the owner of the facility located at:

Trojan Nuclear Plant
71760 Columbia River Highway
Rainier, OR 97048

Technical Information
The claimed facility consists of a vertical dry cask storage system, which will provide temporary storage of spent nuclear fuel assemblies, fuel debris, and radioactive waste materials. Sierra Nuclear Corporation designed the passive TranStor Storage System.

Fission product gamma rays, which are emitted from the spent fuel, are a continuing source of radiation after shutdown of a reactor. The spent fuel assemblies are currently stored in the spent fuel pool. The spent fuel assemblies are about one centimeter in diameter (less than 1/2 inch) and 12 feet long. Each assembly consists of 144 fuel spent fuel pins. Each pin is a zirconium alloy tube sealed at each end and filled with ceramic uranium fuel pellets. If the seal of a pin is broken, water will enter and become contaminated with radioactive materials in the form of fission products; these fission products emit gamma rays, alpha particles, and beta particles. Some of the fission products are gaseous, including krypton and xenon isotopes; therefore they may become airborne in the gaseous space above the spent fuel pool. All of the spent fuel at Trojan has been out of the reactor for over five years and is no longer required to be cooled with water.

The spent fuel pool and supporting plant systems will be dismantled and decontaminated as part of the ongoing decommissioning of the Trojan Nuclear Plant. The dry cask storage system will take the place of the spent fuel pool until the spent fuel assemblies can be transferred to a federally operated disposal site.

The applicant claimed the following major components as part of the pollution control facility.

1. Thirty-four PWR (pressurized water reactor) and two GTCC (greater than class C) sealed metal baskets used to store radioactive materials. The baskets are about 15 feet tall and 5-1/2 feet in diameter. The outside of the basket is made of ¾-inch thick stainless steel and the internal structures are made of high carbon steel, coated to prevent corrosion. The PWR baskets are capable of storing up to 24 spent fuel assemblies. The GTCC baskets are capable of storing up to 28 individual canisters containing other radioactive waste.

2. A vacuum drying system used to remove water from each basket following loading of radioactive waste. Each PWR basket is loaded with up to 24 spent fuel assemblies in the spent fuel pool and the residual water must be removed.

3. A semi-automatic welding system used to seal weld the baskets. A shield lid and a structural lid are seal-welded in place after the contents are dried.

4. A ventilated concrete storage cask for each basket. Each cask is made of high density concrete about 21 inches thick and provides structural support for the basket. It also provides shielding of the radiation produced by the radioactive materials in the spent fuel.

5. A transfer station and associated transfer equipment. The transfer station is used for basket transfer operations. Lateral and vertical support is provided with the transfer station to prevent a loaded cask from overturning or falling during transfer operations. A transfer cask is used to move a loaded basket from the spent fuel pool to the concrete cask. It is also designed to be used to transfer a basket to a shipping cask, or to a basket overpack. An air pad system is used to move a loaded cask. Air pads are inserted under the cask and inflated with an air compressor. A specially modified vehicle would then be used to move the concrete cask from one location to another.

6. A reinforced concrete storage pad used to support the storage system baskets. The storage pad is 170 foot by 105 foot and 18 inches thick. The concrete casks will be on the pad until the U.S. Government is prepared to take the spent fuel.

Eligibility

ORS 468.155 (1)(a) The **sole purpose** of this new equipment is **not** to prevent, control or reduce a substantial quantity of air or water pollution. The applicant did not provide evidence that dry storage (ISFSI) would provide a substantial quantity of pollution control over what is provided by the existing wet storage system (spent fuel pool.) The radioactive materials that would be stored in the ISFSI are presently stored in the spent fuel pool, thereby controlling radiation releases. The applicant did not provide evidence that radiation releases result in a substantial quantity of air or water pollution being emitted to the environment from the present storage system; therefore, the ISFSI dry storage would not provide a substantial quantity of air or water pollution prevention, control, or reduction.

The ISFSI would serve purposes other than pollution control such as to facilitate decommisioning.[3] The vacuum drying system; the semi-automatic welding system; the ventilated concrete storage casks; the transfer station and associated transfer equipment; and the reinforced concrete storage pad have purposes other than pollution control or they make an insignificant contribution to the claimed pollution control purpose.

ORS 468.155 (1)(b)(B) The ISFSI does not dispose of or eliminate air contaminants with the use of an air cleaning device as defined in ORS 468A.005.

ORS 468.155 (1)(b)(A) The baskets would dispose of industrial waste with the use of a treatment works as defined in ORS 468B.005. The other systems either do not dispose of or eliminate industrial waste or the control is not accomplished by the use of a treatment works.

OAR-016-0025 (2)(g) The applicant claimed the installation would be used to detect, deter, or prevent spills or unauthorized releases. The applicant did not demonstrate the probability that releases to the atmosphere or spills to waters of the state with the current system is more than infinitesimal.

Timeliness of Application

The application was submitted prior to the completion of construction.

Application Received	**5/5/1998**
Application Substantially Complete	**4/27/2000**

Reviewers: Maggie Vandehey, DEQ
SJO Consulting Engineer
Elliot Zais, PhD, DEQ

[3] See Director's Letter 5/17/00 for full discussion.

Transcript
Agenda Item B
September 29, 2000 EQC Meeting

Melinda Eden, Chair of the Environmental Quality Commission

Next is Agenda Item B, consideration of request for preliminary certification of tax credit number 5009; which is Portland General Electric Company's Independent Spent Fuel Storage Installation. Ms. Vandehey is here.

Maggie Vandehey, Tax Credit Program Manager, Department of Environmental Quality

Good Morning Madam Chair and Commissioners. I'm Maggie Vandehey with the tax credit program at DEQ.

Portland General Electric submitted application for preliminary certification of its dry storage system. That is what is presented in Agenda Item B. It was submitted under the pollution control facility tax credit program. The facility claimed for certification is located in Rainier at the Trojan Nuclear Power Plant site. It is estimated that the cost will be about $55 million once it's constructed. The application is numbered 5009.

The November 18, 1999, EQC work session provided background information on Trojan, decommissioning, wet storage and dry storage. And a transcript of that has been provided in the staff report. I'll cover some of that information again here today for the benefit of the Commissioners who were not in attendance at that work session.

However, first, I would like to briefly describe preliminary certification. 1995 legislation provided for the preliminary certification of a pollution control facility. New rules implementing preliminary certification went into effect on May 1, 1998. However, PGE submitted their preliminary application the day before, on April 30, 1998, under the old rules. And it is under these old rules that we reviewed this preliminary application.

According to the legislation, the department considers that the applicant submitted the preliminary application as required. And that is, prior to completion of the construction.

The review was limited to the claimed facility's ability to meet the definition of a pollution control facility. The actual cost and the percentage of the cost that could be attributed to pollution control were not considered.

The new rule provides that pre-certification means the facility meets the definition of a pollution control facility. Of course if PGE constructed it (microphone noise) ...facility presented in these documents.

At this point, a bit of background of Trojan Nuclear Power Plant may be a bit helpful to you.

The commercial production of power began in 1976. In January of 1993, PGE notified the Nuclear Regulatory Commission that they decided to stop commercial operations of the power plant. PGE based the decision on several uncertainties; uncertainties about the plant's reliability, particularly the reliability of the steam generators; uncertainty about

the cost of operation; and uncertainties about the availability of low-cost replacement power.

Once a nuclear power plant ceases to operate, the NRC requires that the plant be completely decommissioned in 60 years. And I noticed in the transcript that it said 16 years; I just want to clarify that. PGE began this process as the first large commercial power plant to undergo decommissioning. The claimed facility is part of that decommissioning plan.

In 1995, PGE moved four contaminated steam generators and a pressurizer tank to the regional commercial low-level waste disposal site at Hanford. The steam generators and the pressurizer tank contained about 10% of the nonspent fuel radioactivity.

In 1996, the NRC and the Oregon Energy Facility Siting Council approved the plan for decommissioning the Trojan plant.

And in 1999, PGE moved the reactor vessel to Hanford for disposal with about 90% of the nonspent fuel radioactivity.

Here is where the claimed facility's role in the decommissioning comes in. The spent fuel assemblies, fuel debris, radioactive waste materials still reside within the spent fuel pool at the Trojan site. As the name implies, this is a wet storage system.

The spent fuel, in the form of ceramic uranium fuel, is contained in sealed zirconium-alloy tubes. During commercial operations at Trojan, these tubes were placed in the spent fuel pool after they were removed from the reactor. The water in the pool provided for the heat transfer when the spent fuel assemblies first came out of the reactor. And the water also provides for shielding.

Less than 1% of the tubes became unsealed as a result of temperature and pressure in the reactor. For this reason, the wet storage system also includes a radioactive waste treatment system to remove the contamination from the water. This low-level radioactive waste from the treatment system is disposed of at Hanford.

The claimed facility, the Independent Spent Fuel Storage Installation, or ISFSI for short (that's a hard one to come off the tongue) provides for the dry storage of the spent fuel assemblies that are now in wet storage. It is a passive storage system with several distinctive portions.

PGE claimed thirty-four pressurized water reactors, or PWRs, capable of storing up to 24 spent fuel assemblies. They also claimed two greater than class C, or referred to as GTCC, sealed metal baskets capable of storing up to 28 individual canisters containing other radioactive waste. These baskets are about 15 feet tall and 5-1/2 (Background Noise..) They are on the inner core of the storage system. All of the elements of the storage system are shown in this second (microphone noise) from the door. The baskets are loaded with the spent fuel and radioactive waste and then moved out of the spent fuel pool.

The applicant claimed a transfer station and various transfer equipment to be used in this operation. And the station scheme is found right next to the door. The transfer station will also be used to load the basket into the concrete casks. It will also be used to transfer to shipping casks or to a basket overpacks. The applicant also claimed various equipment for moving the concrete cask from one location to another.

Once the baskets are out of the spent fuel pool, a vacuum drying system would remove any of the residual water. The vacuum drying system will be contaminated after this one-time use and then it would be disposed of as radioactive waste.

The applicant also claimed a semi-automatic welding system to seal weld the baskets closed after the contents are dried. After its one-time use, the welding system will most likely be contaminated. If it is, then it would be disposed of as radioactive waste.

Each basket is then placed in its own ventilated concrete storage cask. These casks, they are giants. They are about 17 feet tall, 11 feet in diameter, their walls about 21 inches thick. And they weigh about 145 tons once they are fully loaded. The casks provide structural support for the basket and shielding of the radiation. After use, the casks will be contaminated and disposed of as radioactive waste.

As you might guess, it will take a pretty hefty pad to hold those 32 to 34 casks. And I say 32 to 34 because PGE, I think, has probably adjusted the number of casks that will actually be needed. The applicant claimed a reinforced concrete storage pad for this purpose. The concrete casks will remain on the pad until the U.S. Government is prepared to take the spent fuel.

All together, these distinct portion make up the ISFSI.

Before I talk about the Department's recommendation for preliminary certification, I would like to emphasize that I am not talking about the importance of the Independent Spent Fuel Storage. I am not talking about its importance to decommissioning Trojan. I am not talking about the importance to PGE's ratepayers. I am only talking about the relationship of the claimed facility to the pollution control facility tax credit regulations. (Background Noise.)

Kitty Purser, Assistant to the Director and Commission
Can you speak up a little bit?

Ms. Vandehey
Okay. For the ISFSI to meet the definition of a pollution control facility it must have a pollution control purpose. It must not include distinct portions that make an insignificant contribution to that purpose. (Microphone noise.) And if the facility does have a pollution control purpose then the facility must accomplish the pollution control in one of the manners describe in law.

