Oregon Department of Environmental Quality

September 16, 2019

Notice of Proposed Rulemaking

Willamette Basin Mercury Multiple Discharger Variance and Amendments to Variance Authorization Rule

Table of Contents

Introduction 2
Overview 4
Statement of need 6
Rules affected, authorities, supporting documents 7
Fee Analysis 11
Statement of fiscal and economic impact 12
Federal relationship 17
Land use 18
Stakeholder and public involvement 19
Public notice and hearings 20

Introduction

DEQ invites public input on proposed permanent rule amendments to its administrative rules.

Background

A variance is a regulatory tool under the Clean Water Act to address circumstances in which a water quality standard is not currently attainable and limits derived based on the applicable standards are not currently achievable for dischargers, but it is possible to make incremental progress toward meeting the standard. A variance is a temporary designated use and criterion for a specific pollutant that applies to a specific discharger or dischargers or waterbody.

In cases where multiple dischargers cannot attain water quality based effluent limits for the same pollutant and due to the same justification factor, DEQ may develop a multiple discharger variance. A MDV is an amendment to water quality standards rules that provides a variance for multiple eligible dischargers. Once the U.S. Environmental Protection Agency approves the MDV, DEQ can include requirements associated with the MDV in permits for eligible facilities without additional EPA approval.

DEQ is proposing rule amendments that establish a multiple discharger variance for mercury in the Willamette Basin for individual NPDES permittees that cannot currently meet mercury water quality based effluent limits. This rule is needed because human-caused sources of mercury, primarily due to atmospheric deposition of global mercury, currently prevent attaining the human health water quality criterion for mercury. The purpose of the variance is to create a transparent tool, as authorized under the Clean Water Act, that allows incremental progress in reducing mercury. This document describes DEQ's justification for the MDV and proposed procedures for issuing permits and establishing variance requirements, as federal and state rules for variances require.

The federal government adopted variance regulations (40 C.F.R. §131.14) in 2015. DEQ last substantially revised Oregon regulations regarding variances (OAR 340-041-0059) in 2011. In addition to adopting a specific rule to authorize and describe the process for granting MDVs to dischargers in the Willamette Basin, DEQ is proposing amendments to the state's general variance rules to make them consistent with the federal regulations.

DEQ proposal

DEQ proposes the following changes to OAR 340, division 41:

- Amend state variance authorization rules (OAR 340-041-0059) to be consistent with federal variance rules; and
- Establish a multiple discharger variance for methylmercury that applies to eligible permitted dischargers in the Willamette Basin and that will, over time, lead to reductions in mercury concentrations in wastewater discharging to waters of the Willamette Basin.

More information

Information about this rulemaking is on this rulemaking's web page:
https://www.oregon.gov/deq/wq/Pages/Willamette-Basin-Mercury-Variance.aspx

Public Hearings

DEQ will hold a public hearing on this rulemaking as detailed below.

The hearing will be held jointly in Portland and Eugene on October 22, 2019 beginning at 4 p.m. DEQ staff will provide a brief presentation on the rulemaking proposal before taking public comments. The hearings will be held at the following locations:

DEQ Headquarters, 3rd floor, L700 Conference Room
700 NE Multnomah St.
Portland, OR 97232

DEQ Eugene Office
165 E 7th Ave., #100 (Willamette Conference Room)
Eugene, OR 97401

How to comment on this rulemaking proposal

DEQ is asking for public comment on the proposed rules. Anyone can submit comments and questions about this rulemaking. A person can submit comments through email, by regular mail, or at the public hearing.

Comment deadline

DEQ will only consider comments on the proposed rules that DEQ receives by 4:00 p.m. on November 4, 2019.

Submit comment by email

Comments may be submitted by email to mercury2019@deq.state.or.us.

Note for public university students:

ORS 192.501(29) allows Oregon public university and OHSU students to protect their university email addresses from disclosure under Oregon's public records law. If you are an Oregon public university or OHSU student you may omit your email address when you submit comments.

By mail

Oregon DEQ
Attn: Aron Borok
700 NE Multnomah St.
Portland, OR 97232

At hearing

October 22, 2019.

You can also participate in the hearing through a teleconference or webinar.

Teleconference call-in number: 888-363-4974
Participant ID: 1910322
Webinar link (webinar has no audio, you must listen on the teleconference):
https://www.teleconference.att.com/servlet/AWMlogin

How to join the teleconference or webinar: Teleconference and Webinar instructions

Sign up for rulemaking notices

Get email or text updates about this rulemaking by signing up through this link: Willamette Mercury Variance Rulemaking Email List; or on the rulemaking web site: Willamette Mercury Variance Web Page.

Get email or text updates about other, future DEQ rulemaking by signing up through this link: DEQ Email Notice List.

What will happen next?

DEQ will include a written response to comments in a staff report DEQ will submit to the Environmental Quality Commission. DEQ may modify the rule proposal based on the comments.

Present proposal to the EQC

Proposed rules only become effective if the Environmental Quality Commission adopts them and U.S. EPA subsequently approves them. DEQ plans to present the proposed rules to the commission for a decision as soon as is practical after the public hearing. After adoption, DEQ will submit the rules to EPA for approval. Under federal statute, EPA has up to 60 days to approve the rules and up to 90 days to disapprove them.

Accessibility information

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

Overview

Short summary

DEQ proposes the Oregon Environmental Quality Commission approve the proposed amendments to the variance authorization rule at OAR 340-041-0059 and associated amendments to OAR 340-041-0002 (Definitions).

DEQ proposes the Oregon Environmental Quality Commission approve the proposed amendments to OAR 340-041-0345 establishing a multiple discharger variance to the human health methylmercury criterion in the Willamette Basin.

Regulated parties

Proposed amendments to the variance authorization rule apply to any permitted discharger who needs to obtain a water quality standards variance from DEQ.

The proposed MDV rules apply to permitted wastewater dischargers in the Willamette Basin that would otherwise have water quality based effluent limits for mercury that are not feasibly achievable.

Request for other options

During the public comment period, DEQ requests public comment on whether to consider other options for achieving the rules' substantive goals while reducing the rules' negative economic impact on business.

Statement of need

Variance Authorization Rule

What need would the proposed rule address?

The proposed rule amendments ensure the state variance authorization rule is consistent with the more recently promulgated federal variance rule (2015). In addition, the amendments clarify the variance rules by providing authority to the Environmental Quality Commission to grant multiple discharger and waterbody variances.

How would the proposed rule address the need?

The proposed rule includes language identical or similar to the federal variance rule and removes language that is inconsistent with the federal rule or unnecessary. The rules would give the EQC the authority to grant multiple discharger and waterbody variances.

How will DEQ know the rule addressed the need?

DEQ will know the rule addressed the need if EPA approves the rule language.

Multiple Discharger Variance for Mercury in the Willamette Basin

What need would the proposed rule address?

The proposed rule will address the need to reduce loads of mercury from wastewater dischargers in the Willamette Basin while also facilitating DEQ's ability to issue permits in a timely manner and provide permit requirements that are achievable if the facilities are well-operated.

How would the proposed rule address the need?

The MDV rule addresses this need by modifying the water quality standard for methylmercury as it applies to permitted dischargers for a limited duration. The rule does not modify the underlying water quality standard as it applies to other water quality programs. The rule requires dischargers permitted under the variance to develop and implement a mercury minimization plan that will result in mercury reductions. In addition, it requires DEQ to establish effluent limits equal to what the discharger can currently achieve to prevent degradation. The rule requires DEQ to update these permit limits based on recent facility data during renewal of any permit.

How will DEQ know the rule addressed the need?

DEQ will know the rule addresses the need if the agency is able to issue permits with variance-related requirements in a timely manner and with achievable permit limits. DEQ will also know that the rule addresses the need through a re-evaluation of the highest attainable condition, which must be conducted every five years in accordance with federal requirements and will allow DEQ to measure progress in reducing mercury from wastewater dischargers in the Willamette Basin. This analysis will include reviewing technology to determine if there are improvements that make mercury removal more feasible. The review also will entail analysis of mercury data from

wastewater dischargers covered under the variance to determine if mercury levels have decreased. The public will have an opportunity to review and comment on this analysis before DEQ submits a final version to the U.S. EPA.

Rules affected, authorities, supporting documents

Lead division
Water Quality
Program or activity
Standards and Assessment
Chapter 340 action

Amend - OAR

340-041-0002 340-041-0059 340-041-0345

Statutory authority - ORS

468.020 468B.010 468B.015 468B.020 468B.030
468B.035 468B.048 468B.110

Statute implemented - ORS

468B.035 468B.048

Documents relied on for rulemaking

Document title	Document location
EPA Methylmercury Criteria documents.	https://www.epa.gov/wqc/human-health-criteria-methylmercury
Oregon DEQ. Draft Willamette Basin Mercu TMDL. 2019.	https://www.oregon.gov/deq/wq/tmdls/Pages/illhgtmdlac2018.aspx
Tetra Tech, 2019. Mercury TMDL Development for the Willamette River Basin (Oregon) – Technical Support Document (Public Review Draft). Prepared for Oregon Department of Environmental Quality and U.S. EPA Region 10. 162 pp.	https://www.oregon.gov/deq/FilterDocs/wbmtmdl042019mm.pdf

Oregon DEQ. Statewide Aquatic Tissue Toxics Assessment Report. 2017.	http://www.oregon.gov/deq/FilterDocs/wqmtissueaq.pdf
U.S. Environmental Protection Agency. 2010. Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion. Office of Science and Technology. Washington, DC. EPA 823-R-10-001. 221 pp.	https://www.epa.gov/wqc/guidance-implementing-january-2001-methylmercury-water-quality-criterion
U.S. EPA. 2007. Treatment Technologies for Mercury in Soil, Waste, and Water. Office of Superfund Remediation and Technology Innovation.	https://clu-in.org/download/remed/542r07003.pdf
U.S. Environmental Protection Agency. 2008. Municipal Nutrient Removal Technologies Reference Document. Office of Wastewater Management, Municipal Support Division, Municipal Technology Branch. EPA 832-R-08-006. 449 pp.	https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100GE8B.TXT
U.S. Environmental Protection Agency. 2014. *Water Quality Standards Handbook, Chapter 5: General Policies*. Office of Water. EPA 820-B-14-004.	https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter5.pdf
Amos et al, 2013. Legacy impacts of all-time anthropogenic emissions on the global mercury cycle. BIOGEOCHEMICAL CYCLES, VOL. 27, 410–421, doi:10.1002/gbc.20040	DEQ Offices
Eagles-Smith et al. 2018. Modulators of mercury risk to wildlife and humans in the context of rapid global change. *Ambio, 47*, 170-197.	DEQ Offices
Eagles-Smith et al. 2016. Spatial and temporal patterns of mercury concentrations in freshwater fish across the Western United States and Canada. Science of the Total Environment. 568:1171-1184.	DEQ Offices
Mercury Deposition Network studies	http://nadp.slh.wisc.edu/mdn/
California EPA, Regional Water Quality Control Board, Central Valley Region. 2010. Staff Report: A Review of Methylmercury and Inorganic Mercury	https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/other_technical_reports/npdes_mehg_final_rpt.pdf

Discharges from NPDES Facilities in California's Central Valley.	
Mercury effluent data from pre-treatment wastewater treatment plants in Oregon	DEQ Offices
Ohio Environmental Protection Agency. 1997. Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Economy.	https://dnr.wi.gov/topic/wastewater/documents/OhioEPAstudy.pdf
Treatment Technology Review and Assessment, Association of Washington Businesses, HDR, Dec. 2013.	https://www.awb.org/file_viewer.php?id=2903
Michigan Department of Environmental Quality. 2015. Mercury Multiple Discharge Variance Document.	https://www.michigan.gov/documents/deq/wrd-npdes-rules-MercuryVariance2015_2019_508884_7.pdf
Urgun-Demirtas et al. 2013. Achieving the Great Lakes Initiative Mercury Limits in Oil Refinery Effluent. Water Environment Research 85(1): 77-86.	DEQ Offices
Hollerman, et al. 1999. Results from the low level mercury sorbent test at the Oak Ridge Y-12 Plant in Tennessee. Journal of Hazardous Materials B68:193-203.	DEQ Offices
Wisconsin NPDES discharger mercury analysis	DEQ Offices
Influent data from Major Wastewater Treatment Plans in Minnesota	DEQ Offices
Electric Power Research Institute and Water Research Foundation. 2013. Electricity Use and Management in the Municipal Water Supply and Wastewater Industries.	http://www.allianceforwaterefficiency.org/WorkArea/DownloadAsset.aspx?id=8695
AECOM. 2015. Chloride Compliance Study Nine Springs Wastewater Treatment Plant Final Report	https://www.madsewer.org/Portals/0/ProgramInitiatives/ChlorideReduction/MMSD%20Chloride%20Compliance%20Study%20Report%20-%20Final%206-19-15bookmarks.pdf
Oregon Department of Environmental Quality, 2010. Internal Management Directive: Implementation of Methylmercury Criterion in NPDES Permits.	https://www.oregon.gov/deq/Filtered%20Library/IMDmethylmercuryCriterion.pdf

Chetelat et al. 2015. Mercury in freshwater ecosystems of the Canadian Arctic: Recent advances on its cycling and fate. *Science of the Total Environment, 509*, 41-66.	DEQ Offices
City of Oshkosh, Wisconsin. 2018. Mercury Source Identification and Reduction Efforts	DEQ Offices
Stevens Point Public Utilities. 2018. Mercury Source Identification and Control PMP.	DEQ Offices
Driscoll et al. 2007. Mercury contamination in forest and freshwater ecosystems in the Northeastern United States. Bioscience, 57, 17-28.	DEQ Offices
Fitzgerald et al. 1998. The case for atmospheric mercury contamination in remote areas. *Environmental Science and Technology, 32*, 1-7.	DEQ Offices
Hall, B et al. 1997. Food as the dominant pathway of methylmercury uptake by fish. *Water, Air and Soil Pollution, 100*, 13-24.	DEQ Offices
Lindberg et al. 2007. A synthesis of progress and uncertainties in attributing the sources of mercury in deposition. *Ambio, 36*, 19-32.	DEQ Offices
Munthe et al. 2007. Recovery of mercury-contaminated fisheries. *Ambio, 36*, 33-44.	DEQ Offices
Schroeder, W., & Munthe, J. 1998. Atmospheric mercury -- An overview. *Atmospheric Environment, 30*, 809-822.	DEQ Offices
Trip, L., & Allan, R. 2000. Sources, trends, implications and remediation of mercury contamination of lakes in remote areas of Canada. *Water Science and Technology, 42*, 171-176.	DEQ Offices

Fee Analysis

This rulemaking does not involve fees.

Statement of fiscal and economic impact

Fiscal and Economic Impact

DEQ does not expect that the changes to the variance authorization rule will have any fiscal or economic impact, as these changes are simply ensuring that DEQ's variance rules are consistent with federal rules. They do not otherwise change any corresponding effort needed for developing a variance, as this effort will be required in any case.

The primary impact of the proposed rules is to make the process of obtaining a variance for wastewater dischargers in the basin efficient. Without the MDV, each individual discharger that would otherwise have unattainable water quality based effluent limits for mercury would have to apply for an individual variance, even though the justification for each variance is similar across all permittees. Individual variances would be resource intensive for the permit holder, DEQ staff, and the U.S. Environmental Protection Agency, which must approve each individual variance. By developing an MDV, DEQ only has to justify the need for the variance and obtain EPA approval one time. Obtaining coverage under the variance will still require some effort from both permit holders and DEQ staff, but it will require less effort than applying for individual variances.

These rules could impact facilities with National Pollutant Discharge Elimination System permits to discharge wastewater into the Willamette Basin. The rules also could impact holders of minor NPDES permits in industries that have the potential to discharge mercury. At this time, DEQ has identified a total of 23 major municipal NPDES dischargers and no more than eight industrial wastewater dischargers that these rules could affect. These numbers could change as communities grow larger and some minor municipal NPDES dischargers expand their flow volumes to become major dischargers.

The proposed rules will impact DEQ staff, particularly permitting staff, who will be responsible for including variance requirements into the permit of any discharger wishing to be covered under the MDV. However, this would also be the case if permittees pursued individual variances in this rule's absence. The proposed rules also will require a re-evaluation of the highest attainable condition every five years, consistent with federal variance regulations. This re-evaluation will require effort from both water quality standards staff and permitting staff. Without the proposed rules, DEQ would have to do a re-evaluation of the Highest Attainable Condition for each individual permittee obtaining a variance, assuming the variance lasted longer than a permit cycle. If the variance only lasted a permit cycle, DEQ staff would have to work with the permittee to reapply for the variance every five years. This would likely be even more burdensome and happen as each permit is renewed. Therefore, the proposed rules will likely save effort from DEQ staff overall.

Statement of Cost of Compliance

DEQ expects the cost of compliance with these rules to be the same as the same as the cost of compliance were these rules not adopted. Without the rules in place, each facility that could not meet water quality based effluent limits for mercury would need to apply for an individual variance. Permit limits for mercury will be the same, whether done through individual variances or an MDV, as DEQ expects it would use the same methodology to calculate these limits in either instance. Moreover, required sampling would be the same whether under individual variances or an MDV.

State agencies

DEQ

Direct Impacts

The proposed rules will require additional effort for DEQ permitting staff to ensure that permittees have provided all required documentation needed for coverage under the MDV and to incorporate variance-related permit requirements into the permit. DEQ is already developing permitting tools for individual mercury variances. Once DEQ finalizes these tools, such work should require no more than a few hours to calculate the basis for permit limits.

However, without the MDV rules in place, permittees would have to apply for individual variances. Individual variances would also require additional staff time because the justification for the variance would need to be made for each facility. As a result, the proposed rules will result in less time per permit than not having the rules in place.

The proposed rules will require DEQ staff to conduct a review of the highest attainable condition under the variance every five years. However, DEQ would either have to do an HAC re-evaluation for each facility for individual variances, or only issue individual variances for five years. In either case, the HAC would have to be re-evaluated for each facility. Thus, HAC re-evaluation is more efficient under an MDV than using individual variances.

Indirect Impacts

DEQ does not expect indirect impacts from the proposed rules.

Local governments

Direct Impacts

The proposed rules will have a positive impact on local government, as compared to not having the rules in place. The proposed rules will ensure that local governments operating wastewater treatment plants that discharge effluent into waters of the Willamette Basin have a means for complying with effluent limits for mercury. Without the MDV available, local governments would have to apply for individual variances, which can be a lengthy process, and require each government to justify the variance under federal and state rules. The MDV would save the extra effort needed to justify each individual variance and wait for approval

for the variance from EPA. DEQ cannot quantify exactly how much effort the MDV will save as compared to an individual variance, as that would likely vary for each facility.

Indirect Impacts

DEQ does not anticipate indirect impacts from the proposed rules.

Public

Direct Impacts

DEQ does not expect direct impacts to the public from the rules.

Indirect Impacts

The public will benefit indirectly from the proposed rules. The proposed rules will likely save local government additional effort needed to apply for individual variances, which will potentially have a small impact on the cost associated with applying for a variance. Such an impact will likely be small.

Large businesses - businesses with more than 50 employees

Direct Impacts

Impacts to large businesses will be similar to that of local governments. The proposed rules will ensure that any large businesses that discharge wastewater into waters of the Willamette Basin have a means for complying with effluent limits for mercury. Without the MDV available, large businesses would have to apply for individual variances, which can be a lengthy process. The MDV would save extra effort needed to justify each individual variance and wait for approval for the variance from EPA. DEQ cannot quantify exactly how much effort the MDV will save as compared to an individual variance, as that will likely vary for each facility.

Indirect Impacts

DEQ does not expect indirect impacts to large businesses.

Small businesses – businesses with 50 or fewer employees

To the extent that there are any small businesses that would be covered under the MDV, impacts to small businesses will be similar to that of large governments. The proposed rules will ensure that any large businesses that discharge wastewater into waters of the Willamette Basin have a means for complying with effluent limits for mercury. Without the MDV available, small businesses would have to apply for individual variances, which can be a lengthy process. The MDV would save extra effort needed to justify each individual variance and wait for approval for the variance from EPA. DEQ cannot quantify exactly how much effort the MDV will save as compared to an individual variance, as that will likely vary for each facility.

Indirect Impacts

DEQ does not expect indirect impacts to small businesses.

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

The rule could impact small businesses from the following industries and which have permits to discharge wastewater to the Willamette River.

- timber products;
- paper products;
- chemical products;
- glass/clay/cement/concrete/gypsum products;
- primary metal industries;
- fabricated metal products; and
- electronics and instruments.

There are currently no more than 20 businesses that could be impacted by the proposed rule. It is likely fewer as many of these likely would not otherwise have water quality based effluent limits for mercury. Four of these are small businesses based on 2015 Oregon Employment Department data.

b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

No additional resources are required for compliance with the proposed rules. All small businesses who would receive coverage under the MDV would otherwise need to comply with similar rules for individual variances.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.

No additional resources are required for compliance with the proposed rules. All small businesses who would receive coverage under the MDV would otherwise need to comply with similar rules for individual variances.

d. Describe how DEQ involved small businesses in developing this proposed rule.

DEQ included small business representatives on the Willamette Basin Mercury Multiple Discharger Variance Advisory Committee that reviewed the fiscal impact statement. This included representatives of the Oregon Business and Industry and the Oregon Association of Nurseries. DEQ also provided rulemaking notice to any small business signed up for water quality standards rulemaking notices.

Documents relied on for fiscal and economic impact

Document title	Document location
Oregon Department of Employment 2015 data	Employment Department 875 Union Street NE Salem OR 97311

Advisory committee

DEQ appointed an advisory committee.

As ORS 183.333 requires, DEQ asked for the committee's recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant adverse impact on small businesses; if so, then how DEQ can comply with ORS 183.540 reduce that impact.

The committee reviewed the draft fiscal and economic impact statement and documented its recommendations in approved meeting summary and supplemental materials for the June 3, 2019 meeting, available at the following website: https://www.oregon.gov/deq/Regulations/rulemaking/Pages/rmercury2019.aspx.

The committee provided minor corrections to the fiscal impact statement, but did not find that there would be a significant adverse impact on small business. One advisory committee member expressed concern about increased cost of sampling under the proposed rule. DEQ clarified that these costs would be incurred whether or not the proposed rule was in place.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. DEQ determined the proposed rules would have no effect on the development costs because these rules do not apply to developers or any materials related to housing construction.

Federal relationship

Relationship to federal requirements

ORS 183.332, 468A.327 and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

The proposed rules would adopt federal requirements for variances that are found at 40 C.F.R. §131.14 and requirements related to public hearings at 40 C.F.R. Part 25.

The proposed rules adopt procedures for a multiple discharger variance that are in accordance with federal requirements.

Land use

Land-use considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with state wide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
    - Resources, objectives or areas identified in the statewide planning goals, or
    - Present or future land uses identified in acknowledged comprehensive plans

To determine whether the proposed rules involve programs or actions that affect land use, DEQ reviewed its Statewide Agency Coordination plan, which describes the DEQ programs that have been determined to significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Open Spaces, Scenic and Historic Areas, and Natural Resources
6	Air, Water and Land Resources Quality
11	Public Facilities and Services
16	Estuarial Resources
19	Ocean Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that these proposed rules do not affect land use under OAR 340-018-0030 or DEQ's State Agency Coordination Program.

Stakeholder and public involvement

Advisory committee

Background

DEQ convened the Willamette Basin Mercury Multiple Discharger Variance advisory committee. The committee included representatives from individual municipal and industrial dischargers, environmental groups, fishing groups, Tribes, and nonpoint sources and met six times. The committee's web page is located at: https://www.oregon.gov/deq/Regulations/rulemaking/Pages/rmercury2019.aspx.

The committee members were:

Willamette Basin Mercury MDV Rulemaking Advisory Committee	
Name	**Representing**
Stephanie Eisner	Association of Clean Water Agencies (Meetings 1-2)
Chandra Ferrari	Trout Unlimited
Raj Kapur	Association of Clean Water Agencies (Alternate)
Michael Karnosh	Confederated Tribes of Grand Ronde
Allison Laplante	Earthrise Law Center
Todd Miller	Association of Clean Water Agencies (Meetings 3-6)
Sharla Moffett	Oregon Business and Industry
Donna Schmitz	Benton County Soil and Water Conservation District
Jeff Stone	Oregon Association of Nurseries
Kathryn VanNatta	Northwest Pulp and Paper Association

Meeting notifications

To notify people about the advisory committee's activities, DEQ:

- Sent GovDelivery bulletins, a free e-mail subscription service, to the following lists:
    - Rulemaking
    - Water Quality Standards
- Added advisory committee announcements to DEQ's calendar of public meetings at DEQ Calendar.
- Provided notice of meetings and links to committee information through postings on Facebook and Twitter.

Committee discussions

In addition to the recommendations described under the Statement of Fiscal and Economic Impact section above, the committee provided input on: 1.) the justification for the variance; 2.) variance requirements, including the term of the variance, the expression of the highest attainable condition and the HAC re-evaluation process; and 3.) variance application procedures and how DEQ will incorporate permit conditions based on the variance. The advisory committee also provided input on proposed amendments to the variance authorization rule and the rule establishing the multiple discharger variance for mercury in the Willamette Basin. Supporting materials and summaries of committee discussions are documented on the committee's webpage at: https://www.oregon.gov/deq/Regulations/rulemaking/Pages/rmercury2019.aspx.

EQC prior involvement

DEQ shares general rulemaking information with EQC through the Director's Report at EQC meetings.

DEQ shared information about this rulemaking with the EQC through informational items on the November 16, 2018 and January 25, 2019 EQC agendas.

Public notice and hearings

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearing on September 16, 2019 by:

- Filing notice with the Oregon Secretary of State for publication in the October Oregon Bulletin;
- Notifying the EPA by mail;
- Posting the Notice and Draft Rules on the web page for this rulemaking, located at: https://www.oregon.gov/deq/Regulations/rulemaking/Pages/rmercury2019.aspx
- Emailing interested parties on the following DEQ lists through GovDelivery:
    - Rulemaking
    - Water Quality Standards

- Emailing 19 stakeholders on the Willamette Mercury MDV Advisory Committee and Interested Parties list.
- Emailing the following key legislators required under ORS 183.335:
    - Senator Michael Dembrow, Chair, Senate Interim Committee on Environment and National Resources

    - Senator Alan Olsen, Vice-Chair, Senate Interim Committee on Environment and National Resources
    - Beth Patrino, LPRO Analysis, Senate Interim Committee on Environment and National Resources
    - Representative Karin Power, Chair, House Interim Committee on Energy and Environment
    - Representative E. Werner Reschke, Vice-Chair, House Interim Committee on Energy and Environment
    - Representative Janeen Sollman, Vice-Chair, House Interim Committee on Energy and Environment
    - Representative Ken Helm, Chair, House Interim Committee on Water
    - Representative Gary Leif, Vice-Chair, House Interim Committee on Water
    - Representative Jeff Reardon, Vice-Chair, House Interim Committee on Water
    - Misty Freeman, LPRO Analyst, House Interim Committee on Energy and Environment and House Interim Committee on Water
- Emailing advisory committee members,
- Postings on Twitter and Facebook
- Posting on the DEQ event calendar: DEQ Calendar

Public hearings

DEQ plans to hold one public hearing to be held simultaneously in Portland and Eugene. The details are listed below. Anyone can attend a hearing in person, or by webinar or teleconference.

DEQ will consider all written comments received at the hearings listed below before completing the draft rules. DEQ will summarize all comments and respond to comments in the Environmental Quality Commission staff report.

