National Pollutant Discharge Elimination System Industrial Stormwater Permit Evaluation Report No. 1200-Z

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Proposed Permit Action

The 1200-Z National Pollutant Discharge Elimination System Stormwater General Permit (1200-Z permit) is issued in accordance with Oregen Administrative Rules 340-045-0033 by agency order. In 2021, the permit was adopted by rule (reference) of the Environmental Quality Commission. OAR 340-045-0033(1) allows that a permit adopted by rule may be terminated by a later permit issued by order if the later permit covers the same activity and specifically provides for terminating the earlier permit. The effective date of the permit is July 1, 2026.

Permit Category

This 1200-Z National Pollutant Discharge Elimination System Industrial Stormwater General Permit will replace the 1200-Z permit, which was last reissued on March 25, 2021 and became effective July 1, 2021. DEQ finalized a rule amendment on Aug. 17, 2022.

Coverage Under the Permit

The permit covers a broad range of industries throughout Oregon that discharge stormwater to over 180 rivers, streams and other surface waters. There are about 1,200 facilities registered under the 2021 1200-Z general permit. This permit regulates various pollutants from industrial activities that may be discharged in stormwater during rain and snowmelt events.

Source Location

Statewide

Coverage and Eligibility

The 1200-Z permit is a general permit issued in accordance with OAR 340-045-0033 for activities that involve similar types of operations, similar types of waste and similar monitoring conditions. The permit covers industrial activities that have a potential to discharge pollutants into rivers and streams, or conveyance systems that eventually discharge to rivers and streams.

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1.0 Background

1.1 What did DEQ Reissue?

DEQ reissued the National Pollutant Discharge Elimination System Industrial Stormwater Discharge General; Permit No. 1200-Z for the 2026-2031 permit cycle.

1.2 Regulatory Context

Congress passed the Federal Water Pollution Control Act of 1972 (Public Law 92-500, October 18, 1972) (hereinafter the Clean Water Act or CWA), 33 U.S.C. 1251 et seq., with the stated objectives to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 101(a), 33 U.S.C. 1251(a). To achieve this goal, the CWA provides that "the discharge of any pollutant by any person shall be unlawful" except in compliance with other provisions of the statute.

CWA section 301(a). 33 U.S.C. 1311. The CWA defines "discharge of a pollutant" broadly to include "any addition of any pollutant to navigable waters from any point source." CWA section 502(12). 33 U.S.C. 1362(12). EPA is authorized under CWA section 402(a) to issue a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant from a point source. These NPDES permits are issued by EPA or NPDES-authorized state or tribal agencies. Since 1972, EPA and the authorized states have issued NPDES permits to thousands of dischargers, both industrial (e.g., manufacturing, energy and mining facilities) and municipal (e.g., sewage treatment plants). As required under Title III of the CWA, EPA has promulgated Effluent Limitations Guidelines (ELGs) and New Source Performance Standards (NSPS) for many industrial point source categories, and these requirements are incorporated into NPDES permits.

The Water Quality Act (WQA) of 1987 (Public Law 100-4, February 4, 1987) amended the CWA, adding CWA section 402(p), requiring implementation of a comprehensive program for addressing stormwater discharges. 33 U.S.C. 1342(p) and Section 402(p) of the CWA, which directed the EPA to develop a phased approach to regulate municipal and industrial stormwater discharges under the NPDES program. EPA published a final regulation on the first phase of this program on November 16, 1990, establishing permit application requirements for "stormwater discharges associated with industrial activity." See 55 FR 47990. EPA defined the term "stormwater discharge associated with industrial activity" in a comprehensive manner to cover a wide variety of facilities. See 40 CFR 122.26(b)(14). DEQ has adopted 40 CFR 122.26 by reference under general permit requirements in Oregon Administrative Rules OAR 340-045-0015(2).

Oregon Revised Statutes 468B.005(10) defines "Water" or "the waters of the state" as 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 which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

This definition is broader than the definition of waters of the United States and is used to define territorial waters within Oregon for the purpose of this permit.

When sheet flow is exposed to industrial activities or significant materials and discharges to waters of the state, EPA requires that these discharges also be regulated under DEQ's NPDES 1200-Z permit. Concentrating the sheet flow may be required to obtain a sample as outlined in the permit requirements. The same approach is taken by other states, including neighboring Washington State. Both EPA and Washington have developed guidance for collecting sheet flow samples: EPA's 2021 Industrial Stormwater Monitoring and Sampling Guide and Washington Department of Ecology's 2015 Stormwater Sampling Manual. Additionally, requiring monitoring of sheet flow from permitted industrial facilities is consistent with the policies of the state of Oregon to prevent pollution as described in ORS 468B.015, 468B.020 and 468B.025.

1.3 Permit History

DEQ's NPDES program is an EPA approved water quality permitting program and is responsible for implementing federal and state regulations and issuing water pollution permits. In 1991, DEQ adopted a series of NPDES general stormwater discharge permits that applied to different industrial sectors. In 1997, DEQ consolidated these sector specific general permits and issued a statewide industrial stormwater general permit 1200-Z permit that covers a broad range of industries throughout the state. In 1999, DEQ issued the 1200-COLS permit for discharges to the Columbia Slough to coincide with the issuance of the Total Maximum Daily Load (TMDL) for the watershed. In 2017, the 1200-COLS was consolidated within the 1200-Z permit. After the issuance of the 2017 permit, the permit was challenged and DEQ agreed to short-term and long-term settlement terms. The 1200-Z was then reissued 2018 to include the agreed upon short-term conditions. The 2018-2022 permit term was shortened according to the terms of the settlement agreement which required new conditions be incorporated into a new five-year term permit by March 2021 by agency rule.

The Clean Water Act specifies that NPDES permits will be effective for a fixed term not to exceed five years.

1.4 Summary of Key Changes

DEQ's changes were in response to feedback from DEQ staff, our agents, consultants, permitted facilities, Supreme Court decisions and EPA's multi-sector general permit. DEQ has kept careful records over the past five years and made minor changes to the current permit to address permit readability, potential areas of ambiguity and ease of implementation.

DEQ's goal was to ensure the permit is high quality, protective, implementable and legally defensible as well as appropriate for Oregon. DEQ's general permit approach in 2026 includes minor revisions to narrative technology-based effluent limits, a greater level of specificity to existing requirements and strengthening protection of impaired waters. This permit reinforces the distinctions between technology-based limits and water quality-based limits.

The key changes include the following:

- Add specific language granting administrative continuance of permit coverage for current registrants if the permit is not reissued by June 30, 2031.
- Clarification that a Tier 1 corrective action response should include source control or source removal as part of the investigation in addition to pollutant source tracing. The time to control or eliminate pollutant sources is during the Tier 1 investigation.
- Refined Tier 2 language to meet the intent and practice that a Tier 2 corrective action response must include treatment.
- Add language to plainly outline the instances the geometric mean evaluation is not required.as part of a Tier 2 corrective action response. A new condition exempts the geometric mean evaluation in the subsequent year for first time permit registrants who are granted coverage on or after Nov. 15.
- Clarification that monitoring waivers may be requested after a full reporting year.
- Created a separate permit schedule applicable to visual observation requirements.
- Revised Schedule B, Reporting Monitoring Data, to indicate even if sampling was not performed during a quarter, Discharge Monitoring Reports are still due by the deadline.
- Made edits to mass reduction measures certification criteria applicable to permit registrants who voluntarily design infiltration devices.

1.5 Additional Noteworthy Changes

The permit continues numbering from Condition I through Schedule C; meaning instead of starting at one in Schedule A and Schedule B, the numbering sequence continues 1-39 for the main body of the permit. Schedule C and D begin numbering at one and Schedule F has its own numbering sequence. This change was made to improve ease and clarity when citing permit conditions and schedules.

The permit retained the current framework related to impairment exceedances of pH, total copper, total lead and total zinc discharges to Category 5: 303(d) listed waters escalation to a water quality-based numeric effluent limit. The permit also retained the current framework related to impairment exceedances corrective action for E. coli and total discharge to Category 5: 303(d) listed waters escalation to a water quality-based narrative effluent limit. However, a new condition now requires sewer line and catch basin cleaning at an increased frequency from annual to quarterly, if bacteria or iron sample results continue to exceed the impairment concentration after completion of the corrective action. Additionally, based on submitted sample data from the last permit cycle, fecal coliform and enterococcus sampling were added to Category 5: 303(d) impaired waters conditions for new and existing dischargers.

The mass reduction measures section of Schedule A clarifies that certification is available for mass reduction measures that have been voluntarily installed, will be voluntarily installed during the 2026–2031 permit term, or were installed pursuant to an approved mass reduction waiver during a previous permit cycle. Permit registrants who received an approved certification during the 2021 permit cycle are not required to recertify during the 2026-2031 permit term.

To obtain a mass reduction certification, the registrant must hire a professional engineer (PE) or certified engineering geologist (CEG) to prepare and stamp the required plan and the plan must be submitted to DEQ or the permit agent by December 31, 2026. DEQ and agents will approve or deny these plans and the certifications provide important design specifications in order to evaluate compliance.

More information on these requirements, as well as other changes, are provided in the appropriate sections below.

1.6 Historical 2021 Settlement Terms

In 2021, the permit incorporated significant changes based on a settlement agreement DEQ entered into with Columbia Riverkeeper, Northwest Environmental Defense Center and Oregon Industrial Stormwater Group. The most noteworthy include:

- Impairment monitoring frequency changed from two times a year to four times a year and the number of impairment pollutants required to be monitored decreased after several years of industrial stormwater monitoring data showed the discharge to be meeting applicable water quality criteria.
- Quarterly submission of Discharge Monitoring Reports.
- A new framework for managing elevated levels of copper, lead, zinc, iron, pH, and E. coli discharged to Category 5: 303(d) listed waterways that are impaired for that pollutant. The framework leads to water quality-based effluent limits when monitoring results of impairment pollutants exceed impairment concentrations derived from water quality standards.
- New requirements for permit applicants that discharge to Category 5: 303(d) listed impaired waterways.
- New requirements for facilities that divert stormwater from reaching surface waters to manage pollutant discharges through infiltration devices.

The permit was adopted by rule in 2021. Part of the rulemaking included detailed advisory committee discussion about the above conditions. While these discussions and evaluations were not repeated as part of the current permit reissuance process, the permit evaluation report retains pertinent information for reference as well as keeps the permit structure the same related to the bullets above.

1.7 Local Municipalities That Serve as DEQ's Agent

DEQ authorizes local public entities under a Memorandum of Agreement to act as its agent and implement the permit on DEQ's behalf. The following local public entities currently act as DEQ's agent for the 1200-Z permit: City of Portland, City of Eugene and Clean Water Services, which includes all or parts of the cities of Beaverton, Cornelius, Forest Grove, Hillsboro, Sherwood, Tigard and Tualatin.

The agents typically conduct the following activities: application and stormwater pollution control plan (SWPCP) review, inspections, monitoring data review, general compliance activities and verification of no-exposure

certifications. Throughout the permit, DEQ uses the language "DEQ or agent" to reflect this partnership. If a facility is operating in an agents' geographic area, they must submit the materials to the agent rather than DEQ. Also, the agent will conduct permit compliance and enforcement actions for facilities within their jurisdictions.

DEQs' agents will not transition to electronic reporting immediately upon this permit renewal; therefore, permit registrants in agents' geographic areas will continue to submit paper applications, reports and no exposure certifications until DEQ directs registrants to use Your DEQ Online (YDO).

To make it easier for permit registrants in agents' geographic areas, to send paper copies of reports, the permit allows paper copies of the signature page separately from PDF copies of reports requiring signatures, such as SWPCPs. Wet signatures are required in agents' geographic areas until these facilities operate in Your DEQ Online.

1.8 Antidegradation Review

Federal regulations at 40 CFR 131.12 require that state water quality standards include an antidegradation policy consistent with federal policy. OAR 340-041-0004 establishes antidegradation requirements applicable to the renewal of this permit. Oregon's Antidegradation Policy prevents unnecessary and further degradation from new or increased point and nonpoint sources of pollution. Where additional discharges have been authorized or permit conditions have been relaxed, the changes must be consistent with the requirements specified at OAR 340-041-0004. Antidegradation requirements are often evaluated using three categories: Outstanding Resource Waters (Tier 3), High Quality Waters (Tier 2), and Water Quality Limited/Impaired (Tier 1). Antidegradation considerations for each category are discussed below.

Where a waterbody constitutes an outstanding state or national resource such as those waters with extraordinary ecological values or serve as critical habitat areas, and have been designated Outstanding Resource Waters, and the existing water quality and water quality values must be maintained and protected. The eligibility requirements of this permit specifically exclude new discharges to waters designated as Outstanding Resource Waters; thus, the terms and conditions of this permit are consistent with OAR 340-041-0004 for Outstanding Resource Waters. Outstanding Resource Waters include: 1) North Fork Smith River and its tributaries and associated wetlands, 2)Waldo Lake and its associated wetlands, and 3)Crater Lake.

Where existing water quality meets or exceeds those levels necessary to support fish, shellfish and wildlife propagation; recreation in and on the water and other designated beneficial uses, that level of water quality must be maintained and protected. However, the lowering of water quality may be allowed if the following requirements are met:

- No other reasonable alternatives exist except to lower water quality;
- The action is necessary, and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality;
- All water quality standards will be met and beneficial uses protected; and
- Federal threatened and endangered aquatic species will not be adversely affected.

This permit relies on an adaptive management approach to protect water quality, using benchmarks and monitoring to assist the permit registrant in determining whether site controls are effectively reducing pollutant concentrations in stormwater discharges and require further assessment of pollutant control practices. Freshwater and saltwater benchmarks for copper, lead and zinc have been developed as described in Appendix A of this Report. DEQ's freshwater benchmarks are set by evaluating the median hardness in seven georegions. The benchmark values have been retained from the 2021 permit (Appendix A and B) as DEQ has not adopted new water quality standards to consider. As such, the current benchmarks continue to be protective of water quality. Additionally, provisions and pollutant control measures required under this permit are anticipated to retain similar or better stormwater discharge quality than under the previous permit. No degradation of water quality is anticipated due to the retaining the current benchmarks. Further, Schedule A.10 of this permit establishes corrective actions if exceedances of water quality standards are identified and therefore ensures that permit registrants will not cause or contribute to an exceedance of instream water quality standards.

Furthermore, if DEQ receives information that existing uses differ from designated beneficial uses in the receiving water, DEQ has the option of imposing more stringent benchmarks to ensure that existing uses are protected. Since implementing this approach on a facility-by-facility basis under a general permit is impractical, DEQ may require a permit applicant or existing permit registrant to apply for an individual permit.

Oregon's Antidegradation Policy specifically prohibits the further degradation of impaired waters, as defined at OAR 340-041-0002, with some exceptions, including but not limited to:

- The pollutant parameters associated with the discharge are unrelated to the parameter(s) causing the receiving stream violation; or
- A TMDL with applicable WLAs and a reserve capacity has been established for the impaired water body, and there will be sufficient reserve capacity to assimilate the increased load under the established TMDL.

A new discharger to an impaired water without a TMDL, based on the EPA-approved Category 5: 303(d) list for pH, copper, lead, zinc, iron and the applicable bacteria indicator E. coli, fecal coliform and enterococcus must meet one of the following conditions to obtain coverage under this permit, and document the justification of compliance with these conditions in applicant's Stormwater Pollution Control Plan (SWPCP).

- Prevent exposure to stormwater for which the water body is impaired.
- Provide technical demonstrations that sources for which the water body is impaired are not present at the site.
- Provide analytical sampling results to demonstrate discharge is not expected to cause or contribute to an exceedance of water quality standards.
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An applicant must demonstrate that an impairment pollutant(s) will not be present in discharge or provide data and other technical information that demonstrates that the discharge is not expected to cause or contribute to an exceedance of the water quality standard for which the water body is impaired at the point of discharge, or DEQ will not grant permit coverage. Prior to granting permit coverage, DEQ or agent will decide if the new discharge has met the permit conditions for coverage.

Some examples of technical information may include:

- Fate and transport modeling
- Engineering reports of source control pollutant removal efficiencies
- Peer-reviewed literature
- Low impact development software modeling

A new discharger to an impaired water with a TMDL that was approved on or before July 1, 2026, and establishes wasteload allocation for industrial stormwater must comply with the conditions of the TMDL. DEQ may require additional monitoring, site controls or compliance schedules to prevent industrial stormwater from exceeding the wasteload allocation(s) in the TMDL. The TMDL program evaluates the significant sources of the impairment during their source assessment. Typically, stormwater is not considered a significant source for most TMDLs. Therefore, additional actions beyond the requirements of the permit are not necessary for new dischargers to waterbodies that have a TMDL without an industrial stormwater allocation. If, however, stormwater was given an allocation in the applicable TMDL, a review and determine that the allocation can accommodate the new discharger will be completed prior to assignment.

For existing discharges into an impaired water, the conditions of this permit are protective of water quality. Section 3.3, 3.4, and 3.8 provides further explanation about the water quality-based narrative and numeric effluent limitations which have been established for pollutants of concern for discharges to impaired waters where an adaptive management approach is determined to be insufficient. These water quality-based effluent limits are anticipated to control pollutant concentrations to prevent further degradation of water quality and designated uses of the waters. Schedule A.10 of this permit establishes corrective actions if exceedances of water quality standards are identified and therefore ensures that permit registrants will not cause or contribute to an exceedance of instream water quality standards.

The Columbia Slough TMDL established an applicable biochemical oxygen demand, BOD_5, wasteload allocation for industrial stormwater. In 2021, DEQ recalculated the BOD_5 benchmarks consistent with the requirements of the TMDL as discussed in Section 4.1.2 of this report. Out of 261 permitted sites discharging into the Columbia Slough only three triggered Tier 2 corrective action response for BOD_5 during the last four years, 2021-2025. This is consistent with 2021 prediction that about seven percent of permit registrants may exceed the reduced benchmark based on past data.

DEQ considers that use of less than 10 percent of assimilative capacity in a receiving water is considered *de minimis* and not a lowering of water quality and is thus not subject to a Tier 2 antidegradation review. If an assignment of new permit coverage would result in use of greater than 10 percent of assimilative capacity for any pollutant, DEQ may require a Tier 2 antidegradation review or may require more stringent benchmarks to ensure that there is no lowering of water quality.

Due to the reasons discussed above and more rigorous protections for fecal coliform and enterococcus impaired waters in this permit, the conditions of this permit are not anticipated to result in the degradation of water quality and are consistent with the requirements of OAR 340-041-0004.

2.0 Condition I: Permit Coverage and Exclusions from Coverage

DEQ general permit coverage eligibility reflects the option for a facility to elect coverage under an individual permit rather than a general permit. The cover page also includes the expiration date of the permit that will not exceed five years from the date of issuance. Some minor edits have been made that do not impact the meaning of the cover page.

2.1 Industrial Sectors and Activities Covered

Pursuant to 40 CFR 122.26(b)(14)(i)–(ix) and (xi), facilities with stormwater discharges associated with specified industrial activities are eligible for coverage under the 1200-Z permit. Consistent with this authority, the permit defines "industrial activity" to include both the categories identified in 40 CFR 122.26(b)(14)(i)–(ix) and (xi) and, for facilities discharging to the Columbia Slough or Portland Harbor, additional activities identified by DEQ as significant contributors of pollutants to those waters, as listed in Table 2.