Here today, I'm only going to address the purpose portion of the definition. I won't go into how the pollution control is accomplished. The staff report contains the full discussion of that.

The ISFSI was not required by DEQ or EPA. Therefore, it does not have a "principal purpose" of pollution control.

The applicant claimed the facility would have a sole purpose addressing a substantial quantity of air and water pollution. The Department reviewed the application from this perspective.

The statute provides, in part, that the sole purpose of the installation must be to prevent, control or reduce a substantial quantity of air or water pollution. Both the old and new rules gave additional meaning to mean "exclusive" purpose.

I'll describe the criteria contained in the sole purpose portion of the definition and I'll relate them to this facility.

One, the claimed facility must control air pollution as defined by air quality statute, or it must control water pollution as defined by water quality statute. The amount controlled must be a substantial quantity of air or water pollution. The facility purpose must be exclusively for pollution control.

The Department concluded that the claimed facility meets the first sole purpose criterion in that radioactive waste is included in the definition of an industrial waste as defined in water quality rule. The Department also concludes that radioactive waste could meet the definition of an air pollutant as defined by the air quality statute.

The Department was not able to conclude that the second and third sole purpose criteria were met. The ISFSI, in the Department's consideration would not control a substantial quantity of water or air pollution. And the purpose of the ISFSI is not exclusively pollution control.

In reviewing this second criterion, the applicant did not provide evidence that dry storage would control a "substantial quantity" of water or air pollution over what is currently provided in the wet storage system.

The applicant is required to provide safe storage of spent nuclear fuel and high level radioactive waste. Both dry storage and wet storage meet the requirements for safe storage.

The applicant disagrees with the Department's comparison of the conditions that would exist as a result of the dry storage system with the conditions that currently exist with wet storage system. Both the existing system and the claimed system provide for the storage of spent fuel – the same spent fuel – not a new waste stream. Both systems provide safe storage according to the Nuclear Regulatory Commission's Standards for Protection Against Radiation.

Looking at the quantity of pollution controlled under the current conditions is consistent with the program implementation. Using that information as a benchmark to determine if,

in fact, the facility would provide substantial quantity of pollution control is consistent with program implementation.

I'd like to mention here that staff did not review any part of the claimed facility from the perspective of protecting the environment from pollution occurring as a result of any catastrophic event such as earthquakes or terrorist attacks. The Department does not consider that it has the discretion to determine determine when the protecting the environment from catastrophic events is within the scope of this tax credit program. Staff considers this perspective expands previous program implementation.

The Department does not consider that the ISFSI controls a substantial quantity of air or water pollution over what is currently being provided by the spent fuel pool. The recommendation to deny preliminary certification of application 5009 is based on this criterion.

If the Commission determines that the ISFSI controls a substantial quantity of pollution, the Commission must then consider the the third sole-purpose criterion. However, if the Commission determines that the ISFSI does not control a substantial quantity of air or water pollution then the Commission must deny the application.

Under the third sole-purpose criterion, the ISFSI must have an exclusive pollution control purpose.

Looking at the entire claimed facility rather than its distinct portions; the cost savings appear to be a significant factor in PGE's decision to move from wet storage to dry storage at this time.

The evidence available to the Department came from PGE's decommissioning plan. I noticed that the excerpt at the last page of attachment "B" was missing the last page. However, that did show, it did track the costs associated with operations and maintenance of both the existing system and the claimed facility.

According to the plan, the ISFSI would provide a $6.8 million per year savings in operating and maintenance costs.

The staff report also includes an analysis of each distinct portion of the claimed facility. The Department concludes that distinct portions of the claimed facility make an insignificant contribution to the sole and exclusive purpose.

The vacuum drying equipment, the welding system, and the transfer station and various transfer equipment are used for installation and material handling. Including equipment purchased for the purpose of installation is not consistent with previous program implementation.

The concrete storage casks have openings in the top and bottom to allow air to circulate through the inside of the cask. They do not have the ability to prevent, control, or eliminate releases should the zirconium alloy tubes and baskets fail. The casks do provide shielding of gamma rays and they do provide structural integrity for the baskets to

withstand a man-made or natural catastrophic events. Likewise, the concrete pad provides structural support for the casks.

The purpose of the sealed metal-baskets is for temporary storage of the spent fuel assemblies while in Oregon, during transportation within and outside Oregon, and then for long term storage at a federal repository. The Department considers that these baskets provide secondary containment and the tubes provide the primary containment.

To recap, staff concludes that the ISFSI does not control a substantial quantity of air or water pollution over what is currently being provided by the spent fuel pool. And on this point recommends denial of preliminary application number 5009. Additionally, the claimed facility would provide a $6.8 million savings, sufficient enough to keep the facility from having an exclusive pollution control purpose. Staff also concludes that distinct portions of the ISFSI have purposes other than pollution control.

Chair Eden, I'd be glad to answer any questions. Also Dave Stewart-Smith from the Office of Energy is also here to answer any questions. And PGE representatives are also here.

Chair Eden

Thank you. First, let me ask counsel if there was any problem with PGE representatives speaking to us. Three people have signed up from the corporation.

Larry Knudsen, Legal Counsel to the Environmental Quality Commission

No, I think that it's fine and probably appropriate.

Chair Eden

Are there questions or comments from the Commission at this point?

(Background Talk.)

Commissioner Tony Van Vliet

(Indistinguishable.)
...and the Department of Energy. (Indistinguishable.)

Chair Eden

Do you have questions for him? Is Mr. Stewart-Smith available?
(Background Talk.)
Good Morning.

Dave Stewart-Smith, Oregon Office of Energy

Good Morning, Madam Chair. My name is Dave Stewart-Smith, Oregon Office of Energy. I'd be glad to answer any questions the Commission may have.

Chair Eden

(Background Talk.)
Do you have any questions?

Commissioner Tony Van Vliet

No, not at this point.
(Background Talk.)

Chair Eden

Three folks from PGE have signed up to address us on this issue. Well, they signed up for the eleven thirty public forum. And let me back up a little bit. We do have a public forum at eleven thirty and anyone who wishes to speak to us on any issue except on those on which public comment has closed are free to do so at eleven thirty.

However, I think it's appropriate for the PGE folks to address us at this point. And that would be Mr. Lei, Mr. Dursek, and Mr. Quennoz. I'm sorry if I'm butchering those names. Please join us. Please introduce yourselves for the record.

(Background Talk.)
I don't know if everyone has seen the video; I have seen the video. Have you seen the video?

Unidentified Person

This is as an outline the presentation...
(Indistinguishable.)

Chair Eden

I'm going to give you about fifteen minutes.
(Background Talk.)
That doesn't include questions.

Steve M. Quennoz, VP of Nuclear and Thermal Operations at Portland General Electric.

Madam Chair, Commissioners, thank you for this opportunity. For the record, I'm Vice president of Nuclear and Thermal Operations at Portland General Electric. I have responsibility for the Trojan plant. In addition to that, Boardman, Beaver-Coyote, ownership share of (indistinguishable.) A plant person, I've been responsible for the Trojan decommissioning throughout the shutdown period. So, I think I'm in a good position to try to explain the motivation behind the construction of the dry storage facility.

Feel free to ask any questions at any point. We have a summary that we handed out and also, a presentation. With me today I have Dr. Wayne Lei, who is the Director of Environmental Policy at Portland General Electric. Lanny Dursek, who's behind to work the slides. Lanny is the Manager of Nuclear Regulatory Affairs at the Trojan Plant. And also in the audience is Denise Saunders, who is outside counsel for the company.

The first slide just shows you a picture of the ISFSI. And the emphasis here is that it's a new facility comprised of sealed containers that are ready for disposal purpose. We put this in just to show you the comparison of this facility with the next slide; which is the spent fuel pool. We want to emphasis here that this pool was our fact of normal operations. It's designed to be open to facilitate the transfer of between the reactor and the pool. When we built the plant it was to support a closed-in fuel cycle where fuel was being continually discharged on a periodic basis from the reactor and sent to a

reprocessing facility where it was, the fissile material was reclaimed and put back into the fuel. So, it was to support the operational aspect. It was designed under that basis.

We don't feel, on the next slide, that there's evidence to justify a comparison between the two facilities. They have two very different purposes. The ISFSI is for storage, which is more than temporary, of the spent fuel. And it's a disposal system. It packages those fuel assemblies in a medium and a manner that is acceptable to an off-site geological (indistinguishable) where the pool is an operational component of the plant. It was forced into service to store this fuel because of lack of performance by Department of Energy.

So, to point out here that DEQ does agree that the ISFSI is not a replacement facility and the DEQ sites no statute or rule requiring comparison. But if there is a comparison to be made, I think the company has submitted sufficient evidence in the record to that it does reduce a substantial quantity of air and water pollution.

I go back to this, these values, it eliminates 50 curies of radioactive gases and Tritium that's released annually to the atmosphere. Having an ISFIS would totally eliminate that source of radiation. The spent fuel pool at this point in time is the only source of off-site release left at the plant, especially after we finish this year of the decommissioning process. So, it would be a big advantage to bring about this system. It also eliminates the need to dispose of about 1200 gallons of contaminated resins annually that we use to process the water that circulates though this pool. And it does prevent pollution from catastrophic occurrences.

So, let me just give you some level of where we're at as a company with regard to substantial because I think that it's conceded that it does control pollution itself as far as the purpose of the facility. I go back to Admiral (indistinguishable) who started this whole nuclear power program. One of his basic tenants that we learned as an officer in his program was to respect even small amounts of radiation. And it continues in the commercial nuclear industry with a tenant or a doctrine called "as low as reasonably achievable." That we have a duty (indistinguishable) to reduce radioactive discharges, the effects on the environment and our occupational workers; as low as reasonably achievable, as low as practical. This is consistent with orders of excellence of the nuclear industry. So, we have a long history of operating under this type of doctrine.

Another thing that I think you want to take into account is the fact that this 50 curries – I do think that we underestimate environmental impact of this spent fuel. It is very serious and we take it very seriously. It is the single most potential environmental hazard that resides within the state. The proper operation and care of that fuel is tantamount to the protection of the general public. To say that it is not substantial, if you invite a comparison between the spent fuel pool and dry storage. I don't think I want to be on the record to say that it is not substantial. Fifty curries of radiation over a short duration say over a year or two could probably make that argument but the fuel is going to be here for 30 years, 40, perhaps 50 years or more. Those add up. So, I just want to emphasize that I think we're looking a short-term analysis where we're looking at a much longer term and it is substantial. Radiation is unique and among the substances that you deal with. And, in fact, it not only interacts with body on a chemical basis such as other pollutants through chemical reactions, oxidation that would cause cellular damage. But also directly, the fact

that it can directly impinge upon genetic material. So, most of the substances that you deal with outside of radiation, there is a threshold value where the body can accommodate that level of pollutant; it can repair itself. Radiation is not; even small amounts of radiation can cause genetic damage, latent to the individuals or succeeding generations. There is a distinct difference there that requires us to go lower than regulatory limits.

I again do not want to go on the record to say that this is not substantial. I mean our necessity to earn the trust of the general public would require me to disagree with that assessment, that this is not substantial.

To give you example after example, but one of them would be that of that 50 curries, 24 of that is Tritium. Tritium is a just a hydrogen molecule. It is common to the body. The body can't differentiate between Tritium and regular hydrogen within a water molecule. That Tritium, that 24 curries if diluted in water would contaminate about 300 million gallons of water above the federal limits. It is a significant amount of radioactivity. With that said, I want to go on the record that I disagree with the assessment that it is not substantial as compared to the spent fuel pool. And that the company believes strongly in this aspect.