Hearing 1	
Date	October 22, 2019
Time	4 p.m.
Street Address	700 NE Multnomah St., 3rd floor, L700 Conference Room
City	Portland, OR 97232
Staff Presenter	Aron Borok
Call-in Phone Number	888-363-4734
Participant ID	1910322
Webinar Link	https://www.teleconference.att.com/servlet/AWMlogin
Instructions on how to access webinar and teleconference	Teleconference and Webinar instructions

Hearing 2	
Date	October 22, 2019
Time	4 p.m.
Street Address	165 E. 7th Ave., #100 (Willamette Conference Room)
City	Eugene, OR 97401
Staff Presenter	Aron Borok
Call-in Phone Number	888-363-4734
Participant ID	1910322
Webinar Link	https://www.teleconference.att.com/servlet/AWMlogin
Instructions on how to access webinar and teleconference	Teleconference and Webinar instructions

How to comment on the proposed rules:

Submit comment online

Comments can be submitted to this email address: mercury2019@deq.state.or.us

Note for public university students:

ORS 192.501(29) allows Oregon public university and OHSU students to protect their university email addresses from disclosure under Oregon's public records law. If you are an Oregon public university or OHSU student you may omit your email address when you submit a comment.

By mail

Oregon DEQ
Attn: Aron Borok
700 NE Multnomah St.
Portland, OR 97232-1390

At the hearing

Close of public comment period

The comment period will close at 4:00 p.m. on November 4, 2019.

Key to Identifying Changed Text:

~~Deleted Text~~
New/inserted text
~~Text deleted from one location~~ - and moved to another location

DEPARTMENT OF ENVIRONMENTAL QUALITY

340-041-0002
Definitions

Definitions in this rule apply to all basins unless context requires otherwise.

(1) "401 Water Quality Certification" means a determination made by DEQ that a dredge and fill activity, private hydropower facility, or other federally licensed or permitted activity that may result in a discharge to waters of the state has adequate terms and conditions to prevent an exceedance of water quality criteria. The federal permit in question may not be issued without this state determination in accordance with the Federal Clean Water Act, section 401 (33 USC 1341).

(2) "Ambient Stream Temperature" means the stream temperature measured at a specific time and place. The selected location for measuring stream temperature must be representative of the stream in the vicinity of the point being measured.

(3) "Anthropogenic," when used to describe "sources" or "warming," means that which results from human activity.

(4) "Applicable Criteria" means the biologically based temperature criteria in OAR 340-041-0028(4), the superseding cold water protection criteria in 340-041-0028(11) or the superseding natural condition criteria in 340-041-0028(8). The applicable criteria may also be site-specific criteria approved by U.S. EPA. A subbasin may have a combination of applicable temperature criteria derived from some or all of these numeric and narrative criteria.

(5) "Appropriate Reference Site or Region" means a site on the same water body or within the same basin or ecoregion that has similar habitat conditions and represents the water quality and biological community attainable within the areas of concern.

(6) "Aquatic Species" means plants or animals that live at least part of their life cycle in waters of the state.

(7) "Basin" means a third-field hydrologic unit as identified by the U.S. Geological Survey.

(8) "BOD" means 5-day, 20°C Biochemical Oxygen Demand.

DRAFT

(9) "Cold-Water Aquatic Life" means aquatic organisms that are physiologically restricted to cold water including, but not limited to, native salmon, steelhead, mountain whitefish, char including bull trout, and trout.

(10) "Cold Water Refugia" means those portions of a water body where or times during the diel temperature cycle when the water temperature is at least 2 degrees Celsius colder than the daily maximum temperature of the adjacent well-mixed flow of the water body.

(11) "Commission" or “EQC” means the Oregon Environmental Quality Commission.

(12) "Cool Water Aquatic Life" means aquatic organisms that are physiologically restricted to cool waters including, but not limited to, native sturgeon, Pacific lamprey, suckers, chub, sculpins and certain species of cyprinids (minnows.)

(13) "Core Cold Water Habitat Use" means waters expected to maintain temperatures within the range generally considered optimal for salmon and steelhead rearing, or that are suitable for bull trout migration, foraging and sub-adult rearing that occurs during the summer. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 180A, 201A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(14) "Critical Habitat" means those areas that support rare, threatened, or endangered species or serve as sensitive spawning and rearing areas for aquatic life as designated by the U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration-Fisheries according to the Endangered Species Act (16 U.S. Code § 1531).

(15) "Daily Mean" for dissolved oxygen means the numeric average of an adequate number of data to describe the variation in dissolved oxygen concentration throughout a day, including daily maximums and minimums. For calculating the mean, concentrations in excess of 100 percent of saturation are valued at the saturation concentration.

(16) "Department" or "DEQ" means the Oregon State Department of Environmental Quality.

(17) "Designated Beneficial Use" means the purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Water Resources Commission.

(18) "DO" means dissolved oxygen.

(19) "Ecological Integrity" means the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

(20) "Epilimnion" means the seasonally stratified layer of a lake or reservoir above the metalimnion; the surface layer.

DRAFT

(21) "Erosion Control Plan" means a plan containing a list of best management practices to be applied during construction to control and limit soil erosion.

(22) “Estuarine Waters” means all mixed fresh and oceanic waters in estuaries or bays from the point of oceanic water intrusion inland to a line connecting the outermost points of the headlands or protective jetties.

(23) "High Quality Waters" means those waters that meet or exceed levels necessary to support the propagation of fish, shellfish and wildlife; recreation in and on the water; and other designated beneficial uses.

(24) "Hypolimnion" means the seasonally stratified layer of a lake or reservoir below the metalimnion; the bottom layer.

(25) "Industrial Waste" means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources.

(26) "In Lieu Fee" means a fee collected by a jurisdiction in lieu of requiring construction of onsite stormwater quality control facilities.

(27) "Intergravel Dissolved Oxygen" (IGDO) means the concentration of oxygen measured in the water within the stream bed gravels. Measurements should be taken within a limited time period before emergence of fry.

(28) "Jurisdiction" means any city or county agency in the Tualatin River and Oswego Lake subbasin that regulates land development activities within its boundaries by approving plats or site plans or issuing permits for land development.

(29) "Land Development" means any human-induced change to improved or unimproved real estate including, but not limited to, construction, installation or expansion of a building or other structure; land division; drilling; or site alteration such as land surface mining, dredging, grading, construction of earthen berms, paving, improvements for use as parking or storage, excavation or clearing.

(30) "Load Allocation” or “LA" means the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading that may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting loading. Whenever possible, natural and nonpoint source loads should be distinguished.

(31) "Loading Capacity” or “LC" means the greatest amount of loading that a water body can receive without violating water quality standards.

DRAFT

(32) "Low Flow Period" means the flows in a stream resulting primarily from groundwater discharge or base flows augmented from lakes and storage projects during the driest period of the year. The dry weather period varies across the state according to climate and topography. Wherever the low flow period is indicated in Water Quality Management Plans, this period has been approximated by the inclusive months. Where applicable in a waste discharge permit, the low flow period may be further defined.

(33) "Managed Lakes" refers to lakes in which hydrology is managed by controlling the rate or timing of inflow or outflow.

(34) “Marine Waters” means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of the State of Oregon.

(35) "mg/l" or "mg/L" means milligrams per liter.

(36) "Metalimnion" means the seasonal, thermally stratified layer of a lake or reservoir that is characterized by a rapid change in temperature with depth and that effectively isolates the waters of the epilimnion from those of the hypolimnion during the period of stratification; the middle layer.

(37) "Migration Corridors" mean those waters that are predominantly used for salmon and steelhead migration during the summer and have little or no anadromous salmonid rearing in the months of July and August. Migration corridors are designated in Tables 101B and 121B and Figures 151A, 170A, 300A and 340A under OAR 340-041-0101 to 340-041-0340.

(38) "Minimum" for dissolved oxygen means the minimum recorded concentration including seasonal and diurnal minimums.

(39) "Monthly (30-day) Mean Minimum" for dissolved oxygen means the minimum of the 30 consecutive-day floating averages of the calculated daily mean dissolved oxygen concentration.

(40) "Natural Conditions" means conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the state that are not influenced by past or present anthropogenic activities. Disturbances from wildfire, floods, earthquakes, volcanic or geothermal activity, wind, insect infestation and diseased vegetation are considered natural conditions.

(41) "Natural Thermal Potential" means the determination of the thermal profile of a water body using best available methods of analysis and the best available information on the site-potential riparian vegetation, stream geomorphology, stream flows and other measures to reflect natural conditions.

(42) "Nonpoint Sources" means any source of water pollution other than a point source. Generally, a nonpoint source is a diffuse or unconfined source of pollution where wastes can

DRAFT

either enter into waters of the state or be conveyed by the movement of water into waters of the state.

(43) "Ocean Waters" means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of Oregon.

(44) "Outstanding Resource Waters" means waters designated by the EQC where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values or where special water quality protection is needed to maintain critical habitat areas.

(45) “Pollutant Minimization Plan” or “PMP” means a structured set of activities to improve processes and pollutant controls that will prevent and reduce pollutant loadings.

(~~45~~46) "Pollution" means such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any water of the state that either by itself or in connection with any other substance present can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wildlife, fish, other aquatic life or the habitat thereof.

(~~46~~47) "Point Source" means a discernible, confined, and discrete conveyance including, but not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or leachate collection system from which pollutants are or may be discharged. Point source does not include agricultural storm water discharges and return flows from irrigated agriculture.

(~~47~~48) "Public Water" means the same as "waters of the state".

(~~48~~49) "Public Works Project" means any land development conducted or financed by a local, state, or federal governmental body.

(~~49~~50) "Reserve Capacity" means that portion of a receiving stream's loading capacity that has not been allocated to point sources or to nonpoint sources and natural background as waste load allocations or load allocations, respectively. The reserve capacity includes that loading capacity that has been set aside for a safety margin and is otherwise unallocated.

(~~50~~51) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin or water body are met. This must be established by accepted biomonitoring techniques.

(~~51~~52) "Salmon" means chinook, chum, coho, sockeye and pink salmon.

DRAFT

(~~52~~53) "Salmon and Steelhead Spawning Use" means waters that are or could be used for salmon and steelhead spawning, egg incubation, and fry emergence. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 130B, 151B, 160B, 170B, 220B, 230B, 271B, 286B, 300B, 310B, 320B, and 340B.

(~~53~~54) "Salmon and Trout Rearing and Migration Use" means thermally suitable rearing habitat for salmon, steelhead, rainbow trout, and cutthroat trout as designated on subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(~~54~~55) "Salmonid or Salmonids" means native salmon, trout, mountain whitefish and char including bull trout. For purposes of Oregon water quality standards, salmonid does not include brook or brown trout because they are introduced species.

(~~55~~56) "Secondary Treatment" means the following depending on the context:

(a) For sewage wastes, secondary treatment means the minimum level of treatment mandated by U.S. Environmental Protection Agency regulations pursuant to Public Law 92-500.

(b) For industrial and other waste sources, secondary treatment means control equivalent to best practicable treatment.

(~~56~~57) "Seven-Day Average Maximum Temperature" means a calculation of the average of the daily maximum temperatures from seven consecutive days made on a rolling basis.

(~~57~~58) "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 with sewage of industrial wastes or wastes, as defined in this rule, may also be considered "sewage" within the meaning of this division.

(~~58~~59) "Short-Term Disturbance" means a temporary disturbance of six months or less when water quality standards may be violated briefly but not of sufficient duration to cause acute or chronic effects on beneficial uses.

(~~59~~60) "Spatial Median" means the value that falls in the middle of a data set of multiple intergravel dissolved oxygen (IGDO) measurements taken within a spawning area. Half the samples should be greater than and half the samples should be less than the spatial median.

(~~60~~61) "SS" means suspended solids.

(~~61~~62) "Stormwater Quality Control Facility" means any structure or drainage way designed, constructed and maintained to collect and filter, retain, or detain surface water runoff during and after a storm event for the purpose of water quality improvement. It may also include, but is not be limited to, existing features such as wetlands, water quality swales and ponds maintained as stormwater quality control facilities.

DRAFT

(~~62~~63) "Subbasin" means a fourth-field hydrologic unit as identified by the U.S. Geological Survey.

(~~63~~64) "Summer" means June 1 through September 30 of each calendar year.

(~~64~~65) "Threatened or Endangered Species" means aquatic species listed as either threatened or endangered under the federal Endangered Species Act (16 U.S. Code § 1531 et seq. and Title 50 of the Code of Federal Regulations).

(~~65~~66) "Total Maximum Daily Load (TMDL)" means the sum of the individual waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and background. If receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.

(~~66~~67) "Toxic Substance" means those pollutants or combinations of pollutants, including disease-causing agents, that after introduction to waters of the state and upon exposure, ingestion, inhalation or assimilation either directly from the environment or indirectly by ingestion through food chains will cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in any organism or its offspring.

(~~67~~68) "Wasteload Allocation" or "WLA" means the portion of a receiving water's loading capacity allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.

(~~68~~69) "Warm-Water Aquatic Life" means the aquatic communities that are adapted to warm-water conditions and do not contain either cold- or cool-water species.

(~~69~~70) "Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances that may cause or tend to cause pollution of any water of the state.

(~~70~~71) "Water Quality Limited" means one of the following:

(a) A receiving stream that does not meet narrative or numeric water quality criteria during the entire year or defined season even after the implementation of standard technology;

(b) A receiving stream that achieves and is expected to continue to achieve narrative or numeric water quality criteria but uses higher than standard technology to protect beneficial uses;

DRAFT

(c) A receiving stream for which there is insufficient information to determine whether water quality criteria are being met with higher-than-standard treatment technology or a receiving stream that would not be expected to meet water quality criteria during the entire year or defined season without higher than standard technology.

(72) "Water Quality Standards Variance," or "WQS variance" means a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflects the highest attainable condition during the term of the WQS variance.

(~~71~~73) "Water Quality Swale" means a natural depression or wide, shallow ditch used to temporarily store, route or filter runoff for the purpose of improving water quality.

(~~72~~74) "Waters of the state" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters) that are located wholly or partially within or bordering the state or within its jurisdiction.

(~~73~~75) "Weekly (seven-day) Mean Minimum" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the calculated daily mean dissolved oxygen concentration.

(~~74~~76) "Weekly (seven-day) Minimum Mean" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the daily minimum concentration. For application of the criteria, this value is the reference for diurnal minimums.

(~~75~~77) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

Statutory/Other Authority: ORS 468.020, 468B.010, 468B.015, 468B.035 & 468B.048
Statutes/Other Implemented: ORS 468B.035 & 468B.048
History:
DEQ 1-2015, f. & cert. ef. 1-7-15
DEQ 3-2012, f. & cert. ef. 5-21-12
DEQ 2-2007, f. & cert. ef. 3-15-07
DEQ 3-2004, f. & cert. ef. 5-28-04
DEQ 17-2003, f. & cert. ef. 12-9-03

340-041-0059
Variances

DRAFT

~~This rule (OAR 340-041-0059) does not become applicable for purposes of ORS chapter 468B or the federal Clean Water Act unless and until EPA approves the provisions it identifies as water quality standards pursuant to 40 CFR 131.21 (4/27/2000).~~

(1) Applicability. Subject to the requirements and limitations set out in sections (2) through (7) below, ~~a point source~~ DEQ may ~~request~~ grant a water quality standards variance ~~where it is demonstrated that~~if the waterbody cannot meet its underlying designated use and criterion because of one of the factors listed in subsection (2)(b) of this rule.~~the source cannot feasibly meet effluent limits sufficient to meet water quality standards.~~ The director may grant an individual variance, which applies only to an individual permitted facility. The commission may grant a multiple discharger variance, which applies to multiple permitted facilities as defined in the variance. The commission may also grant a water body variance, which applies to all qualified facilities that discharge to the defined water body or water body segment. All water quality standards variances are subject to EPA approval. ~~The director of the department will determine whether to issue a variance for a source covered by an existing NPDES permit. The commission will determine whether to issue a variance for a discharger that does not have a currently effective NPDES permit.~~

(a) The variance applies only to the specified point source permit(s), ~~and~~ pollutant(s), and waterbody or waterbodies.~~;~~ ~~t~~The underlying ~~water quality standard(s)~~designated use and criterion otherwise remains in effect.

(b) ~~The department~~DEQ or the commission may not grant a variance if~~:~~

~~(A) T~~the effluent limit sufficient to meet the underlying ~~water quality standard~~designated use and criterion can be attained by implementing technology-based effluent limits required under sections 301(b) and 306 of the federal Clean Water Act.~~, and by implementing cost-effective and reasonable best management practices for nonpoint sources under the control of the discharger; or~~

~~(B) The variance would likely jeopardize the continued existence of any threatened or endangered species listed under section 4 of the Endangered Species Act or result in the destruction or adverse modification of such species' critical habitat; or~~

~~(C) The conditions allowed by the variance would result in an unreasonable risk to human health; or.~~

~~(D) A point source does not have a currently effective NPDES permit, unless the variance is necessary to:~~

~~(i) Prevent or mitigate a threat to public health or welfare;~~

~~(ii) Allow a water quality or habitat restoration project that may cause short term water quality standards exceedances, but will result in long term water quality or habitat improvement that enhances the support of aquatic life uses;~~

DRAFT

~~(iii) Provide benefits that outweigh the environmental costs of lowering water quality. This analysis is comparable to that required under the antidegradation regulation contained in OAR 041-0004(6)(b); or~~

~~(E) The information and demonstration submitted in accordance with section (4) below does not allow the department or commission to conclude that a condition in section (2) has been met.~~

(2) Conditions to Grant a Variance. Before the commission or ~~department~~DEQ may grant a variance, it must determine that:

(a) The requirements that apply throughout the term of the water quality standards variance will not result in lowering the currently attained ambient water quality, unless the variance is needed for restoration activities as specified in paragraph (2)(b)(G) of this rule; and ~~No existing use will be impaired or removed as a result of granting the variance and~~

(b) Attaining the ~~water quality standard~~designated use and criterion during the term of the variance is not feasible for one or more of the following reasons:

(A) Naturally occurring pollutant concentrations prevent the attainment of the use;

(B) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges to enable uses to be met without violating state water conservation requirements;

(C) Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(D) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way which would result in the attainment of the use;

(E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality preclude attainment of aquatic life protection uses; ~~or~~

(F) Controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act would result in substantial and widespread economic and social impact;~~.~~ or

(G) Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attaining the designated use and criterion while the actions are being implemented.

(3) Variance Duration and Re-evaluation.

DRAFT

(a) The duration of a variance must only be as long as necessary ~~not exceed the term of the NPDES permit~~ to meet the highest attainable condition as described in section (5) of this rule. If the term of the variance exceeds five years, DEQ will re-evaluate the highest attainable condition using all existing and readily available information at least every five years and submit this re-evaluation to EPA within 30 days of its completion. DEQ will identify the specific re-evaluation frequency in each variance. If DEQ does not submit the re-evaluation to EPA within the specified timeline, the variance will no longer be the applicable water quality standard until DEQ completes the re-evaluation and submits it to EPA. ~~If the permit is administratively extended, the permit effluent limits and any other requirements based on the variance and associated pollutant reduction plan will continue to be in effect during the period of the administrative extension. The department will give priority to NPDES permit renewals for permits containing variances and where a renewal application has been submitted to the director at least one hundred eighty days prior to the NPDES permit expiration date.~~

(b) When the duration of the variance is less than the term of a NPDES permit, the permittee must ~~be in compliance~~comply with the specified effluent limitation sufficient to meet the underlying water quality standard when the variance expires~~upon the expiration of the variance~~. The permit will include the date the interim effluent limit will expire corresponding to the variance expiration date.

(c) ~~A variance is effective only after EPA approval.~~ The DEQ order or commission rule will specify the ~~effective date and~~ duration of the variance ~~will be specified in a NPDES permit or order of the commission or department~~.

(4) Variance Submittal Requirements.

(a) To request an individual variance, a permittee must submit the following information to ~~the department~~DEQ:

(~~a~~A) The specific pollutant, dischargers and receiving waterbodies to which the variance will apply

(B) A demonstration that attaining the ~~water quality standard~~ designated use and criterion for a specific pollutant is not feasible for the requested duration of the variance based on one ~~or more~~ of the conditions found in subsection (2)(b) of this rule;

(~~b~~C) A description of treatment or alternative options considered to meet permit limits based on the applicable underlying ~~water quality standard~~designated use and criterion, and a description of why these options are not technically, economically, or otherwise feasible;

(~~c~~D) Sufficient water quality data and analyses to characterize ambient and discharge water pollutant concentrations and determine the Highest Attainable Condition, as required in section (5) of this rule;

DRAFT

~~(d) Any cost-effective and reasonable best management practices for nonpoint sources under the control of the discharger that addresses the pollutant the variance is based upon;~~

(~~e~~E) If the highest attainable condition for the variance is consistent with paragraph (5)(a)(C) of this rule, ~~A~~a proposed pollutant ~~reduction~~ minimization plan covering the term of the variance that includes ~~any~~ actions the permittee(s) must take ~~to be taken by the permittee~~ that ~~would~~ will result in ~~reasonable~~ progress toward ~~meeting~~ achieving the underlying water quality standard. ~~Such actions may include proposed pollutant offsets or trading or other proposed pollutant reduction activities, and associated milestones for implementing these measures. Pollutant reduction plans will be tailored to address the specific circumstances of each facility and to the extent pollutant reduction can be achieved~~; and

(~~f~~F) If the discharger is a publicly owned treatment works, a demonstration of the jurisdiction's legal authority (such as a sewer use ordinance) to regulate the pollutant for which the variance is sought. The jurisdiction's legal authority must be sufficient to control potential sources of that pollutant that discharge into the jurisdiction's sewer collection system.

(b) To request coverage under a multiple discharger variance, a permittee must submit all information required in the multiple discharger variance rule for the specific variance.

(c) To request coverage under a waterbody variance, a permittee must submit all information required in the waterbody variance rule. For a waterbody variance, this information must include identification and documentation of any cost-effective and reasonable best management practices for nonpoint source controls related to the pollutant(s) or water quality parameter(s) and water body or waterbody segment(s) specified in the variance that the permittee could implement to make progress towards attaining the underlying designated use and criterion.

(5) Highest Attainable Condition. The highest attainable condition is a quantifiable expression of one of the following:

(a) For individual or multiple discharger WQS variances:

(A) The highest attainable interim criterion; or

(B) The interim effluent condition that reflects the greatest pollutant reduction achievable; or

(C) If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the state adopts the WQS variance, and adopting and implementing a pollutant minimization plan as required in paragraph (4)(a)(E) of this rule.

(b) For WQS variances applicable to a water body or waterbody segment:

(A) The highest attainable interim use and interim criterion; or

(B) If no additional feasible pollutant control technology can be identified, the interim use and interim criterion that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and

DRAFT

adopting and implementing a pollutant minimization plan as required in paragraph (4)(a)(E) of this rule.

(5) (6) Variance Permit Conditions. Effluent limitsOnce EPA approves the variance, DEQ will base conditions in the discharger's permit will be based on the variance highest attainable condition identified at the time DEQ adopts the WQS variance, or the highest attainable condition later identified during any re-evaluation consistent with subsection (3)(a) of this rule, and not the underlying water quality standard, so long as the variance remains effective. The departmentDEQ must establish and incorporate into the discharger's NPDES permit all conditions necessary to implement and enforce an approved variance and associated pollutant reduction minimization plan, if one is adopted as part of the variance. The permit must include, at a minimum, the following requirements:

(a) An interim concentration based permit limit or requirement representing deriving from and complying with the best achievable effluent qualityhighest attainable effluent condition. based on discharge monitoring data and that is no less stringent than that achieved under the previous permit. For a new discharger, the permit limit will be calculated based on best achievable technology;;

(b) A requirement to implement any pollutant reduction actions approved as part of a pollutant minimizationreduction plan adopted in the applicable variance submitted in accordance with section (4)(c) above and to make reasonable progress toward attaining the underlying water quality standard(s);

(c) Any studies, effluent monitoring, or other monitoring necessary to ensure compliance with the conditions of the variance and to evaluate progress toward achieving the underlying designated use and criterion; and

(d) An annual progress report to the departmentDEQ describing the results of any required studies or monitoring during the reporting year and identifying the reduction activities completed, and any impediments to reaching any specific milestones stated in the variance.

(67) Public Notification Requirements.

(a) If the departmentDEQ proposes to grant a variance, it must provide public notice of the proposal proposed variance and hold a public hearing. The public notice may be coordinated with included in the public notification of a draft NPDES permit or other draft regulatory decision that would rely on the variance;

(b) The departmentDEQ will publish a list of all variances approved underpursuant to this rule. DEQ will add Nnewly approved variances will be added to this list within 30 days of their effective date. The list will identify: the discharger; the underlying water quality standarddesignated use and criterion the variance addressesd by the variance; the pollutant(s) or water quality parameter(s) to which the variance applies; the waters of the state to which the variance applies; the effective date and duration of the variance; the allowable pollutant

~~effluent limit granted under~~highest attainable condition specified in the variance; and how to obtain additional information about the variance.

~~(7) Variance Renewals.~~

~~(a) A variance may be renewed if:~~

~~(A) The permittee makes a renewed demonstration pursuant to section (2) of this rule that attaining the water quality standard continues to be infeasible,~~

~~(B) The permittee submits any new or updated information pertaining to any of the requirements of section 4,~~

~~(C) The department determines that all conditions and requirements of the previous variance and actions contained in the pollutant reduction plan pursuant to section (5) have been met, unless reasons outside the control of the discharger prevented meeting any condition or requirement, and~~

~~(D) All other requirements of this rule have been met.~~

~~(b) An individual variance renewal must be approved by the department director and by EPA.~~

~~(c) The subsequent multiple discharger variance or waterbody variance must be approved by the commission and by EPA.~~ (8) The commission has issued the following multiple discharger variances and waterbody variances in accordance with this rule: The multiple discharger variance for mercury for wastewater dischargers in the Willamette B. See OAR 340-041-0345.

Statutory/Other Authority: ORS 468.020, 468B.010, 468B.020, 468B.035 & 468B.110
Statutes/Other Implemented: ORS 468B.048
History:
DEQ 10-2011, f. & cert. ef. 7-13-11

340-041-0345
Basin-Specific Criteria (Willamette): Water Quality Standards and Policies for this Basin

(1) pH (hydrogen ion concentration). pH values may not fall outside the following ranges:

(a) All basin waters (except main stem Columbia River and Cascade lakes): 6.5 to 8.5;

(b) Cascade lakes above 3,000 feet altitude: 6.0 to 8.5.

(2) Total Dissolved Solids. Guide concentrations listed may not be exceeded unless ~~otherwise~~ DEQ specifically authorizes otherwise~~d by DEQ~~ upon such conditions as it may

deem necessary to carry out the general intent of this plan and to protect the beneficial uses set forth in OAR 340-041-0340: Willamette River and Tributaries — 100.0 mg/l.

(3) Minimum Design Criteria for Treatment and Control of Sewage Wastes:

(a) Willamette River and tributaries except Tualatin River Subbasin:

(A) During periods of low stream flows (approximately May 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to April 30): A minimum of secondary treatment or equivalent control and unless DEQ otherwise specifically authorizes~~d by the Department~~, operation of all waste treatment and control facilities at maximum practical efficiency and effectiveness so as to minimize waste discharges to public waters.

(b) Main stem Tualatin River from mouth to Gaston (river mile 0 to 65):

(A) During periods of low stream flows (approximately May 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to April 30): Treatment resulting in monthly average effluent concentrations not to exceed 20 mg/l of BOD and 20 mg/l of SS or equivalent control.