DEQ has determined that the activities included in Table 2 warrant permit coverage in order to protect water quality in the Columbia Slough and Portland Harbor. This long-standing permitting approach has shown to contain pollutants of concern for the sediment contamination in these water bodies. This determination is based on DEQ's evaluation of 1200-Z monitoring data and stormwater source control assessments, which demonstrate that stormwater discharges from these activities contain pollutants that are also found in the sediments and water column of the Columbia Slough and Portland Harbor. Most of the activities listed in Table 2 are already encompassed by the categories identified in 40 CFR 122.26(b)(14). The federal regulation provides that these categories "include, but are not limited to," allowing DEQ to identify additional industrial activities as significant contributors of pollutants where supported by the administrative record. In addition, OAR 340-045-0015(2) incorporates the applicable federal NPDES stormwater regulations into Oregon's permitting framework, providing further authority for these permit provisions.

Table 1 below provides a list of 29 broad categories of industrial activities (excluding construction discharges) and Standard Industrial Classification (SIC) codes that are eligible for permit coverage, if a facility may discharge industrial stormwater to surface waters or to conveyance systems that discharge to surface waters of the state. More information about Standard Industrial Classification (SIC) System and conversions from the newer System North American Industry Classification is available online or in paper form from the document titled *Handbook of Standard Industrial Classifications*, Office of Management and Budget, 1987.

Table 1 deleted the following phrase, “except petroleum sold via retail method,” to prevent misinterpretation of when Standard Industrial Classification code 5171 is eligible for coverage. This qualifier appears in EPA’s multi-

sector general permit Appendix N, which is used for reference purposes only. The 1200-Z requires petroleum bulk stations and terminals to obtain coverage even if their operations include a retail component. The sources covered under Table 1 reflect 40 CFR part 122.26(14), and specifically (viii) for transportation facilities. The qualifier caused confusion and does not reflect federal regulations requirement for coverage; therefore, it has been removed.

DEQ moved Table 1 footnote applicable to the transportation sector into Table 1 under the transportation sector row.

Table 1. Sources Covered

Industrial Sources Covered Under this Permit
Facilities with the following primary Standard Industrial Classification (SIC) codes: 10 Metal Mining 12 Coal Mining 13 Oil and Gas Extraction 20 Food and Kindred Products 21 Tobacco Products 22 Textile Mill Products 23 Apparel and Other Finished Products Made from Fabrics and Similar Material 24 Lumber and Wood Products, Except Furniture (Activities with SIC 2411 Logging that are defined in 40 CFR §122.27 as silvicultural point source discharges are covered by this permit.) 25 Furniture and Fixtures 26 Paper and Allied Products 27 Printing, Publishing and Allied Industries 28 Chemicals and Allied Products Manufacturing and Refining (excluding 2874: Phosphatic Fertilizers) 29 Asphalt Paving and Roofing Material and Lubricants (excluding 2951, covered by 1200-A) 30 Rubber and Miscellaneous Plastics Products 31 Leather and Leather Products 32 Glass, Clay, Cement, Concrete and Gypsum Products (excluding 3273, covered by 1200-A) 33 Primary Metal Industries 34 Fabricated Metal Products 35 Industrial and Commercial Machinery and Computer Equipment 36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment 37 Transportation Equipment 38 Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks 39 Miscellaneous Manufacturing Industries 4221 Farm Product Warehousing and Storage 4222 Refrigerated Warehousing and Storage 4225 General Warehousing and Storage 5015 Automobile Salvage Yards 5093 Scrap and Waste Materials
Facilities with the following primary SIC codes that have vehicle maintenance shops (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or airport deicing operations. For the transportation sectors below, eligibility is based on the auxiliary operations listed above; however, once covered under the permit all stormwater associated with industrial activities (See Schedule D.4, Definition) are regulated activities: 40 Railroad Transportation 41 Local and Suburban Transit and Interurban Highway Passenger Transportation 42 Trucking and Courier Services, Except Air (excluding 4221, 4222, and 4225) 43 United States Postal Service 44 Water Transportation 45 Transportation by Air 5171 Petroleum Bulk Stations and Terminals
Steam Electric Power Generation including coal handling sites
Landfills, land application-sites and open dumps
Hazardous Waste Treatment, storage and disposal facilities
Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, recycling, and reclamation of municipal or domestic sewage (including land dedicated to the disposal of sewage sludge that are located within the confines of the facility) with the design flow capacity of 1.0 mgd or more, or required to have a pretreatment program under 40 CFR §403.

Table 2 is specific to discharges into Columbia Slough and Portland Harbor. The approach for including a Portland Harbor-specific georegion was modeled after the approach taken in the Columbia Slough. The 1200-COLS general permit was issued in 1999 to coincide with issuance of an EPA-approved TMDL for the Columbia Slough. The 1200-COLS general permit contained "Table 2: Additional Industrial Activities Covered," which was intended to capture additional industrial sources that may contribute to the impairment of the Columbia Slough, as described in the Columbia Slough TMDL. In 2017 the 1200-COLS permit was incorporated into the 1200-Z permit, eliminating a separate industrial stormwater discharge permit applicable to the Columbia Slough watershed.

In addition to the industrial sources listed in Table 1, facilities discharging stormwater to the Columbia Slough or Portland Harbor are eligible for coverage under the 1200-Z permit if stormwater is exposed to any of the industrial activities identified in Table 2. Where permit coverage is triggered by an industrial activity identified in Table 2, any industrial activities at the same facility that are identified in Table 1 are also subject to the conditions of the permit. The permit has been revised to explicitly state this requirement to improve clarity and promote consistent implementation for these facilities. This revision is intended to clarify existing implementation practices and does not expand the scope of permit coverage for facilities discharging to the Columbia Slough or Portland Harbor.

Table 2. Additional Industrial Activities Covered

Discharges to Columbia Slough and Portland Harbor
Maintenance of vehicles, machinery, equipment, and trailers (including repairs, servicing, washing, testing and painting)
Storage of vehicles, machinery, equipment (including disposal/refuse containers stored by a disposal/refuse contractor/vendor), and trailers (including rental, sales, wrecked vehicles, fleet, and general storage)
Materials storage (including raw materials; bulk fuels, chemicals, detergents, and plastic pellets; finished materials; lumber and food products; wholesale gravel, sand, and soil stockpiles; and bulk liquids other than water)
Waste handling (including recycled product storage, composting, tires, and bulk hazardous waste)
Commercial animal operations (such as kennels, racetracks, and veterinarians not covered under a Confined Animal Feeding Operation permit)
Fuel distribution and sales (including bulk stations, fuel oil dealers, manned and unmanned retail stations, fleet fueling, mobile fueling, and truck stops)
Any former activity that resulted in significant materials (as defined in Schedule D) remaining on-site

2.2 New Discharger to Impaired Waters

If a facility should have obtained coverage under this permit for the discharge and failed to do so, they are considered a new discharger if the discharge commenced after August 13, 1979 (40 CFR 122.2).

Every two years, DEQ is required to assess water quality and report to the U.S. EPA on the condition of Oregon's waters. DEQ prepares an Integrated Report that meets the requirements of the federal CWA for Sections 305(b) and 303(d). CWA Section 303(d) requires identifying waters that do not meet water quality standards and where a TMDL needs to be developed. TMDLs have established pollutant load limits for impaired water bodies.

The Integrated Report includes an assessment of each water body where data are available, and the list of waters identified under Section 303(d) as water quality limited and needing a TMDL. Waters may be added or removed from Category 5: 303(d) list based on: evaluation of new data; application of new or revised water quality standards; errors in assessment; or information showing water quality has declined or improved. Waters may also

be removed from the 303(d) list when: TMDLs or other control measures have been established that are expected to improve water quality;. data show water quality has improved; or in some cases when water quality standards are revised.

Oregon's 2024 303(d) list was approved by the U.S. Environmental Protection Agency on May 11, 2026. DEQ and our agents will use the 2024 Integrated Report, (303(d) list to assign impairment status to existing registrants and new registrants while it is in effect.

During the permit cycle, DEQ and agents will use the 303(d) list in effect at the time of permit assignment to establish impairment monitoring requirements.

New dischargers to an impaired water without a TMDL must demonstrate they will not cause or contribute to an exceedance of water quality standards prior to coverage under this permit. A discharge to an impaired water occurs when industrial stormwater discharges directly or indirectly flows through a conveyance system into a listed assessment unit or segment of water that has been identified as not meeting water quality criteria for a pollutant. The permit requires any new source or new discharger to demonstrate its ability to comply with 40 CFR 122.4(i) (i.e., prohibiting the issuance of permits to new sources and new dischargers that will cause or contribute to the violation of water quality standards) prior to coverage under the permit.[1]

It is the responsibility of the new discharger to determine the discharge point where industrial stormwater enters a water body. Once the information is submitted to the regulatory authority, DEQ or their agent must decide if the applicant can be assigned to this permit and document which conditions below apply. To satisfy the requirements of 40 CFR 122.4(i), a new discharger to an impaired water without a TMDL, based on the EPA-approved Category 5: 303(d) list in effect at the time of permit application, for pH, copper, lead, zinc, iron and appropriate bacteria indicator, E. coli, fecal coliform and enterococcus that correspond to the specific pollutant(s) for which the water body is impaired, must meet one of the following conditions to obtain coverage under this permit:

- Prevent exposure to stormwater for pH, copper, lead, zinc, iron and the applicable bacteria indicator that correspond to the specific pollutant(s) for which the water body is impaired. Document the procedures taken to prevent exposure in the Stormwater Pollution Control Plan (SWPCP).
- Provide technical demonstrations that sources of pH, copper, lead, zinc, iron and the applicable bacteria indicator that correspond to the specific pollutant(s) for which the water body is impaired are not present at the site and document these findings and considerations in the SWPCP.
- Provide DEQ or agent stormwater discharge analytical sampling results to demonstrate the discharge of stormwater is not expected to cause or contribute to an exceedance of water quality standards for pH, copper, lead, zinc, iron and the applicable bacteria indicator that correspond to the specific pollutant(s) for which the water body is impaired at the point of discharge and retain in the SWPCP.

If unable to demonstrate pH, copper, lead, zinc, iron and the applicable bacteria indicator that correspond to the specific pollutant(s) for which the water body is impaired will not be present in the discharge, provide DEQ or agent with other technical information that demonstrates the discharge is not expected to cause or contribute to an exceedance of water quality standards at the point of discharge and document the rationale in the SWPCP.

If an applicant is unable to meet the new discharger criteria for coverage, then they must obtain coverage under an individual discharge permit or cease discharge. If a new discharger has stormwater discharge sample results, they must submit them with the permit application.

Pollutants are limited to:

- pH
- copper
- lead

[1] EPA 2021 MSGP Factsheet, page 21

- zinc
- iron
- E. coli
- Fecal coliform
- Enterococcus

During the 2021 rulemaking process for issuance of the1200-Z, stormwater data was evaluated to ascertain what pollutants were discharged above the impairment concentrations. Permit registrants were required to sample discharges for every impairment pollutant on the Category 5: 303(d) list since 2012. For water bodies with impairments for a particular pollutant, DEQ contracted with PG Environmental to evaluate all representative data for discharges of that pollutant to the impaired water body, regardless of the monitoring type. This means the analyses considered data collected for impairment monitoring, benchmark monitoring, numeric effluent limit monitoring and additional monitoring.

The objective of the data evaluation was to summarize:

- Impairment data exceeding reference concentrations.
- A breakdown of effluent impairment data and its receiving waters.
- Trends related to certain sectors exceeding the reference concentration of impairments.

The analysis included all discharge data, benchmark, impairment, sector-specific and numeric limit stormwater data reported in Discharge Monitoring Reports between January 2000 and December 2018. Based on the total number of samples that exceeded the relevant water quality standard 10 percent or greater, the required impaired pollutant monitoring was reduced to pollutants most likely to have the potential to cause or contribute to exceedances of water quality. This analysis and others may be accessed in Oregon Secretary of State Administrative Rules archives or by a public records request from DEQ.

When a TMDL establishes an industrial stormwater wasteload allocation, a new discharger may only be granted coverage under the general permit after DEQ, or agent has made an affirmative determination the TMDL has sufficient remaining loading capacity in the impaired water body to support a new discharge. If the applicable TMDL does not establish an industrial stormwater as a source such that no wasteload allocation is provided, the compliance with the terms and conditions of the permit is presumed consistent with the TMDL. If needed, the permit allows DEQ to require additional monitoring, site controls or compliance schedule to be covered under the general permit and be consistent with the EPA-approved TMDL.

Regulations governing impaired waters and TMDLs are in the Code of Federal Regulations. Issued in 1992, the regulations stipulate that states are to continue to identify waters that require TMDLs and ascertain the pollutants causing or expected to cause the impairment based on readily available data and information. States establish a priority ranking to develop Total Maximum Daily Loads for those pollutants and waters, which establishes a total pollutant load and allocate loads to both point (the wasteload allocation) and nonpoint sources. While developing a TMDL, industrial stormwater source impacts are evaluated.

The Columbia Slough TMDL has established applicable BOD_5 wasteload allocations for industrial stormwater. This permit meets all applicable terms of EPA-approved TMDLs.

The permit does not include additional requirements if a water body is impaired or has a TMDL for biological communities (biocriteria), including harmful algal blooms and aquatic weeds, where no pollutant, including indicator or surrogate pollutants, is specified as causing the impairment; or temperature, habitat and flow modifications. DEQ will determine if conditions of the general permit have been met for assignment or whether an individual permit is necessary.

2.3 New Application for Permit Coverage

DEQ's stormwater program began using Your DEQ Online ("YDO") electronic system in Sept. 2021. The system is used for all permit-related reporting and communication with DEQ; including submittal of applications and renewals, payments, tracking status of reports submitted or due, transfers and termination of permit coverage and communication with DEQ quickly and easily through a single portal. The permit registrant must sign and certify all electronic submissions in accordance with the requirements within Schedule F and 40 CFR 122.22. Facilities located in agents' geographic areas continue to operate outside of YDO, until directed by DEQ.

DEQ's agents processed paper renewal applications for continued coverage after June 30, 2026. DEQ intends to upload this renewal application information into YDO. DEQ is in the process of updating the agent agreements as the first step to integrate agents' 1200-Z facilities into YDO.

The 2026 permit added a provision that once DEQ or the relevant agent reviews a new application and requests final revisions, if the new applicant fails to respond to additional information request within 90 days, the application will be withdrawn. Once DEQ withdraws the application, the applicant must reapply consistent with OAR 340-045-0030(5)(a) "If DEQ determines that additional information is needed, it will promptly request in writing the needed information from the applicant. The application will be considered withdrawn if the applicant fails to submit the requested information within 90 days of the request or such other time as DEQ establishes in writing."

In addition, this permit includes new language that continues coverage under the administratively extended permit to existing registrants in the rare case the permit is not reissued by the time of expiration.

2.4 Existing Facilities Covered under the 2021 1200-Z Permit

DEQ will notify existing registrants once coverage is granted under the new permit and facilities will have until Nov. 30, 2026, to submit a revised SWPCP unless a later date is approved by DEQ or agent. Once the permit is issued, facilities will be aware of the new permit conditions and will have three months to complete and submit a revised SWPCP which reflects the new permit conditions. For those facilities using YDO, DEQ will add a reporting obligation for revised SWPCPs.

Facilities must comply with the implementation deadlines established under the previous 1200-Z permit, including Tier 2 corrective action requirements. This applies to permit registrants that exceeded the geometric mean of the benchmarks during the reporting year 2023/2024 or later, with an installation deadline of September, 2026, 2027 or 2028. The permit does not require Tier 2 geometric mean evaluations during this permit cycle for the same pollutant(s) and monitoring point(s) for those permit registrants with a Tier 2 deadline of June 30, 2026 or later.

2.5 Name Change or Transfer of Permit Coverage

DEQ is proposing a new process for agents to process a legal name change or transfer. If a facility is in an agents' geographic areas, the paper form and the SWPCP must be sent to the agent directly. Once the agent approves the permit action, DEQ will establish a record in YDO. At that time, the agent will provide a submittal number for the owner to include with the check or any mailed correspondence. The owner must mail a check to DEQ's P.O. Box. The legal name change or transfer will be sent once confirmation of the payment is processed.

2.6 "No Exposure" Conditional Exclusion from Permit Coverage

DEQ added language that DEQ may deny or revoke a no exposure certification if the facility's discharge is discovered to have a reasonable potential to cause or contribute to a violation of applicable water quality standards. This is consistent with the Phase II federal stormwater rules for conditional no exposure exclusion for industrial activity.

2.7 Authorized Non-Stormwater Discharges

Vehicle wash water, as well as routine external building wash down and pavement wash water, remain authorized non-stormwater discharges. However, power washing, which likely will mobilize significant quantities of oil and grease, suspended solids, heavy metals and organics is now prohibited. The permit restricts vehicle washing to the exterior of vehicles and eight vehicles per week. When washing large trucks, the tractor and trailer are counted as separate pieces.

The following restriction apply regardless of washing operation. The permit registrant may not use of does not use hot water or high pressure, solvents, chemicals, soaps or detergent. Many local municipalities have pollution prevention outreach materials regarding washing. Washington Department of Ecology's Vehicle and Equipment Washwater Discharges, Best Management Practices Manual, November 2012 and DEQ's Recommended Best Management Practices for Washing Activities are good resources for pollution prevention techniques.

2.8 Limitations on Coverage

Industrial facilities that disturb one acre or more of land are generally required to obtain coverage under the 1200-C construction stormwater general permit before construction begins. The permit identifies industrial sectors for which construction-related stormwater discharges may be authorized under the 1200-Z permit, rather than requiring separate construction stormwater permit coverage. These sectors include Sectors G, H, and J, as well as certain land-disturbing activities within Sectors K and L, which may remain authorized under the 1200-Z permit as specified in the applicable permit conditions.

To avoid conflict with the anti-backsliding provisions of the CWA, transfer from an individual permit to the 1200-Z permit will only be allowed where both of the following conditions are met:

- The individual permit did not contain numeric water quality-based effluent limitations developed for the stormwater component of the discharge; and
- The permittee includes any specific BMPs for stormwater required under the individual permit in their SWPCP.

Implementation of a comprehensive SWPCP for the entire facility (as opposed to selective discharge points in an individual permit) and compliance with all other conditions of the 1200-Z permit is deemed to be at least as stringent a technology-based permit limit as the conditions of the individual permit. This assumption is only made where the individual permit did not contain any specific water quality-based effluent limitations on stormwater discharges, such as an instance where a stormwater discharge contained high levels of zinc and the individual permit contained a zinc limit developed to ensure compliance with the state water quality criteria.

3.0 Schedule A

Schedule A of the permit contains the following requirements:

Technology-based Effluent Limitations
- Narrative Technology-based Effluent Limitations
- Control Measures for Numeric and Narrative Technology-based Effluent Limitations

Water Quality-based Effluent Limitations
- Water Quality Standards
- Discharge to Impaired Waters

Stormwater Discharge
- Statewide and Sector-Specific Benchmarks
- Mass Reduction Measures
- Numeric Effluent Limits

Stormwater Pollution Control Plans
- Preparation and Implementation of SWPCP
- SWPCP Revisions
- Required Elements

Benchmark Exceedances Corrective Actions
- Tier 1 and Tier 1.5 Corrective Actions
- Tier 2 Corrective Actions

Category 5: 303(d) Listed Waters Exceedance Response
- Water Quality-based Effluent Limits

Permit Compliance
- Authorization Under this Permit

3.1 Narrative Technology-based Effluent Limits (TBEL)

3.1.1 Description of Narrative Technology-based Limits

Technology-based limits are established in this permit as either federally required by effluent limitation guidelines (ELGs) or narrative technology-based effluent limits. Pursuant to 40 CFR 122.44(k) this permit includes narrative TBELs, by implementation of stormwater control measures. The CWA requires that discharges from existing facilities at a minimum meet the narrative TBELs in the permit. Longstanding federal regulations of industrial stormwater discharge permits have contained effluent limits that correspond to required levels of technology-based controls. The permit contains narrative and numeric technology-based effluent limits that, taken as a whole, constitute the required levels of technology-based control for the pollutants that may be discharged in industrial stormwater.