The last bullet on this slide, I want to go back to it because there was a comment that the Commission has or the DEQ is not or would not allow comparisons with catastrophic occurrences. I think the precedence has already been made. It is not going to expand the program. I pointed out the double hulling of barges and the diapering of substations; all of which have been approved and are strictly there for catastrophic-type occurrences. So, we're not setting precedence that we can't deal with catastrophic occurrences.

The next series of pictures, is one that I think you had a great presentation last time about this system. The first one just shows the baskets and the transfer casks. Again, we are the first to come through with a system. It's quite a good technology and offers a significant reduction in pollution.

The next slide is the concrete casks. There was an assertion that it was only there for shielding. Quite the contrary, it is there for structural integrity. A by-product of that is shielding. I know, I asked my engineers if we just did it for structural integrity would it look any different? And they said, "no." No, because for a right circular cylinder to have proper stability against tip-over from ground motions, it has to have a certain height-to-width ratio for that. So, you get the, you have, you achieve first the structural stability of this integrated package first and then you get shielding.

The pad and the transfer station again, I want to emphasis there that you would want these system unshielded sitting out in the gravel in the lower portion of the site. This system will work. It's one integrated package that is needed to achieve the purpose. So, the pad is important to us. The transfer station is important and even the final equipment, the welding and the vacuum drying equipment is integral to achieving the integrity, the confinement, the containment that is the hallmark of this system. Contrary to what is said, they are not a one-time use system, we will keep these things, these pieces of equipment throughout the life of ISFSI. Because they would be use in an over-pack

situation if we had problems with a basket on the pad. They have a design feature that we would encapsulate it in another (indistinguishable.) So, we would expect to evacuate that container with the vacuum drying system and also weld it up with that automatic welding system. So it is, these systems have no use outside of the ISFSI and they have more than a one-time use.

Go back to the heart of the matter on the next slide, the sole purpose again is pollution control and we think we have met the dual criteria. The fact that it does have the purpose and that it does meet the requirement for the acceptable manner which it meets that purpose.

I don't think I need to read those. I hope that I have justified the substantial. I think you all agree that it does prevent pollution. Maybe a little more emphasis on the two acceptable manners that this is a disposal system and it does qualify as a treatment works. A treatment works is to treat, hold or stabilize waste. And it is certainly holding. It is consistent with past approval of tanks as treatment works. It does meet the treatment works definition and it is a disposal system. Its only purpose is to facilitate the disposal of this high-level waste.

The second tenant there is 2g and that it's used to detect, deter or prevent spills and unauthorized releases. And again this is the air pollution prevention from this stream and other radioactive gases. I think we disagreed with the conclusions in there that it needed to be prior to the discharge to the atmosphere. We felt that that was not a correct reading of the rule and that only had to be read in conjunction with rendering such gases as less noxious before discharge. So I think we feel we are on the side of the angels on both of those two requirements as far as acceptable methods for accomplishing pollution control purpose.

Again, this next slide is a reiteration...

Tape Change

This slide again reiterates our position that it does accomplish pollution control because it is a disposal system. And it does accomplish pollution control because it does prevent spills and a release of air contaminates.

The next slide again is to clarify our position on insignificant contributions. Because it was asserted that portions of this system have no significant contribution to the purpose of the facility. I'd just like you to revisit the ORS on what is an insignificant contribution and it does reference parking lots, and road improvements, landscaping, external lighting, signs and things of that nature. I honestly feel these supporting systems to this ISFSI do not meet that. I think we're well within statute with regard to insignificant contribution. We take exception (indistinguishable) with certain aspects would make an insignificant contribution. They are all needed exclusively to support that ISFSI, to provide the containment and the integrity that the system would enjoy.

In the next slide really is the heart of the matter...

Commissioner Van Vliet

Let me interrupt you. Are you saying that those are included in your request or are not included in your request?

Mr. Quennoz

They are. What we've included we feel are well within...

Commissioner Van Vliet

All of those things right there?
(Background Talk.)
Those are not included in your ori...?

Mr. Quennoz:

They are not, excuse me. What we have included meets that test. They are not landscaping and lighting.

Commissioner Van Vliet

Those are out?

Mr. Quennoz

Those are out.

Chair Eden

But they've included the pad and the welding ...

Commissioner Van Vliet

I understand...I just want to make sure

Mr. Quennoz

It gets down to the assertion of the exclusive purpose of this system. And I think there has been a lot of statements that have sent mixed-messages and I'll gladly clarify them here.

The purpose again is not to comply with regulations. This is not a principal purpose facility. It is not required. We did not have to do it other than (indiscernible) beyond regulations. The purpose is not for economic benefit. There is a focus in the denial that shows there was some O & M gains, I think missing a big part of the picture. You know, when a company, when it spends capital money up front does not just look at those cash flow (indiscernible). It has to look at the whole project. Normally you look at the payback period on a project like this of 5 years. With deregulation of the industry those metrics have been down to one to three years. Just an easy mental arithmetic on this, if it costs $55 million and it's saving you six million a year then the pay-back period is nine years. Actually, we know we can drive that down. So the payback period is much longer than ordinarily would be acceptable for a company to invest those capital dollars. It's not because of financial considerations that we built this ISFSI.

I want to say here that it's, we're driven as our core value of our company on environmental stewardship. That's our business tenant and to make a decision strictly on

financial considerations is generally a wrong decision. (Indiscernible) It generally costs you more money. So, we didn't do this because of financial considerations.

Another one that was mentioned, lower insurance costs. We provided evidence that it won't reduce our insurance costs.

Another assertion was that it was done to facilitate decommissioning. Again, I want to point out we have 60-years (indiscernible) various methods equally acceptable as far as decommissioning. When we went into decommissioning process we looked at the economics of either path -- either safe storage or prompt decom and from a net present value both of them were the same. There was no financial gain between one or the other. Our motivation to go into prompt decommissioning was primarily, besides environmental stewardship, to bring Trojan into conclusion because it was our responsibility and not some other generation's responsibility. But other than that it was strictly to protect the company and the ratepayer against burial costs. And those burial costs are predicated on curie content and volume. And even with the spent fuel in the pool as it is, we've got rid of 99 point (indiscernible) percent of all non-fuel radioactivity on the site. We've just worked around the spent fuel pool and we've gotten rid of 80% of the volume that has to be sent off for burial. Of the 20% left most of that can be sent to a de minimis landfill by a waste processor at a much-reduced price. So, we have, without putting the spent fuel in dry storage, accomplished those objectives of decommissioning. Again, we can sit back, revise our decommissioning plan and go into a safe store, let nature, mother nature work on the rest of the site for a number of years and then come back and finish it. So, I don't see where people can say we that we did this to facilitate decommissioning.

Chair Eden

I want to ask you a question then. I understand that part of the fuel that part of the fuel that is in the spent fuel pool can be reused or (microphone interference) correctly. If this was just strictly for just operational purposes or if this was a pollution control system, why didn't you build this storage slash disposal system for the fuel that you couldn't reuse initially? Other words, why didn't you think this storage and disposal facility was important at the time the plant was operational -- important enough to build then?

Mr. Quennoz

One thing is when we did start it up (microphone interference). We were mandated by the Department of Energy, for nuclear proliferation concerns, that we have to take all the fuel and put it in a repository. So, those options really weren't open. We didn't have the latitude. At that point, all of the fuel had no economic value once it was discharged from the reactor. We can manage our flux within the reactor from cycle to cycle by reusing more and more of the fuel in different loading patterns but it really had no commercial value as far as reclaiming the isotopes or fissile materials once the decision was made by the Department of Energy. So, we were just stuck and no economic value to the fuel after that (indiscernible.)

Chair Eden

Well, that kind of begs my question or I'm not understanding your response. Why didn't you build this dry storage facility at that time if you had fuel that could no longer be...?

Mr. Quennoz
Oh, because...

Chair Eden
... had commercial value, could no longer be used. I mean as a country we're in the same place as we were then...

Mr. Quennoz
Exactly, and...

Chair Eden
...we still don't have a repository.
(Background Talk.)

Dr. Lei
Commissioner Eden, if I may, the longer history is actually very interesting. We just started (indiscernible) most recently. I can show you actual textbook that communicated that the spent fuel in a spent fuel pool will be held there for about six months and they'd do something else with it. In fact what they could have done as something else was actually reprocess the fuel. About two-thirds of the uranium was actually unused (indistinguishable.) The idea there of reprocessing was to reclaim it. As well as reclaim some of the plutonium that was actually created during the fission process. And then reuse that back into the nuclear fuel cells. As late as 1980 these kinds of possibilities were still on the table. At that time you wouldn't have built a structure that would load this stuff in a deep hole in the ground until the United States actually assumed the responsibility for the fact that was probably the best thing to do. (Indiscernible)

(Background Talk.)

Dr. Lei
...and also to follow along...

Langdon Marsh, Director of Department of Environmental Quality
Excuse me, could you identify yourself for the record?

Dr. Lei
I'm Wayne Lei, Director of Environmental Policy for Portland General Electric

Mr. Quennoz:
This technology didn't exist until most recently and there were some prototype configurations in the late '80s where utilities had one of these storage canisters on their site and were evaluating it. It wasn't until the time of about '92 there were a couple of other facilities, nuclear facilities that had ordered these systems. At the time we started, there were no licensed dual-purpose systems today, presently. We're the only ones that, well, there are about six of them in the process of being licensed. The technology just didn't exist. But now that the technology exists, I think it's again our duty to build a system like that because it offers an advantage.

What I'm trying to emphasize here is that there's a confusion, I believe, between benefits and the purpose of the facility. Hopefully, I've eliminated the fact that these benefits, they may or may not exist, but the only purpose of the facility is to control pollution. I think it would be poor policy on the part of the Commission to nullify the structure just based on concerns over those benefits. Cause if there are economic benefits, they certainly don't qualify for tax credits and I think that you can direct the staff to eliminate such benefits through the return-on-investment calculations, if you should agree that this is a facility that qualifies on the merits of purpose and acceptable methods. That's what we're trying to get at. I think we need to be very clear on the purpose. And hopefully, there is no purpose cited. There are only benefits.

Chair Eden
Commissioner Bennett

Commissioner Harvey Bennett
Back on your spent fuel pool (microphone noise)

Chair Eden
Can you speak up please?

Commissioner Bennett
Yes, back on you spent fuel pool (microphone noise.) It says that you need to eliminate 1200 gallons per year. Where do those go?

Mr. Quennoz
Those are resins (microphone noise). They are put in a high integrity container, and de-watered and packaged properly and transported by an exclusive carrier to Hanford and there they are buried in a low-level facility.

Commissioner Van Vliet
I take it the NRC has been interested in the various techniques of doing this. Have they been watching this particular design at all?

Mr. Quennoz
Yes.

Commissioner Van Vliet
... and they've passed on it as an acceptable design?

Mr. Quennoz
We're still, we have a storage license. There's a two part because it's a dual-purpose facility. You need to license it for storage. You need to license it for transportation. We have the storage license. We need to gain the transportation license and that's the responsibility of our vendor. That requires them to construct a part scale models and (indistinguishable) ensure that it can meet the hypothetical and normal conditions of transport accidents that you'd expect on transportation over public highways. We haven't got that yet and it looks like it's going to be a year, several years before we can get that.

Commissioner Van Vliet

I was going to say with that kind of tonnage in that container you probably couldn't get it on a semi, you're going to put it on a rail-car, aren't you?