(c) Main stem Tualatin River above Gaston (river mile 65) and all tributaries to the Tualatin River: Treatment resulting in monthly average effluent concentrations not to exceed 5 mg/l of BOD and 5 mg/l of SS or equivalent control;

(d) Tualatin River Subbasin: The dissolved oxygen level in the discharged effluents may not be less than 6 mg/l;

(4) Nonpoint source pollution control in the Tualatin River subbasin and lands draining to Oswego Lake:

(a) Subsection (5)(b) of this rule applies to any new land development within the Tualatin River and Oswego Lake subbasins, except those developments with application dates prior to January 1, 1990. The application date is the date on which a complete application for development approval is received by the local jurisdiction in accordance with the regulations of the local jurisdiction;

(b) For land development, no preliminary plat, site plan, permit or public works project may be approved by any jurisdiction in these subbasins unless the conditions of the plat permit or plan approval include an erosion control plan containing methods and/or interim facilities to

DRAFT

be constructed or used concurrently with land development and to be operated during construction to control the discharge of sediment in the stormwater runoff. The erosion control plan must include the following elements:

(A) Protection techniques to control soil erosion and sediment transport to less than one ton per acre per year, as calculated using the Natural Resources Conservation Service's Universal Soil Loss Equation or other equivalent methods (see Figures 1 to 6 in Appendix 1 for examples). The erosion control plan must include temporary sedimentation basins or other sediment control devices when, because of steep slopes or other site specific considerations, other on-site sediment control methods will not likely keep the sediment transport to less than one ton per acre per year. The local jurisdictions may establish additional requirements for meeting an equivalent degree of control. Any sediment basin constructed must be sized using 1.5 feet minimum sediment storage depth plus 2.0 feet storage depth above for a settlement zone. The storage capacity of the basin must be sized to store all of the sediment that is likely to be transported and collected during construction while the erosion potential exists. When the erosion potential has been removed, the sediment basin, or other sediment control facilities, can be removed and the site restored as per the final site plan. All sediment basins must be constructed with an emergency overflow to prevent erosion or failure of the containment dike; or

(B) A soil erosion control matrix derived from and consistent with the universal soil equation ~~approved by~~ the jurisdiction or DEQ approves~~the Department~~.

(c) The Director may modify Appendix 1 as necessary without approval from the Environmental Quality Commission. The Director may modify Appendix 1 to simplify it and to make it easier for people to apply;

(d) Subsection (5)(e) of this rule applies to any new land development within the Tualatin River and Oswego Lake subbasins, except:

(A) Those developments with application dates prior to June 1, 1990. The application date is the date on which a complete application for development approval is received by the local jurisdiction in accordance with the regulations of the local jurisdiction;

(B) One and two family dwellings on existing lots of record;

(C) Sewer lines, water lines, utilities or other land development that will not directly increase nonpoint source pollution once construction has been completed and the site is either restored to or not altered from its approximate original condition;

(D) If the Environmental Quality Commission determines that a jurisdiction does not need to require stormwater quality control facilities for new development;

(E) When a jurisdiction adopts ordinances that provide for a stormwater quality program equivalent to subsection (e) of this section. Ordinances adopted to implement equivalent programs must:

DRAFT

(i) Encourage on-site retention of stormwater, require phosphorus removal equivalent to the removal efficiency required by subsection (e) of this section, provide for adequate operation and maintenance of stormwater quality control facilities, and require financial assurance, or equivalent security that assures construction of the stormwater quality control facilities required by the ordinance;

(ii) If the ordinances provide for exemptions other than those allowed for by paragraphs (B) and (C) of this subsection, the ordinances must provide for collection of in-lieu fees or other equivalent mechanisms that assure financing for, and construction of, associated, off-site stormwater quality control facilities. No exemption may be allowed if the jurisdiction is not meeting an approved schedule for identifying location of the off-site stormwater quality control facility to serve the development requesting an exemption.

(e) For new development, no plat, site plan, building permit or public works project may be approved by any jurisdiction in these subbasins unless the conditions of the plat, permit or plan approval require permanent stormwater quality control facilities to control phosphorus loadings associated with stormwater runoff from the development site. Jurisdictions must encourage and provide preference to techniques and methods that prevent and minimize pollutants from entering the storm and surface water systems. Permanent stormwater quality control facilities for phosphorus must meet the following requirements:

(A) The stormwater quality control facilities must be designed to achieve a phosphorus removal efficiency as calculated from the following equation:

$Rp = 100 - 24.5/Rv$

Where:

Rp = Required phosphorus removal efficiency

Rv = Average site runoff coefficient

The average site runoff coefficient can be calculated from the following equation:

$Rv = (0.7 \times A1) + (0.3 \times A2) + (0.7 \times A3) + (0.05 \times A4) + (A5 \times 0.0)$

Where:

A1 = fraction of total area that is paved streets with curbs and that drain to storm sewers or open ditches.

A2 = fraction of total area that is paved streets that drain to water quality swales located on site.

A3 = fraction of total area that is building roof and paved parking that drains to storm sewers.

DRAFT

A4 = fraction of total area that is grass, trees and marsh areas.

A5 = fraction of total area for which runoff will be collected and retained on site with no direct discharge to surface waters.

(B) A jurisdiction may modify the equation for Rv to allow the application of additional runoff coefficients associated with land surfaces not identified in this subsection. ~~The Department~~DEQ must be notified in writing whenever an additional runoff coefficient is used. The use of additional runoff coefficients must be based on scientific data. The jurisdiction must discontinue use of an additional runoff coefficient if ~~the Department~~DEQ objects to its use in writing within ten days of receiving notification;

(C) The stormwater quality control facilities must be designed to meet the removal efficiency specified in paragraph (A) of this subsection for a mean summertime storm event totaling 0.36 inches of precipitation with an average return period of 96 hours;

(D) The removal efficiency specified in paragraph (A) of this subsection specify only design requirements and are not intended to be used as a basis for performance evaluation or compliance determination of the stormwater quality control facility installed or constructed pursuant to this subsection;

(E) Stormwater quality control facilities required by this subsection may be approved by a jurisdiction only if the following are met:

(i) For developments larger than one acre, the plat or site plan must include plans and a certification prepared by an Oregon registered, professional engineer that the proposed stormwater control facilities have been designed in accordance with criteria expected to achieve removal efficiencies for total phosphorus required by paragraph (A) of this subsection;

(ii) The plat or site plan must be consistent with the area and associated runoff coefficients used to determine the removal efficiency required in paragraph (A) of this subsection;

(iii) A financial assurance, or equivalent security acceptable to the jurisdiction, must be provided by the developer with the jurisdiction that assures that the stormwater control facilities are constructed according to the plans established in the plat or site plan approval. Where practicable, the jurisdiction must combine the financial assurance required by this rule with other financial assurance requirements imposed by the jurisdiction;

(iv) Each jurisdiction that constructs or authorizes construction of permanent stormwater quality control facilities must file with ~~the Department~~DEQ, an operation and maintenance plan for the stormwater quality control facilities within its jurisdiction. The operation and maintenance plan must allow for public or private ownership, operation, and maintenance of individual permanent stormwater quality control facilities. The jurisdiction or private operator must operate and maintain the permanent stormwater control facilities in accordance with the operation and maintenance plan.

DRAFT

(f) Except as required by paragraph (D) of this subsection, the jurisdiction may grant an exception to subsection (e) of this section if the jurisdiction chooses to adopt and, on a case-by-case basis, impose a one time in-lieu fee. The fee will be an option where, because of the size of the development, topography, or other factors, the jurisdiction determines that the construction of on-site permanent stormwater treatment systems is impracticable or undesirable:

(A) The in-lieu fee will be based upon a reasonable estimate of the current, prorated cost for the jurisdiction to provide stormwater quality control facilities for the land development being assessed the fee. Estimated costs include costs associated with off-site land and rights-of-way acquisition, design, construction and construction inspection;

(B) The jurisdiction must deposit any in-lieu fees collected pursuant to this paragraph in an account dedicated only to reimbursing the jurisdiction for expenses related to off-site land and rights-of-way acquisition, design, construction and construction inspection of stormwater quality control facilities;

(C) The ordinance establishing the in-lieu fee must include provisions that reduce the fee in proportion to the ratio of the site's average runoff coefficient (Rv), as established according to the equation in paragraph (6)(e)(A) of this rule;

(D) No new development may be granted an exemption if the jurisdiction is not meeting an approved time schedule for identifying the location for the off-site stormwater quality control facilities that would serve that development.

(g) ~~The Department~~DEQ may approve other mechanisms that allow jurisdictions to grant exemptions to new development. ~~The Department~~DEQ may only approve those mechanisms that assure financing for off-site stormwater quality control facilities and that encourage or require on-site retention where feasible;

(h) Subsection (b) of this section apply until a jurisdiction adopts ordinances that provide for a program equivalent to subsection (b) of this section, or the Environmental Quality Commission determines such a program is not necessary when it approves the jurisdiction's program plan required by OAR 340-041-0470(2)(g).

(5) In order to improve water quality within the Yamhill River subbasin to meet the existing water quality standard for pH, the following special rules for total maximum daily loads, waste load allocations, load allocations and program plans are established:

(a) After ~~completion of~~ wastewater control facilities and program plans the commission approved ~~by the Commission~~ under this rule are completed, and no later than June 30, 1994, no activities may be allowed, and no wastewater may be discharged to the Yamhill River or its tributaries, without the commission's authorization, ~~of the Commission~~ that cause the monthly median concentration of total phosphorus to exceed 70 ug/1 as measured during the low flow period between approximately May 1 and October 31~~***~~ of each year;

[NOTE: DEQ may condition precise dates for complying with this rule on physical conditions (i.e., flow, temperature) of the receiving water and may be specified in individual permits or memorandums of understanding DEQ issues. DEQ may consider system design flows, river travel times, and other relevant information when establishing the specific conditions to be inserted in the permits or memorandums of understanding.]

(b) Within 90 days of adoption of these rules, the Cities of McMinnville and Lafayette must submit a program plan and time schedule to ~~the Department~~DEQ describing how and when they will modify their sewerage facility to comply with this rule;

(c) The commission will review and approve ~~F~~final program plans~~ will be reviewed and approved by the Commission~~. The ~~C~~commission may define alternative compliance dates as program plans are approved. All proposed final program plans must be subject to public hearing before the commission considers them ~~prior to consideration~~ for approval~~ by the Commission~~;

(d) ~~The Department~~DEQ will, within 60 days of adoption of these rules, distribute initial waste load allocations and load allocations to the point and nonpoint sources in the basin. These allocations are considered interim and may be redistributed based upon the conclusions of the approved program plans.~~***Precise dates for complying with this rule may be conditioned on physical conditions (i.e., flow, temperature) of the receiving water and may be specified in individual permits or memorandums of understanding issued by the Department. The Department may consider system design flows, river travel times, and other relevant information when establishing the specific conditions to be inserted in the permits or memorandums of understanding.~~

(6) Multiple Discharger Variance for Mercury. The following describes requirements for permitted wastewater discharge facilities that qualify for a water quality standards variance for the human health criterion for mercury and the process by which a discharger can qualify for the variance.

(a) Findings. DEQ finds the following:

(A) The fishing use and associated human health criterion for mercury cannot be attained in the waters of the Willamette Basin in the next 20 years because human-caused sources of mercury from global mercury emissions and erosion of native soils are deposited or transported to Willamette Basin waters. These mercury sources are outside the control of Oregon point source dischargers and the state and cannot be remedied to meet the underlying designated use and criterion during the next 20 years.

(B) There is no currently feasible mercury treatment technology that would result in achieving water quality based effluent limits based on the human health criterion for mercury.

DRAFT

(C) It would cause more environmental harm to install and operate additional treatment technology to remove additional mercury than to reduce mercury through implementing mercury minimization plans. This finding does not affect any requirement that would result in installing additional technology to address pollutants other than mercury.

(b) Term of the variance. The term of this variance is 20 years from the date of EPA approval.

(c) Eligibility requirements. To qualify for a variance, a facility must meet the following requirements:

(A) Operate a permitted municipal or industrial discharger employing a minimum of secondary treatment;

(B) Hold an individual NPDES permit to discharge wastewater to waters of the Willamette Basin;

(C) Have effluent levels greater than the water concentration value needed to meet the human health criterion for methylmercury;

(D) Have the potential to reduce mercury from the facility's effluent or in the receiving waterbody.

(d) Application requirements**.** To qualify for the variance, a facility must provide to DEQ the following information:

(A) A letter applying for the mercury variance under this rule;

(B) All mercury effluent data from the previous five years. At least two years of quarterly effluent data is required to receive coverage under the variance.

(C) A mercury minimization plan, as described in 340-041-0345(6)(e)(B).

(e) Highest attainable condition – level currently achievable. Permit requirements will reflect the highest attainable condition for this variance. The highest attainable condition for all facilities covered under this variance will include the level currently achievable, which is a quantifiable expression of the effluent condition achievable with the pollutant control technologies installed by a point source at the time this variance is granted, when those technologies are well maintained and operated. The LCA is the 95th percentile value of recent (e.g., five years) data, the highest value of recent data, or a previously applicable LCA, whichever is lower.

(f) Highest attainable condition – mercury minimization plan for municipal dischargers. The highest attainable condition for municipal dischargers will include implementing a mercury minimization plan covering the term of the variance, with the following minimum elements:

(A) A monitoring plan to include influent, effluent and biosolids monitoring;

(B) Identification and inspection of dental offices to ensure installation of amalgam separators, if not otherwise required;

(C) Identification of mercury-containing materials at facilities and offices operated by each municipal wastewater treatment facility and implementation of any recommendations for removing mercury-containing materials;

(D) Identification and inspection of commercial laboratories, schools and healthcare facilities that may have mercury and providing recommendations and outreach materials to these facilities;

(E) Distribution of outreach materials to commercial and residential sectors;

(F) Evaluation of new facilities as potential sources of mercury and outreach to provide recommendations on mercury reduction activities. Dischargers should prioritize outreach to facilities in the timber, paper, glass, clay, cement, concrete, gypsum, primary and fabricated metal, and electronic instrument sectors;

(G) Cleanup of legacy mercury from collection systems;

(H) Facility-specific activities to reduce mercury loading into the waterbody. These may include cost-effective and reasonable best management practices for nonpoint source controls under the control of the discharger that would make progress towards attaining the underlying designated use and criterion; and

(I) If a facility has accomplished all activities within its control, the facility may implement or fund mercury reduction activities outside the control of the discharger that will make progress toward attaining the underlying designated use and criterion.

(g) Highest attainable condition – mercury minimization plan for industrial dischargers. The highest attainable condition for industrial dischargers will include implementing a mercury minimization plan covering the term of the variance, with the following minimum elements:

(A) A monitoring plan to include influent, effluent and biosolids monitoring;

(B) Identification of mercury-containing materials used in the facility, offices and testing laboratories operated by the discharger, and developing and implementing recommendations for using substitute materials with less or no mercury;

(C) Identification of other potential sources of mercury within control of the facility and developing and implementing recommendations for reducing these sources;

DRAFT

(D) Facility-specific activities to reduce mercury loading into the waterbody. These may include cost-effective and reasonable best management practices for nonpoint source controls under the discharger's control that would make progress towards attaining the underlying designated use and criterion; and

(E) If a facility has accomplished all activities within its control, the facility may implement or fund mercury reduction activities outside the control of the discharger that will make progress toward attaining the underlying designated use and criterion.

(h) Public notice. DEQ will provide public notice and opportunity for comment for a request for authorization under this variance at the same time as the opportunity for comment on the draft permit.

(i) Re-evaluation of the Highest Attainable Condition. DEQ will re-evaluate the highest attainable condition for this multiple discharger variance every five years from the date that EPA approves this variance. DEQ will provide a written summary of this re-evaluation to EPA within 30 days of completion of the re-evaluation.

(A) The re-evaluation will include the following elements:

(i) A summary of the mercury reduction activities completed and an analysis of mercury reductions achieved by facilities covered under this variance using the data and information provided in their annual reports; and

(ii) Determination of the feasibility of wastewater treatment technology to attain the water quality standard.

(B) DEQ will provide public notice on the availability of its draft re-evaluation and provide at least 30 days opportunity for the public to comment on the draft re-evaluation.

(C) Upon permit renewal for each facility covered under the variance, DEQ will update conditions in the permit based on the re-evaluation of the Highest Attainable Condition, as follows:

(i) DEQ will re-calculate each facility's level currently achievable, as described in OAR 340-041-0345(6)(d)(A), utilizing the previous five years of data provided by each facility, at the time of their permit renewal. DEQ will adjust permit limits if the data shows that the level currently achievable has become more stringent than previously determined.

(ii) DEQ will review updates to the facility's site-specific mercury minimization plan and request revisions to ensure that it is consistent with variance requirements.

Statutory/Other Authority: ORS 468.020, 468B.030, 468B.035 & 468B.048
Statutes/Other Implemented: ORS 468B.030, 468B.035 & 468B.048
History:
DEQ 38-2018, minor correction filed 04/02/2018, effective 04/02/2018

DRAFT

DEQ 2-2007, f. & cert. ef. 3-15-07
DEQ 17-2003, f. & cert. ef. 12-9-03

DRAFT

DEPARTMENT OF ENVIRONMENTAL QUALITY

340-041-0002
Definitions

Definitions in this rule apply to all basins unless context requires otherwise.

(1) "401 Water Quality Certification" means a determination made by DEQ that a dredge and fill activity, private hydropower facility, or other federally licensed or permitted activity that may result in a discharge to waters of the state has adequate terms and conditions to prevent an exceedance of water quality criteria. The federal permit in question may not be issued without this state determination in accordance with the Federal Clean Water Act, section 401 (33 USC 1341).

(2) "Ambient Stream Temperature" means the stream temperature measured at a specific time and place. The selected location for measuring stream temperature must be representative of the stream in the vicinity of the point being measured.

(3) "Anthropogenic," when used to describe "sources" or "warming," means that which results from human activity.

(4) "Applicable Criteria" means the biologically based temperature criteria in OAR 340-041-0028(4), the superseding cold water protection criteria in 340-041-0028(11) or the superseding natural condition criteria in 340-041-0028(8). The applicable criteria may also be site-specific criteria approved by U.S. EPA. A subbasin may have a combination of applicable temperature criteria derived from some or all of these numeric and narrative criteria.

(5) "Appropriate Reference Site or Region" means a site on the same water body or within the same basin or ecoregion that has similar habitat conditions and represents the water quality and biological community attainable within the areas of concern.

(6) "Aquatic Species" means plants or animals that live at least part of their life cycle in waters of the state.

(7) "Basin" means a third-field hydrologic unit as identified by the U.S. Geological Survey.

(8) "BOD" means 5-day, 20°C Biochemical Oxygen Demand.

(9) "Cold-Water Aquatic Life" means aquatic organisms that are physiologically restricted to cold water including, but not limited to, native salmon, steelhead, mountain whitefish, char including bull trout, and trout.

DRAFT

(10) "Cold Water Refugia" means those portions of a water body where or times during the diel temperature cycle when the water temperature is at least 2 degrees Celsius colder than the daily maximum temperature of the adjacent well-mixed flow of the water body.

(11) "Commission" or “EQC” means the Oregon Environmental Quality Commission.

(12) "Cool Water Aquatic Life" means aquatic organisms that are physiologically restricted to cool waters including, but not limited to, native sturgeon, Pacific lamprey, suckers, chub, sculpins and certain species of cyprinids (minnows.)

(13) "Core Cold Water Habitat Use" means waters expected to maintain temperatures within the range generally considered optimal for salmon and steelhead rearing, or that are suitable for bull trout migration, foraging and sub-adult rearing that occurs during the summer. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 180A, 201A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(14) "Critical Habitat" means those areas that support rare, threatened, or endangered species or serve as sensitive spawning and rearing areas for aquatic life as designated by the U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration-Fisheries according to the Endangered Species Act (16 U.S. Code § 1531).

(15) "Daily Mean" for dissolved oxygen means the numeric average of an adequate number of data to describe the variation in dissolved oxygen concentration throughout a day, including daily maximums and minimums. For calculating the mean, concentrations in excess of 100 percent of saturation are valued at the saturation concentration.

(16) "Department" or "DEQ" means the Oregon State Department of Environmental Quality.

(17) "Designated Beneficial Use" means the purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Water Resources Commission.

(18) "DO" means dissolved oxygen.

(19) "Ecological Integrity" means the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

(20) "Epilimnion" means the seasonally stratified layer of a lake or reservoir above the metalimnion; the surface layer.

(21) "Erosion Control Plan" means a plan containing a list of best management practices to be applied during construction to control and limit soil erosion.

DRAFT

(22) “Estuarine Waters” means all mixed fresh and oceanic waters in estuaries or bays from the point of oceanic water intrusion inland to a line connecting the outermost points of the headlands or protective jetties.

(23) "High Quality Waters" means those waters that meet or exceed levels necessary to support the propagation of fish, shellfish and wildlife; recreation in and on the water; and other designated beneficial uses.

(24) "Hypolimnion" means the seasonally stratified layer of a lake or reservoir below the metalimnion; the bottom layer.

(25) "Industrial Waste" means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources.

(26) "In Lieu Fee" means a fee collected by a jurisdiction in lieu of requiring construction of onsite stormwater quality control facilities.

(27) "Intergravel Dissolved Oxygen" (IGDO) means the concentration of oxygen measured in the water within the stream bed gravels. Measurements should be taken within a limited time period before emergence of fry.

(28) "Jurisdiction" means any city or county agency in the Tualatin River and Oswego Lake subbasin that regulates land development activities within its boundaries by approving plats or site plans or issuing permits for land development.

(29) "Land Development" means any human-induced change to improved or unimproved real estate including, but not limited to, construction, installation or expansion of a building or other structure; land division; drilling; or site alteration such as land surface mining, dredging, grading, construction of earthen berms, paving, improvements for use as parking or storage, excavation or clearing.

(30) "Load Allocation” or “LA" means the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading that may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting loading. Whenever possible, natural and nonpoint source loads should be distinguished.

(31) "Loading Capacity” or “LC" means the greatest amount of loading that a water body can receive without violating water quality standards.

(32) "Low Flow Period" means the flows in a stream resulting primarily from groundwater discharge or base flows augmented from lakes and storage projects during the driest period of the year. The dry weather period varies across the state according to climate and topography. Wherever the low flow period is indicated in Water Quality Management Plans, this period

DRAFT

has been approximated by the inclusive months. Where applicable in a waste discharge permit, the low flow period may be further defined.

(33) "Managed Lakes" refers to lakes in which hydrology is managed by controlling the rate or timing of inflow or outflow.

(34) “Marine Waters” means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of the State of Oregon.

(35) "mg/l" or "mg/L" means milligrams per liter.

(36) "Metalimnion" means the seasonal, thermally stratified layer of a lake or reservoir that is characterized by a rapid change in temperature with depth and that effectively isolates the waters of the epilimnion from those of the hypolimnion during the period of stratification; the middle layer.

(37) "Migration Corridors" mean those waters that are predominantly used for salmon and steelhead migration during the summer and have little or no anadromous salmonid rearing in the months of July and August. Migration corridors are designated in Tables 101B and 121B and Figures 151A, 170A, 300A and 340A under OAR 340-041-0101 to 340-041-0340.

(38) "Minimum" for dissolved oxygen means the minimum recorded concentration including seasonal and diurnal minimums.

(39) "Monthly (30-day) Mean Minimum" for dissolved oxygen means the minimum of the 30 consecutive-day floating averages of the calculated daily mean dissolved oxygen concentration.

(40) "Natural Conditions" means conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the state that are not influenced by past or present anthropogenic activities. Disturbances from wildfire, floods, earthquakes, volcanic or geothermal activity, wind, insect infestation and diseased vegetation are considered natural conditions.

(41) "Natural Thermal Potential" means the determination of the thermal profile of a water body using best available methods of analysis and the best available information on the site-potential riparian vegetation, stream geomorphology, stream flows and other measures to reflect natural conditions.

(42) "Nonpoint Sources" means any source of water pollution other than a point source. Generally, a nonpoint source is a diffuse or unconfined source of pollution where wastes can either enter into waters of the state or be conveyed by the movement of water into waters of the state.

(43) "Ocean Waters" means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of Oregon.

DRAFT

(44) "Outstanding Resource Waters" means waters designated by the EQC where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values or where special water quality protection is needed to maintain critical habitat areas.

(45) “Pollutant Minimization Plan” or “PMP” means a structured set of activities to improve processes and pollutant controls that will prevent and reduce pollutant loadings.

(46) "Pollution" means such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any water of the state that either by itself or in connection with any other substance present can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wildlife, fish, other aquatic life or the habitat thereof.

(47) "Point Source" means a discernible, confined, and discrete conveyance including, but not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or leachate collection system from which pollutants are or may be discharged. Point source does not include agricultural storm water discharges and return flows from irrigated agriculture.

(48) "Public Water" means the same as "waters of the state".

(49) "Public Works Project" means any land development conducted or financed by a local, state, or federal governmental body.

(50) "Reserve Capacity" means that portion of a receiving stream's loading capacity that has not been allocated to point sources or to nonpoint sources and natural background as waste load allocations or load allocations, respectively. The reserve capacity includes that loading capacity that has been set aside for a safety margin and is otherwise unallocated.

(51) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin or water body are met. This must be established by accepted biomonitoring techniques.

(52) "Salmon" means chinook, chum, coho, sockeye and pink salmon.

(53) "Salmon and Steelhead Spawning Use" means waters that are or could be used for salmon and steelhead spawning, egg incubation, and fry emergence. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 130B, 151B, 160B, 170B, 220B, 230B, 271B, 286B, 300B, 310B, 320B, and 340B.

DRAFT

(54) "Salmon and Trout Rearing and Migration Use" means thermally suitable rearing habitat for salmon, steelhead, rainbow trout, and cutthroat trout as designated on subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(55) "Salmonid or Salmonids" means native salmon, trout, mountain whitefish and char including bull trout. For purposes of Oregon water quality standards, salmonid does not include brook or brown trout because they are introduced species.

(56) "Secondary Treatment" means the following depending on the context:

(a) For sewage wastes, secondary treatment means the minimum level of treatment mandated by U.S. Environmental Protection Agency regulations pursuant to Public Law 92-500.

(b) For industrial and other waste sources, secondary treatment means control equivalent to best practicable treatment.

(57) "Seven-Day Average Maximum Temperature" means a calculation of the average of the daily maximum temperatures from seven consecutive days made on a rolling basis.

(58) "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 with sewage of industrial wastes or wastes, as defined in this rule, may also be considered "sewage" within the meaning of this division.

(59) "Short-Term Disturbance" means a temporary disturbance of six months or less when water quality standards may be violated briefly but not of sufficient duration to cause acute or chronic effects on beneficial uses.

(60) "Spatial Median" means the value that falls in the middle of a data set of multiple intergravel dissolved oxygen (IGDO) measurements taken within a spawning area. Half the samples should be greater than and half the samples should be less than the spatial median.

(61) "SS" means suspended solids.

(62) "Stormwater Quality Control Facility" means any structure or drainage way designed, constructed and maintained to collect and filter, retain, or detain surface water runoff during and after a storm event for the purpose of water quality improvement. It may also include, but is not be limited to, existing features such as wetlands, water quality swales and ponds maintained as stormwater quality control facilities.

(63) "Subbasin" means a fourth-field hydrologic unit as identified by the U.S. Geological Survey.

(64) "Summer" means June 1 through September 30 of each calendar year.

DRAFT

(65) "Threatened or Endangered Species" means aquatic species listed as either threatened or endangered under the federal Endangered Species Act (16 U.S. Code § 1531 et seq. and Title 50 of the Code of Federal Regulations).

(66) "Total Maximum Daily Load (TMDL)" means the sum of the individual waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and background. If receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.

(67) "Toxic Substance" means those pollutants or combinations of pollutants, including disease-causing agents, that after introduction to waters of the state and upon exposure, ingestion, inhalation or assimilation either directly from the environment or indirectly by ingestion through food chains will cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in any organism or its offspring.

(68) "Wasteload Allocation" or "WLA" means the portion of a receiving water's loading capacity allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.