The permit follows EPA's approach to control measures consistent with the CWA and regulations for implementation of control measures contained in 40 CFR 122(k)(4). Section 402(a)(2) of the CWA states: "The administrator shall prescribe conditions for such permits to assure compliance with the requirements in paragraph (1) . . . including conditions on data and information collection, reporting and such other requirements as he deems appropriate." (Section 402(a)(1) includes effluent limitation requirements.) This statutory provision is reflected in the CWA implementing regulations, which state that best management practices (i.e., control

measures), can be included in permits when "[t]he practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA." 40 CFR 122.44(k)(4).[2]

The regulatory framework above requires each facility to select, design, install, implement and maintain control measures or best management practices outlined in an individually tailored SWPCP, with the goal of reduction or elimination of pollutants from stormwater discharges. This approach requires registrants to minimize pollutants, including the exposure of raw, final and waste materials to precipitation. Neither DEQ nor EPA generally mandate the specific controls a facility must select, design, install and implement. This permit provides flexibility to registrants so they may choose technologically available and economically practicable control factors most suited to each specific industry and facility.

Failure to implement the narrative technology-based effluent limits in the permit as described in a stormwater plan is a permit violation.

3.1.2 Narrative Technology-based Effluent Limits

Permit registrants are required to meet the following narrative TBELs: (1) minimize exposure, (2) oil and grease, (3) waste chemicals and material disposal, (4) erosion and sediment control, (5) debris control, (6) dust generation and vehicle tracking of industrial materials, (7) housekeeping, (8) spill prevention and response, (9) preventative maintenance, (10) employee education and (11) non-stormwater discharges. Minimal edits were made to Schedule A, technology-based effluent limitations section.

The permit was revised to minimize storing materials near interior doors where potentially contaminated stormwater may enter floor drains and exterior drains.

The Erosion and Sediment Control section was revised to read: "Stabilize exposed areas, including areas where industrial activity has taken place in the past and significant materials remain, and contain runoff using structural and nonstructural controls to minimize erosion of soil and control the discharge of sediment." The only change was to emphasize the permit registrant must control the discharge of sediment from their site.

Unless permitted under a NPDES or Water Pollution Control Permit (WPCF) permit, eliminating discharge of wash water is recommended by washing in a commercial car wash, using a closed-loop system, infiltrating into a vegetated area, but not into an engineered stormwater treatment facility (like a bioswale or rain garden) or discharging into sanitary sewer. Discharge of wash water into sanitary sewer often requires pre-authorization from the local sanitary district. Wash water is allowed under the 1200-Z because the de minimis thresholds and stipulations come from DEQ's NPDES 1700-A wash water discharge permit. DEQ clarified if unable to eliminate wash water discharge it may be discharged only if it complies with the restrictions outlined in authorized non-stormwater discharge condition I.6 of the permit.

Applicants and registrants should coordinate with both DEQ's stormwater and cleanup program to prevent migration of contaminants to surface waters due to stormwater contact with exposed contaminated soils. The federal definition of stormwater associated with industrial activity (40 CFR 122.26(b)(14)) intends to control pollutants from areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. The upland source control efforts in the Portland Harbor have been successful in reducing sediments from discharging under this permit. Similar efforts are now underway in the Columbia Slough as DEQ and Portland Bureau of Environmental Services work to address stormwater and sediment contamination in the Slough.

Spill prevention and response procedures conditions are explicit in that all spills or leaks must be cleaned up promptly to prevent discharge of pollutants and use spill/overflow protection equipment. Also, applicable contact and notifications as required by local emergency services, municipalities, public health agencies and drinking water supply agencies must be followed and listed in the SWPCP. Notification obligations when spill or

[2] EPA 2021 MSGP Factsheet, page 34

threatened spill may endanger health or the environment may be found at DEQ's Emergency Response Program web page.

The employee education requirement reflects EPA's industrial permit to include a list of the personnel that must be trained. Based on inspections, DEQ requires that when key personnel change, training on the SWPCP must take place no later than 30 calendar days once new staff is re-assigned. All training must be documented and kept on-site to confirm the appropriate staff have completed education no later than 30 calendar days of hire or upon change in duties for key designated staff and annually thereafter. Not all employees are required to be trained; however, those who are responsible for monitoring and inspections, BMP installation and maintenance, storage and handling of chemicals, and those responsible for taking corrective actions, as required under the permit, must be trained on the permit and the facility's SWPCP.
A comprehensive education program must cover:

- permit compliance;
- stormwater control measures used to achieve narrative TBELs and defined schedules;
- visual observations and sampling procedures;
- monitoring, inspections, reporting and documentation of these conditions; and
- spill prevention and response.

Each permit cycle, at a minimum, the employee education program should be updated to include changes in the revised SWPCP and narrative TBELs in this permit. The specific control measures must be described in the SWPCP. Modifications or improvements to control measures may be made throughout the permit cycle to meet other conditions (for example, installing treatment measures based on Tier 2 corrective actions) may require frequent updates to the employee education materials and re-training.

The permit now requires education and training materials to be updated and required personnel re-trained no later than 60 calendar days after submission of a revised SWPCP, or any time there are changes in operations or control measures that may significantly change the nature of pollutants present in stormwater discharge or significantly increase the pollutant(s) levels, discharge frequency, discharge volume or flow rate and if a change occurred to monitoring or discharge points.

In addition, the permit requires immediate notification to Oregon Emergency Response System if there is emergency firefighting discharge. If there is a risk of petroleum, chemicals or fire suppression water/foam reaching a waterway, it should be reported to OERS. They can be reached 24/7 at 800-452-0311. The permit registrant must also notify their agent if they operate within those areas.

3.2 Control Measures for Narrative and Numeric Technology-based Effluent Limits

3.2.1 Infeasibility to Develop Numeric Technology-based Effluent Limits

The narrative technology-based effluent limits in the permit are expressed in Schedule A.8. The permit registrant must minimize pollutants in the discharge with the goal to reduce or eliminate pollutants to the extent achievable using control measures that are technologically available, economically practicable and achievable in light of best industry practice.

The settlement agreement signed Aug. 15, 2018, committed DEQ to evaluate the feasibility of numeric technology-based effluent limits for copper, lead, zinc and total suspended solids. Numeric effluent limitations were determined not to be feasible for industrial stormwater discharges. Stormwater discharges can be highly intermittent, are usually characterized by very high flows occurring over relatively short time intervals and carry a variety of pollutants whose source, nature and extent varies. The development of numeric TBELs for use in future 1200-Z permit reissuances would require a substantial investment of resources by DEQ.

To develop numeric TBELs, a rigorous process would identify pollutant control levels achievable with the best available technology, and which are within the economic resources of each industry. Control technologies can

vary widely both across industries (due to industry-specific factors) and within industries (due to site-specific factors). Site-specific variability is a highly salient feature in the analysis of stormwater controls, whereas it is much less likely to be a feature in the development of enforceable limits for wastewater permits.

Examples of site-specific and industry-specific features, which might need to be accounted for in the development of numeric TBELs, include: regional and seasonal climatic variation, rain intensity and duration, pollutant exposure pathways, available site area to implement controls and varying economic considerations for registrants. Given this a general permit with over a thousand permit registrants representing many different industry types and the level of variability inherent in the analysis inputs, it is impossible to derive appropriate numeric TBELs.

EPA established certain numeric technology-based effluent limits for industrial stormwater discharges through federal rulemaking. This is a resource-intensive, multi-year process and these numeric TBELs are incorporated into the 1200-Z in Schedule E, sector-specific requirements.

DEQ is continuously improving its data collection tools to improve the scope and quality of information available for compliance assessment, while minimizing or reducing reporting burden on permittees to the greatest extent practicable. DEQ will routinely evaluate available data, to determine if numeric TBELs are feasible to develop, and will monitor EPA and other states routinely to gauge practicability for numeric TBEL development.

3.2.2 Technologically Feasible

EPA determined that the industrial stormwater discharge permitting structure taken as a whole, constitutes Best Practicable Control Technology Currently Available (BPT), as set forth in CWA section 304(b)(1) and Best Available Technology Economically Achievable (BAT), as set forth in CWA section 304(b)(2) and Best Conventional Pollutant Control Technology (BCT), as set forth in CWA section 304(b)(4)[3]. EPA's 2021 MSGP effluent limits are expressed as specific pollution prevention requirements for minimizing the pollutant levels in the discharge. EPA added greater clarity and specificity in some of the effluent limits because in the past, EPA's MSGPs were written in very general terms, leaving operators wide latitude in interpreting what constituted compliance. This led to widely varying levels of stormwater program effectiveness. EPA continues to conclude that the combination of pollution prevention and structural management practices required by these limits are the best technologically available and economically practicable and achievable controls, as well as the most environmentally sound way to control the discharge of pollutants in stormwater discharges from industrial facilities.[4] As Oregon has been authorized to administer the NPDES permitting program by EPA, DEQ's permit continues to place pollution prevention as the cornerstone of the stormwater program.

Facilities must select, design, install, implement and maintain all control measures, BMPs and passive and/or active treatment to manufacturer's specification to ensure the control of pollutants.

3.3 Water Quality-based Effluent Limitations

3.3.1 Water Quality Standards

At any time, DEQ may require permit registrants to implement additional control measures or require permit registrants to obtain coverage under an individual permit, if a discharge causes or contributes to an exceedance of water quality standards. In cases where DEQ or agent impose additional controls under the general permit, the permit registrant must revise their SWPCP. DEQ will post a 30-calendar day public notice on the revised plan.

Facilities are required to ensure that stormwater discharges do not cause or contribute to an exceedance of instream water quality standards, including the narrative criteria and aquatic life and human health criteria. DEQ expects that compliance with the narrative technology-based limits, through the careful selection, design, installation, and implementation of effective control measures, as well the monitoring and corrective actions

[3] EPA 2021 MSGP Factsheet, page 30
[4] EPA 2021 MSGP Factsheet, page 30

requirements in the permit, will in general result in discharges that are controlled as necessary to meet applicable water quality standards.

If the permit registrant becomes aware, or DEQ determines, that the discharge causes or contributes to a water quality standards exceedance, the permit registrant is required to take the following immediate corrective actions no later than 24 hours after the discovery:

i. Investigate the conditions that caused or contributed to the exceedance; and
ii. Review the SWPCP and the selection, design, installation and implementation of control measures to ensure compliance with this permit.

The permit registrant must take required corrective action and submit a "Water Quality Standards Corrective Action Report" and a revised SWPCP (if needed) to DEQ or the agent within 30 calendar days.

3.4 Discharges to Impaired Waters

DEQ or agent will identify and communicate impairment monitoring requirements based on the information each facility provides in their SWPCP and cross-referencing the receiving stream with the EPA-approved Category 5: 303(d) list that is in effect at the time of permit assignment. At time of renewal DEQ and agent will use the 2024 Integrated Report 303(4) list approved by EPA in May. Impairment monitoring is based on the first receiving water body stormwater discharge (directly or indirectly) enters for each monitoring point for one or more of the following Category 5: 303(d) listed pollutants:

- pH
- copper
- lead
- zinc
- iron
- bacteria indicator (E. coli, fecal coliform or enterococcus)

EPA regulations (40 CFR 130.7 and 40 CFR 130.8) specify the process for developing the 303(d) list and the content of the biennial water quality report. EPA guidance recommends that states submit an Integrated Report to satisfy 305(b) and 303(d) requirements. The methodology is consistent with the key elements of Oregon's water quality standards and is the framework DEQ uses to assess water quality conditions. The methodology builds on DEQ's protocols from previous 305(b)/303(d) assessments. The Integrated Report process is complete when DEQ receives approval from EPA on the final list of water quality limited waters requiring a TMDL (Category 5: 303(d) list). Category 5: 303(d) listed waters are determined when data indicates a designated use is not supported or a water quality standard is not attained and a TMDL is needed.

DEQ has an online map to assist with the determination of impairment pollutant monitoring. Impairment monitoring is based on the first receiving water stormwater enters from each monitoring point. Each permit registrant is required to identify the latitude and longitude where the discharge enters the receiving stream. During the 2018/2020 Integrated Report the listing methodology adjusted its assessment framework and the permit outlined the process for identifying receiving streams within a watershed unit. These watershed units group the smallest streams (Strahler stream order 1-4) within HUC12 sub watershed boundaries for ease of EPA reporting. Beginning with the 2022 Integrated Report, DEQ tools report on the status of individual waterbodies within watershed units. DEQ considers the individually assessed water bodies within a watershed assessment unit separately; therefore, impairment status is based on the individual receiving stream category, not the watershed unit.

The 2024 Integrated Report may be accessed in an interactive web map application that displays status of an assessment unit. This is an effective method for facilities to provide DEQ or agent with information needed on site discharge and receiving water impairment status.

When a TMDL includes a wasteload allocation for a parameter-specific reduction in industrial stormwater discharge, DEQ will include such monitoring requirements at the time of permit assignment. The wasteload allocations will be expressed in any EPA-approved TMDL as outlined in the TMDL documents.

The 1998 EPA-approved Columbia Slough TMDL with specific wasteload allocations calling for a reduction of BOD_5 in industrial stormwater discharge. The permit reflects compliance with the terms and conditions of the Columbia Slough TMDL.

3.5 Stormwater Discharge

3.5.1 Statewide and Sector-Specific Benchmarks

This section explains the conceptual purpose of benchmarks. Statewide metals benchmarks are derived from water quality data and have been broken down by seven georegions. Georegion definitions come from EPA ecoregions. Sector-specific benchmarks are calculated based on Oregon's regional water quality characteristics and water quality standards. Benchmarks are screening concentrations, not enforceable numeric effluent limits. A benchmark exceedance, therefore, is not a permit violation, but failing to take the required corrective action in response to a benchmark exceedance is a permit violation.

Schedule E benchmarks are developed by EPA and have been adopted into the permit. Schedule E sector-specific benchmarks consider specific pollutants likely to be mobilized from industrial sectors or activities. Although the pollutants listed in Schedule E are directly from EPA's permit, the concentrations have been derived based on Oregon's water quality standards. At the time of permit issuance, EPA's 2026 industrial permit was not finalized; thus, Oregon's 1200-Z permit did not incorporate EPA's sector-specific proposed changes. The sector-specific benchmarks have not changed since DEQ did not adopt new water quality standards during the last five years that impacted the 1200-Z.

DEQ intends to address all discharges associated with industrial activity into a waterway or conveyance systems under the permit. Regulated stormwater discharges from a facility include stormwater run-on that commingles with stormwater discharges associated with industrial activity at a facility. Thus, all types of flow, including sheet flow, from industrial activity are considered part of the regulated flow. The concept is to regulate all stormwater pollution potential under the federal CWA and therefore, the permit registrant must assess all potential industrial stormwater discharge points that do not infiltrate. The EPA's *Industrial Stormwater Monitoring and Sampling Guide* (April 2021), and the State of Washington Department of Ecology's *Stormwater Sampling Manual* (December 2015) are both good resources and techniques for channeling and sampling sheet flow.

3.5.2 Mass Reduction Measures Certification

The Tier 2 mass reduction waiver is an alternative to installing stormwater treatment control measures, by instead reducing pollutant loads with volume reduction measures. Facilities who implement this condition have revised their SWPCPs to include calculations supporting a mass load analysis to show that relevant pollutants in their discharge are reduced below the mass equivalent of the unmet benchmark.

"Federal requirements to report monitoring results for stormwater discharges associated with industrial activity… shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the discharge."[5] At a minimum, a permit for such a discharge must require an annual report inspection and certification be signed in accordance with 40 CFR 122.22. The inspection must identify areas contributing to a stormwater discharge associated with industrial activity and evaluate whether measures to reduce pollutant loadings identified in a stormwater pollution prevention plan are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. The permit complies with this federal requirement and goes beyond by providing a stamped certification by an Oregon registered professional engineer (PE) or Oregon certified engineering geologist (CEG) to validate the mass reduction measures are operating as designed.

[5] 40 CFR 122.44(i)(4), Code of federal regulations, EPA Permit Programs, NPDES

In 2021, the permit required a re-certification of all approved mass reduction measures installed during previous permit cycles in response to Tier 2 corrective action. This means most voluntarily installed mass reduction measures or Tier 2 mass reduction waivers before 2021 should have been recertified. Permit registrants who have been notified by DEQ or agent that their mass reduction measures certification are approved do not need to recertify during this permit cycle. This includes any facility that had an approved Tier 2 mass reduction waiver during last permit cycle.

Some modifications were made to this section for the 2026 permit cycle. Registrants are still required to hire an Oregon professional engineer or an Oregon certified engineering geologist and ensure the mass reduction measure was operating as designed. However, now the permit requires a certification for yet to be installed mass reduction measures.

To promote volume reduction measures, such as low impact develop practices (based on site conditions and potential for groundwater contamination), if a permit registrant has installed or plans to install such mass reduction measures voluntarily that reduce the mass of the pollutants discharged at or above DEQ-approved design storm capacity, but not in response to Tier 2 mass reduction waiver, they must provide a stamped certification and a Mass Reduction Certification form to DEQ or agents.

If the certification is approved by DEQ or agent, the permit registrant does not need to conduct further sampling from mass reduction measures that may discharge if the stamped certification has been approved and the permit registrant performs proper operation and maintenance. DEQ added new language that DEQ or agent may require corrective action or recertification if:
(1) Failure to meet all maintenance schedules specified in the stamped certification.
(2) If it is known that mass reduction measure discharges during design storms below required capacity.
(3) If the mass reduction measure does not meet the design specifications.
(4) If visual observations show signs of pollution in discharges from the mass reduction measures.

Not all Tier 2 mass reduction measures are designed to discharge, such as on-site retention, re-use and stormwater diverted to sanitary sewer.

3.5.3 Effluent Limitations

This section simply describes effluent limitations and the instances they may apply to a discharger under the permit.

These include:

- Technology-based numeric effluent limits based on industrial activities promulgated by EPA's Effluent Limitation Guidelines.
- Water quality-based numeric effluent:
    (1) When impairment sample results trigger based on condition in Schedule A.20.e (the permit registrant may request a compliance schedule as outline in Schedule C and must meet the required status report schedules); and
    (2) Established by wasteload allocations in a TMDL as identified by DEQ or agent.
- Water quality-based narrative effluent limits established for E. coli, fecal coliform, enterococcus and iron that correspond to the specific pollutant(s) for which the water body is impaired.