Mr. Quennoz

Exactly.

Commissioner Van Vliet

Second question was, there's been a lot of talk about encapsulating this in glass over the years and putting it in salt. Where is Yucca Flats now ready to take it? Do you have any indication from the NRC, which hasn't been greatly helpful in disposing of waste? How far are you going to have to store this stuff on your site before you can look at storing it at the national level?

Mr. Quennoz

Well, we know that their latest schedule for implementation of Yucca Mountain was based on 2010 date. They are ten years off before they can fully construct (microphone noise) at Yucca Mountain. One of the interesting things that you may not know is that fact that the commercial industry paid into a fund to support this facility. So we put in $45 (indistinguishable million/billion) dollars worth of private money to build this facility. But everybody wants access to it and the DOE has said that it would accept fuel on oldest fuel first basis. It won't accept all our fuel at anyone time. There is a cue and based on a 3,000 metric ton per year acceptance rate, it would take approximately twenty years for them to accept all fuel within our spent fuel pool and clear the pool out. So, that would mean ten years plus twenty years – a thirty-year period. Now the DOE because of funding considerations has most recently stated that it can only accept fuel on a 900-ton per year acceptance schedule because of, even though it is fund separate it is still a budget item and there is still budget consideration. So, with 900 you can expect that twenty years will expand out, I really haven't analyzed that; but it's at least going to double it. So, you're talking, honestly, forty, fifty years before all fuel...

Commissioner Van Vliet

You've gone way beyond your pay-back period of nine years because you're going to have maintenance of those for a long, long time. Is that calculated in your cost?

Mr. Quennoz

That pay-back period, we would expect to recover moneys for damages for nonperformance of DOE and to off-set those extended delays but I think it would be speculative how much money we will capture. But I think, one thing I can say, when we look at the economics of this project, it doesn't go to the corporate books. What it does is serve to reduce the cost of service to our ratepayers. That's our ratepayer's money that's constructing this facility. So, it reduces the cost of service, reduces (indistinguishable), reduces our prices. So, we're not looking at this as a windfall for the corporation. It is good for the ratepayers. I'm here today to really to meet our fiduciary responsibility to the ratepayers to get value for the money that they have.

Commissioner Van Vliet

Well, I understand that (indistinguishable.) The question is if you didn't have the tax credit, as you know, the tax credits have been under fire for a long time as maybe not being viable anymore. But, if you didn't have the tax credit would you be pursuing this particular technological avenue?

Mr. Quennoz

Well, you (indistinguishable.) I would say, I probably should ask my accountant (indistinguishable), but I would say we're going to do it anyway. Because no matter what, it is quite (indistinguishable.) It's going to pay off one way or another, whether it's tax credits or whatever reasons because it's the right thing to do for the people of Oregon. I think in my mind, I remember very distinctly at that time there was a big crisis with the (indistinguishable) basins at Hanford. And we interact with the people at Hanford quite a bit, for the Columbia Generating Station and also because our waste disposal site is there. That was really on my mind that the people of Oregon deserve something better than those (indistinguishable) where you have fuel that is disintegrating in those pools that are very close to the Columbia River. The company, you know you're dealing with a company that is going to do the right thing. But I think from those incentive basis, companies that are not regulated and driven by the bottom line, they need those incentives. So, those incentives, I don't think you should discount them. If you want people to go beyond regulation and you want environmental benefit for people of Oregon, those incentives are powerful motivators.

Dr. Lei

Commissioner Van Vliet, if I may add also, there is a draft environmental impact statement that's been issued by the Department of Energy out now for Yucca Mountain. It is expected to be finalized next year. That would be quite a milestone when that moves forward. The DOE expects to have licensing application in sometime around 2003 to the Nuclear Regulatory Commission. This is a facility that has to be licensed by the NRC. And an optimistic but a certainly doable date is somewhere around 2010 (indistinguishable) if you're subscribing to the question of pay-back and how long you'd have to (indistinguishable.) The DOE, and certainly this country has not had a great record in trying to close this nuclear fuel cycle. And so, but you can always get lucky, I mean that's part of the point there. I should add that this is the only fuel cycle out of all the others out there that actually is trying to be closed.

Commissioner Van Vliet

And that technology if you had to store it for fifty years on your hard pad would hold?

Mr. Quennoz

(indistinguishable) ...designed for forty years (indistinguishable.)
It would have to re-licensed but we feel comfortable that we can re-license but it can't be re-licensed forever but one of the virtues of our system is that we can take and handle it and put it in new over-pack. And meet the re-licensing (indistinguishable.)

Chair Eden

Commissioner Malarkey?
(Background Talk)
Excuse me?

Lanny Dursek, Manager of Nuclear and Regulatory Affairs for PGE

Lanny Dursek speaking. The system is designed to for fifty years (indistinguishable) licensed for forty years. Typically what would happen when you get to the end of the forty years is to do a reassessment of (indistinguishable.)

Mr. Quennoz

(Indistinguishable)...what happens to an operating reactor I(microphone noise) ...many of them are coming on to a protracted process of re-evaluating components and seeing if they are acceptable to continued operation. We've had several that have been brought up to re-licensing. (Indistinguishable) ...feel comfortable that people understand the effects of radiation on metals and (microphone noise)...

Chair Eden

Commissioner Malarkey

Commissioner Deidre Malarkey

I think I understand (indistinguishable) what I'm going to repeat Mr. Stewart-Smith said this last year at the hearing...

Ms. Purser

Commissioner Malarkey could you speak up?

Commissioner Malarkey

I'm sorry. Mr. Stewart-Smith said this last year at the 1999 meeting on this point; which is while there is no regulatory requirement for dry spent fuel facilities either at the state or federal level, other than time (indistinguishable.) The Nuclear Regulatory Commission has made it very clear that their preference for a closed reactor is dry interim storage of spent fuel rather than an active spent pool storage. So you can see the quandary, there's no specific regulatory requirement.

The fact that you may be extending your storage time there for longer than we expected does that eliminate the opportunity using for using the additional lands for either the park and recreation (indistinguishable) speaking of for an additional power source?

Mr. Quennoz

Yes and that's (indistinguishable.) There was a mention that we were doing this so we could release the land for unrestricted use and possible sell it. Maybe, I can clear that up. We have tried very hard to develop that land. There is six hundred acres. We work there and it's a very good site. Unfortunately, we have had no success in trying to attract tenants on that site. (Indistinguishable,) It's just too far from the current population sources. We've had a couple of tenants, small time people that have leased buildings or, excuse me, rooms within building. But we have tried very hard even attracting our own people to come out within Portland General Electric to locate at the site. We have not been successful.

So, the site from a commercial value is very low. It has probably the most value as a park. And there was mention that we would want to develop that part of the site for future generations. Well, with SB 1149 and electric restructuring of the Oregon electrical

industry, it's very clear that our large industrial customers want choice. And want to go on the market to buy what they think would be a cheaper source of power and long-term contracts for supplies of power from energy providers.

So, we're in the process of looking at our future load and finding that we have right now much more generation than we ordinarily need because of the expected loss of these customers.

So, I don't think re-powering is in the future for us at that site anytime this decade. That's just, you know, me speaking. But I do follow that. I don't think we could sell the site to a developer because the real money that's being made on developing the (indistinguishable) project is the natural development itself and also the marketing of that power. Just the land itself, most of these developers come in, they want the land free. In addition, they want a bunch of tax cuts. Other wise, they'll go to someplace else. So, we're not going to make a lot of money for our ratepayers on the land itself. So,

Commissioner Malarkey

A gas-fired plant is not an option (indistinguishable?)

Mr. Quennoz

It's an option we preserve and it's just for prudence (indistinguishable.) We've got excellent infrastructure there but the fact of it is we're submitting our rate case for 1149 this next month and we realize that we're not going to be building a lot more generation because have more generation currently than we need to supply our residential customers.

So, maybe in conclusion then, hopefully I have eliminated any of these other assertions that we are doing these for reasons other than pollution control. I really think that we need the letter of the law and we need the spirit of the law. And it's really consistent with Governor Kitzhaber's desire to provide incentives for people who go beyond the regulation. This is what we've done and we've provided substantial evidence. This has been our claim. (Indistinguishable) on the merits of it and not be concerned about the benefits of it because you'll have ample opportunity to control those concerns.

Chair Eden

Thank you. Are there other questions of Portland General Electric representatives at this time? Ms. Vandehey do you have any response?

Ms. Vandehey

I would like to emphasis that radiation or radioactivity is not a recognized pollutant – it is not regulated by air quality rules – it is not regulated by water quality rules. To have a sole purpose the pollution control, the facility must reduce, control or eliminate air or water pollution.

I would like to briefly discuss replacement facilities. The Department did not, as PGE mentioned, did not consider that the Independent Spent Fuel was a replaced facility according tax credit regulation. Replacement facilities are a term reserved for those facilities that have been previously certified. That is not the criterion on which the

Department compared the spent fuel pool and the claimed facility. The department made that comparison based on the fact that we're looking at the same spent fuel. We made the comparison on the fact that the department looks at conditions as they currently exist to determine if a substantial quantity of pollution will be controlled as a result of the claimed facility.

Chair Eden

So, are you saying that 50 curries and 1200 gallons of resin are not substantial quantities because they don't have air or water pollution or because those amounts are not substantial?

Ms. Vandehey

Madam Chair, may I ask Dave Stewart-Smith to address the quantities.

Mr. Stewart-Smith

Thank you Madam Chair, again, my name is Dave Stewart-Smith, Oregon Office of Energy. Maybe some perspective will help. It's kind of hard to get your arms around measurements like curries. It's not something that all of us deal with on a regular basis. PGE has stated that about half of 50 curries a year released from the spent fuel pool is Tritium. Tritium is a radioactive isotope of hydrogen. Most of the Tritium in the environment is naturally produced in the upper atmosphere. About three curries an hour of Tritium in the Columbia River, I estimate, flow by the Trojan plant as a result of the natural amount of Tritium that there is in surface water in the state of Oregon.

The rest of it is a noble gas, Krypton 85; it's a gas with about a ten-year half-life. Twenty-five curries a year of Krypton 85 is probably similar to the amount of noble gases released from a larger metropolitan area medical facility. But they release a different radioactive isotope primarily Xenon 133 – it's a radioactive noble gas used in medical imaging systems – probably on the order of the same radioactivity of the material of a shorter half-life material.

The 1200 gallons of resin is low-level radioactive waste. Part of a radioactive waste treatment system that PGE has had in place to extract radioactive isotopes from the water in the spent fuel pool. There's perhaps on the order of one percent of the spent fuel in the spent fuel pool, the individual pins are no longer hermetically sealed. That's typical for spent nuclear fuel. That's a pretty harsh environment inside a reactor in terms of temperatures and pressures. Some of the pins are no longer hermetically sealed and that results in a small amount of radioactive fission products leaching from the spent fuel ceramic into the surrounding waters. That's also the source of the Krypton 85 – it is also a fission product. But the material that is dissolved in that water is removed from it through a low-level rad-waste treatment system. It's similar to a water softener – ion exchange resins that take dissolved components out of aqueous solution and concentrate them in styrene matrix beads; small plastic beads that have an affinity for absorbing dissolved chemicals in solution.

Commissioner Mark Reeve

The one percent of the fuel rods that may be leaking; is there a design life, is there an expectation over like 5, 10 perhaps even 50 years if we were to stay with the fuel pool that that number would increase substantially?