(69) "Warm-Water Aquatic Life" means the aquatic communities that are adapted to warm-water conditions and do not contain either cold- or cool-water species.

(70) "Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances that may cause or tend to cause pollution of any water of the state.

(71) "Water Quality Limited" means one of the following:

(a) A receiving stream that does not meet narrative or numeric water quality criteria during the entire year or defined season even after the implementation of standard technology;

(b) A receiving stream that achieves and is expected to continue to achieve narrative or numeric water quality criteria but uses higher than standard technology to protect beneficial uses;

(c) A receiving stream for which there is insufficient information to determine whether water quality criteria are being met with higher-than-standard treatment technology or a receiving stream that would not be expected to meet water quality criteria during the entire year or defined season without higher than standard technology.

DRAFT

(72) “Water Quality Standards Variance,” or “WQS variance” means a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflects the highest attainable condition during the term of the WQS variance.

(73) "Water Quality Swale" means a natural depression or wide, shallow ditch used to temporarily store, route or filter runoff for the purpose of improving water quality.

(74) "Waters of the state" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters) that are located wholly or partially within or bordering the state or within its jurisdiction.

(75) "Weekly (seven-day) Mean Minimum" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the calculated daily mean dissolved oxygen concentration.

(76) "Weekly (seven-day) Minimum Mean" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the daily minimum concentration. For application of the criteria, this value is the reference for diurnal minimums.

(77) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

Statutory/Other Authority: ORS 468.020, 468B.010, 468B.015, 468B.035 & 468B.048
Statutes/Other Implemented: ORS 468B.035 & 468B.048
History:
DEQ 1-2015, f. & cert. ef. 1-7-15
DEQ 3-2012, f. & cert. ef. 5-21-12
DEQ 2-2007, f. & cert. ef. 3-15-07
DEQ 3-2004, f. & cert. ef. 5-28-04
DEQ 17-2003, f. & cert. ef. 12-9-03

340-041-0059
Variances

(1) Applicability. Subject to the requirements and limitations set out in sections (2) through (7) below, DEQ may grant a water quality standards variance if the waterbody cannot meet its underlying designated use and criterion because of one of the factors listed in subsection (2)(b) of this rule. The director may grant an individual variance, which applies only to an individual permitted facility. The commission may grant a multiple discharger variance,

which applies to multiple permitted facilities as defined in the variance. The commission may also grant a water body variance, which applies to all qualified facilities that discharge to the defined water body or water body segment. All water quality standards variances are subject to EPA approval.

(a) The variance applies only to the specified point source permit(s), pollutant(s), and waterbody or waterbodies. The underlying designated use and criterion otherwise remains in effect.

(b) DEQ or the commission may not grant a variance if the effluent limit sufficient to meet the underlying designated use and criterion can be attained by implementing technology-based effluent limits required under sections 301(b) and 306 of the federal Clean Water Act.

(2) Conditions to Grant a Variance. Before the commission or DEQ may grant a variance, it must determine that:

(a) The requirements that apply throughout the term of the water quality standards variance will not result in lowering the currently attained ambient water quality, unless the variance is needed for restoration activities as specified in paragraph (2)(b)(G) of this rule; and

(b) Attaining the designated use and criterion during the term of the variance is not feasible for one or more of the following reasons:

(A) Naturally occurring pollutant concentrations prevent the attainment of the use;

(B) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges to enable uses to be met without violating state water conservation requirements;

(C) Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(D) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way which would result in the attainment of the use;

(E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality preclude attainment of aquatic life protection uses;

(F) Controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act would result in substantial and widespread economic and social impact; or

DRAFT

(G) Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attaining the designated use and criterion while the actions are being implemented.

(3) Variance Duration and Re-evaluation.

(a) The duration of a variance must only be as long as necessary to meet the highest attainable condition as described in section (5) of this rule. If the term of the variance exceeds five years, DEQ will re-evaluate the highest attainable condition using all existing and readily available information at least every five years and submit this re-evaluation to EPA within 30 days of its completion. DEQ will identify the specific re-evaluation frequency in each variance. If DEQ does not submit the re-evaluation to EPA within the specified timeline, the variance will no longer be the applicable water quality standard until DEQ completes the re-evaluation and submits it to EPA.

(b) When the duration of the variance is less than the term of a NPDES permit, the permittee must comply with the specified effluent limitation sufficient to meet the underlying water quality standard when the variance expires. The permit will include the date the interim effluent limit will expire corresponding to the variance expiration date.

(c) The DEQ order or commission rule will specify the duration of the variance.

(4) Variance Submittal Requirements.

(a) To request an individual variance, a permittee must submit the following information to DEQ:

(A) The specific pollutant, dischargers and receiving waterbodies to which the variance will apply

(B) A demonstration that attaining the designated use and criterion for a specific pollutant is not feasible for the requested duration of the variance based on one of the conditions found in subsection (2)(b) of this rule;

(C) A description of treatment or alternative options considered to meet permit limits based on the applicable underlying designated use and criterion, and a description of why these options are not technically, economically, or otherwise feasible;

(D) Sufficient water quality data and analyses to characterize ambient and discharge water pollutant concentrations and determine the Highest Attainable Condition, as required in section (5) of this rule;

(E) If the highest attainable condition for the variance is consistent with paragraph (5)(a)(C) of this rule, a proposed pollutant minimization plan covering the term of the variance that includes actions the permittee(s) must take that will result in progress toward achieving the underlying water quality standard.; and

DRAFT

(F) If the discharger is a publicly owned treatment works, a demonstration of the jurisdiction's legal authority (such as a sewer use ordinance) to regulate the pollutant for which the variance is sought. The jurisdiction's legal authority must be sufficient to control potential sources of that pollutant that discharge into the jurisdiction's sewer collection system.

(b) To request coverage under a multiple discharger variance, a permittee must submit all information required in the multiple discharger variance rule for the specific variance.

(c) To request coverage under a waterbody variance, a permittee must submit all information required in the waterbody variance rule. For a waterbody variance, this information must include identification and documentation of any cost-effective and reasonable best management practices for nonpoint source controls related to the pollutant(s) or water quality parameter(s) and water body or waterbody segment(s) specified in the variance that the permittee could implement to make progress towards attaining the underlying designated use and criterion.

(5) Highest Attainable Condition. The highest attainable condition is a quantifiable expression of one of the following:

(a) For individual or multiple discharger WQS variances:

(A) The highest attainable interim criterion; or

(B) The interim effluent condition that reflects the greatest pollutant reduction achievable; or

(C) If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the state adopts the WQS variance, and adopting and implementing a pollutant minimization plan as required in paragraph (4)(a)(E) of this rule.

(b) For WQS variances applicable to a water body or waterbody segment:

(A) The highest attainable interim use and interim criterion; or

(B) If no additional feasible pollutant control technology can be identified, the interim use and interim criterion that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and adopting and implementing a pollutant minimization plan as required in paragraph (4)(a)(E) of this rule.

(6) Variance Permit Conditions. Once EPA approves the variance, DEQ will base conditions in the discharger's permit on the highest attainable condition identified at the time DEQ adopts the WQS variance, or the highest attainable condition later identified during any re-evaluation consistent with subsection (3)(a) of this rule, so long as the variance remains effective. DEQ must establish and incorporate into the discharger's NPDES permit all conditions necessary to implement and enforce an approved variance and associated pollutant minimization plan, if one is adopted as part of the variance. The permit must include, at a minimum, the following requirements:

DRAFT

(a) An interim permit limit or requirement deriving from and complying with the highest attainable effluent condition. ;

(b) A requirement to implement any pollutant reduction actions approved as part of a pollutant minimization plan adopted in the applicable variance;

(c) Any monitoring necessary to ensure compliance with the conditions of the variance and to evaluate progress toward achieving the underlying designated use and criterion; and

(d) An annual progress report to DEQ describing the results of any required studies or monitoring during the reporting year and identifying the reduction activities completed, and any impediments to reaching any specific milestones stated in the variance.

(7) Public Notification Requirements.

(a) If DEQ proposes to grant a variance, it must provide public notice of the proposed variance and hold a public hearing. The public notice may be coordinated with the public notification of a draft NPDES permit or other draft regulatory decision that would rely on the variance;

(b) DEQ will publish a list of all variances approved under this rule. DEQ will add newly approved variances to this list within 30 days of their effective date. The list will identify: the discharger; the underlying designated use and criterion the variance addresses; the pollutant(s) or water quality parameter(s) to which the variance applies; the waters to which the variance applies; the effective date and duration of the variance; the highest attainable condition specified in the variance; and how to obtain additional information about the variance.

(8) The commission has issued the following multiple discharger variances and waterbody variances in accordance with this rule: The multiple discharger variance for mercury for wastewater dischargers in the Willamette B. See OAR 340-041-0345.

Statutory/Other Authority: ORS 468.020, 468B.010, 468B.020, 468B.035 & 468B.110
Statutes/Other Implemented: ORS 468B.048
History:
DEQ 10-2011, f. & cert. ef. 7-13-11

340-041-0345
Basin-Specific Criteria (Willamette): Water Quality Standards and Policies for this Basin

(1) pH (hydrogen ion concentration). pH values may not fall outside the following ranges:

(a) All basin waters (except main stem Columbia River and Cascade lakes): 6.5 to 8.5;

(b) Cascade lakes above 3,000 feet altitude: 6.0 to 8.5.

(2) Total Dissolved Solids. Guide concentrations listed may not be exceeded unless DEQ specifically authorizes otherwise upon such conditions as it may deem necessary to carry out the general intent of this plan and to protect the beneficial uses set forth in OAR 340-041-0340: Willamette River and Tributaries — 100.0 mg/l.

(3) Minimum Design Criteria for Treatment and Control of Sewage Wastes:

(a) Willamette River and tributaries except Tualatin River Subbasin:

(A) During periods of low stream flows (approximately May 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to April 30): A minimum of secondary treatment or equivalent control and unless DEQ otherwise specifically authorizes, operation of all waste treatment and control facilities at maximum practical efficiency and effectiveness so as to minimize waste discharges to public waters.

(b) Main stem Tualatin River from mouth to Gaston (river mile 0 to 65):

(A) During periods of low stream flows (approximately May 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD and 10 mg/l of SS or equivalent control;

(B) During the period of high stream flows (approximately November 1 to April 30): Treatment resulting in monthly average effluent concentrations not to exceed 20 mg/l of BOD and 20 mg/l of SS or equivalent control.

(c) Main stem Tualatin River above Gaston (river mile 65) and all tributaries to the Tualatin River: Treatment resulting in monthly average effluent concentrations not to exceed 5 mg/l of BOD and 5 mg/l of SS or equivalent control;

(d) Tualatin River Subbasin: The dissolved oxygen level in the discharged effluents may not be less than 6 mg/l;

(4) Nonpoint source pollution control in the Tualatin River subbasin and lands draining to Oswego Lake:

(a) Subsection (5)(b) of this rule applies to any new land development within the Tualatin River and Oswego Lake subbasins, except those developments with application dates prior to January 1, 1990. The application date is the date on which a complete application for development approval is received by the local jurisdiction in accordance with the regulations of the local jurisdiction;

(b) For land development, no preliminary plat, site plan, permit or public works project may be approved by any jurisdiction in these subbasins unless the conditions of the plat permit or

DRAFT

plan approval include an erosion control plan containing methods and/or interim facilities to be constructed or used concurrently with land development and to be operated during construction to control the discharge of sediment in the stormwater runoff. The erosion control plan must include the following elements:

(A) Protection techniques to control soil erosion and sediment transport to less than one ton per acre per year, as calculated using the Natural Resources Conservation Service's Universal Soil Loss Equation or other equivalent methods (see Figures 1 to 6 in Appendix 1 for examples). The erosion control plan must include temporary sedimentation basins or other sediment control devices when, because of steep slopes or other site specific considerations, other on-site sediment control methods will not likely keep the sediment transport to less than one ton per acre per year. The local jurisdictions may establish additional requirements for meeting an equivalent degree of control. Any sediment basin constructed must be sized using 1.5 feet minimum sediment storage depth plus 2.0 feet storage depth above for a settlement zone. The storage capacity of the basin must be sized to store all of the sediment that is likely to be transported and collected during construction while the erosion potential exists. When the erosion potential has been removed, the sediment basin, or other sediment control facilities, can be removed and the site restored as per the final site plan. All sediment basins must be constructed with an emergency overflow to prevent erosion or failure of the containment dike; or

(B) A soil erosion control matrix derived from and consistent with the universal soil equation the jurisdiction or DEQ approves.

(c) The Director may modify Appendix 1 as necessary without approval from the Environmental Quality Commission. The Director may modify Appendix 1 to simplify it and to make it easier for people to apply;

(d) Subsection (5)(e) of this rule applies to any new land development within the Tualatin River and Oswego Lake subbasins, except:

(A) Those developments with application dates prior to June 1, 1990. The application date is the date on which a complete application for development approval is received by the local jurisdiction in accordance with the regulations of the local jurisdiction;

(B) One and two family dwellings on existing lots of record;

(C) Sewer lines, water lines, utilities or other land development that will not directly increase nonpoint source pollution once construction has been completed and the site is either restored to or not altered from its approximate original condition;

(D) If the Environmental Quality Commission determines that a jurisdiction does not need to require stormwater quality control facilities for new development;

DRAFT

(E) When a jurisdiction adopts ordinances that provide for a stormwater quality program equivalent to subsection (e) of this section. Ordinances adopted to implement equivalent programs must:

(i) Encourage on-site retention of stormwater, require phosphorus removal equivalent to the removal efficiency required by subsection (e) of this section, provide for adequate operation and maintenance of stormwater quality control facilities, and require financial assurance, or equivalent security that assures construction of the stormwater quality control facilities required by the ordinance;

(ii) If the ordinances provide for exemptions other than those allowed for by paragraphs (B) and (C) of this subsection, the ordinances must provide for collection of in-lieu fees or other equivalent mechanisms that assure financing for, and construction of, associated, off-site stormwater quality control facilities. No exemption may be allowed if the jurisdiction is not meeting an approved schedule for identifying location of the off-site stormwater quality control facility to serve the development requesting an exemption.

(e) For new development, no plat, site plan, building permit or public works project may be approved by any jurisdiction in these subbasins unless the conditions of the plat, permit or plan approval require permanent stormwater quality control facilities to control phosphorus loadings associated with stormwater runoff from the development site. Jurisdictions must encourage and provide preference to techniques and methods that prevent and minimize pollutants from entering the storm and surface water systems. Permanent stormwater quality control facilities for phosphorus must meet the following requirements:

(A) The stormwater quality control facilities must be designed to achieve a phosphorus removal efficiency as calculated from the following equation:

$$Rp = 100 - 24.5/Rv$$

Where:

Rp = Required phosphorus removal efficiency

Rv = Average site runoff coefficient

The average site runoff coefficient can be calculated from the following equation:

$$Rv = (0.7 \times A1) + (0.3 \times A2) + (0.7 \times A3) + (0.05 \times A4) + (A5 \times 0.0)$$

Where:

A1 = fraction of total area that is paved streets with curbs and that drain to storm sewers or open ditches.

A2 = fraction of total area that is paved streets that drain to water quality swales located on site.

A3 = fraction of total area that is building roof and paved parking that drains to storm sewers.

A4 = fraction of total area that is grass, trees and marsh areas.

A5 = fraction of total area for which runoff will be collected and retained on site with no direct discharge to surface waters.

(B) A jurisdiction may modify the equation for Rv to allow the application of additional runoff coefficients associated with land surfaces not identified in this subsection. DEQ must be notified in writing whenever an additional runoff coefficient is used. The use of additional runoff coefficients must be based on scientific data. The jurisdiction must discontinue use of an additional runoff coefficient if DEQ objects to its use in writing within ten days of receiving notification;

(C) The stormwater quality control facilities must be designed to meet the removal efficiency specified in paragraph (A) of this subsection for a mean summertime storm event totaling 0.36 inches of precipitation with an average return period of 96 hours;

(D) The removal efficiency specified in paragraph (A) of this subsection specify only design requirements and are not intended to be used as a basis for performance evaluation or compliance determination of the stormwater quality control facility installed or constructed pursuant to this subsection;

(E) Stormwater quality control facilities required by this subsection may be approved by a jurisdiction only if the following are met:

(i) For developments larger than one acre, the plat or site plan must include plans and a certification prepared by an Oregon registered, professional engineer that the proposed stormwater control facilities have been designed in accordance with criteria expected to achieve removal efficiencies for total phosphorus required by paragraph (A) of this subsection;

(ii) The plat or site plan must be consistent with the area and associated runoff coefficients used to determine the removal efficiency required in paragraph (A) of this subsection;

(iii) A financial assurance, or equivalent security acceptable to the jurisdiction, must be provided by the developer with the jurisdiction that assures that the stormwater control facilities are constructed according to the plans established in the plat or site plan approval. Where practicable, the jurisdiction must combine the financial assurance required by this rule with other financial assurance requirements imposed by the jurisdiction;

(iv) Each jurisdiction that constructs or authorizes construction of permanent stormwater quality control facilities must file with DEQ, an operation and maintenance plan for the

DRAFT

stormwater quality control facilities within its jurisdiction. The operation and maintenance plan must allow for public or private ownership, operation, and maintenance of individual permanent stormwater quality control facilities. The jurisdiction or private operator must operate and maintain the permanent stormwater control facilities in accordance with the operation and maintenance plan.

(f) Except as required by paragraph (D) of this subsection, the jurisdiction may grant an exception to subsection (e) of this section if the jurisdiction chooses to adopt and, on a case-by-case basis, impose a one time in-lieu fee. The fee will be an option where, because of the size of the development, topography, or other factors, the jurisdiction determines that the construction of on-site permanent stormwater treatment systems is impracticable or undesirable:

(A) The in-lieu fee will be based upon a reasonable estimate of the current, prorated cost for the jurisdiction to provide stormwater quality control facilities for the land development being assessed the fee. Estimated costs include costs associated with off-site land and rights-of-way acquisition, design, construction and construction inspection;

(B) The jurisdiction must deposit any in-lieu fees collected pursuant to this paragraph in an account dedicated only to reimbursing the jurisdiction for expenses related to off-site land and rights-of-way acquisition, design, construction and construction inspection of stormwater quality control facilities;

(C) The ordinance establishing the in-lieu fee must include provisions that reduce the fee in proportion to the ratio of the site's average runoff coefficient (Rv), as established according to the equation in paragraph (6)(e)(A) of this rule;

(D) No new development may be granted an exemption if the jurisdiction is not meeting an approved time schedule for identifying the location for the off-site stormwater quality control facilities that would serve that development.

(g) DEQ may approve other mechanisms that allow jurisdictions to grant exemptions to new development. DEQ may only approve those mechanisms that assure financing for off-site stormwater quality control facilities and that encourage or require on-site retention where feasible;

(h) Subsection (b) of this section apply until a jurisdiction adopts ordinances that provide for a program equivalent to subsection (b) of this section, or the Environmental Quality Commission determines such a program is not necessary when it approves the jurisdiction's program plan required by OAR 340-041-0470(2)(g).

(5) In order to improve water quality within the Yamhill River subbasin to meet the existing water quality standard for pH, the following special rules for total maximum daily loads, waste load allocations, load allocations and program plans are established:

DRAFT

(a) After wastewater control facilities and program plans the commission approved under this rule are completed, and no later than June 30, 1994, no activities may be allowed, and no wastewater may be discharged to the Yamhill River or its tributaries, without the commission's authorization, that cause the monthly median concentration of total phosphorus to exceed 70 ug/1 as measured during the low flow period between approximately May 1 and October 31 of each year;

> [NOTE: DEQ may condition precise dates for complying with this rule on physical conditions (i.e., flow, temperature) of the receiving water and may be specified in individual permits or memorandums of understanding DEQ issues. DEQ may consider system design flows, river travel times, and other relevant information when establishing the specific conditions to be inserted in the permits or memorandums of understanding.]

(b) Within 90 days of adoption of these rules, the Cities of McMinnville and Lafayette must submit a program plan and time schedule to DEQ describing how and when they will modify their sewerage facility to comply with this rule;

(c) The commission will review and approve final program plans. The commission may define alternative compliance dates as program plans are approved. All proposed final program plans must be subject to public hearing before the commission considers them for approval;

(d) DEQ will, within 60 days of adoption of these rules, distribute initial waste load allocations and load allocations to the point and nonpoint sources in the basin. These allocations are considered interim and may be redistributed based upon the conclusions of the approved program plans.

(6) Multiple Discharger Variance for Mercury**.** The following describes requirements for permitted wastewater discharge facilities that qualify for a water quality standards variance for the human health criterion for mercury and the process by which a discharger can qualify for the variance.

(a) Findings. DEQ finds the following:

(A) The fishing use and associated human health criterion for mercury cannot be attained in the waters of the Willamette Basin in the next 20 years because human-caused sources of mercury from global mercury emissions and erosion of native soils are deposited or transported to Willamette Basin waters. These mercury sources are outside the control of Oregon point source dischargers and the state and cannot be remedied to meet the underlying designated use and criterion during the next 20 years.

(B) There is no currently feasible mercury treatment technology that would result in achieving water quality based effluent limits based on the human health criterion for mercury.

DRAFT

(C) It would cause more environmental harm to install and operate additional treatment technology to remove additional mercury than to reduce mercury through implementing mercury minimization plans. This finding does not affect any requirement that would result in installing additional technology to address pollutants other than mercury.

(b) Term of the variance. The term of this variance is 20 years from the date of EPA approval.

(c) Eligibility requirements. To qualify for a variance, a facility must meet the following requirements:

(A) Operate a permitted municipal or industrial discharger employing a minimum of secondary treatment;

(B) Hold an individual NPDES permit to discharge wastewater to waters of the Willamette Basin;

(C) Have effluent levels greater than the water concentration value needed to meet the human health criterion for methylmercury;

(D) Have the potential to reduce mercury from the facility's effluent or in the receiving waterbody.

(d) Application requirements**.** To qualify for the variance, a facility must provide to DEQ the following information:

(A) A letter applying for the mercury variance under this rule;

(B) All mercury effluent data from the previous five years. At least two years of quarterly effluent data is required to receive coverage under the variance.

(C) A mercury minimization plan, as described in 340-041-0345(6)(e)(B).

(e) Highest attainable condition – level currently achievable. Permit requirements will reflect the highest attainable condition for this variance. The highest attainable condition for all facilities covered under this variance will include the level currently achievable, which is a quantifiable expression of the effluent condition achievable with the pollutant control technologies installed by a point source at the time this variance is granted, when those technologies are well maintained and operated. The LCA is the 95th percentile value of recent (e.g., five years) data, the highest value of recent data, or a previously applicable LCA, whichever is lower.

(f) Highest attainable condition – mercury minimization plan for municipal dischargers. The highest attainable condition for municipal dischargers will include implementing a mercury minimization plan covering the term of the variance, with the following minimum elements:

(A) A monitoring plan to include influent, effluent and biosolids monitoring;

(B) Identification and inspection of dental offices to ensure installation of amalgam separators, if not otherwise required;

(C) Identification of mercury-containing materials at facilities and offices operated by each municipal wastewater treatment facility and implementation of any recommendations for removing mercury-containing materials;

(D) Identification and inspection of commercial laboratories, schools and healthcare facilities that may have mercury and providing recommendations and outreach materials to these facilities;

(E) Distribution of outreach materials to commercial and residential sectors;

(F) Evaluation of new facilities as potential sources of mercury and outreach to provide recommendations on mercury reduction activities. Dischargers should prioritize outreach to facilities in the timber, paper, glass, clay, cement, concrete, gypsum, primary and fabricated metal, and electronic instrument sectors;

(G) Cleanup of legacy mercury from collection systems;

(H) Facility-specific activities to reduce mercury loading into the waterbody. These may include cost-effective and reasonable best management practices for nonpoint source controls under the control of the discharger that would make progress towards attaining the underlying designated use and criterion; and

(I) If a facility has accomplished all activities within its control, the facility may implement or fund mercury reduction activities outside the control of the discharger that will make progress toward attaining the underlying designated use and criterion.

(g) Highest attainable condition – mercury minimization plan for industrial dischargers. The highest attainable condition for industrial dischargers will include implementing a mercury minimization plan covering the term of the variance, with the following minimum elements:

(A) A monitoring plan to include influent, effluent and biosolids monitoring;

(B) Identification of mercury-containing materials used in the facility, offices and testing laboratories operated by the discharger, and developing and implementing recommendations for using substitute materials with less or no mercury;

(C) Identification of other potential sources of mercury within control of the facility and developing and implementing recommendations for reducing these sources;

(D) Facility-specific activities to reduce mercury loading into the waterbody. These may include cost-effective and reasonable best management practices for nonpoint source controls under the discharger's control that would make progress towards attaining the underlying designated use and criterion; and

(E) If a facility has accomplished all activities within its control, the facility may implement or fund mercury reduction activities outside the control of the discharger that will make progress toward attaining the underlying designated use and criterion.

(h) Public notice. DEQ will provide public notice and opportunity for comment for a request for authorization under this variance at the same time as the opportunity for comment on the draft permit.

(i) Re-evaluation of the Highest Attainable Condition. DEQ will re-evaluate the highest attainable condition for this multiple discharger variance every five years from the date that EPA approves this variance. DEQ will provide a written summary of this re-evaluation to EPA within 30 days of completion of the re-evaluation.

(A) The re-evaluation will include the following elements:

(i) A summary of the mercury reduction activities completed and an analysis of mercury reductions achieved by facilities covered under this variance using the data and information provided in their annual reports; and

(ii) Determination of the feasibility of wastewater treatment technology to attain the water quality standard.

(B) DEQ will provide public notice on the availability of its draft re-evaluation and provide at least 30 days opportunity for the public to comment on the draft re-evaluation.

(C) Upon permit renewal for each facility covered under the variance, DEQ will update conditions in the permit based on the re-evaluation of the Highest Attainable Condition, as follows:

(i) DEQ will re-calculate each facility's level currently achievable, as described in OAR 340-041-0345(6)(d)(A), utilizing the previous five years of data provided by each facility, at the time of their permit renewal. DEQ will adjust permit limits if the data shows that the level currently achievable has become more stringent than previously determined.

(ii) DEQ will review updates to the facility's site-specific mercury minimization plan and request revisions to ensure that it is consistent with variance requirements.