3.6 Preparation and Implementation of the Stormwater Pollution Control Plan

The SWPCP must be developed and permit registrant must maintain site-specific control measures designed to meet all applicable limits. Permit registrants are required to keep their plan up-to-date and follow all design, installation, implementation and maintenance specifications and frequency. The 2026 permit added EPA's definition of a "qualified person" as "Qualified person is a person knowledgeable in the principles and practices of industrial stormwater controls and pollution prevention, and possesses the education and ability to assess

conditions at the industrial facility that could impact stormwater quality, and the education and ability to assess the effectiveness of stormwater controls selected and installed to meet the requirements of the permit."

A slight revision to this section reads: "The SWPCP must be prepared by a qualified person knowledgeable in industrial stormwater management and familiar with the facility." Qualified person is a person knowledgeable in the principles and practices of industrial stormwater controls and pollution prevention, and possesses the education and ability to assess conditions at the industrial facility that could impact stormwater quality, and the education and ability to assess the effectiveness of stormwater controls selected and installed to meet the requirements of the permit.

3.6.1 Stormwater Pollution Control Plan Requirement Revisions

The stormwater program uses YDO for electronic reporting. The YDO platform has changed several times since stormwater began using it in Sept. 2021. One recent notable change to YDO is how contact information is submitted to allow easy updates through the system. YDO has always provided a way to change site contacts through the electronic system instead of uploading the revised SWPCP, but now there is a specific submittal type. The 2021 permit language anticipated using the electronic system for all reporting; therefore, the permit only includes minor wording changes.

Facilities are required to update the on-site paper copy within 30 calendar days from the change in contact. All other SWPCP revisions will be submitted through YDO, unless a permit registrant is granted a waiver from electronic reporting or the site is in our agent's jurisdiction.

One important update in 2026 requires any new discharge or monitoring points to use a distinct three-digit identification number from any previous decommissioned points. Another change requires SWPCP revision dates and section to be included in a log with the Plan. This will help DEQ and our agent identify changes.

For existing permit registrants continuing coverage from the 2021 permit, the SWPCP must revised to reflect permit changes and submitted to DEQ or agent no later than Nov. 30, 2026.

3.6.2 Stormwater Pollution Control Plan Required Elements

The title page requirements include: (1) plan date; (2) name of site; (3) name of site owner or operator; (4) DEQ file number and EPA permit number; (5) primary and co-located SIC code; (6) contact person name, phone and email(s); and (7) physical and mailing address, if different. Regular business hours of operation is now required on the title page.

The 2026 permit added a requirement that the SWPCP elements include a revision history in a log by section and date.

Site maps must include a title, legend or key, a north arrow, date and indicate scale.

DEQ no longer uses file numbers. Permit registrants are now identified by the Permit/License/Certificate (PLC) number or the EPA permit number. This applies to all sites administered by DEQ and our agents. Agent sites are in YDO in preparation of all permit registrants using YDO. The PLC and EPA permit numbers are provided once a facility is assigned coverage in YDO.

It is important that the SIC code applicable to the drainage areas and associated discharge points be noted in the SWPCP, since sections of the site's industrial activities may vary.

The plan must clearly label on the site map all discharge points. Because the monitoring location may differ from the actual discharge point, the map must contain both. The monitoring location must be labeled with a unique three-digit identifying number starting with 001, 002 and indicate "monitoring location."

The SWPCP must provide the name(s) of the receiving water(s) and latitude and longitude of discharge points and applicable SIC code, if the facility has co-located operations. If the discharge point is into a municipal storm sewer system, the name(s) and latitude and longitude of the ultimate receiving water(s) and the name of the municipality is required. Because impairment monitoring may be subject to a numeric water quality-based effluent limit, it is critical that DEQ or agent know the appropriate receiving stream of each monitoring point.

Operations and maintenance plans are a required element of the SWPCP for active and passive stormwater treatment systems, as well as all mass reduction measures or low impact development. Proper function and maintenance for treatment elements with sophisticated or proprietary components or thresholds must be met for system efficacy. Just as maintaining treatment system components for optimal performance, low impact development features must be maintained and cleaned to retain infiltration rates and capacity.

3.7 Benchmark Exceedances Corrective Actions

3.7.1 Tier 1 Corrective Actions

This permit is based on an adaptive management approach where permit registrants monitor their stormwater discharge, evaluate the effectiveness of their control measures and take corrective actions to ensure that pollutants exposed to stormwater are controlled to achieve the benchmarks in the permit and to protect water quality. When stormwater monitoring results exceed any statewide benchmark(s) in Table 4 of the permit, sector-specific benchmark(s) in Schedule E, or visual observations show signs of pollution, the permit registrant must investigate the cause no later than 30 days after receiving the monitoring results.

A single exceedance of a statewide benchmark, sector-specific benchmark or visual observations of pollution in discharge triggers a Tier 1 investigation and a Tier 1 report. The corrective actions process includes the following steps: investigate the cause of the exceedance, evaluate source removal and operation controls, consider current use of best management practices, assess need for maintenance or new BMPs, implement corrections and document the actions in a Tier 1 report. Tier 1 investigation is primarily focused on source tracing, source control or source removal. The 2026 permit clarifies Tier 1 corrective action is the time to remove sources of pollution and implement source control to improve stormwater discharge quality.

Source control measures can be operational, such as regular sweeping or cleaning up debris, or structural, like covering storage areas to prevent stormwater exposure. Thus, the definition of "control measures" in the permit means any best management practices and other methods used to prevent or reduce the discharge of pollutants to receiving waters.

This corrective action response is meant to evaluate source control, best management practices and implementing new narrative technology-based effluent limits (TBELs), such as housekeeping and minimization of exposure. Preventing stormwater from encountering pollutant sources or materials is generally more effective, and less costly, than trying to remove pollutants from stormwater.

The investigation may also include identification of significant materials left on-site from past activities or other discrete pollutant sources, such as metal roofing. In this way, facilities can plan for removal or isolation of sources as a Tier 1 corrective action, incentivizing avoidance of Tier 2 corrective actions.

To provide technical assistance to facilities, DEQ provides specific source control and operation control options based on each major industrial group on DEQ's industrial stormwater web page. This optional tool of checklists may be completed as part of the Tier 1 corrective action response. The checklists were developed by EPA and included in the 2020 draft MSGP as Appendix Q. EPA did not include Appendix Q in the 2021 MSGP and instead maintains the existing industrial stormwater fact sheet series as guidance. However, DEQ revised the checklists in response to public comments and re-structured the checklists to minimize duplication and eliminate control measures already required under Schedule A.1, narrative TBELs. The checklists can be found under the forms section of DEQ's web page, and when used can be a starting point to help identify pollutant sources known

to be mobilized from specific industries. The checklists are broken into universal source control measures to be completed and implemented at all sites and industrial-specific options based on the industry sector.

If a permit registrant chooses to use the industrial-specific checklists, applicable controls should be implemented based on each primary and co-located SIC code operational on-site. The universal source control measures will be applicable for industrial activities under Table 2.

Impairment pollutant monitoring exceedances do not require a Tier 1 or Tier 2 corrective action response. Instead, impairment exceedances escalate to water quality-based numeric or narrative effluent limits. More information may be found in Section 3.8 of this report.

Exemptions from Tier 1 corrective action based on benchmark sampling exceedances include:

- Permit registrants subject to Tier 2 corrective action response, when benchmark sample results exceed the benchmark for the same pollutant and monitoring point prior to installation of Tier 2 treatment.
- If stormwater sample results exceed benchmarks from certified properly maintained mass reduction measures installed at or above DEQ-approved designed storm capacity.

There is no exemption from Tier 1 corrective action response when discharge shows signs of pollution during visual observation.

Some examples of effective Tier 1 source control responses may include:

- Removing or isolating pollutant sources;
- Installing and implementing industrial-specific checklist BMPs or operational controls; and
- Increasing frequency street sweeping.

Tier 1 reports are integral to DEQ and agents' inspectors when evaluating permit compliance. Tier 1 reports and industrial-specific checklists must be retained on-site with the permitting records and are required to be kept for a minimum of three years. DEQ or agent will review them during inspections. New language requires registrants to provide documents to DEQ, agent and local municipality upon request within five business days.

Facilities must investigate the causes of elevated monitoring results, review SWPCP and evaluation control measures, determine if changes are needed or SWPCP revision is necessary, complete Tier 1 report and implement corrective action no later than 30 calendar days. The corrective action implementation deadline must be completed before the next storm event, if possible, and no later than 30 calendar days after receiving the sample results, whichever comes first. If there is a known source of stormwater contamination, fulfilling Tier 1 corrective action response no later than 30 calendar days is fundamental to adaptive management. If permit registrants fail to complete the corrective action within this timeframe, the explanation must be documented in the Tier 1 Report.

3.7.2 Tier 2 Corrective Actions

This requirement is based on the geometric mean of qualifying sample results collected during any full reporting year at any monitoring point(s) that exceeds applicable statewide benchmark(s). Tier 2 corrective action response is only relevant to statewide benchmark exceedances. DEQ clarified a Tier 2 plan must include treatment; however, this may also include a combination of source removal and source control.

Geometric mean evaluations are required annually. Every year on the August 15 Discharge Monitoring Report, DMR, the permit registrant must report the geometric mean calculation of statewide benchmark sample results for each monitoring point. The permit registrant is not required to perform Tier 2 geometric mean benchmark evaluation:

- If the Tier 2 installation deadline is June 30, 2026 or later in response to a Tier 2 corrective action response triggered under the previous permit, for the same pollutant(s) and same monitoring point(s) during this permit cycle.

- After a monitoring point triggers a Tier 2 corrective action response for a pollutant during the current permit cycle, in subsequent full reporting years for the same pollutant(s) and same monitoring point(s).
- For sample results from properly operated and maintained mass reduction measures.
- When new coverage is granted or DEQ or agent approved a new monitoring point at an existing facility on or after Nov. 15, on the next calendar year's Aug. 15 Discharge Monitoring Report. For existing permit registrants, the exemption only applies to the new monitoring point.
- For the statewide benchmark parameter(s) where DEQ or agent has granted a monitoring waiver in accordance with Schedule B.30 of this permit.

Tier 2 status begins on June 30 of any year when the sample results from the previous full reporting year exceeds the geometric mean. This means that even though DEQ or agent may not be aware of whether a facilities' monitoring has triggered Tier 2 corrective action response, the facility needs to calculate the geometric mean as soon as they receive the monitoring results. Most of the time facilities will know their status before June 30 (the end of the full reporting year) because the fourth required sample to meet the minimum frequency will likely have been taken prior to the end of the full reporting year. Facilities are encouraged to start the required corrective action as soon as they are aware their sample results have triggered Tier 2 corrective action.

All qualifying sample results must be used in the geometric mean calculation. Qualifying samples are samples that are collected at least 14-days apart, are analyzed using approved methods (see Schedule F), and satisfy the Quality Assurance/Quality Control requirements of the method as defined in Schedule D. If a facility takes more than the minimum frequency of samples, all qualifying samples must be used for the geometric mean evaluation. Conversely, if a facility takes less than the required samples during a reporting year, those qualifying sample results will be used for the geometric mean calculation.

The geometric mean must be reported on Aug. 15 discharge monitoring report. The GM (geometric mean) DMRs, in YDO, indicate the parameters and monitoring points required to calculate the annual geometric mean and are a separate reporting requirement from the quarterly discharge monitoring reporting. Permit registrants with a Tier 2 installation deadline of June 30, 2026, or later will be exempt from Tier 2 geometric mean evaluations this permit cycle for the same pollutant and monitoring point.

Tier 2 report must include a proposal for active or passive treatment. This may include a combination of source removal and source, control but, must propose and treatment measures, with the goal of achieving the benchmark(s) in this permit. The report must include the rationale for the selection of the control and treatment measures, the projected reduction of pollutant concentration(s) and the schedule for implementing these measures. If a treatment system uses chemicals to adjust the stormwater to assist in optimal treatment, stormwater is not considered process water. The permit requires safety data sheets for treatment chemicals, maintenance and operations specifications, and proper storage and disposal procedures are included in the SWPCP.

A Tier 2 mass reduction waiver is another Tier 2 corrective action response option which allows for volume reduction measures installation, such as low impact development practices, that will or has resulted in reductions of the mass load of pollutants in the discharge below the mass equivalent of the applicable statewide benchmarks.

And finally, a third Tier 2 corrective action response option is a Tier 2 background waiver. The permit registrant may request a background waiver exemption if they can sufficiently demonstrate the benchmark exceedance is attributed solely to the presence of the pollutants in natural background and is not associated with industrial activities at the site.

The Tier 2 report or Tier 2 background waiver must be stamped by an Oregon professional engineer or Oregon certified engineering geologist. An Oregon certified engineering geologist may stamp a Tier 2 mass reduction waiver only.

Oregon Revised Statute Chapter 672 requires that anyone offering to practice as an engineer in Oregon be registered in Oregon and hold a valid certificate to practice engineering in Oregon from the Board of Examiners

for Engineering and Land Surveying. Although it is not DEQ's role to enforce this statute, restating the Oregon registration requirement in the permit provides greater clarity. Questions regarding ORS 672 should go to the Board of Examiners for Engineering and Land Surveying.

In determining the appropriate treatment measures, facilities may consider passive or active treatment measures. Facilities should first consider using volume reduction measures such as low impact development practices, if feasible based on-site conditions and potential for groundwater contamination. Source control measures can be used in conjunction with stormwater treatment to effectively address the pollutants of concern. Treatment removes pollutants from stormwater. Some examples of methods to remove pollutants from stormwater include the following active and passive methods.

Active treatment systems generally are enclosed, computerized system with pumps, filters, and real-time controls that use chemical additions, including coagulants and flocculants. Within the active treatment system category, there are the following**:**

- Chemical filtration
- Chemical treatment
- Electrocoagulation
- Ion exchange
-

Passive treatment systems do not require electricity to operate and are generally lower cost alternatives when compared to active treatment systems. Within the passive treatment system category, there are the following:

- Filtration
- Drain inlet insert
- Media filtration
- Absorbent boom/fabric
- Oil/water separator[6]

The implementation deadline has been set to allow facilities "dry weather" time for implementation of Tier 2. The deadline for installation of Tier 2 corrective action is September 30 (a year and nine months from Tier 2 corrective action submittal deadline). DEQ and agents are committed to reviewing Tier 2 corrective action responses and notifying facilities no later than 60 calendar days of receipt if either the Tier 2 report, Tier 2 mass reduction waiver, or Tier 2 background waiver request is accepted or denied.

Permit registrants must inform DEQ or agent no later than 30 calendar days after installing all Tier 2 corrective actions. This allows DEQ or agent to evaluate compliance with the Tier 2 exemptions and monitoring waiver requests submitted post-Tier 2 implementation. A new clause specifies a permit registrant may request a monitoring waiver or re-establish substantially similar discharge points post-Tier 2 implementation to align with practice.

In addition, the permit clarifies a revised SWPCP is due 30 calendar days after Tier 2 corrective action is implemented.

Monitoring waivers for the pollutants that exceeded the geometric mean at their associated discharge points are not allowed until post-Tier 2 installation. A monitoring waiver may be requested when the geometric mean of five consecutive qualifying samples is equal to or below the applicable statewide benchmark, or pH results are within the range for five consecutive qualifying readings. Once a Tier 2 corrective action is installed and operable, a permit registrant must wait a full monitoring year and meet the monitoring waiver criteria prior to requesting a monitoring waiver for the same pollutants and discharge points that triggered Tier 2.

[6] Literature Review of Existing Treatment Technologies for Industrial Stormwater, Herrera July 2011, page 4, 5.

At approved substantially similar discharge points, facilities must evaluate appropriate source control and treatment to correctly size and install Tier 2 corrective actions at these discharge points. The rationale for this is substantially similar discharge points have similar effluent and nature of pollutants discharged from the sampled discharge points (monitoring points). DEQ acknowledges the size of the basin may vary; therefore, installing the proper sized treatment is critical. Once Tier 2 installation is complete, permit registrant must monitor all substantially similar discharge points. To re-establish substantially similar discharge points sampling exemption, the geometric mean of five consecutive qualifying sample results collected at substantially similar discharge point must be equal to or below the benchmark. For exceptionally large facilities where sampling at all substantially similar discharge points is infeasible, DEQ or agent may approve a modified monitoring schedule.

3.7.3 Tier 2 Mass Reduction Waiver

Tier 2 mass reduction waiver is based on volume reduction and can be done in many ways. Most of the time permit registrants choose to reduce the mass load of pollutants in the discharge below the mass equivalent by infiltration. Some may re-use the stormwater, and others may choose to send a portion to the sanitary sewer. The underlying concept of this waiver is that by infiltrating the first flush of runoff, when the pollutant concentrations are likely highest, less loading makes it to surface waters. Infiltration through green infrastructure and volume reduction measures will sufficiently reduce the mass load of pollutants entering the receiving stream. To obtain this mass reduction waiver, the permit registrant must demonstrate that the volume reduction measures are below the mass equivalent of the benchmarks.

Since this condition was in the permit for two cycles, many permit registrants have installed these types of mass reduction measures. This permit allows Tier 2 corrective action to be applied to mass reduction measures that were previously installed based on Tier 2 mass reduction waiver corrective action responses in previous years.

The mass reduction measures exemptions from sampling was retained. Since the benchmarks are concentration based, the mass equivalent sample results are not required to perform geometric mean evaluation. All mass reduction measures must be properly maintained and those measures installed voluntarily must comply with the mass reduction measure certification.

3.7.4 Tier 2 Background Waiver

Some facilities that have exceeded the benchmark based on the geometric mean evaluation may demonstrate that these exceedances are due to background conditions. For example, high background levels of metals in soils or groundwater due to natural mineral deposits could cause a benchmark exceedance. Background sources include metals derived from natural mineral deposits and nutrients attributable to background soil, vegetation or wildlife sources. Background sources may not include run-on from non-natural sources, such as other industrial sites or roadways. Consistent with EPA's permit, the 1200-Z permit includes a waiver if facilities establish that benchmark exceedances are solely due to background conditions. To make this determination, the permit registrant must sufficiently demonstrate the benchmark exceedance(s) is attributed solely to the presence of the pollutant(s) in natural background and is not associated with industrial activities at the site. A revised SWPCP must include any data collected, including literature studies, that describes the levels of natural background pollutants in the discharge. DEQ's website includes a fact sheet for establishing background conditions to assist facilities by determining if this exception is applicable.

DEQ's "Determining Background Conditions Fact Sheet" provides the requirements to support a rationale for a background waiver:

- Map showing the reference site location in relation to facility and elevation;
- Reference site and facility site elevation;
- Available geology and soil information for reference and sampling sites;
- Photographs showing available land cover information and site vegetation;
- Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures;
- Reference site reconnaissance survey data regarding presence of roads, discharge points, or other human-made structures;

- Monitoring data;
- Information from peer-reviewed publications;
- Data from a local, state, or federal government publication specific to runoff or stormwater in the immediate region; and
- Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site during the time the record collection occurred.

The background concentration of a pollutant in discharges from a non-human-impacted reference site in the same watershed should be determined by evaluating ambient monitoring data or by using information from a peer-reviewed publication or a local, state or federal government publication specific to stormwater in the immediate region.[7]

3.8 Category 5: 303(d) Listed Waters Exceedance Response

3.8.1 Historical Information on the Development of Water Quality-based Effluent Limits

DEQ expects that compliance with the narrative technology-based limits in the permit will generally result in discharges that are adequately controlled to meet applicable water quality standards. However, discharges to impaired waters on Oregon's 303(d) list that continue to exceed impairment monitoring after the implementation of typical pollutant controls or treatment may have the potential to cause or contribute to exceedances of applicable water quality criteria within the receiving water.