Mr. Stewart-Smith

I don't believe so. Most of the damage to spent fuel pins happens in the active nuclear energy process – in the reactor itself. Once it is in the spent fuel pool, the purpose of the spent fuel pool is to provide, initially, cooling for the spent fuel. There is enough residual heat in spent radioactive fuel that it must remain in an active aqueous cooling system for five years. After five years the amount of residual heat in the spent fuel could be dealt with through air circulation which is what the dry spent fuel storage cask is designed to do – to keep the fuel cool through air circulation. But for the initial five-years, it must be done with water because water is more efficient for transfer. But in the spent fuel pool, I would not expect there would be any additional damage to the spent fuel.

Ciommissioner Van Vliet

So what you are saying is that that is basically a very safe structure for forty years in the water of the spent fuel.

Mr. Stewart-Smith

Properly maintained, there is no reason why the spent fuel pool could not continue to store spent fuel like it does. It is an active system. It requires ongoing staff, ongoing maintenance to keep the pump and radioactive waste treatment system operating properly. So, it has the disadvantage over the dry spent fuel storage in that it takes active maintenance on the part of Portland General Electric. That's one of the advantages of dry storage that once the baskets are welded shut and place inside the concrete silos, it is much more of a passive protective system. It is not completely without active intervention, for example, there are air vents at the bottom and the top of the spent fuel storage casks that must be kept clear. There are active radiation detection and heat detection sensors that must be kept in proper working order. And there are security requirements. So, it's not without, it's not like you can put it in the cask and walk away from it. But it requires less active intervention on the part of staff than the spent fuel pool does. But the spent fuel pool functions well. It's similar to spent fuel storage at active reactor sites around the country – over a hundred of those.

Commissioner Reeve

How about in terms of comparing the low-level (microphone noise) generation – obviously with a fuel pool your looking at whatever, however many years of use or service times the 1200-gallons or what ever it turns out to be as far as the resin generation? And it appears to me that the transfer to the ISFSI would likely result in a one-time creation or generation of a low-level waste, what with the vacuum system, etc. Has any comparison been made with the two competing systems as far as the waste generation?

Mr. Stewart-Smith

It is correct that the spent fuel pool will continue to generate low-level radioactive waste. Although the amount of radioactivity in that waste, even if the volume stays the same will continue to go down over time as fission products in the spent fuel undergo natural radioactive decay. They will reach a point of diminishing returns and I don't think they've reached that yet. Some years in the future, they will reach a point where there will be little decrease in the concentration of radio-nuclides in the rad-waste treatment storage resin over time. But it would generate a low-level radioactive waste stream for as long as the spent fuel pool were kept in active operation. I think your analogy is correct; keeping the spent fuel in operation results an annual production of low-level radioactive waste. By putting the spent fuel storage in dry storage casks would not have an annual amount. And the spent fuel pool itself would become decommissioned and become a low-level radioactive waste stream and that would be roughly a one-time event.

Commissioner Van Vliet

We have dealt a lot in the last several years with catastrophic events (indistinguishable) scenarios such as Umatilla and things like that. Talk about earthquake and pump and redundant systems going down in the waste pool.

Mr. Stewart-Smith

The spent fuel pool, I don't think we have a graphic of it available. I don't know if there is one available or not. The spent fuel pool is a substantial structure. The walls of the spent fuel pool are about 5' thick, the base is about 8' thick reinforce concrete and it's built on solid basaltic bedrock. Trojan is built on a basalt outcropping adjacent to the Columbia River. There is no cover over the top of the spent fuel except for about 20', or so, of de-ionized water. The de-ionized water both serves as a cooling medium and as shielding for the radiation given off by the spent fuel. Twenty feet of water is a pretty good radiation shield as is the concrete in the dry spent fuel casks. The spent fuel pool is a substantial structure. PGE has estimated what kind of earthquake energy that it would take to damage the structure. And I can't recall it right off hand but it would take, I believe more that a credible earthquake in the Trojan area to actually damage the spent fuel pool. Now you'd probably slosh a lot of water out of it in the event of a significant earthquake with a significant amount of horizontal acceleration gravity. If the earth under the spent fuel pool moved sideways, quickly, you would loose a fair amount of water out of it. And that water would need to be replaced. It could result in damage to the equipment, the pumps, perhaps some of the piping that connect the rad-waste treatment system to the spent fuel pool itself. But it is a substantial structure and I would expect that any natural event, the spent fuel pool would withstand this kind of forces.

Tape 3

Commissioner Bennett

... covering radiation in general. So if you want to think about it in terms of ambient radiation, that's not with your purview (microphone noise) definition of pollutants for the purposes for this program.

Mr. Stewart-Smith

I think that's what Maggie's position is.

Unidentified Person

If I could just (indistinguishable.) I think radioactive substances such as the Tritium that we're talking about (indistinguishable), that does come within (indistinguishable) of an air pollutant under this Department's rules.

(Microphone Noise.)

Mr. Stewart-Smith

...that the Krypton, Tritium and solid waste – these are all materials that are radioactive materials. It is not radiation, it is the actual energy that's being emitted by these radioactive substances (indistinguishable) that radiation...

Unidentified Person

... and so, it is our position that the radioactive substances given off by the pool (indistinguishable) are significant and obviously the Department has a different (microphone noise).....

Chair Eden

... and so the Department is saying that (microphone noise) are not. Is that correct?

Ms. Vandehey

That's correct. We were not able to determine that those amounts were significant with the information that we have.

Chair Eden

Maggie, you sound like an attorney.

Ms. Vandehey

Thank you – or maybe not.

Mr. Stewart-Smith

Again, my name is Dave Stewart-Smith, Office of Energy. When Maggie asked me to help her understand some of these issues. One of the questions she had for me was, "Well, so what?" "What's a curie and how can a curie be significant?" One of the things I told her was that not all curies are created equal.

A curie of Tritium, which is a radioactive isotope of hydrogen, is much less significant from an environmental and public health standpoint than a curie of iodine 131; which is a biologically significant radioisotope – concentrates in a portion of the body – and per unit of radioactivity taken into the human body can produce a great deal more radiation dose and potential biological damage than Tritium does. So not all curies are the same. And that's one of hard things to get your arms around.

The same can be said of noble gases. A noble gas has little or no biological significance. By that I means if you are surrounded by a cloud of air that contains a

concentration of noble gases, and we all are because there are natural isotopes of noble gases that we breathe all the time. The noble gas itself is inhaled and exhaled. It's not the type of chemical that has a great deal of biological significance. That probably doesn't have much to do with your rules but she was trying to get a handle on what's significance.

So, 50 curies sounds like a big number and if it were 50 curies of Strontium 90 or Iodine 131, or Radium 226, I'd be real exited. Taking a look at 50 curies of Tritium and Krypton 85, primarily, being released from the surface of the spent fuel pool, it would be difficult to estimate the amount of radiation dose from the general public from that amount of material. Now I applaud Portland General Electric for taking actions to reduce that. I am a radiation protection professional. And I too live by the maxim begun by the early nuclear industry that we are to maintain radiation doses and releases to the environment as low as reasonably achievable. And I believe that PGE is taking responsible action by proposing a facility like this. Were I to try and do a calculation for the amount of radiation dose to a member of the public from that 25 (or so) of Tritium and that 25 (or so) of noble gases released from the spent fuel pool, it would be a very small number and a very difficult calculation to do because of the nature of those isotopes.

Chair Eden

Dr. Lei

Dr. Lei

Again, Wayne Lei with Portland General Electric.

I'll expand on some of his comments. I'll even expand a little bit more graphically, if I may. If you were to bring 50 curies in here, and Dave would react the same way, and didn't tell us what the 50 curies were, our very first inclination would be to get very far away from it. The reason is, precisely what he just said, you just don't know what it is. It could be very (indistinguishable) you just can't sense it otherwise. The underlying scientific principal that all of the standards and regulations in the United States as radiation protection, together with the world in fact, is this theory is that the only safe exposure is zero. And any incremental piece beyond that can be deleterious. It's very arguable scientifically as low dosage, that in order to be conservative and protective, the scientific body in this country, and it was done 45-50 years ago. And then world came to the agreement that this would be the conservative principal in which case, all protection standards. And in fact, this only operating philosophy that I know of for any industry that is actually mandated by law. You'll find that in 10 CFR 20. In fact when I worked at Trojan for five years, that actually was the department that I ran. There is called as low as reasonably achievable department by the way. (Indistinguishable) Every nuclear power plant will have one of these. In fact it even specified how many staff you have to have at a minimum to address these issues. There's a lot of science in how you do it, plenty of engineering, and a little bit of art in how you do that. (Indistinguishable.) That is in the philosophy of radiation (indistinguishable.)

Chair Eden

Commissioner Bennett.

Commissioner Bennett

(Indistinguishable.) Are we listening to good on the one hand, a policy on the other-hand, and the question of opening a policy beyond where the funding structure works? Is that what we're listening to here? I mean it sounds like no one would want to suggest that we want to build facilities less than what is going on here. On the other-hand we have a policy that doesn't fit this process and in that process we have other agencies or institutions which would come under this same opening. I think we could go on and on about trying to define whether this is good or not, I don't hear anyone challenging whether that's the case. I'm just wondering where we go in a one day meeting with this project – how much further?

Chair Eden

Commissioner Van Vliet.

Commissioner Van Vliet

Talk about the general public understanding what we're talking about today. They don't understand the difference between fusion and fission and they are only interested in whether they will glow in the dark, so to speak, from some kind of facility. But one of the things that interests me about this because it doesn't fit tightly in our requirements. It is new technology which we have tried to foster in our outlook And, I hate to be talking on the positive side of this because I have been anti- tax credits for a long, long time. But also, there is a factor of what I consider environmental safety that has to be considered that is a little difficult with radiation than it is with other types of pollutants that we deal. One of the questions that was in Maggie's first statement, "If the Commission determines that the claimed facility or any distinct portion of the claimed facility has a pollution control purpose then the Commission must consider how the pollution control would be accomplished as described in 2." And I fall under that particular area of thinking that it has a pollution control purpose. Then if you look under 2, "If the Commission determines that the pollution control would be accomplished in one of the specific manners described in statute and rule" and that's where I think the hang-up is right now is on that number 2.

And, I guess we could argue about whether it meets the letter of the law in all the particular areas but I do feel that it basically is a jump into new technology, which meets one of our requirements – the one on recoverable materials, it does not. But then when dealing with radiation, you're dealing with diminishing materials basically overtime and so you have a different kind of standard that we never addressed in the law. So how do we dance on the head of a pin?

Commissioner Bennett

On the edge.

Chair Eden

I want to move to the next issue for a few minutes and that is if you could tell me how you determine what is sufficient to persuade you that the saving is part of the purpose.

Ms. Vandehey

What I used, (microphone noise) the evidence that was before us in the decommissioning plan. In the decommissioning plan it listed the O & M costs for both the dry storage and the wet storage. That was from 1997 figures; of what we had available to us. That shows $6.8 million savings.

Chair Eden

I can do the math. And I have done the math and I've figured out that over the period of what we're talking about, 40 or 50 years, there's a net savings of $217 million. And my question is, "What's the standard by which the Department is saying that something is sufficient enough or something is large enough to move into the realm of that's the real purpose rather than the exclusive purpose being pollution control?" I just want to understand your thinking.

Ms. Vandehey

The thinking is based on past Commission discussions, past Commission direction. And we looked at the amount of the entire facility and looked at the amount of $6.8 million over 10 years. That was within the bounds of what the Commission has directed the Department before. We did not look at specific cost analysis. That is beyond the scope of this preliminary application process.