Statutory/Other Authority: ORS 468.020, 468B.030, 468B.035 & 468B.048
Statutes/Other Implemented: ORS 468B.030, 468B.035 & 468B.048
History:
DEQ 38-2018, minor correction filed 04/02/2018, effective 04/02/2018

DRAFT

DEQ 2-2007, f. & cert. ef. 3-15-07
DEQ 17-2003, f. & cert. ef. 12-9-03

DRAFT

Attachment 1
Notice of Proposed Rulemaking

DRAFT Multiple Discharger Variance for Mercury in the Willamette Basin

September 2019

Water Quality Standards
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5050
800-452-4011
Fax: 503-229-6762
Contact: Aron Borok

www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

State of Oregon
Department of Environmental Quality

This report prepared by:
Debra Sturdevant and Aron Borok, Water Quality Standards and Assessment
Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232
1-800-452-4011
www.oregon.gov/deq

Contact:
Aron Borok
503-229-5050
or
Debra Sturdevant
503-229-6691

DRAFT

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us

Table of Contents

1. Introduction and Background 1
1.1 Mercury in Fish and the Environment 1
1.2 Oregon's Mercury Water Quality Standard and its Application in the Willamette Basin 2
1.3 Overview of variance regulations 2
1.4 Overview of the Proposed Variance 3
2. The Need for the Variance 5
2.1 The methylmercury criterion for fish consumption is not currently attainable 5
2.2 Water Quality Based Effluent Limits for mercury are not achievable 9
2.2.1 Mercury Levels Currently Achieved by Secondary and Advanced Wastewater Treatment Plants 10
2.2.2 Mercury Levels Achieved by Other Treatment Technologies 12
3. Variance Requirements 15
3.1 Highest Attainable Condition 15
3.1.1. Justification for HAC #3 for facilities with advanced treatment 15
3.1.2. Justification for HAC #3 for municipal facilities without advanced treatment 16
3.1.3. Justification for HAC #3 for industrial facilities 22
3.1.4. Justification for HAC #3 for facilities that are planning to install treatment upgrades 23
3.2 Requirements that apply throughout the term of the variance 23
3.2.1 Interim Effluent Condition that Reflects the Level Currently Achievable 24
3.2.2 Implementation of a Mercury Minimization Plan 27
3.2.3 State Activities to Reduce Mercury Loads 27
3.3 Proposed term of the variance 29
3.4 Re-evaluation of the Highest Attainable Condition 29
4. Variance Application and Issuance Process 31
4.1 Application Process for Coverage under the MDV 31
4.2 Variance-related permit requirements 31
4.2.1 Effluent limit based on the Level Currently Achievable 31
4.2.2 Monitoring requirements 32
4.2.3 Implementation of a Mercury Minimization Plan 32
4.2.4 Annual progress reports 32
4.2.5 Requirements for facilities with increasing mercury effluent concentrations 32
4.2.6 Re-evaluation of requirements during permit renewal 32
5. Bibliography 33

DRAFT

List of Tables

Table 2-1. Potential treatment technologies considered for mercury treatment 13
Table 2-2. Treatment capability of mercury technologies 14
Table 3-1. Estimated Energy and Fiscal Impacts of Installing Advanced Treatment for Major Domestic Facilities in the Willamette Basin. 17
Table 3-2. Summary of DEQ programs that have the potential to reduce mercury loading in the Willamette Basin 28

List of Figures

Figure 2-1. Tissue sampling sites (2008-2015). 6
Figure 2-2. Mercury concentration (mg/kg wet weight) in skinless finfish fillets compared to total length (mm) 7
Figure 2-3. Distribution of THg Source Loads to the Stream Network (Tetra Tech, 2019) 7
Figure 2-4. Geometric mean of fish tissue concentrations by site. 8
Figure 2-5. Total Mercury Wet Deposition in 2014 (Mercury Deposition Network, 2017) 9
Figure 2-6. Average Total Mercury Effluent Concentration, Sacramento Delta WWTPs, 2004-2005. 11
Figure 2-7. Average Total Mercury Effluent Concentrations, Oregon pre-treatment WWTPs, 2016 11
Figure 3-1. Number of Wisconsin municipal wastewater treatment systems with increasing and decreasing trends in average (left) and 4-day P99 (right) concentrations. 18
Figure 3-2. Number of Wisconsin municipal WWTPs by 4-day P99 mercury concentrations from initial five-year period (left) to most recent five-year period (right) 19
Figure 3-3. Influent Data from Major Wastewater Treatment Plants in Minnesota. Source: Minnesota Pollution Control Agency 20
Figure 3-4. Mercury Concentrations in Biosolids, Rock Creek Wastewater Treatment Plan. Source: Clean Water Services. 20
Figure 3-5. Number of Wisconsin industrial wastewater treatment systems with increasing and decreasing trends in average (left) and 4-day P99 (right) concentrations. 23
Figure 3-6. Number of Wisconsin industrial NPDES facilities by 4-day P99 mercury concentrations from initial five-year period (left) to most recent five-year period (right). 23
Figure 3-7. LCA (95th percentile) of hypothetical facility under the MDV. 99th percentile value shown for informational purposes. 25
Figure 3-8. LCA (95th percentile) of hypothetical facility under the MDV. 25
Figure 3-9. LCA (95th percentile) of hypothetical facility under the MDV. 26
Figure 3-10. LCA (95th percentile) of hypothetical facility under the MDV. 26

DRAFT

1. Introduction and Background

A variance is a regulatory tool under the Clean Water Act to address circumstances in which a water quality standard is not currently attainable, but it is possible to make incremental progress toward meeting the standard. A variance is a temporary designated use and criterion for a specific pollutant that applies to a specific discharger or dischargers or waterbody. Federal rules allow variances based on one of seven factors. A variance is a transparent tool to ensure dischargers make incremental progress towards achieving the water quality standard.

In cases where multiple dischargers cannot attain water quality-based effluent limits for the same pollutant and due to the same or similar reasons, DEQ may develop a multiple discharger variance. A MDV is a time limited water quality standard that provides a streamlined process for qualified dischargers to apply for and obtain a variance. Once the Environmental Protection Agency approves the MDV, DEQ can issue permits for eligible facilities under the MDV with no additional water quality standards action.

DEQ is developing an MDV for mercury in the Willamette Basin for individual NPDES wastewater dischargers. These dischargers cannot currently meet mercury WQBELs because human-caused sources of mercury prevent attainment of the human health water quality criterion for mercury and removing the mercury through treatment would cause more environmental damage than removing it through source control. This document describes DEQ's justification for the MDV, variance requirements and procedures for issuing permits with variance-related conditions.

This document serves multiple purposes:

1. It supports DEQ's proposed rule amendments to the Environmental Quality Commission for adoption of the MDV and amendments to the state variance rule.
2. It serves as an explanation of the MDV and variance rule amendments to the public to support DEQ's public comment process.
3. It will serve as the justification for the MDV and rule amendments for EPA approval under the Clean Water Act.
4. It will provide information to the public and the regulated community regarding how DEQ plans to implement the MDV.

1.1 Mercury in Fish and the Environment

The following information is an excerpt from DEQ's *Draft* 2019 Mercury Total Maximum Daily Load for the Willamette Basin (ODEQ 2019). Additional information on mercury and the methylation process is found in the TMDL document as well as EPA's 2001 methylmercury criteria documents[1].

Mercury in higher trophic level fish is present largely as methylmercury, which is a potent neurotoxin in humans and other vertebrates. Mercury is a pollutant of global concern due to its widespread distribution in the environment and accumulation in aquatic biota. Most releases of mercury into the environment are

[1] https://www.epa.gov/wqc/human-health-criteria-methylmercury

to the atmosphere in an inorganic form; however, almost all human exposure to mercury is to an organic form, methylmercury, through the consumption of contaminated fish (Eagles-Smith, et al., 2018; Munthe, et al., 2007). Mercury released into the atmosphere has a long atmospheric lifetime (~6-12 months) which allows for its widespread distribution prior to deposition (Lindberg, et al., 2007; Schroeder & Munthe, 1998). As a result, elevated levels of methylmercury in fish tissue occur even in remote ecosystems (Chetelat, et al., 2015; Fitzgerald, et al., 1998; Trip & Allan, 2000). Most of the mercury in fish originates from dietary exposure, with minimal direct uptake by fish from the water (Hall, Bodaly, Fudge, Rudd, & Rosenberg, 1997). Therefore, differences in trophic position, foraging behavior, and diet can have a large impact on how much mercury is present in a given fish species (Driscoll, et al., 2007; Eagles-Smith, et al., 2016).

1.2 Oregon's Mercury Water Quality Standard and its Application in the Willamette Basin

In 2011, Oregon adopted a fish tissue criterion for methylmercury based on a fish consumption rate of 175 grams/day to protect the health of high consumers of marine and freshwater fish and other seafood. The current human health criterion is 0.04 mg/kg methylmercury in the fish tissue. DEQ revised all the state's human health criteria based on the new fish consumption rate at that time. The EQC and interested stakeholders understood that meeting the methylmercury criterion based on this consumption rate might not be immediately attainable in some waters and that variance might be an appropriate tool for permitted facilities.

The 2006 TMDL development generated a bio-accumulation factor for the Willamette River Basin for several species of fish. The BAF is a value that represents the relationship between concentrations of pollutants in water and the pollution concentration in a species of concern, and thus was used to convert fish tissue criteria value to a water column criterion. In addition, the TMDL developed a translator to convert the dissolved methylmercury to a total mercury in water, which is the mercury parameter typically monitored and used in permit analyses. Using these procedures, the TMDL derived water column targets for total mercury based on the BAF for the most sensitive species modelled, the Northern pikeminnow (*Ptychocheilus oregonensis)*.

In 2018, during the process to revise the mercury TMDL, an EPA contractor conducted the modelling to update the water concentration value based on the methylmercury criterion of 0.04 mg/kg adopted in 2011. DEQ is updating the TMDL based on the updated water column concentration of 0.14 ng/L total mercury. DEQ also is utilizing that concentration for determining whether a discharge could cause or contribute to an exceedance of the criterion, in which case, a numerically-based effluent limit must be included in the permit. Effluent limits calculated using this water concentration value are not currently achievable due to the limitations of current technologies.

1.3 Overview of variance regulations

A variance is a regulatory tool (40 CFR 131.14) to address circumstances where a designated use and associated criterion are not currently attainable, but it is possible to make progress toward meeting the criterion and the underlying designated use in the receiving water body. The federal regulations regarding variances, promulgated in 2015, are at 40 CFR 131.14. The Oregon regulations regarding variances are

DRAFT

located at OAR 340-041-0059[2]. In addition, DEQ has published implementation procedures for variances[3]. DEQ is updating the state's rules to ensure they are consistent with federal regulations promulgated in 2015.

The need for a variance must be justified based upon one of seven factors provided in state and federal regulations. Section 2 of this document provides the rationale for the need for the MDV for mercury.

For the MDV to be effective under the Clean Water Act, the Environmental Quality Commission must grant the variance and DEQ must submit it to EPA for approval, as it does for any change to a water quality standard. The variance must list the pollutant(s) and waterbody to which the variance applies, as well as the permittees subject to the variance. This information is included in Section 1.4.

The variance also must include the requirements that apply throughout the term of the variance. These requirements must represent the highest attainable condition of the water body throughout the term of the variance. These requirements are included in the rule and summarized in Section 3 of this document. DEQ's rationale for the proposed 20-year term of the variance is also included in Section 3. If the term of the proposed variance is greater than five years, federal variance regulations require states to re-evaluate the highest attainable condition at least every five years. Section 3 includes a description of the HAC re-evaluation process.

Federal rules require that any limitations and requirements necessary to implement the variance be included as enforceable conditions of the NPDES permit for permittees subject to the variance. DEQ's process for permittees to apply for coverage under this variance and how the agency will incorporate enforceable conditions necessary to implement the variance in permits, is described in Section 4.

1.4 Overview of the Proposed Variance

The proposed MDV allows DEQ to issue permits based on a time-limited standard for methylmercury in the Willamette Basin. The variance applies only to qualifying NPDES dischargers in the Willamette Basin and only for methylmercury. The underlying methylmercury criterion continues to apply for other CWA programs, such as water quality assessment and TMDLs. The variance applies to any NDPES discharger identified in the variance who submits a qualifying application to DEQ.

Designated Use

The current designated use in the Willamette Basin that cannot be attained as demonstrated in Section 2 is fishing (fish consumption).

Pollutant

The pollutant associated with this variance is methylmercury. The human health criterion that cannot be attained is 0.04 mg/kg, as measured in the fish tissue in the Willamette River Basin. The water column concentration needed to attain the fish tissue criterion is 0.14 µg/L total mercury.

Term of the variance

The term of the MDV is 20 years. See Chapter 3 for additional information.

---

[2] Oregon variance regulations are available at https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1458
[3] Oregon implementation procedures for variances are available at http://www.oregon.gov/deq/Filtered%20Library/IMDVariance.pdf

Permittees and waterbodies potentially subject to the variance

As of September 2019, permittees or potential permittees subject to the variance include those listed in Table 1. Once EPA approves the MDV, any discharger must submit information required by the MDV rule in order to obtain variance coverage. Facilities not listed here which meet MDV eligibility requirements may apply for coverage under this MDV. DEQ will provide public notice and opportunity for comment before it provides coverage to any dischargers under this MDV.

Permittee	Receiving Waterbody
Municipal Facilities with Advanced Wastewater Treatment	
Clean Water Services – Rock Creek STP	Tualatin River
Clean Water Services – Durham STP	Tualatin River
McMinnville Water Reclamation Facility	South Yamhill River
Major Municipal Facilities without Advanced Wastewater Treatment	
Metropolitan Wastewater Management Commission – Eugene/Springfield STP	Willamette River
Salem Willow Lake STP	Willamette River
Kellogg Creek WWTP	Willamette River
Tri-City Water Pollution Control Plant	Willamette River
Clean Water Services – Forest Grove STP	Tualatin River
City of Portland – Tryon Creek WWTP	Willamette River
Albany-Millersburg Water Reclamation Facility	Willamette River
Corvallis STP	Willamette River
St. Helens STP/Boise Cascade	Multnomah Channel
Canby STP	Willamette River
Oak Lodge Services Water Reclamation Facility	Willamette River
Wilsonville STP	Willamette River
Dallas STP	Rickreall Creek
Lebanon WWTP	South Santiam River
Newberg STP	Willamette River
Silverton STP	Silver Creek
Woodburn WWTP	Pudding River
Cottage Grove STP	Coast Fork Willamette River
Stayton STP	North Santiam River
Sweet Home STP	South Santiam River
Industrial Facilities	
Tri-City Service District – Blue Heron	Willamette River
West Linn Paper Company	Willamette River
Cascade Pacific – Halsey	Willamette River
Georgia-Pacific – Halsey	Willamette River
IP Springfield Paper Mill	McKenzie River
Westrock, Newberg Mill	Willamette River
Teledyne Wah Chang	Willamette River
Siltronic Corporation	Willamette River

Requirements of the variance

The requirements of the variance, which will become permit conditions, include:

1. An interim effluent condition based on the level currently achievable (see Section 3).
2. Implementation of a Mercury Minimization Plan (see Section 3).
3. Monitoring and reporting requirements as described in Chapter 4 below.

DRAFT

4. Re-evaluation of the HAC every five years.

2. The Need for the Variance

In order to grant a variance to a discharger, DEQ must find that it is not feasible to attain the designated use during the term of the variance because the criterion established to support the designated use is not currently attainable. Federal regulations at 40 CFR 131.14(b)(2)(i)(A) specify the factors that can be used to justify the need for a variance. DEQ is justifying the mercury MDV using Factor 3, "human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than leave in place." This section of the report summarizes the information that supports the need for the multiple discharger variance for mercury in the Willamette Basin. Section 2.1 details why human-caused conditions or sources of pollution prevent current attainment of the use and cannot be remedied during the variance term, highlighting the ongoing deposition of global airborne mercury in Oregon. Section 2.2 details why NPDES permittees cannot feasibly achieve WQBELs that would attain the methylmercury criterion during the term of the variance.

2.1 The methylmercury criterion for fish consumption is not currently attainable

The human health criterion for methylmercury is not currently attainable throughout the Willamette Basin due to atmospheric deposition of mercury in the watershed. The atmospheric deposition of mercury is a human-caused condition that cannot be remedied by NPDES dischargers or the State during the proposed 20-year term of the requested variance (Factor 3). The ubiquitous nature of the mercury levels in fish tissue and in the atmosphere in Oregon and across western North America, support this conclusion. In addition, there are geologic sources of mercury that occur in Oregon soils and water that are mostly the result of historical atmospheric deposition. These sources enter Oregon waters through surface runoff and groundwater resurfacing and cycle their way into fish. Neither these sources nor the processes by which they find their way into the waters of the Willamette Basin can be controlled by NPDES dischargers or the state during the proposed 20-year term of the variance at levels to meet Oregon's methylmercury criterion (ODEQ, 2019).

The information provided below demonstrates the need for the variance based on 40 CFR 131.10(g)(3), human-caused pollution that cannot be remedied or would cause more environmental damage to correct than to leave in place. Although the designated use and associated criterion are not attainable during the term of the variance, NPDES dischargers will continue to implement mercury minimization programs that will reduce human-caused sources of mercury to achieve the greatest pollutant reductions possible. Therefore, a variance is an appropriate Clean Water Act tool for these facilities.

The following data and information support the need for the Willamette Basin mercury variance by demonstrating that the mercury criterion is not attainable during the term of the variance in the waterbody. Even without the mercury load coming from individual point sources in the Willamette, the mercury criterion is not attainable in the waterbody during the term of the variance due to sources of

mercury outside the control of the dischargers and the state, which cannot be remedied during the term of the variance. Individual point source contributions of mercury will be reduced to the maximum extent feasible through the implementation of mercury minimization plans, as described in this document.

1. Data from Oregon show that fish tissue levels of methylmercury from locations across the state exceed the criterion of 0.04 mg/kg in a large majority of samples (Figures 2-1 and 2-2). The exceedances occur in remote as well as developed areas, indicating that elevated mercury in fish tissue is a ubiquitous problem across Oregon and is not solely associated with active point source discharges or urbanization.

2. The 2019 update to the Willamette Mercury TMDL has found that all individual NPDES discharges in the Willamette basin together contribute less than 1% of the total mercury load to the Willamette Basin, about 1.6 kg/year out of a total mass load of 132.0 kg/year (Figure 2-3).

3. Based on modeling and other analyses, the 2019 TMDL update identified direct runoff of atmospherically deposited mercury (33%) and erosion of mercury containing sediment (43%) as the dominant contributors of mercury to the river. The 2019 TMDL technical support document estimates that 88% of the total mercury load comes from these two sources plus other nonpoint sources.

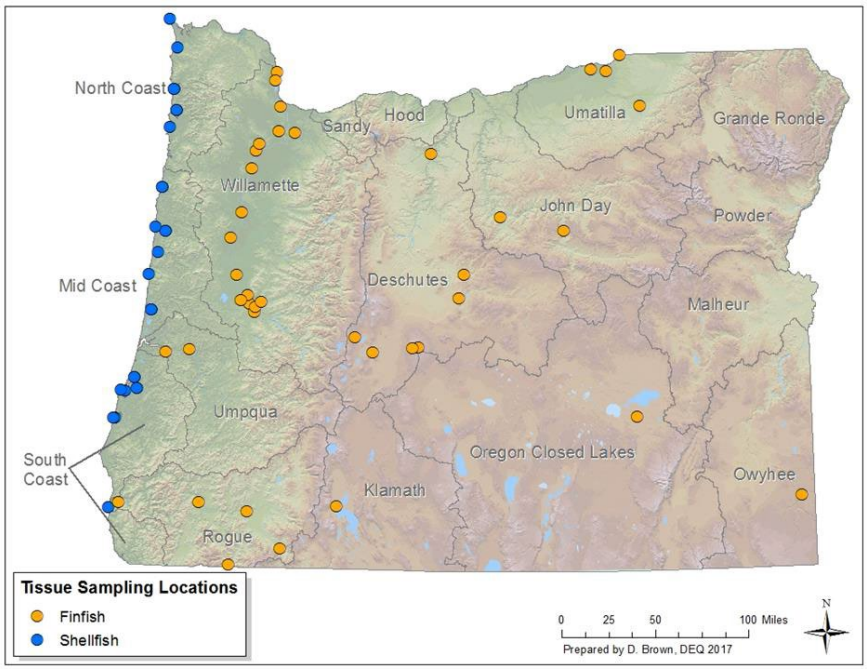

Figure 2-1. Tissue sampling sites (2008-2015).

From DEQ's Statewide Aquatic Tissue Toxics Assessment Report (ODEQ, 2017, p. 2).

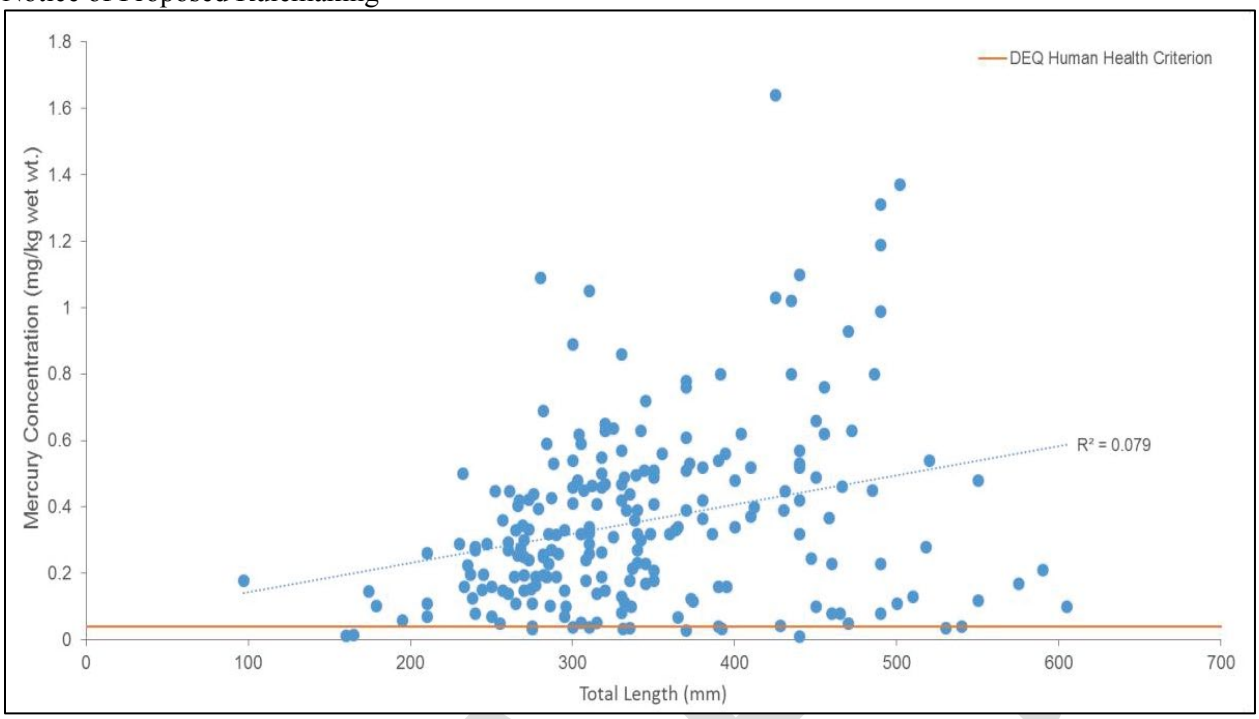

Figure 2-2. Mercury concentration (mg/kg wet weight) in skinless finfish fillets compared to total length (mm).

The orange line indicates the DEQ human health criterion for methylmercury (0.04 mg/kg fish tissue). (ODEQ, 2017, p. 13, Figure 10.)

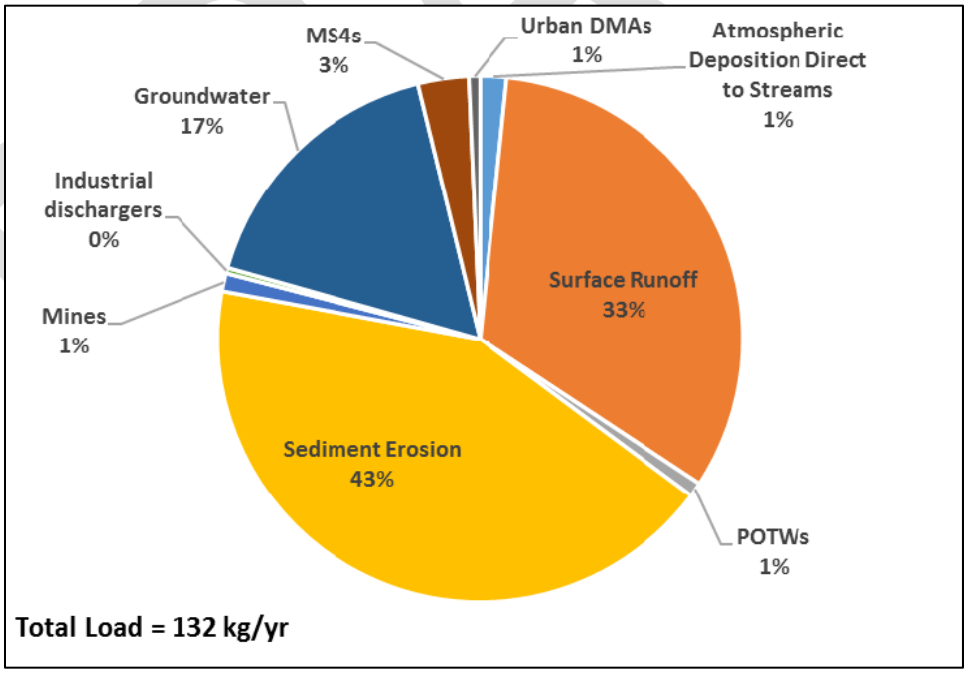

Figure 2-3. Distribution of THg Source Loads to the Stream Network (Tetra Tech, 2019)

The following information also supports the conclusion that atmospheric deposition is currently the major factor preventing the attainment of the use and that these dominant mercury sources cannot be remedied by the discharger or the state during the term of the variance.

1. Data from the Mercury Deposition Network and the scientific literature demonstrate that mercury is present in precipitation and that mercury is deposited onto Oregon waters and within watersheds (commonly referred to as "atmospheric deposition") (Figures 2-4 and 2-5).

2. Atmospheric sources of mercury deposited into waterways or onto the landscape in the Willamette Basin are primarily from sources outside of the state. On average, the amount of mercury in the atmosphere that is of purely natural origin is 13% of the total. In the terrestrial environment, this value increases to 17%. As such, greater than 80% of the mercury cycling in the environment is thought to be due to anthropogenic activities outside of the state and less than 20% from natural geologic sources (Amos, et al. 2013).

3. An 88% reduction in the total mercury load to the Willamette Basin is needed to meet the water concentration target of 0.14 ng/L total mercury. While the state's storm water and nonpoint source control programs will decrease levels of mercury associated with those activities, DEQ estimates it will take decades to implement programs to reach an 88% reduction in mercury loads to the Willamette Basin (ODEQ 2019). As a result, attaining the standard is not feasible within the proposed 20-year term of the variance, even under an aggressive program to prevent runoff and erosion of mercury from the landscape to waters of the basin.

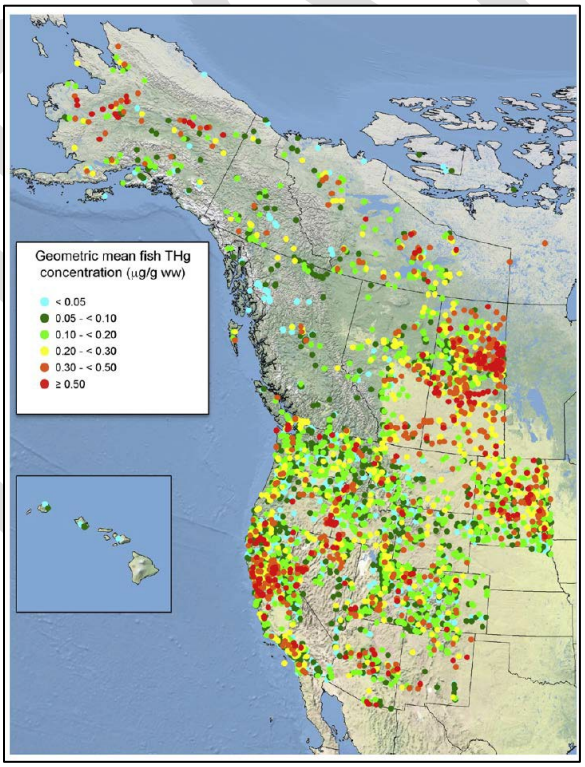

Figure 2-4. Geometric mean of fish tissue concentrations by site.

Only locations with turquoise dots would have geometric means close to the 0.04 mg/kg standard. From Eagles-Smith et al., 2016b.