DEQ used stormwater data reported on the 1200-Z permit Discharge Monitoring Reports from January 2000 through December 2018 to evaluate which pollutants in industrial stormwater are most likely to cause or contribute to exceedances of water quality standards. Discharge data was cross-referenced with Oregon's 303(d) list, approved by EPA in December 2018, to narrow the assessment to pollutants that are known to be causing impairment within Oregon's receiving waters. Discharge data was then separated based on georegion and compared to the calculated georegion impairment reference concentrations. EPA's default metal's translators were used in calculating the dissolved data to total metals for these analyses.

A reference concentration was the term used for impairment concentrations. Reference concentrations for many of the impairment pollutants were based on the acute aquatic life criteria; where acute criteria were not applicable, chronic aquatic life criteria was used. There were approximately ten toxic pollutants without aquatic life criteria and DEQ established impairment monitoring concentrations using the human health criteria for these pollutants. In instances where the quantitation limit is above the water quality criteria, the quantitation limit was used as the reference concentration.

Combined discharge data that exceeded the concentrations by 10 percent or greater were identified as cadmium, copper, iron, lead, and zinc. Cadmium was not included as an impairment of concern in 2021 because there is only one stream segment assessed as Category 5: 303(d) listing in the 2018/2020 Integrated Report and there are no permitted industrial facilities as the listing is for the Middle Creek located in a high elevation area. DEQ will evaluate the appropriateness for cadmium impairment monitoring in 2031.

E. coli was evaluated as a bacteria indicator using a water quality standards instantaneous criterion of 406 organisms per 100 ml.

For pH, a minimum reference of 6.5 to 7.0 standard units and a maximum reference of 8.5 to 9.0 standard units were used. Both E. coli and pH (minimum of the range) parameters exceeded the concentrations by 10 percent or greater.

Therefore, the 2021 and 2026 permit requires impairment monitoring for pH, copper, lead, zinc, iron and the bacterial indicators E. coli, fecal coliform and enterococcus.

[7] EPA 2021 MSGP Factsheet, page 111

While other toxic, non-toxic and conventional pollutants were evaluated, no other pollutants were identified as present in industrial stormwater discharges to impaired waters at levels above water quality standards.

2026 water quality-based numeric effluent limits
The 2026 1200-Z retains the permit conditions with triggering events that escalate to water quality-based numeric effluent limits for pH, total copper, total lead and total zinc.

Impairment monitoring for pH is established at the applicable water quality criteria defined in OAR 340-041-0021 and -0101 through -0350. These are included in the permit in Appendix A. Throughout the 2026 permit, DEQ attempted to clarify the implementation of Table 5 and Table 5A (impairment monitoring concentrations and numeric limits). If two consecutive qualifying sample results collected at any monitoring point falls outside the basin-specific range for pH in Appendix A, monitoring switches from impairment to an enforceable numeric effluent limit. Unless the permit registrant requests a 24-month compliance schedule to install site improvements prior to monitoring switching from impairment to an enforceable numeric effluent limit. The numeric effluent limit is set at the basin-specific range in Appendix A.

The escalating approach and compliance schedule option provides the permit registrant with an opportunity for effective adaptive management prior to monitoring becoming subject to an enforceable numeric effluent limit.

The same permit structure applies to copper, lead and zinc; if two consecutive exceedances occur or the magnitude of the exceedance is greater than a factor of two, impairment monitoring switches to an enforceable numeric effluent limit with an opportunity to request a compliance schedule.

DEQ calculated the applicable concentrations for total copper, total lead and total zinc based on the acute aquatic life criteria defined in Table 30 of OAR 340-041-8033. Acute aquatic life criteria were selected because the associated duration of the criteria aligns with the short duration of water quality impacts associated with stormwater discharges. Comparatively, chronic aquatic life criteria's duration is 4 days, and human health criteria is multiple decades and thus not appropriate for controlling impacts of stormwater discharges on receiving waters.

The acute criteria for total lead and total zinc are formula based, dependent on receiving water hardness. To calculate an applicable hardness for these pollutants, the data was evaluated based on seven georegions (i.e., Columbia Slough, Portland Harbor, Cascades, Costal, Columbia River Mainstem, Eastern and Willamette Valley). The median georegion hardness was identified within the corresponding georegions. In addition, DEQ computed the shape and scale parameters of the lognormal distribution by computing the mean and standard deviation for the log transformed data. This is called "maximum likelihood estimate" of the parameters and was applied in cases of lognormal distributions.

The numeric acute aquatic life criteria for copper is derived from the formula-driven Biotic Ligand Model, accounting for numerous variables/characteristics of the receiving water. Receiving water data was evaluated based on the seven defined georegions, and the 10^{th} percentile of the data was used to determine a conservative numeric criterion for the corresponding georegions.

40 CFR 122.45(c) requires that all permit limits, standards or prohibitions for metals be expressed in terms of "total recoverable metal." This assures that regardless of the characteristics of the receiving water, the resulting percentage of the metal that is dissolved after mixing with the receiving water will not exceed the applicable dissolved criteria and will be protective of aquatic life. To convert from dissolved to total values, regional translators developed from specific water quality characteristics in the georegions were used. There is more information in Section 15.0 on regional translators.

City of Eugene does not discharge into impaired waters listed for metals or pH currently. Clean Water Services geographic area has 14 facilities subject to copper impairment monitoring during this permit cycle. Within the City of Portland's geographic area, beginning in the 2024 Integrated Report copper 303(d) listings based on Geographic Names Information System (GNIS) were added to portions of the Columbia Slough. Estimates

indicate nearly 30 facilities who discharge to the Columbia Slough may be subject to water quality-based numeric limits during this permit cycle. And DEQ had 19 facilities subject to water quality-based numeric limits during the last permit cycle and a similar number this permit cycle with two facilities who triggered and requested a compliance schedule.

2026 Water Quality-based Narrative Effluent Limits

In 2021 water quality-based narrative effluent limits were based on triggering events for total iron and E. coli. DEQ previously used E. coli as a surrogate for sampling purposes when a steam segment was impaired for fecal coliform and enterococcus. Therefore, there was no fecal or enterococci stormwater data to previously evaluate.

The water quality criteria under OAR 3400-041-0009 for E. coli is expressed as a monthly geometric mean and a single sample maximum. The geometric mean criterion is not directly transferable to an effective effluent limit for stormwater discharges. However, evaluating consistency with the single sample maximum criterion for E. coli is more applicable for stormwater discharges. This 2021 and 2026 permit establishes narrative requirements to consistently achieve a single sample maximum of 406 organisms per 100 ml for E. coli.

Oregon does not have acute aquatic life criteria for iron that would be applicable for the short-term impacts of stormwater discharges on a receiving water. Further, Oregon has been unable to identify compelling evidence that acute impacts occur due to iron within receiving waters. However, the discharge of stormwater containing iron may contribute to pollutant loading that persists beyond the duration of the stormwater discharge duration. In 2021, DEQ used an acute-chronic ratio (ACR) to set an impairment concentration for iron based on chronic aquatic life criteria. An ACR expresses the relationship between a toxicant causing acute toxicity and a toxicant causing chronic toxicity. In EPA's 1991 Technical Support Document, EPA recommends the use of measured ACR, but in the absence of data to develop an ACR, EPA's data suggests that an ACR of 10 could be used and represents the upper 90th percentile of all ACR data. The numeric chronic aquatic life criteria for iron specified in OAR 340-041-8033 is 1 mg/L. Using an ACR of 10, an acute aquatic life criterion of 10 mg/L has been established.

DEQ retained these concentration and permit structure related to two consecutive qualifying sample results collected at any monitoring point exceeds the impairment concentrations, the permit registrant must implement the operational and source control measures (water quality narrative effluent limits) outlined in the permit.

None of our agent sites discharge to impaired waters for metals. Iron is the impairment of concern in city of Eugene's geographic area. Out of 66 industrial discharges, six triggered water quality-based narrative limits during 2021-2025. Most of the data after installation of additional controls is meeting the iron concentrations of 10 mg/L. City of Portland has 234 facilities subject to iron impairment monitoring, and four triggered water quality-based narrative limits during 2021-2025. At the time of this report Clean Water Services data was not available; however, their sample size is small with 21 facilities discharging to impaired waters for iron. DEQ currently has 630 facilities under the 1200-Z. The table below does not account for how many facilities were subject to water quality-based narrative limits each year, but overall accounting for assignments during the permit cycle, DEQ had 131 facilities discharging to iron or E. coli impaired waters.

DEQ facilities triggered narrative WQBEL by year	Total number of facilities triggered narrative WQBEL[1]	
	Total Iron	E. coli
2021/2022	5	4
2022/2023	6	2
2023/2024	8	9
2024/2025	3	16

[1]Some repeat facilities

During the 2021 permit cycle 18 facilities reported fecal coliform data. The sampling data results do not directly align for evaluating potential of exceeding the water quality criterion used for NPDES permit; however, overall

data analyses did warrant incorporating fecal coliform requirements under this permit. Although there is limited data for enterococcus, DEQ decided it is the appropriate time to incorporate all bacteria indicators into the permit to protect water quality and beneficial uses.

Numeric water quality criteria for enterococcus and fecal coliform defined in OAR 340-041-0009 are expressed as monthly geometric means and percent exceedances. Generally, enterococcus is the appropriate bacteria sampling for coastal areas while fecal coliform is appropriate for shellfish harvesting areas. Evaluating the geometric mean or the percent exceedance is not directly transferable to stormwater monitoring because the permit only requires sampling four times a year. Oregon Bacteria Criteria Internal Management Directive requires the strict water quality criteria be used in NPDES permits. The 2026 permit implements impairment monitoring for fecal coliform and enterococcus with escalating water quality-based narrative effluent limits due to past industrial stormwater reporting values. The monthly average median and geometric mean water quality criteria are not appropriate for stormwater discharges.

Tillamook Bay, Nehalem Bay and two creeks Brookings are listed as Category 5 303(d) for enterococci in 2024 Integrated Report. There are five facilities subject to impairment monitoring and possibly water-quality narrative effluent limits based on exceedance of the water quality criterion. Enterococcus target is established as no more than ten percent of samples may exceed 130 organisms per 100 ml in a 90-day period.

DEQ has 28 facilities that will be required to sample based on their receiving stream being impaired for fecal coliform. Fecal coliform impairment concentration established in the permit is no more than ten percent of samples may exceed 43 organisms per 100 ml in a 90-day period.

Since this may increase the impairment sampling costs and require facilities to take several samples within a 90-day period, samples do not need to be collected 14-days apart. Sample collection must follow preservation and hold times under Table IA in 40 CFR 136, which specifies that samples be kept on ice and sample incubation at the lab must start within 8 hours from the time of collection.

The permit provides 90 calendar days for a permit registrant to implement water quality-based narrative effluent limits after receiving monitoring results. Some of the water quality-based narrative effluent limits are on-going. Completion of the corrective actions will be documented and verified by DEQ or agent in the revised SWPCP required to be submitted 30 calendar days after the change to operation or control measures. A total of 120 calendar days is allowed to complete the narrative limits and submit a revised SWPCP.

DEQ added if sample results continue to trigger after completion of water quality-based narrative effluent limits the permit registrants must clean storm sewer lines, including catch basins quarterly, if proven to be a source. DEQ may consider revoking coverage under the general permit and requiring an individual permit if there are ongoing exceedances.

3.9 Permit Compliance

3.9.1 Authorization Under This Permit

Any noncompliance with any of the requirements in the permit constitutes a violation of the federal CWA. The state definition of waters of the state is more comprehensive than the federal definition of Waters of the United States. The definition of waters of the state is included in the permit.

Even if a facility is conducting corrective actions based on a violation, this does not absolve the permit registrant of the initial underlying violation. For example, if a facility fails to substantially implement its SWPCP, correcting the violation does not remove the original violation. DEQ also clarified that where corrective action is triggered by an event that does not itself constitute a violation, such as a benchmark exceedance, the registrant may avoid a permit violation provided that the permit registrant takes the corrective action within the deadlines identified in the permit.

If a facility is implementing control measures that require capital improvements, the facility must include these measures in an implementation schedule in the SWPCP and complete the improvements no later than two years of receiving permit coverage. Capital improvements are defined in the permit as the following improvements that require capital expenditures: (1) treatment best management practices including but not limited to settling basins, oil/water separation equipment, catch basins, grassy swales, detention/retention basins, and media filtration devices; (2) manufacturing modifications that incur capital expenditures, including process changes for reduction of pollutants or wastes at the source; (3) concrete pads, dikes and conveyance or pumping systems utilized for collection and transfer of stormwater to treatment systems; (4) roofs and appropriate covers for manufacturing areas, and (5) removal or permanent isolation of significant materials left from previous activities, and (6) volume reduction measures such as low impact development control measures. The installation of volume reduction measures is considered a capital improvement.

4.0 Schedule B - Monitoring Requirements

Schedule B of the permit contains the following requirements:

All Monitoring Tables
- Numeric Effluent Limitations Based on Effluent Limitations Guidelines
- Statewide Benchmarks
- Impairment Monitoring Concentrations and Numeric Water Quality-based Effluent Limits
- Impairment Monitoring Concentrations

Monitoring Requirements
- Pollutant Parameters
- Sampling Procedures
- Monitoring Frequency Table
- Monitoring Variance
- Monitoring Waiver

Inspections
- Visual Observations

Reporting and Recordkeeping Requirements
- Reporting Monitoring Data
- Discharge Monitoring Reports Submission; DMR Submission Deadlines Table
- Exceedance Report for Numeric Effluent Limits
- Record Keeping Procedures

4.1 Monitoring Tables

4.1.1 Technology-based Numeric Effluent Limits issued under Effluent Guidelines

Permit registrants that engage in a "regulated activity" described in Table 3 below must monitor stormwater discharges for technology-based numeric effluent limits in accordance with concentrations in Schedule E. Technology-based numeric effluent limits are based on industry-specific stormwater effluent guidelines as established by EPA. More information may be found on EPA's website for Industrial Effluent Guidelines.

Table 3. Technology-based Numeric Effluent Limits

Regulated Activity	40 CFR Part/Subpart	Effluent Limit
Discharge from asphalt emulsion facilities (co-located SIC code only, 2951 covered under the 1200-A)	Part 443, Subpart A	See Schedule E.D.2
Discharge from material storage piles at cement manufacturing facilities	Part 411, Subpart C	See Schedule E.E.5
Discharge from hazardous waste landfills	Part 445, Subpart A	See Schedule E.K.3
Discharge from non-hazardous waste landfills	Part 445, Subpart B	See Schedule E.L.7
Discharge from coal storage piles at steam electric generating facilities	Part 423, Subpart E	See Schedule E.O.5

Regulated Activity	40 CFR Part/Subpart	Effluent Limit
Discharge containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Part 449, Subpart S	See Schedule E.S.7

4.1.2 Statewide Benchmarks

There were no changes to the statewide benchmarks this permit cycle. DEQ made significant changes to the values in 2021. There were no changes to Oregon's water quality standards or other factors that would warrant re-evaluating the benchmarks at this time. In 2021 DEQ increased the Tier 2 geometric mean evaluations from once a permit cycle to an annual evaluation to ensure the discharge was meeting the benchmarks. Many sites installed treatment or mass reduction measures during the last five years. It is important that DEQ consider the economic investments by regulated industries and not change the statewide benchmark values unless we have compelling reason.

For historical context, this report kept the list of changes DEQ made to the calculated statewide benchmarks in 2021:

- Re-evaluated metals benchmarks and included modeled saltwater benchmarks. The freshwater copper benchmarks were re-evaluated to be consistent with the aquatic life criterion for copper which requires use of the biotic ligand model based on evaluation of several different water quality parameters. Changes to the freshwater zinc and lead benchmarks are based on a re-assessment of the risk-based water quality modeling (See Appendix A).
- The Columbia Slough biological oxygen demand, or BOD_5 benchmark was reduced from 33 mg/L to 24mg/L.
- Expanded the georegions and calculated metals benchmarks and numeric water quality-based effluent limits using regional water quality characteristics, including applied regional translators where appropriate.

The permit registrant must monitor stormwater discharges for the benchmarks in Table 4, as applicable to georegion. In addition, permit registrants must monitor for any sector-specific benchmarks in Schedule E..

Table 4. Statewide Benchmarks

Georegion	pH s.u.	Total Copper mg/L	Total Lead mg/L	Total Zinc mg/L	TSS mg/L	BOD mg/L	Total Phosphorus mg/L	E. coli organism/100 mL
Columbia Slough	5.5-9.0	0.017[2]	0.10[2]	0.24[2]	30	24	0.16	406[1]
Portland Harbor	5.5-9.0	0.015[2]	0.24[2]	0.24[2]	30			
Cascades	5.5-9.0	0.016	0.018	0.068	100			
Coastal	5.5-9.0	0.017	0.039[2]	0.086	100			
Columbia River Mainstem	6.0-9.0	0.023	0.21	0.35	100			
Eastern	5.5-9.0	0.031	0.077[2]	0.16	100			
Willamette Valley	5.5-9.0	0.015[2]	0.11[2]	0.14[2]	100			
Marine Waters	6.0-9.0	0.025	1.10	0.46	100			

[1]Columbia Slough dischargers are only subject to benchmark monitoring, no impairment monitoring
[2]Applied regional translators

An in-depth description of the metals benchmark process can be found in Appendix A. DEQ hired PG Environmental during the development of the 2021 permit to assess the benchmark methodology used in the 1200-Z permit. It was determined that the benchmark methodology DEQ uses aligns with EPA's approach and is defensible. DEQ has built flexibility into the risk-based modeling to account for the intermittent nature of stormwater discharge. As outlined in the federal process for technological feasibility, the appropriate evaluation would include a selection of model technologies, a defined performance standard, and set a benchmark at a concentration based on best treatment capabilities. However, it was determined the technological feasibility evaluation conducted in prior permit reissuance were not robust enough and did not evaluate the discharge quality from the best performing sites. Further, benchmarks are used to ensure compliance with applicable water quality criteria, and a technological feasibility analysis is not appropriate. DEQ calculated and applied regional translators where appropriate based on dissolved to total paired metal data. An in-depth description of the regional translator process can be found in Appendix C.

As part of the 2021 permit development, PG Environmental also conducted a careful review of the Columbia Slough TMDL, GIS-shape files of land use discharging into the Columbia Slough watershed, and historical calculations by DEQ and other jurisdictions' reports. The purpose of this in-depth assessment was to determine if the increase in permitted industrial facilities land use matched the calculations for remaining loading capacity in the original 1998 TMDL.

The TMDL provides for a 50 percent increase in BOD loading from the all stormwater discharges but failed to allocate any portion of that reserve capacity to any type of stormwater discharge. In other words, that 50 percent can be used by any land use. PG Environmental recommended reducing the BOD_5 in the Columbia Slough watershed to maintain a similar overall load to the Columbia Slough. Based on land use acres, previous applicable land area was ~2,702 acres (587 kg/day), which has grown to 3,816 acres (830 kg/day). Adjusting the benchmark to 24 mg/L brings that loading back to 603 kg/day, like the wasteload allocation-based loading previously considered is well within the available reserve capacity. This retains the current BOD loading for the larger land area (~103% of existing allowable loading), protecting the reserve capacity available within the TMDL for continued growth.