Chair Eden

And what specific are you talking about when you say previous Commission direction? I mean, I hate it when you throw it back at us where it belongs. But I mean in terms of is there some kind of percentages?

Ms. Vandehey

No, there is not a percentage...

Chair Eden

... you're just talking about past cases and...

Counsel

... Again, I don't know if this will be helpful but let me give it a shot, this has come up in previous cases, in Tidewater, for example, and others. And I think the Commission has taken the position that when you're operating under the sole purpose test, you can only have one purpose. And so if there are any other benefits, they must truly be incidental. And I think you've also taken the position previously, that in making that determination, you would apply an objective test – what a reasonable person might find incidental or not. And beyond that I don't think I can provide any assistance but I do believe that is true.

Chair Eden

Maybe incidental might have been decreased insurance premiums for the double-hulled barges as opposed to the purpose that we ultimately decided.

Counsel

Well, actually, I believe the Commission's view was that a decreased insurance premium was more than incidental and would have controlled the matter. But in Tidewater, we actually had affidavits establishing that it wasn't going to affect the insurance premiums.

Chair Eden

Okay.

Mr. Quennoz

Madam Chair, Steve Quennoz again. I just want to try to clarify the idea of cost savings. The company does not earn any return on cost of service – only on investment in that plant. So whether the cost of operating the facility is ten million dollars or four million dollars, it is irrelevant to the corporation. There is no saving in it for the corporation. There is a savings associated with the ratepayer. And the ratepayer, we're going to proceed (indistinguishable) against the Department of Energy to make them whole (indistinguishable), in any case. But it's not about the money because it doesn't enter into the equation.

Commissioner Bennett

It's got to be about money. That's what we've been talking about all morning. Cost to build or tax credits or something else.

Chair Eden

Are there other questions or comments?

Ms. Saunders

I'd just like to add, Denise Saunders again (microphone noise) ...the cost savings, the statute says, when it talks about sole purpose it asks you to look at primary purpose and it does specifically, the rules (indistinguishable) were filed under says there may be other economic benefits and that's not going to be tracked from the sole purpose requirement. Those are going to be taken into account when you do the return on investment calculations. In terms of looking at whether this qualifies as a sole purpose, the economic benefits shouldn't come into play; those need to be looked at in the next round when you do final application.

Counsel

As your legal counsel, I'm not sure I concur with that advice. Certainly, I don't disagree with the notion that there may be incidental benefits. And that those incidental benefits can be addressed through the cost allocation equation if it's a qualifying tax credit facility. But it is clear under the sole purpose test that you can have only one purpose and if those other benefits are sufficient to become a purpose then you are not a sole purpose facility. If we loose sight of that then we loose sight of the statutory distinction between the primary purpose test and the sole purpose test.

Chair Eden

We've been at this for an hour or more – two hours. And so, we need to table this or we need to (indistinguishable.)

Commissioner Bennett.

Commissioner Bennett

We had a very brief statement somewhere in this that said, I believe from PGE, that said review it and take the business gain out of it and see what's left. I thought I heard that somewhere in the discussion.

Counsel

I think what you heard was the notion that the company believes that this facility qualifies under the sole purpose test. And if you do that and if you make that determination and then when they come back for their actual tax credit, you will be able to back out these economic benefits, O & M savings and what not, you'd be able to back them out at that time. I think that was the point of those comments.

Commissioner Malarkey

How would that mean, in a sense the motion would be to approve or deny the preliminary (indistinguishable.)

Counsel

Yes, today, you'd need to either approve it or deny it or send it back to us with some instruction to get you some more information.

Ms. Vandehey

I would like also like to clarify that if you do approve it then we will not revisit any of the distinct portions. We will not revisit it if this facility is built as planned then it meets the definition of a pollution control facility. We will review the cost of the facility and we will review the percentage of that cost that is properly allocable to pollution control.

Counsel

My recommendation would be quit frankly that we address this in segments. Both in terms of whether or not it meets the sole purpose test and then also the other two points: how it does so or does not and the issue of divisible components. I think we should address all those in an order.

Chair Eden

Well, assuming the preliminary certification is approved, then we would have a separate motion on each of the components?

Counsel

Yes.

Chair Eden

What's the pleasure of the Commission?

Commissioner Malarkey
Prior to the, following the (Indistinguishable.) Correct? Not within the motion?

Counsel
For example, you might find that it qualifies as a sole purpose, that it does so in the following ways and that each of the components contribute significantly or that only some of the components contribute significantly. I think that is what we are looking for.

Ms. Vandehey
That's correct. We would have to look at all the distinct portions. Distinct portions are eliminated under what is not included as a pollution control facility. It states that any distinct portions that does not contribute to the sole purpose of the facility should be eliminated as being eligible.

Commissioner Van Vliet
You want to get the ball rolling Madam Chair? I'll move that we accept preliminary certification of application 5009.

Commissioner Malarkey
Seconded.

Chair Eden
It has been moved and seconded that we approved preliminary certification of tax credit application number 5009. Is there further discussion?

Commissioner Reeve
Madam Chair?

Chair Eden
Commissioner Reeve

Commissioner Reeve
I'll put my thoughts on the table for a moment here. I would not be able support the motion simply because, although I applaud PGE for what it is trying to do, I can't in good conscience under our statutes and rules as written, believe that this is a qualifying facility. I think they are doing the right thing but under our current statute, I don't think they are entitled to a tax credit for doing so. I think that at least when we looked at the Tidewater application and I think a couple of others, but certainly Tidewater comes to mind. We did at that point look closely at the statute and the sole purpose section of the statute really does require an exclusivity of purpose and it does require reduction of a substantial amount of pollutants. I'm persuaded by the Department's analysis and I concur in it that essentially we are not dealing with a facility that qualifies under the statute as a sole purpose facility.

I think it would be a much different analysis if for example, the NRC got off its tail and said, "All these pools all over the country are not quite as safe as they ought to be. They are not as low as reasonably achievable. And that we should not have pools; we should

have dry cask storage" in the regulation. Then we'd be looking at the primary purpose. They haven't done so.

I'm persuaded by Mr. Stewart-Smith's analysis of the radiation and the fact that the rules don't require the dry storage and that what is occurring in the pool is safe even if it isn't as safe as possible.

Just in summary, I don't think this facility qualifies as (indistinguishable.)

Commissioner Van Vliet

If the argument is over sole purpose, I think I would be probably be long gone if I wait for the NRC to take any kind of definitive action. And I'm not prepared to probably subject the people of State of Oregon to waiting for the NRC, which hasn't been forthright in their actions for getting things done. Sole purpose to me, in this particular case, is the general protection of the public by sealing up radioactive material. That's as simple as I can put it. And I think that under sole purpose, and I think that's where the argument comes in our definition between what is how we call the shots as far as the law is stated now. I guess the question is whether that is a valid conclusion that the safety of the general public in dealing with radioactive material can be classified as a sole purpose and I look at... (microphone noise.)

Chair Eden

Comments? Are we ready to vote? It's been moved and seconded the Commission approved preliminary certification of tax credit application number 5009. We'll probably need a role call.

Director Marsh

Commissioner Malarkey – Aye
Commissioner Van Vliet – Aye

Commissioner Reeve – No
Commissioner Bennett -- Aye
Chair Eden – No

Chair Eden

So, that's three to two. So, the preliminary certification has been approved. What's the next step?

Counsel

Madam Chair, we need to understand whether or not that applies to all the components of the facility or not?

Ms. Vandehey

Additionally, Madam Chair, I would like to know if this extends to medical and industrial applications – if it sets precedence?

Chair Eden
Well that's a question that will be determined as we go down the road.

So, if you want to make a motion on each particular component or if you want to make a motion that indicates that all of the components in (indistinguishable.)

Counsel
Are we all clear what the components are?

(Background Talk.)

Ms. Vandehey
Would you like me to? The vacuum drying station, the welding system, the transfer station and the associated equipment (the vehicles), the pad...

(Background Talk.)

Counsel
Perhaps the best way to do it would be to see if there is a motion to exclude any of those items on the theory that it doesn't contribute a significant amount.

Chair Eden
Commissioners? I won't be making that motion.

Commissioner Van Vliet
I need an explanation on the transfer station whether that is something that is really into the future or whether that is something basically an integral part of the system right now.

Ms. Vandehey
(Microphone Noise.)
(Background Talk.)
Yes, the transfer station and auxiliary materials will be used to move the casks.

Madam Chair, there is also another policy decision inherent in approving the transfer station. And that policy decision is that in the past the Department has not allowed costs associated with material handling. Also inherent in the decision for all of the equipment, with the exception of the baskets and the casks, those components used for the installation or during the movement of the facility have not been allowable.

Chair Eden
Like air ducts?

Ms. Vandehey
Like air ducts. Like conveyor belts.

Commissioner Van Vliet
But you would do that in your analysis as you go through it.

Ms. Vandehey
No, I would not be able to. According to the 1998 rules, as you have approved certification of this facility, we will not look at the individual parts because you would have already approved the purpose of the facility.

Denise Saunders
Madam Chair, if I might make a suggestion. It might be better to put this off until the next meeting and then we can address each one of the components. It might be more helpful to you to do that. For example, we do disagree that they haven't granted certification for facilities like these in the past. (Indistinguishable) at our Boardman plant we have (indistinguishable) certification for our ash handling system. There are a number of considerations that go into looking at the individual components. The one option might be to put that off to the next meeting. Just a suggestion.

Commissioner Van Vliet
Is the next meeting 2005?

Chair Eden
The next meeting is November 30th – December 1st. And what does that meeting look like?

Ms. Purser
It's horrible.

Chair Eden
So we either do it today – it doesn't sounds like we don't have time to do it next time. So we either do it today or we do it in the meeting after that.
(Background Talk.)
And the Department is indicating displeasure with that decision.

Lydia Taylor, Deputy Director
Could we go into it later in this meeting and we could come back to you? And see if that would be satisfactory for you to look at a little more detail, so we could map it out?

Commissioner Van Vliet
Great.

Chair Eden
Sure. At the end of the end of the agenda, is that what you want to do? Like 3:00 o'clock in the afternoon?

Ms. Vandehey
You set the time and we'll be ready with what we can (indistinguishable.)

(Background Talk.)

Commissioner Van Vliet
Two forty-five.

Helen Lottridge, Administrator Management Services
We could come – Helen Lottridge – if we could have an hour or more that would be good.

(Background Talk.)

Ms. Vandehey
After the rest of the tax credits.

Chair Eden
Right, we have to do the rest of the tax credits and…
(Background Talk)
…then we'll probably want an hour after that. And then the corporation would rather…
(Background Talk)…
we put this off so they can come back.

Ms. Saunders
We're willing to come back this afternoon. Whatever your pleasure is.

Chair Eden
All right. Then why don't we take this up at one o'clock; right after lunch.

Ms. Purser
You have a time-certain public comment at one o'clock.
(Background Talk.)

Chair Eden
Time certain public comment is… oh, we can do it right after that though. Can we not? Okay. So right after the public comment on Agenda Item "J", we can take up this tax credit again.

Ms. Lottridge
Okay.

Commissioner Bennett
Madam Chair?

Chair Eden
Commissioner Bennett?

Commissioner Bennett
Before we leave, the Environmental Quality Commission memo that was sent on September 29th, on page 2. You outline six items. Are there more than six items.

Ms. Vandehey
Those items are what PGE identified as the distinct portions.

Commissioner Bennett
So, is there either six or fewer?

Ms. Vandehey
Well, no, there are more, less-distinct components within these.