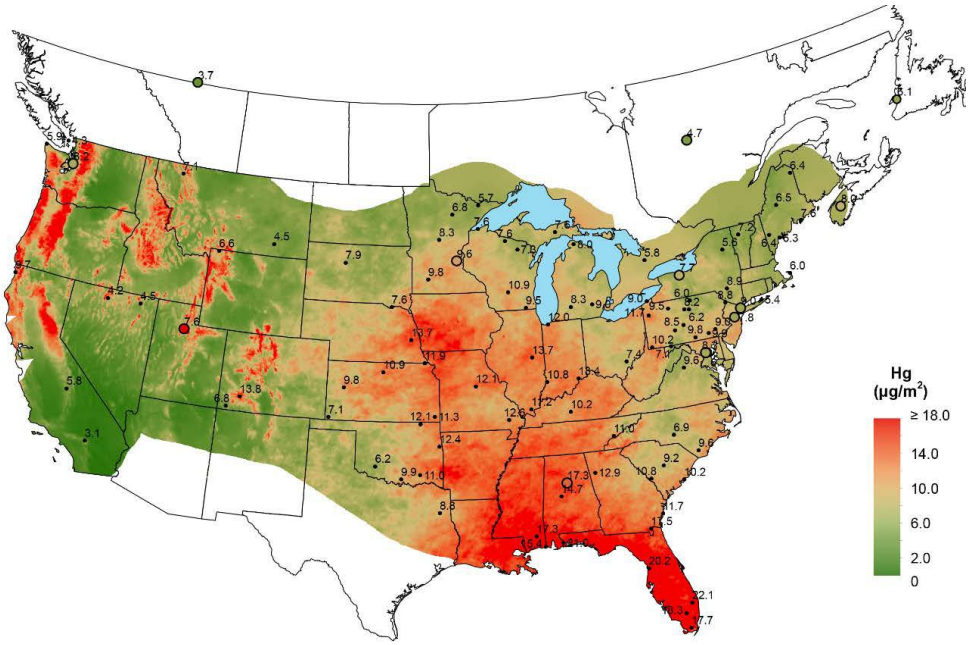

Figure 2-5. Total Mercury Wet Deposition in 2014 (Mercury Deposition Network, 2017)

DEQ expects that management practices to control erosion and rainwater runoff will reduce the movement of mercury from the land into the water. These practices are discussed in the Draft 2019 TMDL (ODEQ, 2019). The TMDL will also provide opportunities for municipal sources to investigate and implement best management practices within their jurisdiction as part of mercury minimization plans.

In summary, based on the information summarized above, DEQ concludes that Oregon's fish tissue criterion for methylmercury, and thus the fish consumption use to protect human health, is not attainable in the Willamette Basin during the term of the variance. There is sufficient data and information to demonstrate that mercury is a human-caused condition that cannot be remedied during the term of the variance to the extent needed to meet the underlying designated use and criterion in the Willamette Basin through the implementation of Clean Water Act requirements by NPDES permitted dischargers or the State. Based on the data and literature, mercury levels in the Willamette Basin result primarily from sources other than point source discharges. DEQ is addressing the broad spectrum of sources through the water quality management plan in the TMDL currently under development. DEQ estimates that the WQMP will take decades to implement in order to reach the water quality standards. While the state is implementing management practices to reduce the movement of mercury to the water, as discussed in Section 3.3, such practices would not result in attaining the designated use and criteria within the 20-year variance. These findings justify the need for a variance for the Willamette Basin, which is consistent with 40 CFR 131.10(g)(3).

2.2 Water Quality Based Effluent Limits for mercury are not achievable

There are no technology-based effluent limits or effluent limitations guidelines for mercury. Therefore, NPDES permit limits for mercury are evaluated based on the water quality criterion. Because total

mercury levels in the Willamette River basin exceed the water concentration needed to meet the fish tissue-based methylmercury criterion, dischargers would be required to achieve an effluent concentration equal to the water concentration target of 0.14 ng/L before the effluent is discharged to the receiving water. Current treatment technology can reliably attain concentrations less than 20 ng/L. Treatment achieving these levels is typically through the removal of solids which have mercury adsorbed to them Treatment achieving these levels is typically through the removal of solids which have mercury adsorbed to them. Thus, mercury removal is an ancillary benefit of wastewater treatment and effluent concentrations vary significantly, even when influent concentrations are similar. Moreover, any removed mercury from treatment is likely to end up into biosolids, which is then disposed of through land application or to landfills, where it can re-enter the environment. DEQ also examined other treatment technologies and determined there are currently no feasible treatment technologies that could feasibly reduce mercury levels enough to achieve an effluent concentration of 0.14 ng/L.

2.2.1 Mercury Levels Currently Achieved by Secondary and Advanced Wastewater Treatment Plants

The information in this section demonstrates that current wastewater treatment technology, while removing 90% or more of mercury from influent, consistently achieves *average* mercury concentrations ranging from 1-15 ng/L. However, because mercury removal is an ancillary benefit of treatment, mercury concentrations are so small, and mercury can enter into a collection system in unexpected ways, effluent concentrations vary significantly, even in effluent from one discharger and under similar conditions.

In 2005, California performed a study looking at methylmercury removal from NPDES permitted dischargers in the Sacramento River Delta (California EPA, 2010). California required dischargers to collect and report on methylmercury influent and effluent data over twelve months in 2004 and 2005. A subset of these facilities also reported total mercury effluent data. The facilities were categorized as either secondary or tertiary treatment plants. The median of the average annual total mercury effluent concentrations was 7.4 ng/L in secondary treatment plants (n=27) and ranged from 3.1-21.5 ng/L (Figure 2-6). In tertiary treatment plants (n=22), the median average annual concentration was 3.3 ng/L and ranged from 0.8 – 11.6 ng/L.

DEQ also compiled and analyzed mercury levels from 2016 data provided by municipal dischargers in Oregon (Figure 2-7). In this case, DEQ categorized each system as secondary or advanced. Advanced systems included additional filtration or treatment after secondary treatment. The median average annual total mercury effluent concentration was 2.9 ng/L for secondary treatment plants (n=11) and ranged from 1.2 to 8.3 ng/L. In advanced treatment plants (i.e., those employing nutrient removal, tertiary or other post-secondary treatment filtration, or both) (n=8), the median annual average concentration was 1.7 ng/L and ranged from 1.1 to 3.0 ng/L.

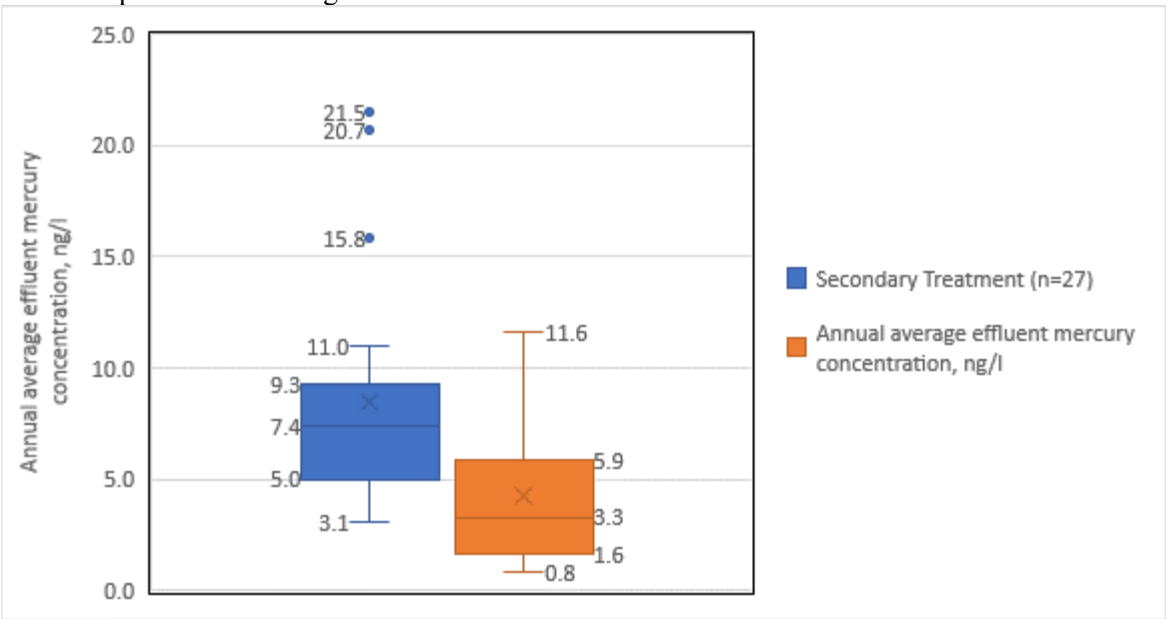

Figure 2-6. Average Total Mercury Effluent Concentration, Sacramento Delta WWTPs, 2004-2005. (California EPA, 2010)

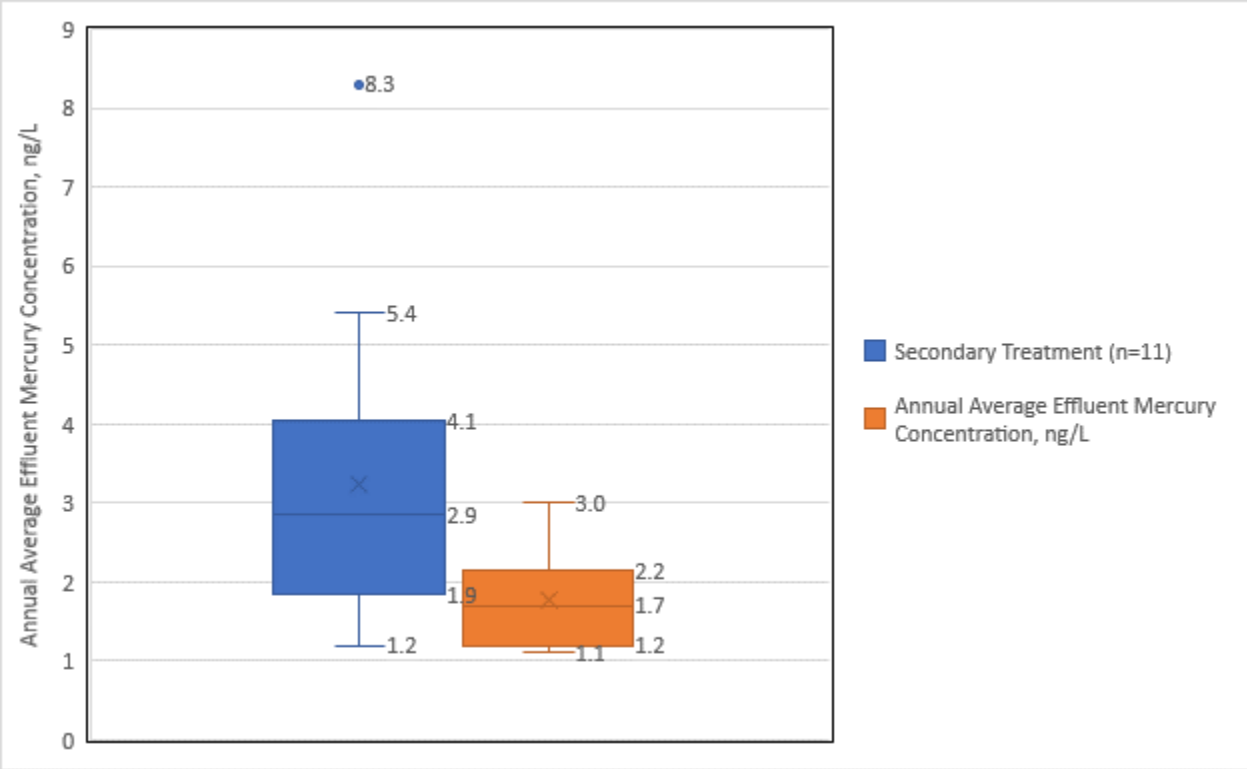

Figure 2-7. Average Total Mercury Effluent Concentrations, Oregon pre-treatment WWTPs, 2016

Note: The Oregon wastewater treatment facilities included in the advance treatment group (n=8) for this graphic include: Rock Creek and Durham operated by Clean Water Services, McMinnville, Wilsonville, Albany, Kellogg Creek, Newberg and Tri-cities. Only a portion of the Tri-cities WWTP flow is filtered

after secondary treatment; however, the average mercury concentration in the effluent in 2016 was 1.6 ng/L, which is comparable to other advanced treatment systems.

This information, along with Wisconsin data presented in Section 3, indicate that secondary and advanced treatment achieve a range of mercury concentrations and these concentrations overlap. Moreover, as demonstrated in Section 3, facilities that implement source reduction through mercury minimization plans and pretreatment, can achieve significant mercury reductions in the effluent and in some cases they can achieve mercury effluent concentrations similar to that detected at facilities employing advanced treatment.

2.2.2 Mercury Levels Achieved by Other Treatment Technologies

In reviewing the ability of other available wastewater treatment technologies to remove mercury, DEQ could not find any pilot or full-scale treatment systems that would be able to achieve the water concentration target of 0.14 ng/L.

Because there is a lack of full-scale installations consistently producing effluent mercury concentrations at levels less than those found in secondary or advanced treatment, it is difficult to predict whether it is possible to consistently achieve these concentrations on a long-term, large-scale basis. A 1997 study in Ohio concluded that *the ability of the added controls to meet the standard was not known* (Ohio EPA, 1997). The Ohio mercury criterion for aquatic life is 1.3 ng/L. In Oregon, the WQBEL needed to meet the human health criterion for methylmercury is 0.14 ng/L, an order of magnitude lower than the Ohio and Michigan standards. If the ability of the controls, short of reverse osmosis, to meet 1.3 ng/L is not known, it is reasonable to conclude that there is no feasible technology that can meet 0.14 ng/L.

This conclusion is consistent with a review conducted by HDR in 2013 for the Association of Washington Businesses (HDR, 2013). The HDR study examined the potential performance of adding reverse osmosis or granular activated carbon to a tertiary microfiltration process and hypothesized that such a treatment system *might* be able to remove mercury to a concentration of 0.12 to 1.2 ng/L. However, the study provided no data from any test or operational system. Such treatment systems have not been employed on a bench or pilot scale, or at a wastewater treatment plant scale to DEQ's knowledge.

Membrane filtration technology, such as reverse osmosis, uses a significant amount of electricity, creating a substantial carbon footprint, and requires disposal of waste brine. According to a life cycle assessment performed for the Berlin-Ruhleben secondary wastewater treatment plant (63 MGD), the operational energy use of polymer ultrafiltration or ceramic microfiltration membranes would be 0.33 watt×hour/gal. This would represent approximately a 9 percent increase in that plant's existing global warming potential without taking into account the additional global warming potential that would be contributed by the infrastructure, chemicals for maintenance and any necessary coagulant, and the transport of waste sludge for disposal. Of the different types of membrane filtration, reverse osmosis also has the large disadvantage of necessitating disposal of the concentrate stream, which can amount to approximately 5 to 20 percent of the influent.

A 2007 EPA report regarding mercury treatment notes that there are technologies, such as precipitation, filtration or other physical/chemical treatments (see Table 2-1) that remove more mercury than secondary or advanced wastewater treatment plants. However, these have been employed in industrial settings where influent concentrations were an order of magnitude higher than influent concentrations at municipal

wastewater treatment facilities (US EPA, 2007). The effluent concentrations at many of these industrial applications were similar to the influent concentrations at municipal treatment facilities. Moreover, the information provided in the EPA report did not indicate flow volumes, so it is difficult to translate these studies to typically larger municipal wastewater treatment plant volumes.

In another study, an oil refinery evaluated various treatment technologies for wastewater with low (10 ng/L) mercury levels to determine the extent to which mercury concentrations could be further reduced using conventional treatment. Bench scale tests of various adsorbent techniques showed that they could remove mercury to as low as less than 0.08 ng/L of total mercury (Urgun-Demirtas, et al., 2013). Ultra- and micro-filtration bench tests also reduced mercury to less than 1 ng/L, although not as much as adsorption. However, such techniques have not been shown to work at the higher volume in municipal treatment (HDR, 2013).

Table 2-1 shows the results from treatment technologies that have been tested for water supply treatment or industrial wastewater treatment. Table 2-2 summarizes mercury concentrations achieved from various technologies. As shown in these tables, no technology has consistently reached mercury concentrations less than that achieved by activated sludge (secondary treatment) or activated sludge with nutrient removal or tertiary filtration (advanced treatment) at flow volumes typically seen at large municipal WWTPs (>1 MGD).

Table 2-1. Potential treatment technologies considered for mercury treatment

Study	Type of treatment technology	Influent total mercury concentration (ng/L)	Average effluent total mercury concentration (ng/L)	Percent removal	
US EPA (2007)	Precipitation (Chelator)	400-9,600,000	25-21,400	42-99.9%	Full scale for groundwater and wastewater treatment; not tested for municipal wastewater or industrial processes in Willamette Basin
EPA (2007)	Adsorption/ Granular Activated Carbon	3,300-2,500,000	300-1,000	99-99.8%%	Full scale
HDR Study (2013)	Tertiary Microfiltration/ Reverse Osmosis or Granular Activated Carbon		0.12-1.2 hypothetically	>99%	Not demonstrated at WWTP scale
Urgun-Demirtas, et al. (2013)	Precipitation	10 ng/L	3.1 ng/L (before filtration) 0.17 ng/L (after filtration)	56.5% before filtration	Bench scale testing
Urgun-Demirtas, et al. (2013)	Adsorption	10 ng/L	<0.08 ng/L – 0.72 ng/L (lowest achieved)	92.8% - 99.2%	Bench scale testing
Urgun-Demirtas, et al. (2013)	Filtration	10 ng/L	0.26 – 0.34 ng/L (lowest achieved)	65 – 97% depending on pressure	Bench scale testing

DRAFT

Study	Type of treatment technology	Influent total mercury concentration (ng/L)	Average effluent total mercury concentration (ng/L)	Percent removal	
Hollerman, et al. (1999)	Adsorption	739-1447 ng/L	~25-340 ng/L	n/a	Low volume

Table 2-2. Treatment capability of mercury technologies

Treatment Technology	Volume Range of Known Uses	Treatment Ability
Activated sludge	Up to 25 MGD	3-50 ng/L
Activated sludge w/ Nutrient Removal or Filtration	Up to 25 MGD	1-10 ng/L
Membrane Filtration	Low volume	Bench scale to 0.26 ng/L
Ion Exchange	0.015 MGD (5-50 GPM)	1 ng/L
Precipitation and filtration	Low volume	Bench scale to 0.17 ng/L; full scale to 25 ng/L
Adsorption	Low volume	Bench scale to 0.08 ng/L; full scale to 25 ng/L

DRAFT

3. Variance Requirements

To comply with federal regulations, a variance must include a statement of the highest attainable condition during the term of the variance, the term of the variance, and the requirement to re-evaluate the highest attainable condition at least every 5 years. These requirements are discussed below.

3.1 Highest Attainable Condition

The federal variance rule states, "The requirements (of the variance) shall represent the highest attainable condition of the waterbody or waterbody segment applicable throughout the term of the WQS variance." [4] For a discharger specific variance, the HAC may be expressed in one of three ways:

1. HAC #1 is "the highest attainable interim criterion," and establishes an alternate instream criterion for the term of the variance.
2. HAC #2 is "the interim effluent condition that reflects the greatest pollutant reduction achievable." This option is appropriate when a treatment upgrade is feasible and would provide additional pollutant removal that will result in mercury reductions.
3. HAC #3 applies "if no additional feasible pollutant control technology can be identified," in which case the HAC3 is "the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the state adopts the WQS variance and the adoption and implementation of a pollutant minimization plan."[5]

DEQ concluded that HAC #3 is appropriate under this MDV, as described below.

3.1.1. Justification for HAC #3 for facilities with advanced treatment

For facilities with advanced wastewater treatment, there is no feasible technological upgrade that will reduce mercury loads in a discharger's effluent in order to achieve a WQBEL based on the underlying designated use and criterion, as demonstrated in Chapter 2. Thus, for these facilities, HAC #3 is appropriate. Based on available data provided in Section 2.2, these facilities with advanced treatment are already capable of achieving annual average mercury concentrations of 1 - 3.5 ng/L, which is near the limits of currently feasible technology. DEQ will include permit effluent limits based on the level currently achievable, using the methodology described in Section 4, and require the facility to develop and implement an MMP, including monitoring and reporting requirements.

The following facilities currently have advanced treatment:

Permittee	Receiving Waterbody
Clean Water Services – Rock Creek STP	Tualatin River
Clean Water Services – Durham STP	Tualatin River
McMinnville Water Reclamation Facility	South Yamhill River

[4] 40 CFR Part 131.14(b)(1)(ii)
[5] 40 CFR 131.14(b)(ii)(A)

3.1.2. Justification for HAC #3 for municipal facilities without advanced treatment

As noted in Section 2, on average, mercury effluent limits in facilities with advanced or tertiary treatment are slightly lower than in facilities with only secondary treatment. Based on this information, HAC #2 may seem appropriate for facilities without advanced treatment, as there is additional treatment that may lead to ancillary mercury reductions at most facilities covered under the variance. However, as summarized in Table 3-1, DEQ has determined that HAC #3 is the most reasonable approach for the MDV due to the following reasons:

- Advanced treatment is not designed to remove mercury, and mercury effluent concentrations are highly variable, even when influent concentrations are similar. Due to this variability, even under a well-operated system, it is not possible to set a future effluent condition, as is required by HAC #2.
- EPA guidance recommends that states adopting mercury variances require dischargers to implement MMPs. The guidance states, "By reducing mercury sources up front, as opposed to traditional reliance on treatment at the end of a pipe, diligent implementation of MMPs might mitigate any adverse effects of a variance by improving the water quality." (US EPA, 2010)
- Source reduction activities over time can result in significant reductions in effluent mercury levels when assessed in aggregate over multiple facilities (Section 3.1.2.1);
- It will cause greater environmental damage to remove the mercury through treatment than through source reduction due to higher energy costs and the need for additional waste disposal (Section 3.1.2.2). DEQ estimates that advanced treatment would result in energy costs equivalent to 9,500 to 12,000 CO_2 equivalents per year. Moreover, because wastewater dischargers only contribute less than 1% of the total mercury load to the Willamette, such reductions will not have a measurable impact on water column mercury concentrations. Moreover, treatment will produce more mercury in biosolids, which keeps mercury cycling in the environment
- Advanced treatment would be expensive, costing Oregon ratepayers an estimated $15,000,000 - $36,000,000 per year without measurable environmental benefit (Section 3.1.2.2).
- HAC #2 would require DEQ to establish an interim effluent condition that would be achieved by the discharger by the end of the variance, then establish a compliance schedule to provide a discharger time to meet the interim effluent condition. This approach implies that such an outcome is both feasible and desirable, which the data and information related to treatment technologies do not bear out relative to mercury. As a result, this approach would put in place additional requirements without a commensurate outcome.
- Oregon state law specifies that, to the extent allowable by federal law, through granting of variances, DEQ shall protect human and ecosystem health by controlling pollutants while also minimizing negative economic impacts on Oregon's economy.[6] Requiring treatment upgrades would result in negative economic impacts to dischargers while not measurably improving exposure to mercury through fish consumption.

[6] ORS 468B.037

Table 3-1. Estimated Energy and Fiscal Impacts of Installing Advanced Treatment for Major Domestic Facilities in the Willamette Basin.

	Advanced treatment for 21 municipal facilities	**Current treatment plus MMP implementation**
Amount of wastewater treated	>97 MGD[7]	>97 MGD
Oregon water quality criterion: 0.14 ng/L	Does not meet standard; no measurable change in water column concentration	Does not meet standard; no measurable change in water column concentration
Average effluent concentration	1-3.5 ng/L	Currently 1-5.5 ng/L. MMP implementation will reduce loads over the term of the variance.
Energy increase	17,000 – 21,000 MWh/year	No expected change
Annual carbon footprint increase	9,500 – 12,000 metric tons CO_2 equivalent	No expected change
Annualized Capital and annual O&M Costs	$15,000,000 - $36,000,000	No expected change
Timeline	10+ years	20 years
Other benefits	Reduced concentrations of other pollutants through treatment	Reduced concentrations of other pollutants through MMP implementation.
Other impacts	Increased administrative burden through need for compliance schedule	No expected change

As required under HAC #3, permit conditions will be consistent with the interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the state adopts the WQS variance and the adoption and implementation of a pollutant minimization plan. DEQ will analyze progress in reducing mercury during re-evaluation of the HAC conducted every five years.

3.1.2.1. Mercury Reductions Achieved Through Minimization Could Potentially Achieve Similar Concentrations as Advanced Treatment

As noted in Section 2.2.1, municipal dischargers with advanced treatment or additional filtration have average mercury effluent concentrations ranging from 1-3.5 ng/L. Some secondary systems have similar mercury concentrations as those with advanced treatment; some have higher concentrations. As noted in that discussion, these concentrations vary widely over time, often due to unknown circumstances. Data from other states indicates that over the 20-year proposed term of the variance, appropriate implementation of the required MMP at facilities without advanced treatment can result in aggregate reductions of mercury in the effluent.

[7] Based on current flow figures. Does not include flow for City of Portland – Tryon Creek STP, Lebanon WWTP, or Cottage Grove STP.

The Wisconsin Department of Natural Resources tracked mercury effluent data from NPDES permittees over the past fifteen years, as permitted facilities have been implementing MMPs under the Great Lakes Initiative. The data, as indicated in the following discussion, show that MMP implementation has resulted in similar effluent mercury concentrations as advanced wastewater treatment.

WDNR tracks mercury concentrations using average effluent concentration and a short- and long-term 99th percentile metric. Among 52 municipal dischargers, the average long-term 99th percentile concentration decreased from 11.2 ng/L in the initial 5-year period to 3.2 ng/L in the most recent 5-year period (2014-2018). The median 99th percentile also decreased from 5.2 to 2.8 ng/L. All but three municipal systems experienced decreasing trends in average effluent concentrations and all but eight experienced decreasing 4-day P99 concentrations (Figure 5-1). Moreover, whereas 13 facilities had 4-day P99s greater than 8 ng/L in their initial permit term, only one facility had a 4-day P99 greater than 8 ng/L based on the most recent data (Figure 3-2), highlighting how effluent levels have decreased over time. The mercury concentrations seen at most of these facilities are within the range seen at advanced municipal wastewater treatment plants. According to WDNR staff, none of these facilities use advanced treatment and have achieved these levels primarily through MMP implementation.[8]

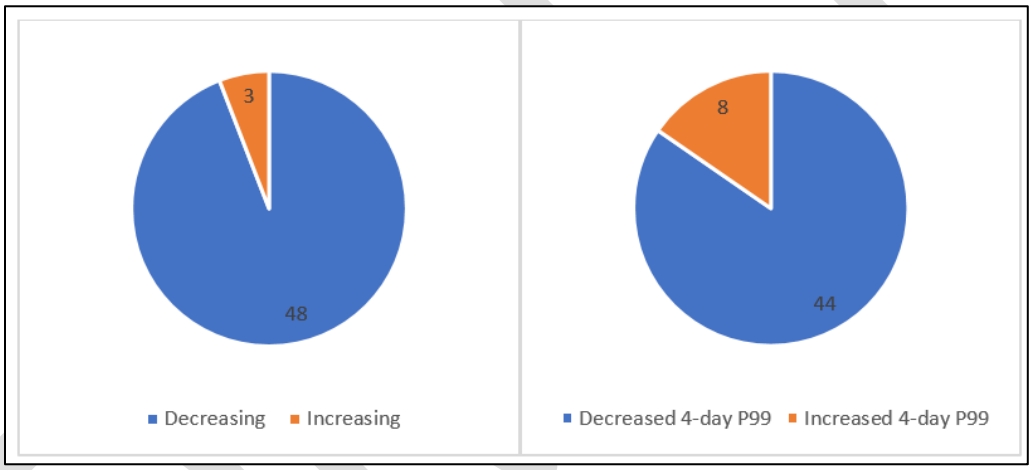

Figure 3-1. Number of Wisconsin municipal wastewater treatment systems with increasing and decreasing trends in average (left) and 4-day P99 (right) concentrations. (Wisconsin DNR).