4.1.3 Discharges into Category 5: 303(d) listed waters for pH, total copper, total lead and total zinc

Those facilities whose stormwater discharges into Category 5: 303(d) listed water bodies for pH, total copper, toral lead and total zinc must sample their discharge. The impairment sampling target concentrations are listed in Table 5 and Appendix A. DEQ performed modeling to determine the total lead and total zinc concentrations using a median hardness. The median hardness values were used in the metals calculator, Endnote F of Table 30 of OAR 340-041-8033, Aquatic Life Water Quality Criteria for Toxic Pollutants. Regional translators were applied as indicated by footnote 2 of Table 5. See Sections 3.8 and 5.0 of this permit evaluation report for detailed rationale on establishment of impairment concentrations, associated permit conditions, and compliance schedules. The copper concentrations are the same as the statewide benchmarks based on the 10^{th} percentile outputs from the copper biotic ligand model work completed during the 2021 rulemaking.

Impairment monitoring and numeric water quality-based effluent limits for pH are established consistent with the applicable water quality criteria defined in OAR 340-041-0021 and -0101 through -0350. These are included in the permit in Appendix A and below.

Appendix A in the permit

Basin or Water Body	OAR	Water	Criteria Range
General	340-041-0021(1)(a)	Marine	7.0 to 8.5
General	340-041-0021(1)(b)	Estuarine and fresh waters	See basin-specific criteria
Columbia River	340-041-0104(1)	Main stem Columbia River (mouth to river mile 309):	7.0 to 8.5

Basin or Water Body	OAR	Water	Criteria Range
Snake River	340-041-0124(1)	Main stem Snake River (river miles 260 to 335)	7.0 to 9.0
Deschutes Basin	340-041-0135(1)(a)	All other basin streams (except Cascade lakes)	6.5 to 8.5
	340-041-0135(1)(b)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5
Goose and Summer Lakes Basin	340-041-0145(1)(a)	Goose Lake	7.5 to 9.5
	340-041-0145(1)(b)	All other basin waters	7.0 to 9.0
Grande Ronde Basin	340-041-0156(1)	All basin streams (other than main stem Snake River)	6.5 to 9.0
Hood Basin	340-041-0165(1)(a)	Hood River Basin streams (except main stem Columbia River and Cascade lakes)	6.5 to 8.5
	340-041-0165(1)(b)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5
John Day Basin	340-041-0175(1)	All basin streams (other than the main stem Colombia River)	6.5 to 9.0
Klamath Basin	340-041-0185(1)(a)	Fresh waters except Cascade lakes	6.5 to 9.0
	340-041-0185(1)(b)	Cascade lakes above 5,000 feet altitude	6.0 to 8.5
Malheur Lake Basin	340-041-0195(1)	All	7.0 to 9.0
Malheur River Basin	340-041-0207(1)	All	7.0 to 9.0
Mid Coast Basin	340-041-0225(1)(a)	Marine waters	7.0 to 8.5
	340-041-0225(1)(b)	Estuarine and fresh waters	6.5 to 8.5
North Coast Basin	340-041-0235(1)(a)	Marine waters	7.0 to 8.5
	340-041-0235(1)(b)	Estuarine and fresh waters	6.5 to 8.5
Owyhee Basin	340-041-0256(1)	All	7.0 to 9.0
Powder/Burnt Basins	340-041-0265(1)	All basin streams (other than main stem Snake River)	6.5 to 9.0
Rogue Basin	340-041-0275(1)(a)	Marine waters	7.0 to 8.5
	340-041-0275(1)(b)	Estuarine and fresh waters (except Cascade lakes)	6.5 to 8.5
	340-041-0275(1)(c)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5
Sandy Basin	340-041-0290(1)(a)	All basin waters (except main stem Columbia River and Cascade lakes)	6.5 to 8.5
	340-041-0290(1)(b)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5
South Coast Basin	340-041-0305(1)(a)	Estuarine and fresh waters	6.5 to 8.5
	340-041-0305(1)(b)	Marine waters	7.0 to 8.5
Umatilla Basin	340-041-0315(1)	All basin streams (other than main stem Columbia River)	6.5 to 9.0
Umpqua Basin	340-041-0326(1)(a)	Marine waters	7.0 to 8.5
	340-041-0326(1)(b)	Estuarine and fresh waters (except Cascade lakes)	6.5 to 8.5
	340-041-0326(1)(c)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5
Walla Walla Basin	340-041-0336	All	6.5 to 9.0
Willamette Basin	340-041-0345(1)(a)	All basin waters (except main stem Columbia River and Cascade lakes)	6.5 to 8.5
	340-041-0345(1)(b)	Cascade lakes above 3,000 feet altitude	6.0 to 8.5

Table 5. Impairment Monitoring Concentrations and Numeric Limits

Georegion[3]	Total Copper mg/L	Total Lead mg/L	Total Zinc mg/L	pH s.u.
Columbia Slough	0.017[2]	0.017[2]	0.042[2]	Basin-Specific[1]
Portland Harbor	0.015[2]	0.017[2]	0.041[2]	
Cascades	0.016	0.006	0.021	
Coastal	0.017	0.017[2]	0.043	
Columbia River Mainstem	0.023	0.046	0.082	
Eastern	0.031	0.037[2]	0.070	
Willamette Valley	0.015[2]	0.027[2]	0.057[2]	
Marine Waters	0.0058	0.22	0.095	

[1]See Appendix A for basin-specific pH concentrations
[2]Applied regional translators
[3]Impairment monitoring is applied to specific impaired receiving stream segments within each georegion.

Even though Table 5 above is broken out based on georegions and Appendix A is broken out by basin or water body, this does not indicate the entire basin or the entire georegion is impaired for these pollutants. Instead, impairment status is based on the first receiving water body stormwater discharge enters specific to each monitoring point. Regardless of whether the permit registrant is subject to monitoring for impairments or numeric effluent limits, the concentration is the same. The difference is one exceedance of impairment concentrations or pH range is not a violation or specifically requires any corrective action in the permit. It is in the permit registrants best interest to address what may have caused the exceedance as not to become subject to numeric effluent limit monitoring.

For example, only a small river segment of the Columbia River near The Dalles is impaired for pH; however, it is not impaired for metals. And since Appendix A under Hood River basin indicates if it is the Columbia River Mainstem to use the Columbia River for the pH range, only stormwater discharges into that particular segment of Columbia River will be assigned pH range of 7.0-8.5 as a target range. If two consecutive qualifying sample results collected at a monitoring point which discharges into that Columbia River impaired segment falls outside the pH range 7.0-8.5, future monitoring is subject to numeric limits. Once monitoring changes from impairment monitoring to a numeric limit, any sample results outside the 7.0-8.5 range, is a permit violation.

The same logic applies to the georegions. For instance, if impairment monitoring is required because the first receiving water body stormwater discharge enters is on the 303(d) list for copper and that water body falls within the Eastern georegion, then 0.031 mg/L is the target concentration. Under Schedule A.13.e triggering events, if two consecutive qualifying sample results exceed the 0.031 mg/L or if a qualifying sample result is greater than two times the impairment concentrations (0.062 mg/L) then future monitoring is subject to numeric limits. Once monitoring changes from impairment monitoring to a numeric limit, any sample results outside the above 0.031 mg/L, is a permit violation.

4.1.4 Discharges to Category 5: 303(d) listed waters for E. coli, fecal coliform, enterococcus, total iron

Discharges unable to meet the concentration established for total iron and the applicable bacteria indicator requires the permit registrant to implement water quality-based narrative effluent limits. Impairment monitoring is required to continue throughout the permit cycle for the applicable bacteria indicator and total iron unless the sample results can meet the monitoring waiver criteria for impairments. DEQ finds that narrative limits in the form of mandatory source and operational controls are most appropriate for applicable bacteria indicator and total iron exceedances. These pollutants are ubiquitous in our environment and often difficult to treat or trace the source of the elevated pollutants.

Table 5A.1. Impairment Monitoring Concentrations

Impairment Pollutant	Impairment Concentrations
E. coli	406 organisms per 100 ml

Impairment Pollutant	Impairment Concentrations
Fecal coliform (shellfish harvesting)[1]	Not more than 10 percent of the samples may exceed 43 organisms per 100 ml
Enterococcus[1]	Not more than 10 percent of samples exceed 130 organisms per 100 ml
Total iron	10 mg/L

[1]Based on 90-day period

In late 2017 EPA approved DEQ revised water quality standards for bacteria to protect people who recreate in coastal waters. It is important for DEQ to evaluate the appropriate fecal indicator bacteria based on coastal recreation and shellfish harvesting uses in coastal estuaries where fecal coliform and enterococcus impairment listing occur. The 2024 Integrated Report includes listings based on the relevant indicators:

- E. coli for contact recreation in freshwater lakes, rivers, and streams;
- Enterococcus for coastal recreation in marine and estuary waters; and
- Fecal coliform for shellfish harvesting in marine and estuarine waters.

4.2 Pollutant Parameters

Benchmark monitoring will be identified by DEQ or agent. Statewide georegion benchmarks will be determined by using the latitude and longitude of receiving stream provided by permit registrants in a GIS layer map with the georegion overlaid. Schedule E benchmarks are required based on primary SIC code and any co-located industrial activity. If a discharge point is subject to monitoring for a statewide benchmark and sector-specific benchmark in Schedule E for the same parameter, the statewide benchmark concentration is applied as the target concentration. DEQ established saltwater benchmarks. If a discharge point is subject to monitoring for a saltwater statewide benchmark under the Marine georegion and saltwater benchmark in Schedule E for the same pollutant, the Marine georegion statewide benchmark will be applied as the target concentration. For dischargers into estuarine waters, the more stringent benchmark between the freshwater and saltwater benchmarks are applied as the target concentration.

Impairment monitoring and subsequent permit requirements will also be identified by DEQ or agent using the latitude and longitude of receiving stream provided by permit registrants and the 2024 Integrated Report interactive web map. With the receiving stream pinpointed an accurate assessment of Category 5: 303(d) listed waters can be easily determined. This new mapping tool is easy to use and DEQ includes instruction on our website if assistance is needed.

Permit registrants must monitor for pH, total copper, total lead, total zinc, total iron and the forms of bacteria, E. coli, fecal coliform and enterococcus, pollutant(s) based on discharge into Category 5: 303(d) listed waters, appropriate to receiving water characteristics, marine, estuarine, or fresh. If a permit registrant provides data demonstrating that the pollutant(s) for which the water body is impaired are not present in the discharge, the facility is exempt from impairment monitoring. If a facility is subject to impairment monitoring and statewide benchmark monitoring for the same pollutant, impairment concentrations is applied as the target.

For example, if the permit registrant discharges in an impaired water body for copper, then they will not also have a copper benchmark associated with that monitoring point. The permit registrant will only be subject to copper impairment monitoring and exceedances responses under Schedule A.13. If impairment monitoring escalates to a numeric effluent limit for pH, copper, lead, or zinc, the permit registrant must update the SWPCP and begin monitoring all discharge points determined to be substantially similar to the monitoring point that triggers the numeric limit.

Any monitoring points subject to numeric effluent limits must be monitored two times a year. There is no reduction in frequency or monitoring waivers available for numeric effluent monitoring. In the cases where a compliance schedule is requested, monitoring at all substantially similar discharge points resumes when consistent compliance with the limit is achieved.

There may be instances that DEQ or agent will identify additional impairment monitoring at the time of assignment.

4.2.1 Sampling Procedures

The permit registrant must either take grab samples or composite samples when monitoring the same storm event. In addition, the permit registrant must have DEQ approval before switching between grab sampling and composite sampling during the full reporting year. Approval is not required when switching sampling methods in different reporting years. It is preferable, but not required, that all sample locations be sampled during the same storm event. pH, bacteria, and oil and grease (sector-specific monitoring) sampling procedures do not allow for composite sampling.

pH must be sampled with a calibrated meter in the field. Bacteria sampling must be collected in the flow, kept chilled and has a very short hold time. These requirements are based on Code of Federal Regulations required methods. Registrants must follow the latest version of 40 CFR 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants* that outlines analytical methods, sampling containers, need for preservation, and among other procedural details, maximum holding times. All sampling must be performed using the proper sampling techniques in accordance with Schedule F, Section C3.

Facilities must be prepared with the proper sample bottles from the laboratory, chain of custody forms, field notebook to record pH readings, weather observations, and visual observation, gloves, coolers, and ice or dry ice, and packaging materials, as needed.

The multiple discharge section of the permit lists specific occasions when discharge points are not required to be monitored. This section includes discharge points from certified approved mass reduction measures that reduced the mass of pollutants at or above DEQ-approved design storm capacity.

The discharge must be monitored during the first 12 hours of the discharge event, which is a storm event or snowmelt resulting in an actual discharge from a site. If it is not practicable to collect the sample within this period, then collect the sample as soon as practicable and provide documentation with the Discharge Monitoring Report and include why it was not practicable to take samples within the first 12-hour period. The permit registrant is not required to sample outside of regular business hours of operation or during unsafe conditions. The permit registrant must wait 14-days between storm events for sample collection to count as a qualifying sample under Schedule D, definitions. The permit registrant must monitor stormwater discharge according to the frequency described in Table 6, unless DEQ or agent grant a monitoring waiver or approve a monitoring variance.

Table 6. Monitoring Frequency

Pollutant Category	Minimum Frequency
All applicable statewide benchmarks in Table 4, any applicable sector-specific benchmarks in Schedule E and any impairment pollutants	Sample discharge four times per year, two samples between January 1 and June 30, and two samples between July 1 and December 31
Any applicable numeric effluent limits	Sample discharge two times per year, one sample between January 1 and June 30, and one sample between July 1 and December 31 (unless exceed numeric effluent limit, then sample discharge four times per year, as above)
Any wasteload allocations or additional schedules in EPA-approved TMDL	As specified in the TMDL

4.3 Monitoring Variance

Permit registrants must request a monitoring variance for missed samples due to non-storm events of sufficient magnitude to produce run-off during regular business hours of operation and safe conditions. A variance request must be substantiated with supporting data and analysis demonstrating why there was insufficient discharge for monitoring to occur. If DEQ or agent has evidence contradicting this claim, then this is considered a permit violation for failure to monitor.

The permit includes a description of certain types of supporting documentation. This description is not intended to include all data and analysis a facility can provide. However, additional information that can be provided will make it easier for DEQ and agents to substantiate the claim. Neither DEQ nor agents are obligated to respond when approving a monitoring variance, though they strive to evaluate requests and communicate with facilities. However, if DEQ or its agent has evidence to contradict the monitoring variance, the permit registrant will be contacted.

Discharge Monitoring Reports are due quarterly. A full reporting year is defined in Schedule D as July 1 of one year to June 30 of the following year. In most cases it would not make sense to submit a variance request during the 1st and 3rd quarters. For this reason, variance requests are required semi-annually on February 15 and August 15, when applicable. If a permit registrant is unable to collect the minimum sample frequency of two samples July 1 through Dec. 31, and two samples Jan. 1 through June 30, because there was not a storm event that resulted in a measurable amount of precipitation causing an actual discharge, then a monitoring variance is required. Your DEQ Online will be the electronic portal for these requests, except for facilities in agents' jurisdictions, until notified by DEQ or agent.

4.4 Monitoring Waivers

After four quarters of reporting and when benchmark sample results of the five most recent consecutive samples with a geometric mean equal to or below the statewide or sector-specific benchmarks in Schedule E, a permit registrant may request a monitoring waiver. The minimum frequency of monitoring in a full reporting year (July 1 through June 30) is four samples for benchmark monitoring. Because the permit allows facilities to collect more than the minimum required frequency, a monitoring waiver request may only be submitted after four quarters of reporting. In other words, a monitoring waiver request will not be accepted for samples collected less than a full reporting year, July 1 to June 30.

The National Academies of Science was commissioned by EPA to evaluate the multi-sector general permit for industrial stormwater discharges. The consensus report made recommendations to EPA on how to improve the federal industrial permit and helped to inform the development of the 1200-Z permit. One of The National Academies of Science recommendations were that the MSGP should require a minimum of continued annual sampling, to ensure appropriate stormwater management throughout the remainder of the permit term. Extended sampling over the course of the permit would provide greater assurance of continued effective stormwater management and help identify adverse effects from modifications in facility operation and personnel overtime. Given the natural variability and the limitations of grab samples, substantial uncertainty is associated with using the average of only four stormwater samples.[8]

Pollutant concentrations in industrial stormwater have extremely high variability. Given the high amount of variability, a greater number of samples provides higher confidence that the calculated geometric mean will be representative of pollutant concentrations over the long-term. The use of five samples for calculating a geometric mean is consistent with data handling practices often employed for other environmental data with calculated geometric means, such as indicator bacteria.

All facilities must reinstate monitoring during the first full reporting year of a permit term. This condition to reinstate monitoring during the last full reporting year will assist DEQ when analyzing the stormwater data to

[8] Improving the EPA multi-sector general permit for Industrial Stormwater Discharges, The National Academy of Sciences, 2019; pg. 6

make sound permit decisions. Permit registrant data subject to Tier 1 and Tier 2 corrective action responses when a monitoring waiver is revoked or must be reinstated, exception outlined in Tier 1 and Tier 2 corrective action sections of the permit.

For the parameters and discharge points that triggered Tier 2, a monitoring waiver may not be requested until Tier 2 corrective action has been implemented. A waiver can be requested once the approved Tier 2 corrective actions is complete and after sample results of the most recent consecutive qualifying samples geometric mean of five most recent consecutive qualifying sample results collected at any monitoring point is equal to or below the benchmark. The same criteria applies to re-establishing substantially similar discharge points post-Tier 2 installation.

No reduction in monitoring for visual observation and federal numeric effluent limit guidelines is permitted. Also, no reduction of monitoring is allowed during the first and the last full reporting year of the permit cycle.

4.5 Inspections

This section was updated to be consistent with permit language, provide clarity around inspection requirements, and includes minor edits to terminology. The permit registrant must take all steps to temporarily minimize or prevent discharge of pollutants until permanent corrective action is complete. Monthly inspections are required as a regular check to confirm that pollution control measures are functioning properly.

Visual observations are now in a separate section from monthly inspections. The permit registrant must perform visual observations at all discharge points once a month during a discharge event. If there is no discharge event during the month, visual observations are not required. Visual observation may be performed at the same time monthly inspection occur. The inspector must observe stormwater discharge for floating solids, odor, foam, visible oil sheen, suspended solids, or discoloration. If any of these are observed, facility staff must investigate the cause and document any corrective action or maintenance taken in a Tier 1 report. Visual observations of a stormwater sample must be assessed for floating and suspended solids.

Visual observations are required at all discharge points monthly when discharging. The permit registrant must take a sample in a clean, colorless glass or plastic container in well-lit area during regular business hours of operation and safe conditions. Sample collection is not required to conform to 40 CFR 136 sampling procedures. For exceptionally large facilities where monthly inspections of all areas or visual observation at all substantially similar discharge points are infeasible, DEQ or agent may approve a modified inspection frequency.

4.6 Reporting and Recordkeeping Requirements

4.6.1 Reporting Monitoring Data

Permit registrants must include supporting data with the Discharge Monitoring Reports (DMR). This includes laboratory quality assurance/quality control pH field notes (if separate from chain of custody) and chain-of-custody forms. Proper documentation is paramount for regulatory assurance and to substantiate proper handling of samples by field and lab staff.