Commissioner Bennett
Thank you.

Chair Eden
Okay. So, let's take a break until 10:15 on the clock at the back of the room.

(Background Talk.)

Application 5009 Reconvened

Chair Eden
Okay, are we back to Agenda Item B?

Ms. Purser
I've got to switch the tape before we do this.

TAPE 7

Counsel
... if that's okay with her.

Ms. Purser
Okay then.

Chair Eden
Counsel?

Counsel
Yes, I want to just clarify what you decided in our earlier proceedings. And what I think were decided by implication but I'm not sure, so I'd like to get it on the record. The earlier vote, you determined that the facility did meet the sole purpose of pollution control. But there is still an issue about which method allowed by statute was used to meet that purpose. And I'm assuming, there are three, it could have been air pollution air cleaning device, it could have been water pollution treatment works, or a solid waste process. And my understanding, based upon what is in the staff report, is that the Commission was assuming that this would be a water pollution treatment works. Because the staff report it essentially said that if you were to make the earlier determination that is was a pollution control facility that staff didn't believe that is could meet the air pollution air cleaning device test or the material recovery process test. So, for purposes of drafting an order

when we get there, I'd like to know whether or not I can assume this is a water pollution treatment works method.

Ms. Saunders

Madam Chair, can I just say something? I think there is another method that we...

Chair Eden

Identify yourself, please.

Ms. Saunders

I'm sorry. Denise Saunders, counsel for PGE. There was another method that we identified in our various letters and that was under the rule, I don't know exactly which one, it was subpart "g" under the rules that were in effect at the time we filed our application. It said that is it could be accomplished by detecting, deterring, or preventing (indistinguishable.) And that's the portion that we maintain that it falls under.

Chair Eden

Counsel?

Counsel

Counsel for PGE is correct, although the statute doesn't encompass another test, there is one in the rules for spill prevention. My recollection is that the staff report did not recommend the acceptance of that on the notion that this really not really the type of product that would spill in the traditional sense of the word. But counsel for PGE is correct that that is forth method that is at least envisioned by the rule.

Ms. Saunders

It doesn't just talk about spills, it talks about released too. And if you'll recall the discussion this morning, we have a lot of (indistinguishable) releases such as Tritium from the spent fuel pool. (Indistinguishable.) We think it falls under all three but we think that is the most evident. (Indistinguishable.)

Commissioner Malarkey

We (indistinguishable) motion, person (indistinguishable) made the motion. (Background Talk.)

Chair Eden

I can't hear what you are saying.

Commission Malarkey

Oh, I'm waiting...Tony made the motion (indistinguishable.)

Commissioner Van Vliet

Well, it goes to releases and spills, it changes really what the Department has looked at as their particular interpretation of this. I personally like releases and spills but it doesn't include both air and water. The more narrow interpretation is to look at the water only. And so, I think that so be a decision by the Commission here, which one they want to operate under on this.

Ms. Lottridge

For the record, my name is Helen Lottridge, I'm the Administrator of the Management Services Division for DEQ. Would you want to hear from staff at this point?

Chair Eden

Certainly.

Ms. Vandehey

Considering that the Commission determined that the sole purpose was pollution control...
(Background Talk.)

Ms. Lottridge

Madam Chair, let me clarify, I understood that wanted to know what staff's consideration was as far as the spill portion of the regulation. Is that the clarification that you would like at this point?
(Background Talk.)

Ms. Vandehey

I had asked counsel to help me come up with where the spill portion of the rule was derived. We were not able to tell where the authority came through. Our best guess is that it is a left over from when spills had an eligible component under the pollution control tax credit law. However, that is still a part of the rule. And by that, we thought that spills came under water quality versus under air. And that is why we looked at the water quality component.

Commissioner Van Vliet

And you didn't look at air at all...
(Background Talk.)
...under the release part?

Ms. Vandehey

Yes, we did. However, we could not track back to the authority.

Commissioner Van Vliet

You just tracked the water side.

Ms. Vandehey

That's right because we had clearer indications that it came out under (microphone noise) spills to waters of the state (microphone noise.)

(Indistinguishable. Background Talk.)

Chair Eden

... Well, it's the wish of the Commission probably is that this was the method in the state that probably was applicable. But it sounds to me as though we need a motion.

Counsel
It would be helpful. Otherwise, I will have to suppose when I draft this order. And I would prefer not to.

Commissioner Bennett
I so move.

Ms. Purser
What is he moving?

Chair Eden
Yes, what are you moving? That the method by which the Commission is applying the...

Counsel
... that the sole purpose of pollution control is accomplished by virtue of this being a treatment works by disposing of or eliminating water pollution.

Chair Eden
That would be your motion?

Commissioner Bennett
Yes.

Commissioner Malarkey
I second it.

Chair Eden
Okay, it has been moved and seconded that the rational for meeting the sole purpose test under the previous action by the Commission was under the water pollution portion of the statute.
(Background Talk.)
Do we need a role call again? All those in favor signify by saying "aye." Opposed?

Vote from Written Record
Commissioner Malarkey – aye
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden
Three to two.

(Background Talk.)

Chair Eden
Do you wish to continue? Counsel?

Ms. Lottridge

Thank you counsel. Chair Eden, we appreciate your taking the time to give us that clarification on the actions that were taken this morning. So, we'll move now then to the request, as we understood it, of the Commission that the Department come back with a recommendation on each of the discrete elements of the pollution control facility. And in order to approach that recommendation, the question that needs to be answered is, "Does this distinct portion of the facility make a significant contribution to the sole purpose of pollution control?" So, that's the question really to be asked of each of the distinct portions, each of the six. And so I'm going to ask Maggie to present the Department's recommendation for each of the six elements of the facility. And I think you'll find those six elements listed in your staff report. I'm sorry, I don't have the page number.

Chair Eden

Let me ask a question of Larry first. Should we do a separate motion for each of these distinct components?

Counsel

It would be helpful. I hate to have you take the time but I think it would be helpful.

Chair Eden

Okay. We'll do it that way then.

Ms. Vandehey

We did look at how pollution control was accomplished for each of the distinct portions of the facility.

Number one, we looked at the baskets. The baskets are a clear fit under the pollution control tax credit regulations considering that you determined that the sole purpose of the facility is pollution control. They provide secondary containment of spent fuel, debris, and other radioactive waste. The baskets control industrial waste with the use of a treatment works as allowed in the tax credit regulations and water quality statutes. The reason that it's defined as a treatment works is because it "holds" the waste.

Chair Eden

Questions or comments of staff regarding the baskets? ... Let's do them one-by-one. (Background Talk.)

Commissioner Van Vliet

(Background Talk.)...move to accept the baskets.

Ms. Saunders

Madam Chair (indistinguishable) ...

Chair Eden

Why would you object to this?

Ms. Saunders

We're not objecting. It's just in terms of the process. Our fundamental premise in this is that you can't break it up into individual components. And that you need to look at it as a whole. So, we kind of put together an outline based on that premise. So, if I might ask that we present our whole thing as one piece after they get done and then maybe you vote individually on each component after you've had a chance to see it.

Chair Eden

I'll go along with that but I'm going to give you five minutes at the end of this presentation. Staff.

Ms. Vandehey

Number two - the casks. The casks provided structural support for the baskets. Structural support of pollution control facilities are allowable costs. However, the casks do provide shielding of radiation. Radiation is not a pollutant regulated by DEQ, it's not a pollutant that is eligible under the tax credit regulations. Shielding is required by the NRC (indistinguishable) Siting Council. Therefore, the casks do not have an exclusive pollution control purpose.

Number three – the pad. The pad provides structural support of the cask. However, the casks do not have an "exclusive" pollution control purpose.

Items 4, 5 and 6 -- the vacuum drying system, the welding system and the transfer station are equipment used to install the baskets. It is difficult for us to determine where the pollution control begins and ends. We have brought that before the Commission many times. Where is the beginning and end of a pollution control? Inclusion of items used to install a pollution control facility is beyond current program practices. Upon final application, the Department would not be able to include this equipment because it will no longer be in use at that time – with the facility having been constructed already. These items make an insignificant contribution to the sole and exclusive purpose of water pollution control.

Thank you Madam Chair, Commissioners.

Chair Eden

Is that all you have to say about these individual components? (Indistinguishable.) Okay. Counsel? (Background Talk.) I thought this was going to take a lot longer. They have five minutes

Mr. Quennoz

Okay. I'll improvise here. Madam Chairman, Commissioners. Thanks again for the opportunity to come back and actually present more information with regards to the major components.

Chair Eden

Would you identify yourself again, please for...

Mr. Quennoz

Yes, Steve Quennoz, Portland General Electric. We did take the time to during this interim period to look at the ISFSI major components and we addressed all six of them; the same components that DEQ has mentioned.

I would like to show again a slide or at least talk to you on the Oregon statute regarding insufficient contribution. And it's very clear what level, what threshold is presented by those statute with regard to what is and what is not within the letter of the law regarding insufficient contribution. And again I don't need to mention, it's landscaping and company related signs and things like that. I don't think any of the components associated with this fall into that range.

With that being said, Id' like to go back. The sole purpose again is to prevent pollution all based on integrity. If you provide integrity, you prevent the pollution. So, when we get into baskets, again the baskets I think we are in agreement there. We acknowledge that the baskets meet the disposal definition, that they are considered a treatment works, and they function by providing integrity preventing pollution.

Now the vacuum drying system. It is the next one on your list and it removes water, residual water, evacuates the baskets and also allows, facilitates the helium. All of those are need to provide the integrity of the baskets. Without it, you have corrosion. Without the helium, you have overheating of the pins. High stresses and strains due to (indistinguishable), a phenomenon, it would jeopardize the integrity of the fuel pins if we didn't have the proper thermal coupling.

The welding system again, it's a seal. You need to have that system to provide that seal. Without the seal, without the integrity, you're not preventing pollution.

The storage casks, I do agree that there is a provision there, incorporated in the design with regard to shielding. But the primary purpose of those casks are to provide structural integrity included natural circulation cooling. Without the cooling, you're going to overheat the pins and you're going to have a problem. Without the structural integrity, you're going to have a problem. Again I want to mention that you wouldn't want to have these things unshielded on the lower portion of the sight in a pole barn. It's just not integral to the safety of that system.

The transfer system, something that we use as far, if you consider it a disposal system that it processes the fuel from the reactor building to the pad then also to eventual shipment to a geological repository. Those supporting systems such as the transfer station, such as the transfer casks are all integral to the safe and pollution free handling of that package through that disposal process. We also feel there that the approval of the transfer station won't expand the tax credit program. The Commission has already approved the handling such as the Boardman fly-ash transfer system.

The concrete pad. I'll make the same appeal to logic there. Without that pad, you're subjecting the system to tip-over and other types of events due to external. It would jeopardize the integrity of the package and jeopardize the pollution free nature of it.

So, the conclusion we have, again, I applaud you because I know you are struggling with some policy issues and I know you have concerns with the overall dollar amounts that you are approving. But I think you have been extremely judicious by looking at the statutes and seeing if it meets the statutes and voting on its merit. I just ask you again to please consider these on its merits. And if there is the concern about costs and I would say, and I wouldn't disagree that there is incidental benefits that need to be eliminated by the staff through their return-on-investment calculations. But this is not the process to do it. If you want to be consistent and you want to be fair, you need to understand that all of these work as an integral package. By consistency and fairness, I mean that when you voted for vehicles, for example, you didn't say just the engine, we're going to just allow the tires and headlights. I think you look at insignificant along those lines. You look at it as a package. And I encourage you to do the same way. We've look at other things that have been approved and I think you don't disallow it because of the structural integrity. If you've approved a waste neutralization system, you approved it as a package. The approval was through things of hydraulics and pneumatics and instrumentation and charts. And I think to be consistent and fair, you need to do that here. So, integrity is the only, the primary function of this system we've designed. And all these directly support this.