Source: Wisconsin Department of Natural Resources.

[8] *Personal communication*, Laura Dietrich, Wisconsin Department of Natural Resources, 2/28/19.

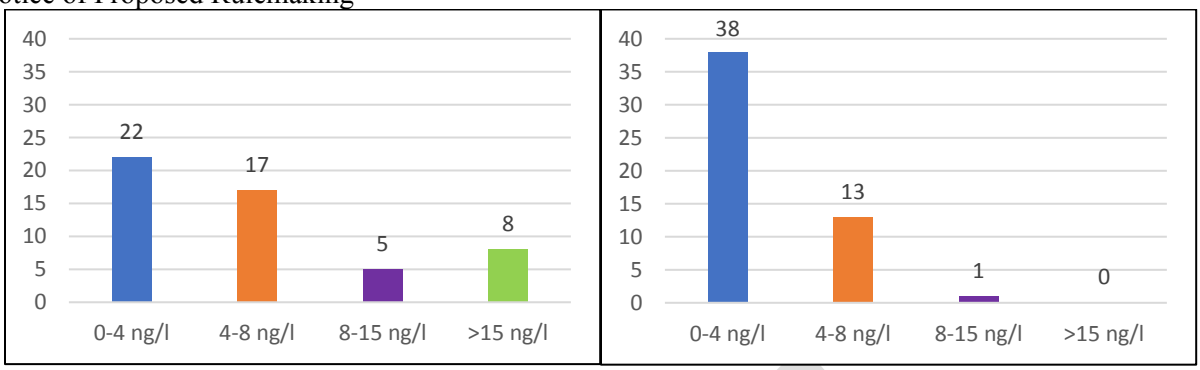

Figure 3-2. Number of Wisconsin municipal WWTPs by 4-day P99 mercury concentrations from initial five-year period (left) to most recent five-year period (right).

Source: Wisconsin Department of Natural Resources.

DEQ is proposing an aggregate reduction through MMP implementation, because not all facilities implementing MMPs show continued mercury reduction. For example, the City of Stevens Point, Wisconsin found that influent levels were highly variable even after MMP implementation (Stevens Point Public Utilities 2018). Effluent mercury levels declined over time, but were still variable. The city determined that legacy mercury in the collection system was likely causing this variability. The City of Oshkosh similarly concluded that influent variability arose from cleaning and maintenance of its collection system, but that additional removal of additional legacy material would eventually reduce periodic spikes in mercury influent concentrations (City of Oshkosh, 2018).

Evidence from influent and biosolids data also indicates the effectiveness of MMPs in reducing mercury, even if effluent levels are variable. A decade of mercury influent data from 72 major NPDES wastewater treatment plants in Minnesota indicate that MMPs resulted in significant and continued reductions in mercury concentrations entering treatment systems. Between 2008 and 2017, influent total mercury concentrations decreased from an average of 180 ng/L to 70 ng/L (Figure 3-3). Data from Oregon's Rock Creek Advanced Wastewater Treatment Plant operated by Clean Water Services indicates decreasing mercury levels in biosolids, showing the effectiveness of their mercury reduction efforts over the last 20 years (Figure 3-4).

DRAFT

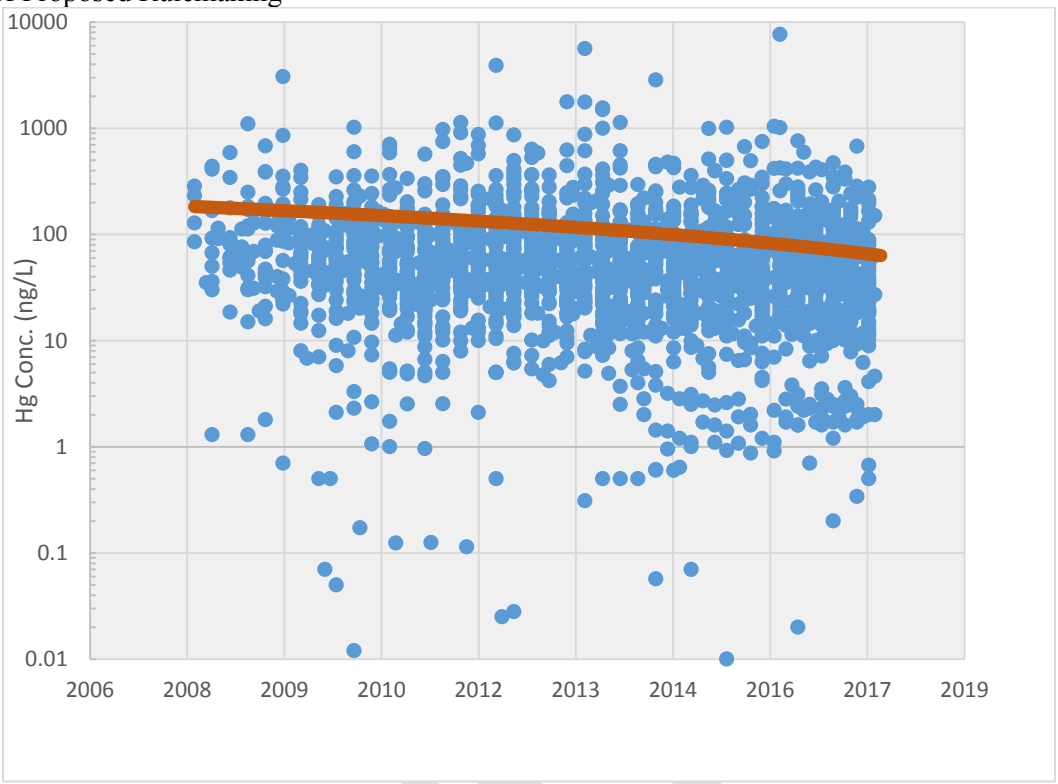

Figure 3-3. Influent Data from Major Wastewater Treatment Plants in Minnesota. Source: Minnesota Pollution Control Agency

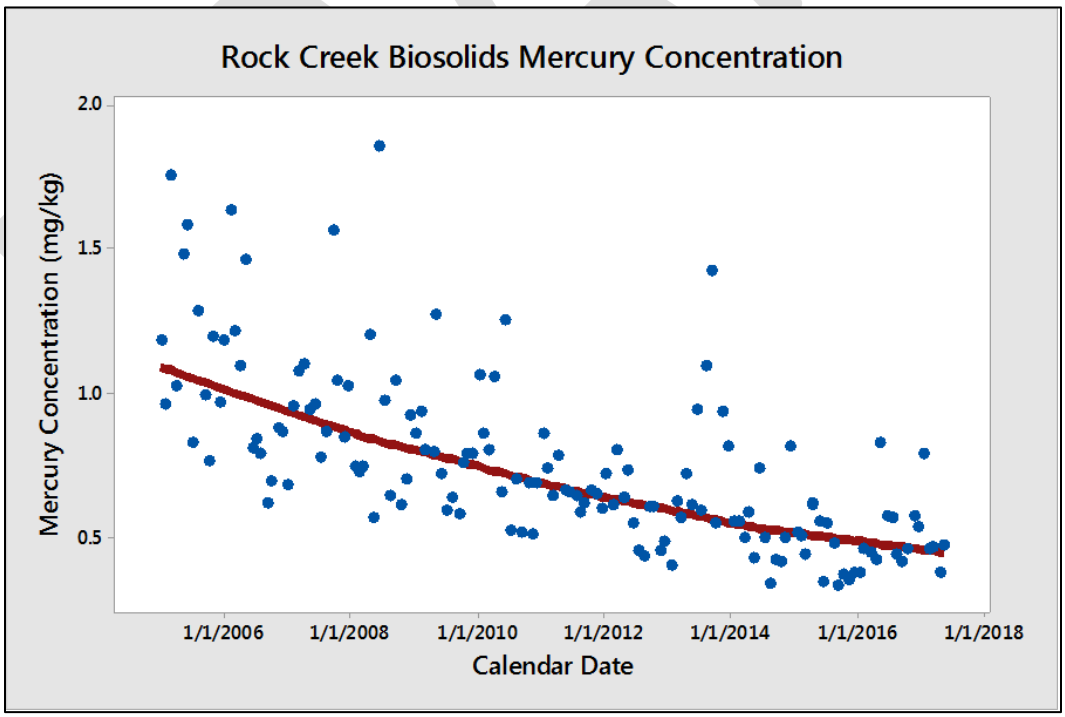

Figure 3-4. Mercury Concentrations in Biosolids, Rock Creek Wastewater Treatment Plan. Source: Clean Water Services.

3.1.2.1. Advanced treatment will cause more environmental damage than MMP implementation, will result in negative economic impacts and create additional administrative burden without a measurable impact on the environment

In addition to eventually achieving similar effluent concentrations as advanced treatment, MMP implementation incurs less environmental damage than advanced treatment. Environmental damage associated with advanced treatment include greater energy consumption, added greenhouse gas emissions, and the need for additional waste disposal.

According to a report from the Water Research Foundation and Electric Power Research Institute, daily energy consumption at advanced treatment plants is about 500-600 kwh per million gallons per day higher than that of secondary activated sludge plants (EPRI and WRF, 2013). Flow data is available for seventeen of the twenty facilities covered under the variance. The total daily flow of these facilities is 97 MGD. DEQ estimates that the additional annual energy consumption to upgrade to advanced treatment is 17,000-21,000 megawatt-hours per year. This equates to an annual carbon footprint increase of approximately 9,500 to 12,000 metric tons carbon dioxide equivalent per year.[9] Additional waste disposal required by wastewater treatment would add additional carbon footprint due to the need to haul additional material. Moreover, waste disposal could result in land application of biosolids containing mercury, which could release back to the environment.

The total mercury load from all point sources in the Willamette Basin is 1.6 kg/year, or less than 1% of the total annual load of mercury to the basin (ODEQ, 2019). Treatment upgrades at the estimated number of facilities with higher mercury concentrations would only reduce a portion of this load, which also will likely be achieved eventually through source reduction without the associated environmental damage. Therefore, DEQ has concluded that the additional energy use and waste disposal associated with advanced treatment would cause more environmental harm than removing similar amounts of mercury load through MMPs, which focus on source reduction.

Oregon statutes require that, to the extent allowable by federal law, through granting of variances, DEQ shall protect human and ecosystem health by controlling pollutants while also minimizing negative economic impacts on Oregon's economy.[10] To examine the cost of installing advanced treatment solely to remove mercury, DEQ utilized an EPA report examining capital and O&M costs associated with installing nutrient removal at municipal wastewater facilities (US EPA, 2008). Based on case studies presented in the EPA report, annualized capital costs (20 years at 6%) plus annual O&M costs range from $155,000 to $375,000 per MGD in 2019 dollars. Based on this estimate, installation of advanced treatment at all 20 municipal facilities that do not currently have advanced treatment would cost $15,000,000 to $36,000,000 per year without a measurable difference in mercury as compared to source control, which is already required under DEQ guidance and thus does not add extra costs to these facilities. As a result, DEQ has concluded HAC #3 would minimize negative impacts on Oregon's economy while still making progress toward protecting human health.

[9] To calculate the annual carbon footprint, DEQ utilized carbon footprint information utilized in the 2019 Triple Bottom Line analysis to support the chloride and mercury variance for the city of Madison, Wisconsin.
[10] ORS 468B.037

Under HAC #2, DEQ would need to establish an interim effluent condition based on the greatest pollutant technology achievable, which is difficult to establish because available treatment only achieves ancillary mercury removal. In addition, DEQ would then need to include a compliance schedule within the permit to provide time for the facility to design, obtain financing and install such treatment. This outcome would require additional administrative steps without measurable mercury reduction in the waterbodies and cause additional environmental impacts. In addition, this approach is contrary to the data and information about the most cost-effective means of reduction. The EPA guidance recommends states adopting mercury variances require dischargers to implement MMPs. The guidance states, "By reducing mercury sources up front, as opposed to traditional reliance on treatment at the end of a pipe, diligent implementation of MMPs might mitigate any adverse effects of a variance by improving the water quality" (US EPA, 2010). This further supports the HAC #3 as the most reasonable option.

3.1.3. Justification for HAC #3 for industrial facilities

Industrial facilities in the Willamette Basin that would be eligible for this variance operate similar treatment to municipal facilities. Many of the same arguments that apply to municipal facilities apply to industrial facilities: 1) No treatment is available that can reliably meet the water quality standard; and 2) installation of additional treatment will cause more environmental damage than leaving the pollution in place. Industrial facilities in the Willamette Basin contribute approximately 0.3% of the total load of mercury to the Willamette. Moreover, these facilities have effluent levels of mercury that average less than 15 ng/L. Finally, industrial facilities have no control over mercury levels in intake water, which do not currently meet water quality standards. However, they can achieve mercury reductions through material identification and substitution.

Given the high environmental costs of treatment and the effectiveness of source reduction and the small contribution to the overall load, DEQ has concluded that it is the best option to establish an effluent limit based on levels currently achievable. These facilities will continue to focus on MMP implementation, rather than installing advanced treatment technologies solely for the reduction of mercury.

Available data from Wisconsin industrial dischargers indicates that MMP implementation has resulted in an overall decreasing trend in mercury concentrations at industrial facilities. Among 24 industrial NPDES permit holders, the mean 4-day P99 decreased from 25.4 to 13.7 ng/L and the median 4-day P99 decreased from 14.1 to 7.2 ng/L between 2004 and 2018. Eighteen of the 24 facilities had lower 4-day P99 concentrations in the most recent five-year period as compared to the initial period, and sixteen had decreasing average mercury concentrations (Figure 3-5). Finally, while only one additional facility had a 4-day P99 less than 8 ng/L from the initial five-year period to the most recent, five fewer facilities had concentrations greater than 15 ng/L (Figure 3-6). The success of these dischargers in continuing to reduce mercury indicates that industrial dischargers in the Willamette Basin can achieve similar continued success, even for those that have been implementing MMPs for several years.

DRAFT

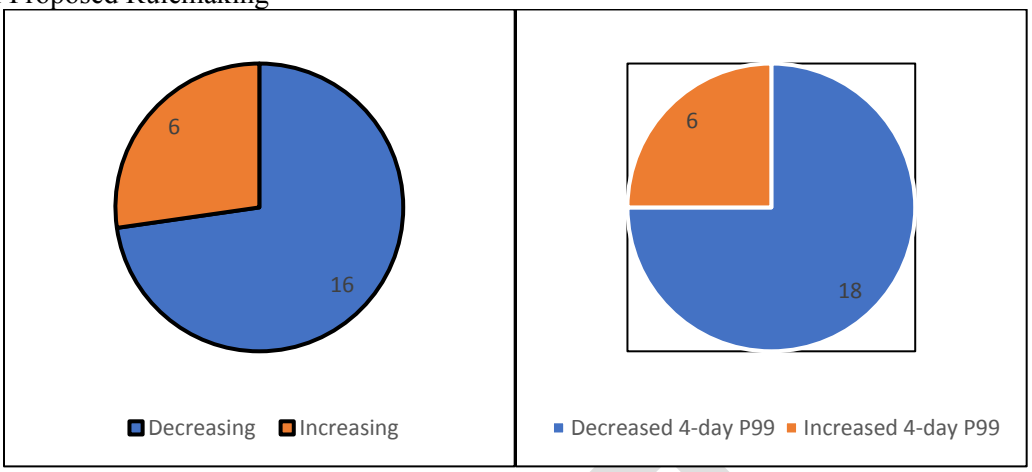

Figure 3-5. Number of Wisconsin industrial wastewater treatment systems with increasing and decreasing trends in average (left) and 4-day P99 (right) concentrations.

Source: Wisconsin Department of Natural Resources.

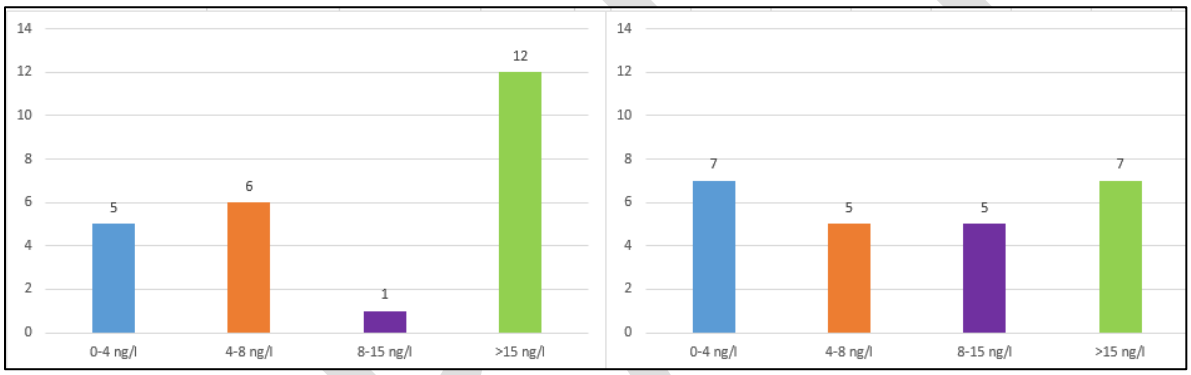

Figure 3-6. Number of Wisconsin industrial NPDES facilities by 4-day P99 mercury concentrations from initial five-year period (left) to most recent five-year period (right).

Source: Wisconsin Department of Natural Resources.

3.1.4. Justification for HAC #3 for facilities that are planning to install treatment upgrades

In some cases, a facility may be required to upgrade its treatment system to meet limits other than mercury. An upgrade may also have the ancillary benefit of reducing mercury concentrations. As noted, advanced treatment is not designed to target a specific mercury level; effluent mercury concentrations are variable in such systems. For these facilities, HAC #3 is still appropriate. Until the upgrade is operational, DEQ will issue an effluent limit based on the level currently achievable with the technology installed at the time the variance is issued. DEQ will then update the permit limit based on recent data after the following a five-year HAC re-evaluation according to the process outlined in Section 3.3.

3.2 Requirements that apply throughout the term of the variance

This section describes the requirements of the variance, consistent with HAC #3. First, the discharger will receive a permit limit based on the effluent conditions reflecting the level currently achievable. Second, the discharger will be required to implement a mercury minimization plan with required elements noted in section 3.2.2. DEQ describes how it will incorporate variance requirements into permit requirements in Section 4.

3.2.1 Interim Effluent Condition that Reflects the Level Currently Achievable

The HAC for the MDV is expressed in the federal variance rule as "the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a Pollutant Minimization Program." DEQ uses the term "Level Currently Achievable" to describe "the interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance."

In order to calculate the LCA for mercury for each facility, DEQ will use the most recent five years of mercury effluent data at the time of each permit issuance, with a minimum of eight quarterly samples that span at least two years. Each sample is a single data point, even when the facility collects samples on three consecutive days, as required by the pretreatment program. The TSD methodology (Table E-1), with lognormal transformation and no auto-correlation, is used to calculate the 95th percentile of the effluent data distribution to describe the Level Currently Achievable. DEQ used data from four facilities to demonstrate how DEQ would calculate these levels (Figures 3-7 – 3-10). The LCA value is equal to the 95th percentile of the distribution shown in each chart. The figures also include the 99th percentile value for information only.

DRAFT

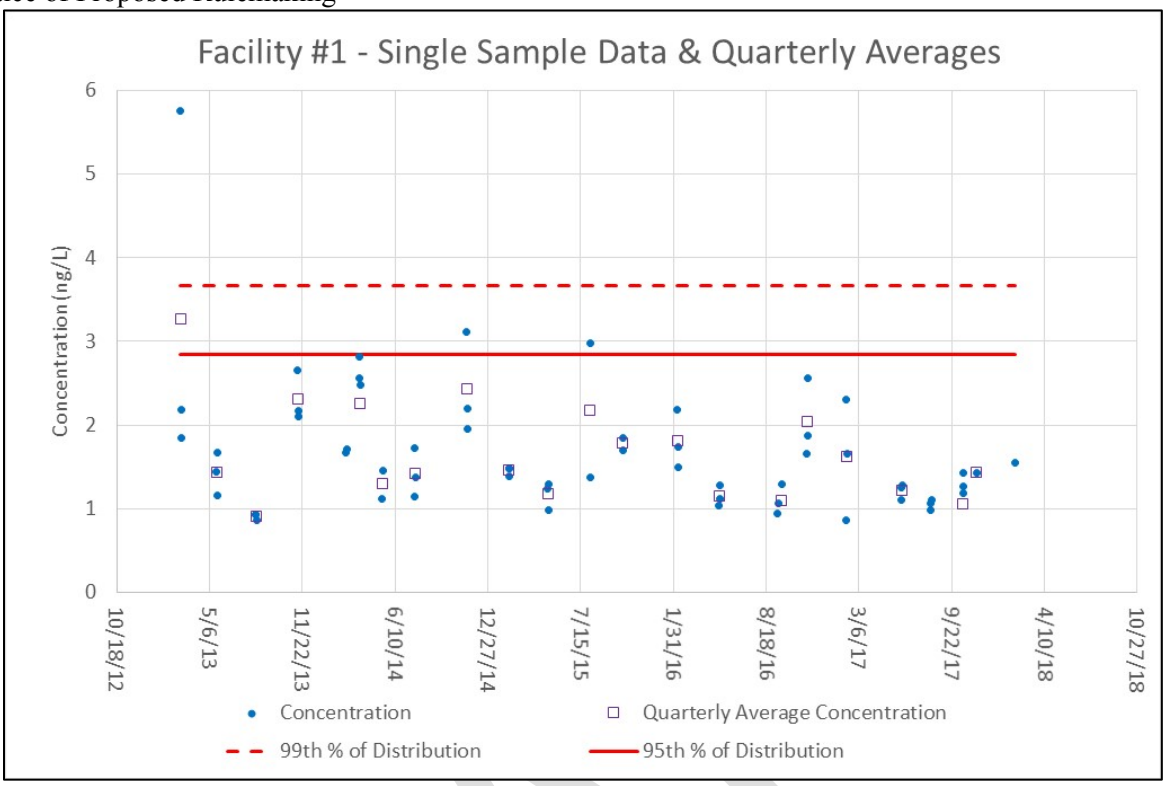

Figure 3-7. LCA (95th percentile) of hypothetical facility under the MDV.

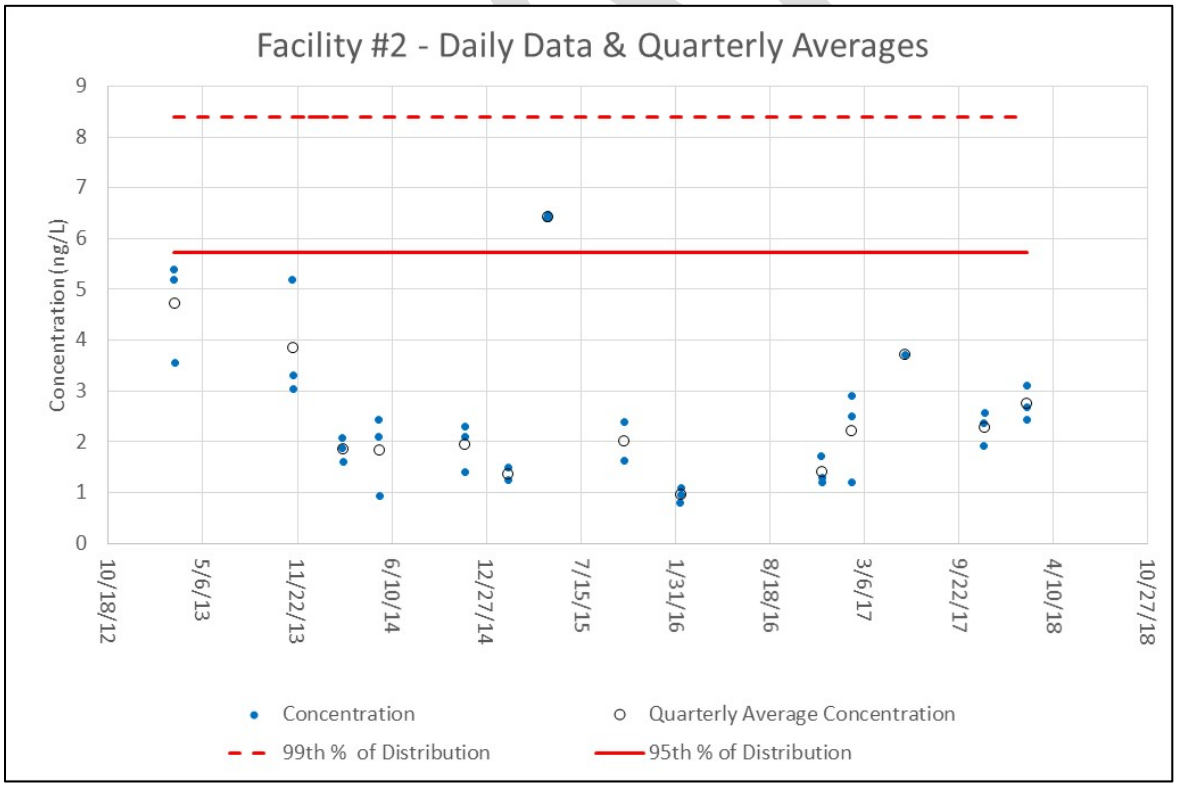

Figure 3-8. LCA (95th percentile) of hypothetical facility under the MDV.

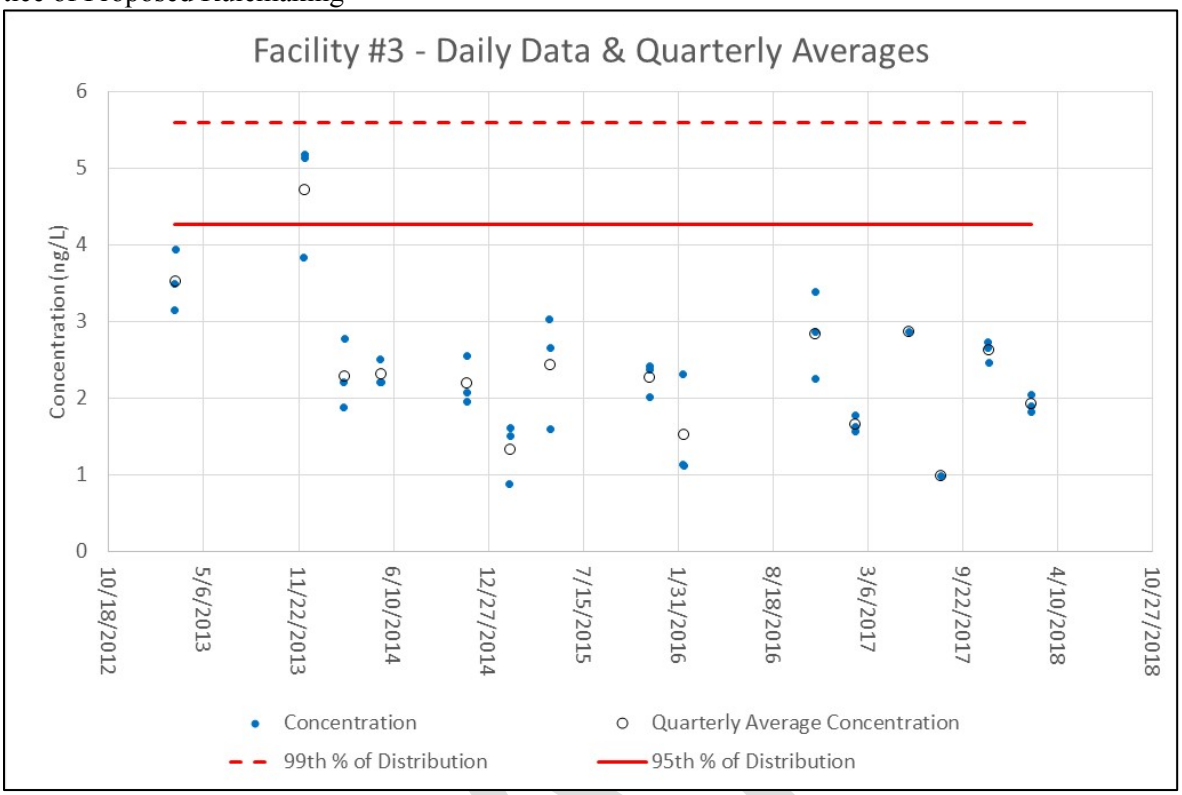

Figure 3-9. LCA (95th percentile) of hypothetical facility under the MDV.