Discharge Monitoring Report must be submitted quarterly. The DMR must include all sample results or indicate a reason for missed sample, (such as monitoring waiver, no discharge, laboratory error) as required in this permit via electronic reporting. Permit registrants in agents' geographic areas must submit DEQ-approved paper DMR forms, unless directed by DEQ or agent to report electronically.

YDO allows permit registrant to use appropriate No Discharge Indicators or NODI codes.

Although only qualifying samples may be used to evaluate geometric mean and monitoring waivers, all sampling results must be reported. DEQ prefers that those results be identified as non-qualifying. The permit registrants must submit DMRs quarterly. Even if a quarterly DMR has no monitoring data to submit, a DMR must be received by the due dates in Table 7 below.

Table 7. DMR Submission Deadlines

Reporting Quarters	Months	DMR Due Dates
1st	July-September	November 15
2nd	October-December	February 15[1]
3rd	January-March	May 15
4th	April-June	August 15[1]

[1]Variance request must be submitted semi-annually, as applicable

Authorized NPDES programs must conform to electronic portal requirements as an authorized NPDES program of EPA to ensure that there is consistent and complete reporting nationwide, and to expedite the collection and processing of the data, thereby making it more accurate and timely.[9] EPA's final rule will save significant resources, while resulting in a more complete, accurate, and nationally-consistent set of data about the NPDES program.

Your DEQ Online has increased efficiency and timeliness for both DEQ and the facilities operating in YDO during this permit cycle. DEQ's Electronic Data Management System also reduced costs associated with paper processing, mailing of hard copy discharge monitoring reports, associated quarterly laboratory reports, Tier 2 reports, and SWPCPs for facilities and DEQ.

Although permit registrants within agents' geographic areas have not followed the same electronic reporting schedule as DEQ, all permit registrants will change to electronic reporting and recordkeeping. The permit indicates DEQ, or our agents will notify those facilities when they must begin using YDO. There will be training provided.

There is a waiver process from electronic reporting under certain circumstances.

4.6.2 Numeric Effluent Limit Exceedance Report

This section clarified that the follow-up sampling and exceedance report is applicable to technology-based effluent limit monitoring only.

4.6.3 Recordkeeping Procedures

All records must be retained at a minimum of three years and DEQ has included a summary table of reporting requirements and deadlines for quick reference. This table is not an exhaustive list of all reports. DEQ has attempted to update this permit with language and tables to assist registrants in understanding compliance expectations. At the time of inspection, DEQ or agent will perform a complete document review as part of permit compliance evaluation. Records should be kept in chronological order as good practice and made available to DEQ, agent or local municipality upon request within 10 business days, unless DEQ or agent approve a later date. These records may be kept electronically.

Records include:

a. A copy of the SWPCP and any revisions, including revised stamped SWPCP from Tier 2 corrective action;
b. A copy of this permit;
c. DEQ's notice of permit coverage under the current permit term;
d. Documentation of maintenance and repairs of control measures, treatment systems and mass reduction measures;
e. Records of completion of the SWPCP described housekeeping measures or required narrative technology-based effluent limits such as contracted sweeper trucks or storm sewer line cleaning;

[9] EPA's Final NPDES Electronic Reporting Rule fact sheet, September 2015, page 1

f. Mass reduction measures certification as required by Schedule A.13;
g. Tier 1 reports, including industrial-specific checklist(s);
h. All inspection reports and documentation of visual observations;
i. Documentation of any benchmark exceedance and corrective action taken;
j. All copies of any reports or corrective action submitted to DEQ or agent;
k. Documentation of spills or leaks of significant materials (See Schedule D.3, Definitions) that impacted or had the potential to impact stormwater or surface waters. Include the corrective actions to clean up the spill or leak as well as measures to prevent future problems of the same nature;
l. Documentation to support a claim that a facility has changed its status from active to inactive and unstaffed with respect to the requirements to conduct routine facility inspections;
m. Discharge Monitoring Reports, laboratory reports, pH calibration field notes (if separate from chain of custody) and chain of custody;
n. Compliance schedule reports as specified in Schedule C;
o. Numeric limits exceedance reports;
p. Water Quality Standards Corrective Action Report; and
q. Employee education materials and records of training.

Below in Table 8 is a summary of reporting requirements and submittal date.

Permit Condition	Permit Schedule	Report Required	Due Date
Discharge contributes to an exceedance of instream water quality standard	Schedule A.10	Water Quality Standards Corrective Action Report	No later than 30 calendar days after a determination
Certification of mass reduction measures	Schedule A.13	Stamped certification	December 31, 2026
SWPCP submission	Schedule A.16	Revised SWPCP	No later than 30 calendar days after the completion of modification or as requested by DEQ or agent
Sample results exceed applicable statewide or sector-specific benchmarks or visual observations show signs of pollution	Schedule A.18	Tier 1 Report	No later than 30 calendar days after receiving sample results or visual observation; Retain on-site and submit upon request
Geometric mean exceeds statewide benchmarks	Schedule A.19	Tier 2 Report Tier 2 Mass Reduction Waiver Tier 2 Background Waiver	No later than December 31 of that calendar year that triggered
Confirmation of Tier 2 implementation	Schedule A.19.i.iv (1 & 2)	Tier 2 Implementation confirmation and revised SWPCP	No later than 30 calendar days of implementation
Sample results continue to exceed benchmark for Tier 2 parameters post-implementation	Schedule A.18.c.v	Tier 1 Report	No later than 30 calendar days after receiving sample results; Retain on-site and submit upon request
Trigger water quality-based numeric effluent limit as required in Table 5	Schedule A.20.e	Request a compliance schedule and submit status reports as required in Schedule C	No later than 30 calendar days after receiving sample results. Must monitor at frequency required in Table 6.
Submission of sample results or reason for missed sample, if required, after the preceding calendar quarter	Schedule B.35 and Table 7	Discharge Monitoring Report	No later than February 15, May 15, August 15, and November 15
Sample results exceed technology-based numeric effluent as required in Table 3	Schedule B.37	Numeric Effluent Limit Exceedance Report	No later than 30 calendar days after receiving sample results. Must increase monitoring frequency as required in Table 6.

5.0 Schedule C- Compliance Schedule

OAR 340-041-0061(12) allows for compliance schedules for the implementation of effluent limits derived from water quality criteria that are newly applicable to the permit. The conditions of the compliance schedule must comply with provisions in 40 CFR 122.47. Even though a compliance schedule has been in the permit since 2021, because it applies to specific permit registrants who have not been subject to a numeric effluent limit prior, it is still a viable option.

The regulations at 40 CFR 122.47 require that compliance schedules require: 1) compliance as soon as possible; 2) compliance schedules only be included when necessary to allow a reasonable opportunity to attain compliance with the new or revised requirements; and 3) compliance schedules exceeding 1 year establish interim requirements not exceeding 1 year, including submission of progress reports.

The permit establishes water quality-based numeric effluent limits for total copper, total lead, and total zinc for some permit registrants under certain situations. Previous permits contained benchmark values that allowed for the geometric mean of multiple samples. The application of water quality-based numeric effluent limits for these parameters are new to the permit, more stringent than previous permit conditions, and consistent with the requirements of OAR 340-041-0061(12).

The application of the water quality-based numeric effluent limits is based on repeated exceedances of the impairment concentrations or one single sample result at a very high pollutant concentration. If it is not feasible for permit registrants to immediately comply with the applicable final numeric effluent limits for these pollutants, a compliance schedule is included in the permit. In many cases, permit registrants will be able to immediately comply with the final water quality-based numeric effluent limits, and the compliance schedule will not be applicable. A maximum two-year compliance schedule must be requested when monitoring results demonstrate that immediate compliance is not feasible and the request must account for economic and engineering considerations that impact the necessary time to comply with the final effluent limits.

DEQ has determined that two years represents a conservative and reasonable timeframe for permit registrants discharging industrial stormwater to identify the source(s) of the pollutant, to evaluate economic and engineering alternatives to address the exceedances, to secure funding, to select the best approach, and to implement the selected approach or begin construction, and complete construction. In some cases, two years may not be enough time for many permit registrants; if a registrant is unable to comply with the two-year timeframe, the registrant may need to seek coverage under an individual permit.

40 CFR 122.47 requires that no later than 14-days following each interim date and final date of compliance, the registrant must submit a progress report regarding compliance or noncompliance with the applicable interim action. This permit requires permit registrants to submit status reports for each of the specified actions within 14 days of each due date. The compliance schedule established in the permit is consistent with the requirements of OAR 340-041-0061(12) and 40 CFR 122.47.

Interim actions corresponding to a logical method for complying with an applicable final effluent limit have been established, and do not exceed a period of one year between interim due dates. These actions provide flexibility for the wide variability of permit registrants and operations covered under this permit yet are sufficiently specific to ensure and evaluate progress towards achieving compliance with applicable final effluent limits. In addition, the permit registrant may request more time from DEQ or agent if needed to meet the interim milestones. DEQ or agent will notify the permit registrant no later than 30 calendar days from receipt if the delay is approved or denied. However, the final deadline to comply with the numeric water quality-based effluent limits is within 24 months. An extension of the final compliance date is prohibited and will result in a permit violation.

6.0 Schedule D - Special Conditions

6.1 Releases in Excess of Reportable Quantities

No changes have been made to this section.

6.2 Availability of SWPCP, Monitoring Data and Records

Minor changes were made to this condition including if DEQ, agents and local government responsible for stormwater management in the permit registrant's area upon request these records or others the permit registrant must provide them within 10 business days, unless a later date is approved.

6.3 Definitions

The following definitions were added or edited in the permit:

- Effluent Limitation Guideline
- Hazardous Substances
- Monitoring point
- Primary Industrial Activity
- Qualified person
- Qualifying samples
- Scheduled operating hours
- Treatment Measures
- Waters of the State

6.4 DEQ Agents

Minor changes were made to the wording in this section.

6.5 Terminating Permit Coverage

7.0 Schedule E - Sector Specific Requirements

Permit registrants must follow the sector-specific requirements that are associated with their primary industrial activity and any co-located industrial activities that meet the description of industrial activities covered by the stormwater regulations (40 CFR 122.26(b)(14)(i-ix, xi)) as are identified in Table 1: Sources. Some permit registrants may have multiple industrial activities that are identified in Table 1 and therefore may be subject to more than one industrial sector requirements. For example, if a facility has multiple discharge points, it is possible there may be different inspection frequency, source control and operational control requirements based on industrial activity conducted in that drainage area. This section of the permit lists the industrial activities and their corresponding SIC codes, including any sector-specific benchmarks, additional narrative technology-based effluent limits, as well as numeric effluent limits promulgated by EPA. Facilities are required to conduct benchmark monitoring at monitoring points associated with each sector-specific SIC code.

In 2026 DEQ added Sector J to Schedule E appropriate for co-located mineral mining only. Primary industrial activity under SIC code major group 14 is covered under the 1200-A NPDES permit. If a site conducts any mineral mining or quarrying as a co-located activity to a primary SIC code in Table 1, they must follow the requirements under Sector J. If there are conflicts in Schedule E with any other schedule of this permit, the requirements in Schedule E may not apply.

Schedule E, sector-specific monitoring lists both saltwater and freshwater benchmarks. If a discharge point is subject to monitoring for a statewide benchmark and sector-specific benchmark in Schedule E for the same parameter, the statewide benchmark concentration is applied as the target concentration. Schedule E monitoring tables denote "statewide benchmark" when sector-specific benchmark parameter is the same parameter as required as a statewide benchmark in Table 4. Schedule E was adopted from EPA so some of the concentrations

are based on federally recommended of water quality standards, rather than Oregon's adopted water quality standards.

All pollutant parameter concentrations have been revised to match Oregon's water quality standards. Even though the aluminum aquatic life criteria was published in the federal register on March 18, 2021, finalizing EPA's criteria criterion in Oregon, DEQ used the final rule to calculate aluminum benchmarks for the 2021 permit.

Updated concentrations include cadmium, chromium, nitrates plus nitrite, aluminum, and arsenic. The permit eliminated iron and magnesium monitoring from Schedule E consistent with EPA 2021 permit and National Academies of Science report[10] due to lack of documented toxicity to aquatic life.

Schedule E includes a table of the median hardness for each georegion for reference to use in the hardness calculation in Table 30.[11] Table 9 includes the calculated concentrations used for metals benchmark monitoring based on the median hardness listed for each georegion.

Table 8. Benchmark concentrations for metals in Schedule E

Georegion	Median Hardness mg/L	Total Cadmium mg/L	Total Chromium III mg/L	Total Nickel mg/L	Total Selenium[1] mg/L	Total Silver mg/L
Cascades	12.9	0.00039	0.34	0.083	0.013	0.00011
Coastal	29.75	0.0010	0.67	0.17	0.013	0.00047
Columbia River Mainstem	63.8	0.0024	1.2	0.32	0.013	0.0017
Columbia Slough	29.4	0.00099	0.66	0.17	0.013	0.00046
Eastern	53.3	0.0019	1.1	0.28	0.013	0.0013
Portland Harbor	28.55	0.00095	0.65	0.16	0.013	0.00044
Willamette Valley	41.9	0.0015	0.88	0.22	0.013	0.00085

[1] DEQ Memorandum, Implementations Instruction for Selenium, Oct. 2014

The above monitoring table was updated during the development of the 2021 permit by PG Environmental who provided DEQ technical support to evaluate the appropriateness of Schedule E benchmarks in Oregon. These changes were discussed during the rulemaking advisory committee process during the 2021 permit development, and given that no water quality standards were updated since 2021 and EPA has yet to finalize their 2025 MSGP, the benchmarks are protective and defensible; thus, the sector-specific benchmarks are retained in the 2026 permit.

Schedule E also includes saltwater criteria applicable to marine waters stormwater dischargers. Pacific Ocean dischargers will be assigned saltwater criteria in Schedule E for all parameters. Dischargers into estuarine waters will be assigned the most stringent benchmark between freshwater and saltwater.

[10] Improving the EPA multi-sector general permit for Industrial Stormwater Discharges, The National Academy of Sciences, 2019

[11] Table 30: Aquatic Life Water Quality Criteria for Toxic Pollutants, Endnote F; OAR 340-041-8033

8.0 Schedule F - NPDES General Conditions

These conditions are standard for all industrial NPDES permits and include language regarding operation and maintenance of facilities, monitoring and record keeping, and reporting requirements. If conflicts arise between Schedule F and any other schedule of the permit, the requirements in Schedule F will not apply.

9.0 Appendix A: Industrial Stormwater Benchmark Model Development

9.1 Methodology

DEQ developed water quality-based benchmarks for copper, lead, and zinc in freshwaters and copper, lead, and zinc using Coastal and Marine Estuarine Classification Standards data, by using a modeling method based on the approach used by Herrera Environmental Consultants for the Washington Department of Ecology's Industrial Stormwater General Permit.[12] Herrera's approach considers characteristics of the receiving water body including background metals concentrations, hardness, and dilution. Monte Carlo simulations were used in the model to incorporate uncertainty and environmental variability in estimating the probability of exceeding water quality standards for a range of effluent concentrations. An acceptable probability of exceeding water quality standards is selected, and the benchmark is the effluent concentration that produces an acceptable probability of exceeding water quality standards. Herrera ran the model on multiple scenarios considering different dilution factors and receiving body conditions of both Eastern and Western Washington.

This methodology reflects the adopted aquatic life criterion for copper adopted by DEQ in January 2017, which requires use of the copper biotic ligand model rather than the hardness-based calculations. Renewal of the lead and zinc benchmarks remained as hardness-based calculations for this benchmark renewal. To accommodate regional differences in water hardness, the state was separated into seven georegions with similar water chemistry characteristics derived from US EPA's level III ecoregions (Figure A.1). In addition, estuarine waters subject to saltwater criteria were evaluated separately from the freshwater Coastal georegion (Figure A.2). Data from 2010-2019 was used in this renewal process to ensure that sufficient data sets existed for each georegion.

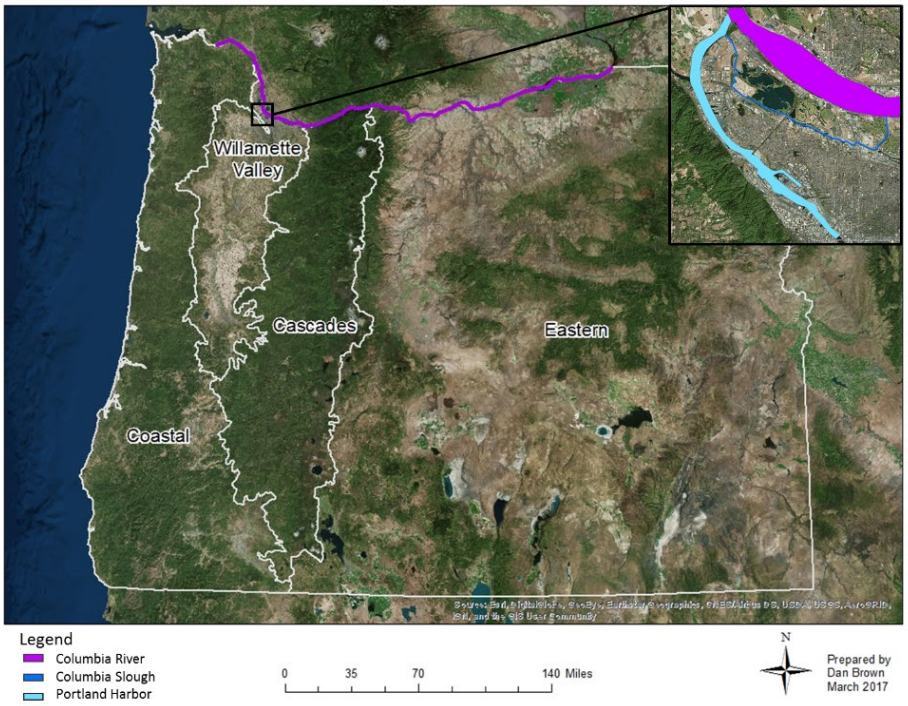

Figure A.1. Map of the seven georegions used in benchmark development

[12] Herrera Environmental Consultants, 2009. Water Quality Risk Evaluation for Proposed Benchmarks/Action Levels in the Industrial Stormwater General Permit. Prepared for the Washington State Department of Ecology

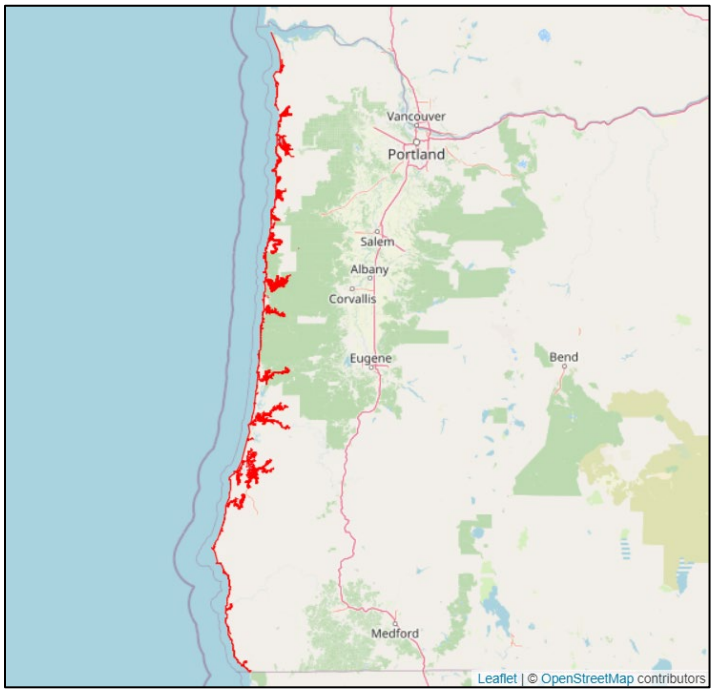

Figure A.2. Map of marine and coastal estuarine waters on Pacific coast subject to saltwater criteria. Estuarine waters marked in red.