Chair Eden

Thank you very much.

Commissioner Malarkey

Madam Chair?

Chair Eden

Yes, Ma'am, Commissioner Malarkey.

Commissioner Malarkey

As I see it and I'm not a physicist and I can't give any argument you. But you speak of the structural integrity and the prevention of over-heating. To me these are the elements that are at issue as far as the potential of water pollution. But the very fact that, as Maggie say's, that radiation shielding is not part of the rules, limits us (indistinguishable) how we view (indistinguishable.) Myself, I see three things in here that are acceptable in how I (indistinguishable) but which would limit some of the others in the integrity of (indistinguishable.)

Mr. Quennoz

Yes, I know you're concern there and again, there may be some off-set and balance between integrity and shielding. One follows the other in my mind. I mean, we designed the system for structural integrity, it provides for shielding. Other designs use all metals, for example. And do that for (indistinguishable.) You can use a number of materials. But to have a robust design, you're not going to come up with a package that is much different from what we have here. Because, when we designed it, we designed it strictly for structural considerations and then we go back and analyze it for the shielding effects. Those calculations, we have never have had yet to revise that, the structural design to get adequate shielding.

Chair Eden
Dr. Lei.

Dr. Lei
Wayne Lei, Director of Environmental Policy, Portland General Electric.
I should have addressed that point for you because this is probably one of the most fundamental pieces of confusion about radioactivity and radiation. There is kind of a serious disconnect about how you view these kind of things because if you're worried about the radioactivity, which this certainly contains. Fundamentally, following that, you're worried about the toxic nature of it. And the relatively unique nature of it is the radiation comes off it. That's just the fact of the matter here. And it does make radioactivity a unique pollutant in that regard. It is the only pollutant that I know that has (indistinguishable) that can literally penetrate (indistinguishable.) And that's pretty much what you are worried about. So that (indistinguishable) toxicity. So, you're really worried about one, contain the one, really you have to understand the quality of it (indistinguishable.)

Chair Eden
Other questions or comments? Thank you very much. Then if the Commission is to move forward on this then we need a motion with respect to each of these components that staff has, despite the companies position, that staff has delineated.

Commissioner Van Vliet
I think we have already done number one, the baskets. (Background Talk.)

Chair Eden
We stopped, didn't we?

Counsel
The motion was made. (Background Talk.)

Ms. Purser
I don't have it down.

Chair Eden
I don't think we did baskets, I think we figured out the method of pollution control. So we haven't done any of the components. Is that correct?

Ms. Purser
Yes.

Chair Eden
So, is someone moving to approve?

Commissioner Van Vliet
I'm moving to approve baskets.

Commissioner Malarkey
Second.

Chair Eden
To include baskets under the tax credit application ...

Counsel
I think to make the baskets make are a significant contribution... (Background Talk.

Chair Eden
Do you want to read back Tony's motion to him?

Commissioner Van Vliet
You just said make a significant contribution.

Chair Eden
Okay. All those in favor signify by saying "aye."

Vote from Written Record
Commissioner Malarkey – aye
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden
Number 2 – Casks.

Commissioner Van Vliet
I move that we accept casks as making a significant part of the pollution control.

Chair Eden
Second?

Commissioner Malarkey
Second.

Chair Eden
(Indistinguishable.) Discussions? All those in favor signify by saying "aye." How many is that? Three? Opposed?

Vote from Written Record
Commissioner Malarkey – aye
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden
Pad.

Commissioner Van Vliet
I don't think you can store those things without the pad, Madam Chair. So, I'll move that the pad be accepted (indistinguishable) contribution.

Chair Eden
Contribution?
(Background Talk.)
Is there a second?

Commissioner Bennett
Second.

Chair Eden
Discussion? All those in favor signify by saying "aye." Opposed?

Vote from Written Record
Commissioner Malarkey – no
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden
That one failed, 3-2

Chair Eden
Vacuum-drying system.

Commissioner Van Vliet
Since you're drawing water out of there, Madam Chair. I move that we accepted the vacuum drying system as part of the significant purpose.

Chair Eden
Is there a second?

Commissioner Malarkey
Second.

Chair Eden
Discussion? All those in favor signify by saying "aye." Opposed?

Vote from Written Record

Commissioner Malarkey – aye
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden

Transfer station.

Commissioner Van Vliet

(Indistinguishable) from "A" to "B", Madam Chair. I move that the transfer station is part of the significant process.

Chair Eden

Is there a second?

Commissioner Bennett

Second.

Chair Eden

Discussion? All those in favor signify by saying "aye." Opposed?

Vote from Written Record

Commissioner Malarkey – no
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden

That one failed. The welding system.

Commissioner Van Vliet

(Indistinguishable.) Madam Chair, without putting the lid on, I move that we accept it as part of the process.

Chair Eden

Is there a second?

Commissioner Malarkey

Second.

Chair Eden

Discussion? All those in favor signify by saying "aye." Opposed?

Vote from Written Record

Commissioner Malarkey – aye
Commissioner Van Vliet – aye
Commissioner Reeve – no
Commissioner Bennett – aye
Chair Eden – no

Chair Eden

That one passed. Is there anything more to be decided, or discussed or be asked about, or voted upon?

Counsel

Only one more, I'm afraid. I need to have you decide if you want to do the order or if you would like to delegate the Director to sign the order on this since there is possibility of appeal we want to prepare a formal written order.

Chair Eden

I'd like to see the order.

Counsel

So, we'll bring it back at the next meeting.

Chair Eden

Yes. Tony wants to see it, too.

Commissioner Van Vliet

In writing that order, I think there ought to be some wording in there that we were dealing with a special kind of pollution in this particular case that would somewhat explain why we deviated probably from the strict interpretation of some of the previous interpretation of the statute.

Chair Eden

Commissioner Bennett

Commissioner Bennett

Would you just review quickly, what we did and didn't pass (indistinguishable)?

Counsel

My understanding is that the Commission determined that this was a sole purpose pollution control facility. It accomplishes pollution control as a water pollution treatment works. That baskets, casks and vacuum drying systems were significant components but that the pad, transfer station and welding system were not.
(Background Talk)

Chair Eden

No, the welding system was approved as making a significant contribution.

Counsel

I'm sorry. Yes, the transfer system and the pad were not. (Indistinguishable.)

An aside on the order denying of the Willamette Industries tax credit ensued.

Chair Eden

This was a difficult decision, we appreciate your coming down here and arguing with us about it. (Indistinguishable) your information, it's very helpful. We don't always decide what you want us to and sometimes we do. This is a first, in my tenure on this Commission.

Mr. Quennoz

I'd just like to equally extend the company's gratitude. In my observation, this is the first time I've been before this Commission. And I'm very impressed with your deliberations and time (indistinguishable) time you've taken. Thank you for all consideration on this (indistinguishable.)

Chair Eden

Yes, and thank you for the materials. I think they were quite helpful.

Excerpt from Pertinent Regulations

468.155 Definitions for ORS 468.155 to 468.190 and 468.962.

(1)(a) As used in ORS 468.155 to 468.190 and 468.962, unless the context requires otherwise, "pollution control facility" or "facility" means any land, structure, building, installation, excavation, machinery, equipment or device, or any addition to, reconstruction of or improvement of, land or an existing structure, building, installation, excavation, machinery, equipment or device reasonably used, erected, constructed or installed by any person if:

(A) The principal purpose of such use, erection, construction or installation is to comply with a requirement imposed by the Department of Environmental Quality, the federal Environmental Protection Agency or regional air pollution authority to prevent, control or reduce air, water or noise pollution or solid or hazardous waste or to recycle or provide for the appropriate disposal of used oil; or

(B) The sole purpose of such use, erection, construction or installation is to prevent, control or reduce a substantial quantity of air, water or noise pollution or solid or hazardous waste or to recycle or provide for the appropriate disposal of used oil.

(b) Such prevention, control or reduction required by this subsection shall be accomplished by:

(A) The disposal or elimination of or redesign to eliminate industrial waste and the use of treatment works for industrial waste as defined in ORS 468B.005;

(B) The disposal or elimination of or redesign to eliminate air contaminants or air pollution or air contamination sources and the use of air cleaning devices as defined in ORS 468A.005;

(C) The substantial reduction or elimination of or redesign to eliminate noise pollution or noise emission sources as defined by rule of the Environmental Quality Commission;

(D) The use of a material recovery process which obtains useful material from material that would otherwise be solid waste as defined in ORS 459.005, hazardous waste as defined in ORS 466.005, or used oil as defined in ORS 459A.555; or

(E) The treatment, substantial reduction or elimination of or redesign to treat, substantially reduce or eliminate hazardous waste as defined in ORS 466.005.

468.167 Application for pre-certification.

(1) Any person proposing to apply for certification for tax relief under ORS 468.155 to 468.190 and 468.962 may apply, before the completion of a pollution control facility, for pre-certification of the facility with the Environmental Quality Commission.

(2)(a) The application shall be made in writing in a form prescribed by the Department of Environmental Quality. The application shall contain the following information:

(A) A statement of the purpose of prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or recycling or appropriate disposal of used oil served or to be served by the facility.

(B) A description of the materials for incorporation into the facility or incorporated into the facility, machinery and equipment to be made or made a part of the facility and the proposed or existing operational procedure of the facility.

(C) Any further information the Director of the Department of Environmental Quality considers necessary before pre-certification is issued.

(b) The application need not contain information on the actual cost of the facility or the portion of the actual cost properly allocable to the prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or to recycling or appropriately disposing of used oil.

(c) The application shall be accompanied by a fee as provided under ORS 468.165(5). The fee may be refunded if the application for preliminary certification is rejected.

(3) If the commission determines that the person and the pollution control facility will be eligible for tax relief under ORS 307.405 or 315.304 if the facility is erected, constructed, reconstructed, added to, installed, improved or used in accordance with the application for pre-certification, the commission shall pre-certify the facility by approving the application.

(4) If the facility is erected, constructed, reconstructed, added to, installed, improved or used as proposed in the application for pre-certification, the commission's approval of the application shall be prima facie evidence that the facility is qualified for certification for tax relief under ORS 468.170. However, pre-certification shall not ensure that a facility erected, constructed, reconstructed, added to, installed, improved or used by the pre-certified person will receive certification under ORS 468.170 or tax relief under ORS 307.405 or 315.304.

(5) If the commission fails or refuses to pre-certify a person and facility, the person may appeal as provided in ORS 468.170(3).

[1995 c.746 §6]

468.170 Action on application; rejection; appeal; issuance of certificate; certification.

(4)(a) The commission shall certify a pollution control, solid waste, hazardous waste or used oil facility or portion thereof, for which an application has been made under ORS 468.165, if the commission finds that the facility:

(A) Was erected, constructed or installed in accordance with the requirements of ORS 468.165 (1);

(B) Is designed for, and is being operated or will operate in accordance with the requirements of ORS 468.155; and

(C) Is necessary to satisfy the intents and purposes of ORS 454.010 to 454.040, 454.205 to 454.255, 454.505 to 454.535, 454.605 to 454.755, ORS chapters 459, 459A, 466 and 467 and ORS chapters 468, 468A and 468B and rules thereunder.