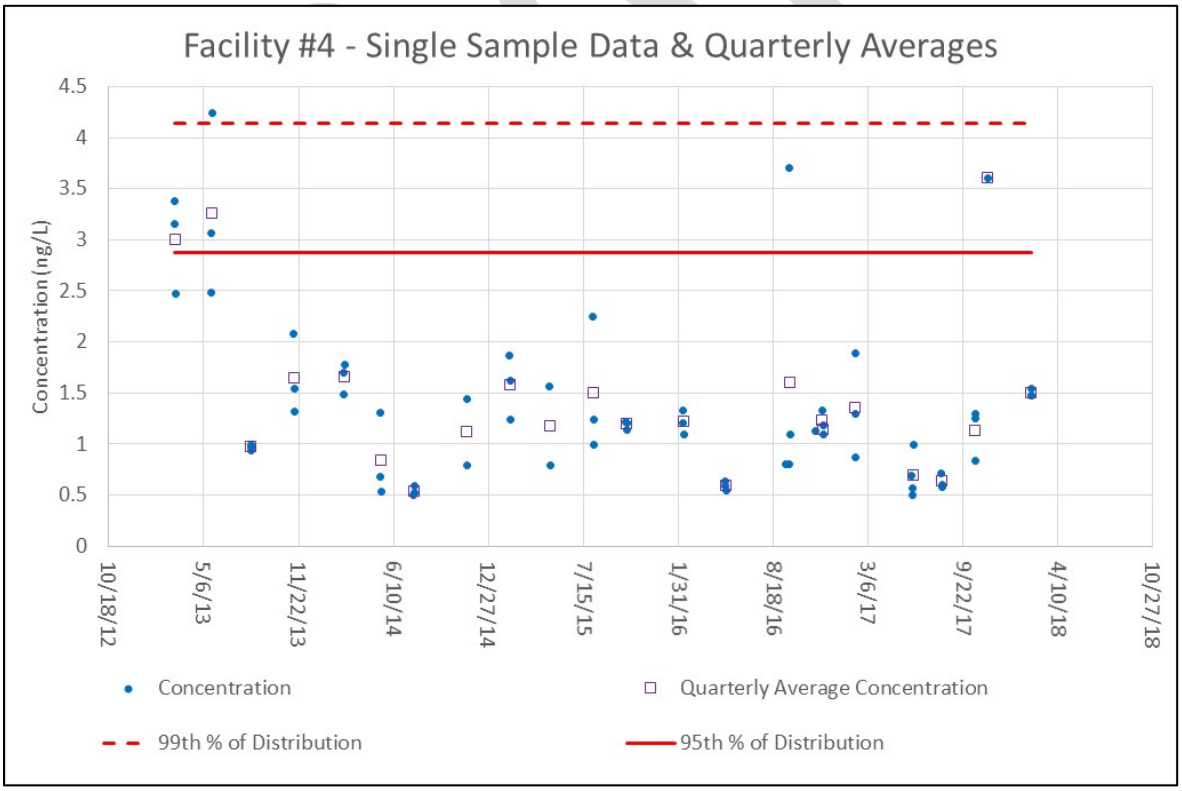

Figure 3-10. LCA (95th percentile) of hypothetical facility under the MDV.

3.2.2 Implementation of a Mercury Minimization Plan

The variance also requires all permittees that obtain coverage under the variance to implement a mercury minimization plan. The MMP must include mercury reduction activities throughout the term of the variance.

As many municipalities nationwide have implemented MMPs over two or more decades, there is a body of knowledge upon which to draw to focus efforts on those activities that will result in mercury reductions. DEQ has included language in the draft rule highlighting types of activities minimally expected from municipal and industrial facilities. Required elements of an MMP for municipal facilities must include the following:

1. Influent, effluent, and biosolids monitoring and other monitoring
2. Annual reporting
3. Identification and inspection of dental offices to ensure installation of amalgam separators, if not otherwise required;
4. Identification of mercury-containing materials at facilities and offices operated by each municipal wastewater treatment facility and implementation of any recommendations for removing mercury-containing materials;
5. Identification and inspection of commercial laboratories, schools and healthcare facilities that may have mercury and providing recommendations and outreach materials to these facilities;
6. Providing general outreach materials for commercial and residential sectors.
7. Evaluation of new facilities within a collection system as sources of mercury and outreach to provide recommendations on mercury reduction activities.
8. Facility-specific activities to reduce mercury loading within the Basin, which may include addressing legacy mercury in collection systems, as well as cost-effective and reasonable best management practices for nonpoint source controls that the permittee could implement during the term of the variance to make progress towards attaining the underlying designated use and criterion.
9. If a facility has accomplished all activities within its system, the facility may achieve additional reductions by implementing or funding offsite mercury reduction activities, such as erosion control, which will make progress toward attaining the underlying designated use and criterion.

Required elements of an MMP for industrial facilities must include:

1. Effluent and biosolids monitoring, if relevant and other monitoring, if needed.
2. Annual reporting
3. Identification of mercury-containing materials used in the facility, offices and testing laboratories
4. Developing and implementing recommendations for using substitute materials with less or no mercury;
5. Identification of other potential sources of mercury within control of the facility;
6. Facility-specific activities to reduce mercury loading within the Basin, which may include cost-effective and reasonable best management practices for nonpoint source controls that the permittee could implement during the term of the variance to make progress towards attaining the underlying designated use and criterion.

3.2.3 State Activities to Reduce Mercury Loads

DRAFT

DEQ's draft plan to reduce mercury loads is presented in Chapter 13 of the Willamette Basin Mercury TMDL (Oregon DEQ, 2019). Table 3-2 summarizes DEQ programs that have the potential to reduce nonpoint source mercury loading to the Willamette Basin. In addition, the TMDL also describes activities that other designated management agencies will implement to reduce mercury loads, including the following agencies:

- Oregon Department of Agriculture
- Oregon Department of Forestry
- Oregon Department of State Lands
- Oregon Department of Parks and Recreation
- Oregon Department of Geology and Mineral Industries
- Oregon Department of Fish and Wildlife
- Oregon State Marine Board

Table 3-2. Summary of DEQ programs that have the potential to reduce mercury loading in the Willamette Basin

DEQ NPS Program	How it Protects/ Supports Water Quality
Nonpoint Source TMDL Implementation Program	Outlines and implements management goals, projects, and water quality monitoring for pollutant reductions that are needed in order meet Oregon's water quality standards, including mercury and methylmercury.
Onsite Program	Protects human health and the environment by establishing requirements for the construction, alteration, repair, operation and maintenance of onsite wastewater treatment systems.
Clean Up Program	Protects human health and the environment by identifying, investigating, and remediating sites contaminated with hazardous substances, including mercury.
Nonpoint Source 319 Grant Program	The 319-grant program funds cooperating entities for activities that address NPS emphasizing watershed protection and enhancement, watershed restoration, voluntary stewardship, and partnerships among watershed stakeholders, such as DEQ's Pesticide Stewardship Partnership. This includes alignment with significant match funding provided through the Oregon Watershed Enhancement Board (OWEB)'s parallel granting programs.
Clean Water State Revolving Fund	SRF loans finance a variety of nonpoint source water quality plans and projects. Eligible activities include integrated and stormwater management plans, establishing or restoring permanent riparian buffers and floodplains and daylighting streams from pipes.

DEQ also oversees stormwater and point source (NPDES) permitting programs that will reduce mercury loads to the river over time; this includes municipal stormwater (MS4) permits. DEQ is incorporating the draft water quality management plan by reference. It is available at the following link: https://www.oregon.gov/deq/wq/Documents/tmdlWillHgD.pdf.

As noted in the TMDL, it will take decades for the activities to be fully implemented. Because of the large between reducing concentrations in the water column and for those reductions to show up in fish

DRAFT

tissue, it will take even longer for those activities to result in decreased fish tissue concentrations of methylmercury that will meet the water quality standard for methylmercury.

3.3 Proposed term of the variance

Federal variance rules specify that variance terms shall be only as long as necessary to meet the HAC.[11] As described in Section 3.2, the HAC is the effluent condition reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time Oregon adopts this variance, and the adoption and implementation of an MMP. DEQ has concluded that MMP activities described in Section 3.2.2 will take 20 years for dischargers covered under this variance and will continue to make progress toward the criterion during this time. These activities include facility specific activities, including nonpoint BMPs that facilities can continue to undertake once they have done most of the activities that will directly influence mercury levels in their influent. As noted in the Section 3.2, MMP implementation in Wisconsin continues to make progress toward the state's mercury standard of 1.3 ng/L more than 15 years since the state began tracking mercury data. Facilities in Wisconsin continue to implement MMPs.

As a result, DEQ proposes that the Willamette Basin Mercury MDV have a term of 20 years. According to the 2019 draft Willamette Basin Mercury TMDL, it will take decades to achieve the human health methylmercury criterion, so DEQ does not expect that the standard will be achieved in the waterbody at the end of the variance. A 20-year term will provide DEQ sufficient time to collect and evaluate data to determine the extent to which the variance has resulted in decreased influent and effluent mercury concentrations.

3.4 Re-evaluation of the Highest Attainable Condition

Federal rules require that DEQ re-evaluate the HAC at least every five years. The HAC re-evaluation process provides the permittee the opportunity to document the success of mercury minimization efforts and update its MMP. Re-evaluation also provides DEQ and the public the opportunity to determine if source reduction efforts have resulted in progress toward meeting the water quality standard.

DEQ will re-evaluate the HAC five years after EPA's approval of the MDV and each 5 years after that. DEQ's review will include the following elements:

- An assessment of treatment technology to determine if there have been any changes that would change DEQ's evaluation of the appropriate HAC. The analysis will answer the following questions:
    - Is there pollutant control technology feasible to meet water quality based effluent limits based on the underlying designated use and criterion?
    - Is there additional treatment that is feasible to make progress toward the water quality standard, beyond what would be attained through MMP implementation?

[11] 40 CFR 131.14(b)(1)(iv)

- A summary of mercury minimization efforts conducted by all facilities covered under the MDV.
- An examination of data provided by these facilities to assess whether source reduction activities have resulted in mercury reductions and calculating a new LCA when appropriate. DEQ will look at overall trends in influent, effluent, biosolids and other data.

As required under federal rules, DEQ will prepare a public notice and provide a 30-day public comment period. This public comment period may include an information session or hearing to be held in the Willamette Basin. Finalizing public comment, DEQ will make any necessary changes before submitting a final document to EPA within 30 days of completing the evaluation and making the final document available on the agency website. In addition, if DEQ does not re-evaluate the HAC at least every five years or submit the results of the re-evaluation to EPA, the variances will no longer be the applicable water quality standard for purposes of the Clean Water Act until such time that the re-evaluation is completed and submitted to EPA.

DRAFT

4. Variance Application and Issuance Process

4.1 Application Process for Coverage under the MDV

Once EPA approves the MDV, eligible NPDES dischargers can apply for coverage under the variance concurrent with applying for permit renewal. The rule requires each permittee to provide the following information to qualify for the MDV:

- Information about the facility's treatment system, including their current treatment technology, the location of their discharge outfall, and their pretreatment program, if applicable.
- The most recent mercury effluent data (as much as available for the last 5 years, but not less than two years).
- Other available mercury data from the previous five years, including influent data, biosolids data, and any other data collected to track mercury sources. Such data will assist DEQ in supporting its decision to justify the variance application and will be used in the 5 year HAC reviews.
- A description of prior mercury minimization efforts to date. This could include copies of any MMP progress reports that have been submitted under the previous permit cycle, if they are available.
- A draft facility-specific MMP that will cover the term of the variance and include the elements listed in Section 3.2 and the rule. The MMP will undergo public comment along with the permit. DEQ permit staff will work with the permittee to ensure that the MMP meets DEQ requirements before the final permit and variance authorization are issued.

4.2 Variance-related permit requirements

Once DEQ has received all necessary information from the permittee, staff will incorporate variance-related permit requirements into the draft permit, as described below. DEQ will, as part of the standard public comment period for each permit, take comment on authorization of the variance and variance-related permit requirements, including comments on facility specific MMPs submitted by the permittee. Following the public comment period, DEQ will incorporate any needed changes to the permit before finalizing the permit.

4.2.1 Effluent limit based on the Level Currently Achievable

DEQ will include an interim effluent limit in each permit based on the procedure described in Section 3.2.1. These permit limits will apply as a quarterly average concentration, not to be exceeded in 2 consecutive quarters.

Because many facilities sample mercury just once per quarter, a spike in mercury concentrations could cause an exceedance of the quarterly average, while not being indicative of a problem in treatment operations. Therefore, it is not appropriate to set a permit limit based upon the sampling results for a single quarter. Instead, DEQ proposes to define a violation of the maximum quarterly average permit

limit **as two consecutive quarters in which the quarterly average is above** the 95th percentile of the distribution. Thus, one quarterly average above the 95th percentile is not a permit violation. However, if the quarterly average is above the 95th percentile again in the following sampling period, then the limit has been exceeded.

Most facilities that sample for mercury do so as part of their pretreatment programs. This sampling is typically conducted on three consecutive days, once per quarter. DEQ does not propose additional sampling. However, DEQ allows additional samples. If additional samples are collected, the results must be included when calculating the quarterly average.

4.2.2 Monitoring requirements

DEQ will incorporate effluent monitoring requirements into the permit to ensure compliance with the LCA-based interim effluent limit. DEQ will require a minimum of quarterly mercury effluent monitoring for each facility. Many facilities already collect at least this amount of mercury effluent data under pre-treatment programs or current permit requirements.

4.2.3 Implementation of a Mercury Minimization Plan

DEQ will include a requirement in the permit to implement the MMP as described in Section 3.2.2. The MMP must include mercury reductions activities throughout the 20-year term of the variance. During re-evaluation of the variance for the next permit cycle, the facility can add mercury reduction activities to the existing MMP.

4.2.4 Annual progress reports

The permit will require an annual progress report. The progress report should include, at a minimum, the following information:

- All effluent, influent, biosolids and other mercury data collected over the course of each year of the permit cycle;
- A summary of activities conducted under the MMP; and
- Any nonpoint source best management practices implemented under the authority of the permittee to address mercury loads.

4.2.5 Requirements for facilities with increasing mercury effluent concentrations

As demonstrated in Section 2.2, MMP implementation typically results in reductions in mercury effluent concentrations over time. However, effluent mercury concentrations may trend upwards in some facilities from one permit term to the next. During the HAC re-evaluation process, DEQ will not increase the LCA and LCA-based effluent limits when average effluent concentrations have increased from one permit term to the next. This is consistent with federal and state variance requirements. DEQ may require the facility to include additional facility specific commitments in its MMP, potentially to include additional facility audits, or collection system monitoring to identify and address legacy sources of mercury.

4.2.6 Re-evaluation of requirements during permit renewal

When each permit is renewed, DEQ will re-calculate the LCA based on effluent data collected during the previous five years and incorporate that information into the permit fact sheet. DEQ then will establish an

updated interim effluent limit based on the more recent data, as described in Section 4.2.1. In addition, DEQ will require each facility to update their MMP to provide more specificity to activities that will be conducted for subsequent duration of the permit, as well as in future permit terms. The public will have the opportunity to provide comment on the updated MMP and permit requirements during the permit renewal process.

5. Bibliography

Amos, H. M., Jacob, D. J., Streets, D. G., & Sunderland, E. M. (2013). Legacy impacts of all-time anthropogenic emissions on the global mercury cycle. *Global Biogeochemical Cycles, 27*, 410-421. doi:10.1002/gbc.20040

California EPA, Regional Water Quality Control Board, Central Valley Region. 2010. Staff Report: A Review of Methylmercury and Inorganic Mercury Discharges from NPDES Facilities in California's Central Valley.

Chetelat, J., Amyot, M., Arp, P., Blais, J., Depew, D., Emmerton, C., . . . van der Velden, S. (2015). Mercury in freshwater ecosystems of the Canadian Arctic: Recent advances on its cycling and fate. *Science of the Total Environment, 509*, 41-66.

City of Oshkosh (2018). Mercury Source Identification and Reduction Efforts.

Driscoll, C., Han, Y., Chen, C., Evers, D., Lambert, K., & Holsen, T. (2007). Mercury contamination in forest and freshwater ecosystems in the Northeastern United States. *Bioscience, 57*, 17-28.

Eagles-Smith, C., Silbergeld, E., Basu, N., Bustamante, P., Diaz-Barriga, F., & Hopkins, W. (2018). Modulators of mercury risk to wildlife and humans in the context of rapid global change. *Ambio, 47*, 170-197.

Eagles-Smith, C., Ackerman, J., Willacker, J., Tate, M., Lutz, M., & Fleck, J. (2016). Spatial and temporal patterns of mercury concentrations in freshwater fish across Western United States and Canada. *Science of the Total Environment, 568*, 1171-1184.

Electric Power Research Institute and Water Research Foundation. 2013. Electricity Use and Management in the Municipal Water Supply and Wastewater Industries. 194 pp.

Fitzgerald, W., Engstrom, D., Mason, R., & Nater, E. (1998). The case for atmospheric mercury contamination in remote areas. *Environmental Science and Technology, 32*, 1-7.

Hall, B., Bodaly, R., Fudge, R., Rudd, J., & Rosenberg, D. (1997). Food as the dominant pathway of methylmercury uptake by fish. *Water, Air and Soil Pollution, 100*, 13-24.

HDR. 2013. Treatment Technology Review and Assessment. Prepared for the Association of Washington Businesses.

Hollerman, W., L. Holland, D. Ila, J. Hensley, G. Southworth, T. Klasson, P. Taylor, J. Johnston, and R. Turner. 1999. Results from the low level mercury sorbent test at the Oak Ridge Y-12 Plant in Tennessee. Journal of Hazardous Materials B68:193-203.

Lindberg, S., Bullock, R., Ebinghaus, R., Engstrom, D., Feng, X., & Fitzgerald, W. (2007). A synthesis of progress and uncertainties in attributing the sources of mercury in deposition. *Ambio, 36*, 19-32.

Munthe, J., Bodaly, R., Branfireun, B., Driscoll, C., Gilmour, C., & Harris, R. (2007). Recovery of mercury-contaminated fisheries. *Ambio, 36*, 33-44.

DRAFT

Ohio Environmental Protection Agency. 1997. Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Economy. Prepared for the Division of Surface Water by Foster Wheeler Environmental Corporation and DRI/McGraw Hill.

Oregon Department of Environmental Quality. 2019. Draft Willamette Basin MercuryTotal Maximum Daily Load. Portland, OR.

Oregon Department of Environmental Quality. 2017. Statewide Aquatic Tissue Toxics Assessment Report. Laboratory and Environmental Assessment Program. Hillsboro, OR.

Schroeder, W., & Munthe, J. (1998). Atmospheric mercury -- An overview. *Atmospheric Environment, 30*, 809-822.

Stevens Point Public Utilities (2018). Mercury Source Identification and Control PMP.

Tetra Tech, 2019. Mercury TMDL Development for the Willamette River Basin (Oregon) – Technical Support Document (Public Review Draft). Prepared for Oregon Department of Environmental Quality and U.S. EPA Region 10. 162 pp.

Trip, L., & Allan, R. (2000). Sources, trends, implications and remediation of mercury contamination of lakes in remote areas of Canada. *Water Science and Technology, 42*, 171-176.

Urgun-Demirtas, M, P. Gillenwater, M. C. Negri, Y. Lin, S. Snyder, R. Doctor, L. Pierece and J. Alvarado. 2013. Achieving the Great Lakes Initiative Mercury Limits in Oil Refinery Effluent. Water Environment Research 85(1): 77-86.

U.S. Environmental Protection Agency. 2014. *Water Quality Standards Handbook, Chapter 5: General Policies.* Office of Water. EPA 820-B-14-004. Accessed January 9, 2018.

U.S. Environmental Protection Agency. 2010. Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion. Office of Science and Technology. Washington, DC. EPA 823-R-10-001. 221 pp.

U.S. Environmental Protection Agency. 2008. Municipal Nutrient Removal Technologies Reference Document. Office of Wastewater Management, Municipal Support Division, Municipal Technology Branch. EPA 832-R-08-006. 449 pp.

U.S. Environmental Protection Agency. 2007. Treatment Technologies for Mercury in Soil, Waste, and Water. Office of Superfund Remediation and Technology Innovation. Washington, DC. 133 pp.

DRAFT

State of Oregon
DEQ Department of Environmental Quality

Proposed Revisions to Oregon's Water Quality Variance Rule

Oregon's water quality standards variance rule is found at OAR 340-041-0059 and was last revised in 2011. In 2015, US EPA promulgated federal variance rules. DEQ is proposing revisions to Oregon's rule to ensure it is consistent with federal requirements and to clarify roles and responsibilities for issuing variances. This document explains the proposed rule amendments.

1. **Definitions.** DEQ is proposing to add definitions for "pollutant minimization plan" and "water quality standards variances" under 340-041-0002. These definitions are identical to federal definitions.

2. **Types of variances and authority to issue variances.** The current state rule allows DEQ to grant individual variances. The proposed revisions authorize individual, multiple discharger and waterbody variances, all of which are allowed under the federal rules. The language also clarifies that DEQ's director is authorized to grant individual variances, but the Environmental Quality Commission must grant MDVs and waterbody variances through rulemaking. Variances are considered amendments to water quality standards and therefore, are subject to EPA approval prior to becoming effective.

3. **Limitations to granting variances.** The current state rule includes several scenarios under which DEQ cannot grant a variance. DEQ is proposing to remove several of these limitations, as follows:

    - The proposed rule keeps the limitation that a variance cannot be granted if the water quality standard can be attained by implementing require technology-based effluent limits. However, the proposed rule removes consideration of cost-effective and reasonable best management practices for nonpoint sources in whether standards can be met. Such language is not included in the federal rule, except when granting waterbody variances.

    - The proposed rule removes language prohibiting variances if they jeopardize continued existence of any threatened or endangered species or result in unreasonable risk to human health. This language is not included in the federal rule. Any variance for an aquatic life criterion would require consultation under the Endangered Species Act and thus, would not be approved by EPA if it would jeopardize threatened or endangered species. Moreover, variances are intended to reduce pollutant loads over time, decreasing any potential risk to human health. Finally, any discharger still has to comply with technology-based limits irrespective of whether there is a variance, further ensuring removal of pollutants to the extent feasible.

- The proposed rule removes language that prohibits variances if the point source does not have a currently effective NDPES permit, as it is not included in the federal rule. There may be instances where a new facility or activity should be able to obtain a variance. The proposed language allows the director or the commission to issue a variance to a new discharger if conditions required by the variance rule are met.
- The proposed rule removes language prohibiting variances if information provided by a discharger does not allow DEQ or the commission to conclude that an appropriate condition for a variance has been met. This language is not in federal rule and is redundant with the requirement that DEQ provide sufficient justification for the variance.

4. **Conditions to grant a variance.**

- The proposed rule amends the statement that "No existing use will be impaired or removed as a result of granting the variance," with the statement that "the requirements that apply throughout the term of the variance will not result in the lowering of currently attained ambient water quality." This language is consistent with federal requirements. DEQ's antidegradation policy also requires that permit requirements, including those associated with variances, protect existing uses.
- The proposed rule allows a variance for restoration activities, consistent with federal requirements.

5. **Variance Duration**

- The proposed rule changes requirements regarding the variance term to be consistent with federal requirements. Specifically, the proposed rule notes that the term of the variance may only be as long as necessary to meet the highest attainable condition (see #6 below). In addition, DEQ must re-evaluate the highest attainable condition at least every five years for variances longer than five years in duration and that DEQ submit this re-evaluation to EPA. Finally, the proposed rule states that if this re-evaluation is not completed, the variance will no longer be the applicable water quality standard.
- The proposed rule removes language regarding administrative extension of permits with variance-related requirements. This language is redundant with general practice for all permits and is therefore unnecessary.
- The proposed rule removes language that would prioritize permit renewals for permits containing variances. There are many reasons why DEQ would prioritize one permit over another, such as settlement agreements and prioritizing permits that have been administratively extended. The new rule allows variances for longer than a permit cycle with requirements for pollutant minimization plans that cover the term of the variance. As a result, this provision has limited impact related to DEQ's efforts for timely permit renewal.

6. **Variance Submittal Requirements.** The proposed rule clarifies variance submittal requirements to differentiate requirements for individual, multiple discharger and waterbody variances, as follows:

- The current rule includes requirements for individual variances only. The proposed rule no longer requires applicants for individual variances to submit information about cost-effective and reasonable best management practices for nonpoint sources under the control of the discharger that addresses the pollutant the variance is based upon. This language is not required under federal rule for discharger-specific variances. The

proposed rule also only requires a pollutant minimization plan if it is required by the expression of the highest attainable condition under the variance. This is consistent with federal rules.

- The proposed rule notes that submittal requirements for multiple discharger and waterbody variances will be noted in the rule for these variances. In addition, for waterbody variances, the rule requires that an applicant identify and document any cost-effective and reasonable best management practices for nonpoint source controls related to the variance, as required by federal rule.

7. **Highest Attainable Condition.** The proposed rules adopt, verbatim, federal variance rule language describing the Highest Attainable Condition. The HAC provides the best condition that is achievable in the waterbody or by the discharger or dischargers covered by the variance. According to federal rules, the HAC may be expressed in one of three ways for discharger-specific variances:
    - The first HAC expression way is called the "highest attainable interim criterion," which is a pollutant level that can be achieved in the waterbody or waterbodies. This HAC expression is useful if there is a high level of certainty of the pollutant level that the waterbody can achieve at the end of the variance.
    - The second HAC expression is called the "interim effluent condition reflecting the greatest pollutant reduction achievable." This expression is useful if a discharger will undergo treatment upgrades under the variance and there is enough information to determine what pollutant levels a discharger can achieve once the upgrade is operating.
    - The third HAC expression is allowed if there is no additional feasible pollutant control. In this instance, the HAC is "the interim criterion or interim effluent condition reflecting greatest pollutant reduction with optimization of installed treatment and adoption and implementation of a pollutant minimization plan." In short, this means that a discharger is required to maintain current, optimized treatment and implement a PMP in order to make incremental progress toward the water quality standard.

8. **Permit Conditions**
    - The proposed rule amendments state that permit conditions shall be based on the HAC specified by the variance, in accordance with federal rules.
    - The proposed rules remove the requirement that permit limits be concentration-based. This amendment will allow mass-based permit limits, where appropriate.
    - The proposed rules remove a requirement that the interim permit limit be based on discharge monitoring data. In some cases, the highest attainable condition may be based on a treatment upgrade and, therefore, may reflect a desired future condition, rather than a condition based on past performance data.

9. **Public Notification Requirements.** The proposed rule clarifies public notification requirements to ensure that public notice for a variance is separate from public notice for a permit, although this notification may be coordinated and concurrent for administrative efficiency.

10. **Variance Renewals.** The proposed rules remove a section regarding variance renewals because federal rules require that DEQ grant a new variance if an existing variance expires. As a result, this section is unnecessary.