9.2 Modeling Method

The risk-based modeling generates a large number of potential outcomes in order to estimate probabilities for the outcomes of interest. In this case, the outcome of interest is whether the receiving water concentration downstream of the discharge exceeds water quality criteria. To determine in-stream concentration downstream of a discharge, conservation of mass was used as expressed in the Herrera document by the following dilution equation:

$$C_r = \left[\left(\frac{1}{F_d}\right) \times C_f\right] + \left[\left(1 - \frac{1}{F_d}\right) \times C_b\right]$$

Where: C_r = receiving water concentration downstream of the discharge;
F_d = dilution factor;
C_b = receiving water background concentration; and
C_f = stormwater runoff concentration.

Analyses were performed using representative receiving water background concentrations (C_b) for copper, lead and zinc. A dilution factor (F_d) of five was used in all analyses. Monte Carlo simulation was used to address environmental variability of the following variables:

- Receiving water background concentrations; and
- Receiving water hardness in the seven georegions where applicable criteria are hardness-dependent. Saltwater metals criteria for the target parameters are not hardness-dependent.

The effluent concentration (Cf) was held constant throughout these iterations. At each iteration, the accompanying hardness was used to calculate a hardness-dependent water quality criterion (where applicable) for that iteration. The risk of exceeding the state water quality standard for the selected effluent concentration was then determined as the percentage of these iterations where the estimated downstream water concentration (Cr) exceeded the accompanying water quality standard. These model runs were performed across a range of potential effluent

concentrations in order to generate “risk curves” that show the probability of exceeding water quality standards as a function of the effluent concentrations.

9.3 Site Selection and Data Acquisition

For this permit renewal evaluation, statewide surface water data was compiled from DEQ’s Ambient Water Quality Management System (AWQMS) database, USGS’s National Water Quality Information System (NWIS), and EPA's Water Quality Portal which integrates publicly available data from EPA along with other state, federal, tribal and local agencies. Additional data for the Columbia Slough and Portland Harbor georegions were provided by the City of Portland.

For the freshwater benchmarks, remote mountain streams at elevations above the highest outfall (4700 ft.) were omitted. Estuarine sites impacted by tidal intrusion were evaluated separately from freshwater sites in the Coastal georegion. In addition, sites were omitted based on a proximity to an industrial facility outfall (less than 500 meters downstream). Such sites were identified by the site description or by mapping site locations against the most recent NPDES facility layer in ArcGIS. This site-selection process resulted in just over 2,000 sites with the parameters necessary for this analysis. Once the final site list was established, sites were classified into the correct georegion based on location. All data collected between 2010 and 2019 from sites in the final site list were used in the freshwater analyses; and a data range of 2013-2019 for saltwater benchmarks.

9.4 Assessment of georegions

To accommodate regional differences, the state was separated into seven georegions based on US EPA’s level-III ecoregions, as illustrated in Figure A, and estuarine waters impacted by tidal intrusion were assessed separately (Figure B). Georegions comprised of adjacent ecoregions with similar water-chemistry characteristics were derived from the EPA ecoregions or major water bodies but are specifically for the copper BLM implementation. The five of the georegions are the Cascades, Coastal, Columbia River Mainstem, Eastern, and Willamette Valley. In addition, separate benchmark modeling was performed for the Portland Harbor (that is, the lower 12 miles of the Willamette River), the Columbia Slough, and the marine and estuarine (coastal) water bodies in the Coastal georegion.

9.5 Distribution Fitting

OriginLab software was used to determine the best fit distribution based on the available data in each georegion for the following parameters: temperature, pH, dissolved copper, dissolved organic carbon, conductivity, total recoverable lead, total recoverable zinc and hardness. This software fits five different continuous distributions to the data and ranks the fit of each distribution based on the Kolmogorov-Smirnov goodness-of-fit test. This analysis was limited to the use of only uniform, continuous distributions due to the number of inverse distribution formulas included in MS Excel (i.e., normal, lognormal, and gamma). As a conservative measure, detections below the minimum reporting limit were replaced with the minimum reporting limit value. Regional default values were also used in the copper benchmark analysis based on guidance from DEQ Water Quality Standards Program (PDF). If default or minimum reporting limit values made up more than 10% of a dataset, then ProUCL software was used to determine the best fit distribution. This software is designed to be used on datasets with censored data, i.e., non-detect or values below the minimum reporting limit. The best fit distribution was selected using the regression on order statistics method. The highest ranked uniform, continuous distribution was selected for each parameter in this analysis (Tables A.1 – A.4).

Table A.1. Best fit distribution results for parameters in each of the georegions

Georegion	Temp.	pH	Copper	DOC
Cascades	Lognormal	Normal	Lognormal	Lognormal
Coastal	Lognormal	Lognormal	Lognormal	Lognormal
Columbia River	Normal	Normal	Lognormal	Gamma
Columbia Slough	Lognormal	Lognormal	Lognormal	Lognormal
Eastern	Normal	Lognormal	Lognormal	Lognormal
Portland Harbor	Lognormal	Lognormal	Lognormal	Lognormal
Willamette Valley	Normal	Normal	Lognormal	Normal
Marine/Estuarine Coastal	Not Applicable	Not Applicable	Lognormal	Not Applicable

Table A.2. Best fit distribution results for parameters in each of the georegions

Georegion	Conductivity	Lead	Zinc	Hardness
Cascades	Lognormal	Lognormal	Lognormal	Lognormal
Coastal	Lognormal	Lognormal	Lognormal	Lognormal
Columbia River	Normal	Lognormal	Lognormal	Normal
Columbia Slough	Lognormal	Lognormal	Lognormal	Lognormal
Eastern	Lognormal	Normal	Normal	Lognormal
Portland Harbor	Lognormal	Lognormal	Lognormal	Lognormal
Willamette Valley	Gamma	Lognormal	Lognormal	Gamma
Marine/Estuarine Coastal	Not Applicable	Lognormal	Lognormal	Not Applicable

Table A.3. Descriptive statistics for in-stream total lead and zinc in each of the georegions

Georegion	Dissolved Lead				Dissolved Zinc			
	Sample Size	Mean (µg/L)	Median (µg/L)	St. Dev. (µg/L)	Sample Size	Mean (µg/L)	Median (µg/L)	St. Dev. (µg/L)
Cascades	55	1.093	0.1	3.816	57	3.332	2.5	1.949
Coastal	496	0.231	0.1	6.636	475	4.164	2.5	4.106
Columbia River	37	0.087	0.068	0.11	31	1.6	1.34	1.233
Columbia Slough	484	0.29	0.052	0.52	484	1.93	0.969	2.32
Eastern	998	2.278	0.1	7.862	1020	4.457	2.5	10.21
Portland Harbor	93	0.037	0.018	0.0542	85	2.74	1.06	5.03
Willamette Valley	2494	0.108	0.0467	0.686	2672	4.691	2.5	10.33
Marine/Estuarine Coastal	144	0.098	0.0776	0.0718	144	2.064	1.047	2.979

Table A.4. Descriptive statistics for in-stream hardness and dissolved copper in each georegion

Georegion	Hardness				Dissolved Copper			
	Sample Size	Mean (µg/L)	Median (µg/L)	St. Dev. (µg/L)	Sample Size	Mean (µg/L)	Median (µg/L)	St. Dev. (µg/L)
Cascades	191	13.22	12.9	3.31	53	0.623	0.75	0.874
Coastal	490	53.84	29.75	110.11	492	0.864	0.75	0.901
Columbia River	36	63.74	63.8	8.27	36	0.605	0.564	0.239
Columbia Slough	475	49.24	29.4	28.8	330	0.829	0.73	0.462
Eastern	931	79.35	53.3	68.24	1004	1.692	1	2.208
Portland Harbor	70	41.66	28.55	19.48	86	0.665	0.529	0.464
Willamette Valley	2781	551.71	41.9	1383.17	2167	1.171	1.09	0.958
Marine/Estuarine Coastal	--	--	--	--	144	0.387	0.215	0.544

10.0 Generating Random Input Data and Histogram Verification

Once the best fit distribution was determined for a parameter, then MS Excel was used to generate random input data using the inverse of the best fit distribution for the freshwater georegions. For the marine estuarine (coastal) waters, the same process was implemented using R Statistical Computing software. The inverse distribution equations factor in the distribution's characteristic parameters such as mean, standard deviation, alpha, log-mean, log-standard deviation, and beta. This simulation was used to create a dataset of 10,000 randomly generated data points. To ensure the consistency of the randomly generated values, the process was repeated 10 times.

Histograms of the randomly generated datasets were compared to the distributions of the original data to verify that the OriginLab software identified the correct distribution as the best fit. The number of bins and bin size of the histogram was determined based on the original data. If the histogram verification indicated a poor fit, a different distribution that better represented the original data was selected (Figure A.3, Conductivity and Temperature).

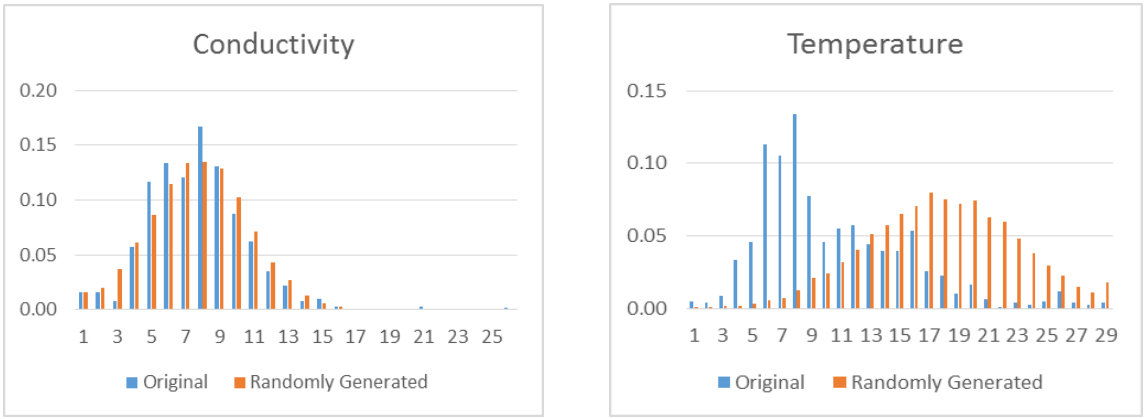

Figure A.3. Histograms indicating a good fit (left) and poor fit (right) between the original data and the randomly generated data

11.0 Modeled Results

11.1 Copper Benchmark Calculation

Where Cr is the receiving water concentration at the point of discharge, Fd is the dilution factor, Cf is the effluent concentration, and Cb is the receiving water background concentration. For the purposes of this analysis, the dilution factor was held constant at five, a representative value for the state, the effluent concentration ranged from 0-30 µg/L, and the background concentration is a value from the randomly generated copper dataset.

The Cu-BLM was used to determine the freshwater criteria against which the in-stream copper concentration is compared. The Cu-BLM program from Windward Environmental L.L.C. predicts the bioavailability of copper under a wide range of water chemistry conditions. The randomly generated datasets for temperature, pH, copper and dissolved organic carbon are required for the model to run, whereas the randomly generated dataset for conductivity is used to calculate the concentration of the geochemical ions needed for the model (Table A4). Default values for humic acid (10%) and sulfide (0.00001mg/L) were used following the EPA's recommendation. The Cu-BLM calculated a final acute value for each of the 10,000 randomly generated copper values, which was used as the criteria for the corresponding in-stream concentration.

Table A.5. Geochemical ion estimation equations

Where, "SpC" is a measurement of specific conductance in µmhos/cm, "ln" is the natural logarithm, and "exp" is a mathematical constant that is the base of the natural logarithm (~2.71828)

Parameter	Equation
Alkalinity	$Alk. = exp^{(0.88*[ln(SpC)]-0.41)}$
Calcium	$Ca = exp^{(0.96*[ln(SpC)]-2.29)}$
Chloride	$Cl = exp^{(1.15*[ln(SpC)]-3.82)}$
Magnesium	$Mg = exp^{(0.91*[ln(SpC)]-3.09)}$
Potassium	$K = exp^{(0.84*[ln(SpC)]-3.74)}$
Sodium	$Na = exp^{(0.86*[ln(SpC)]-2.22)}$
Sulfate	$SO_4 = exp^{(1.45*[ln(SpC)]-0.5.59)}$

For the marine estuarine (coastal) waters, the saltwater acute criterion is applicable (4.8 µg/L) from the Aquatic Life Water Quality Criteria for Toxic Pollutants Table 30 (PDF).

11.2 Copper Results by Georegion

Table A.6 identifies the modeled stormwater runoff concentrations that correspond to a 10% probability of exceeding water quality criteria for copper in each georegion. Dissolved benchmarks were converted to total metal concentrations using georegional translators where feasible, and default translators otherwise.

Table A.6. Modeled stormwater runoff concentrations that correspond to a 10% probability of exceeding water quality criteria for copper

Georegion	Total Copper (mg/L)
Cascades	0.016
Coastal	0.017
Columbia River	0.023
Columbia Slough	0.017
Eastern	0.031

Georegion	Total Copper (mg/L)
Portland Harbor	0.015
Willamette Valley	0.015
Marine Waters	0.025

11.3 Lead and Zinc Benchmark Calculation

DEQ developed water quality-based benchmarks for lead and zinc using the same modeling method as copper. The dilution factor was also the same. Rather than using the BLM software to calculate the benchmarks, DEQ has established formulas for hardness-dependent freshwater metals criteria for lead and zinc as a part of the Aquatic Life Water Quality Criteria for Toxic Pollutants Table 30 (PDF). For the marine estuarine (coastal) waters, acute saltwater criteria from Table 30 were used. Table A.7 contains the acute criteria equations for lead and zinc, and the saltwater acute benchmarks for lead and zinc.

The in-stream concentrations and acute criteria were calculated in the same manner and the calculations were performed for each of the 10,000 randomly generated lead and zinc values. The in-stream concentrations were initially calculated at effluent concentrations from 0-30 µg/L, at 2 µg/L increments, and adjusted to higher effluent concentrations, if necessary. As with the copper analysis, this created a probability distribution of receiving water lead and zinc concentrations.

Table A.7. Hardness-dependent acute aquatic life water quality criteria

Equations for lead and zinc where, "ln" is the natural logarithm and "exp" is a mathematical constant that is the base of the natural logarithm (~2.71828).

Parameter	Freshwater Equation	Saltwater Criterion (mg/L)
Lead	$Pb = \exp^{(1.273*[\ln(Hardness)]+(-1.460))}$	0.21
Zinc	$Zn = \exp^{(0.8473*[\ln(Hardness)]+0.884)}$	0.090

11.4 Lead and Zinc Results by Georegion

Table A.8 displays the modeled stormwater runoff concentrations that correspond to a 10% probability of exceeding water quality criteria for lead and zinc in each georegion. Dissolved benchmarks were converted to total metal concentrations using georegional translators where one was available, and default translators otherwise.

Table A.8. Modeled stormwater runoff concentrations that correspond to a 10% probability of exceeding water quality criteria for lead and zinc

Georegion	Total Lead (mg/L)	Total Zinc (mg/L)
Cascades	0.018	0.068
Coastal	0.039	0.086
Columbia River	0.21	0.35
Columbia Slough	0.10	0.24
Eastern	0.077	0.16
Portland Harbor	0.24	0.24
Willamette Valley	0.11	0.14
Marine Waters	1.10	0.46

11.5 Modeled Risk-based Benchmark Curves

Figures A.4-A.6 show the modeled risk-based benchmark curves for copper, lead and zinc for each of the different georegions used in this analysis.

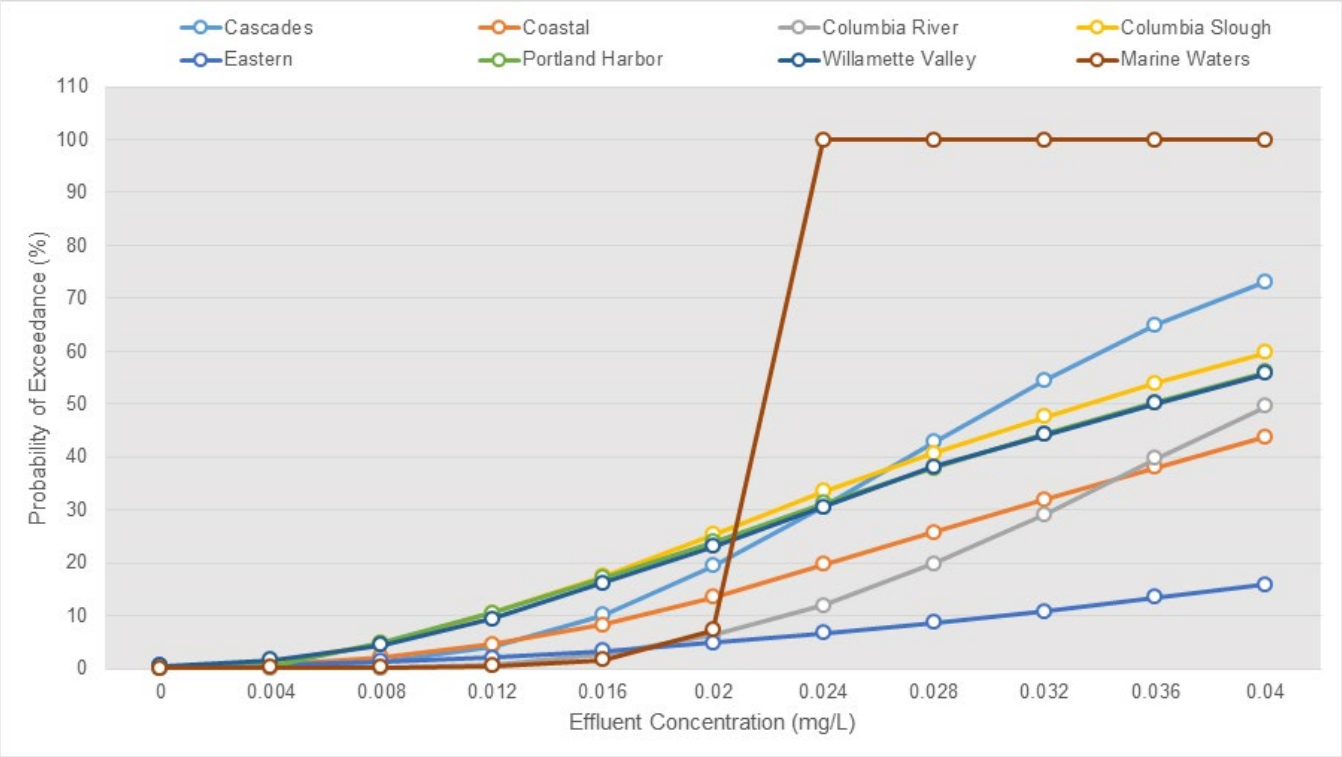

Figure A. 4. Modeled risk-based benchmark curve for dissolved copper by georegion

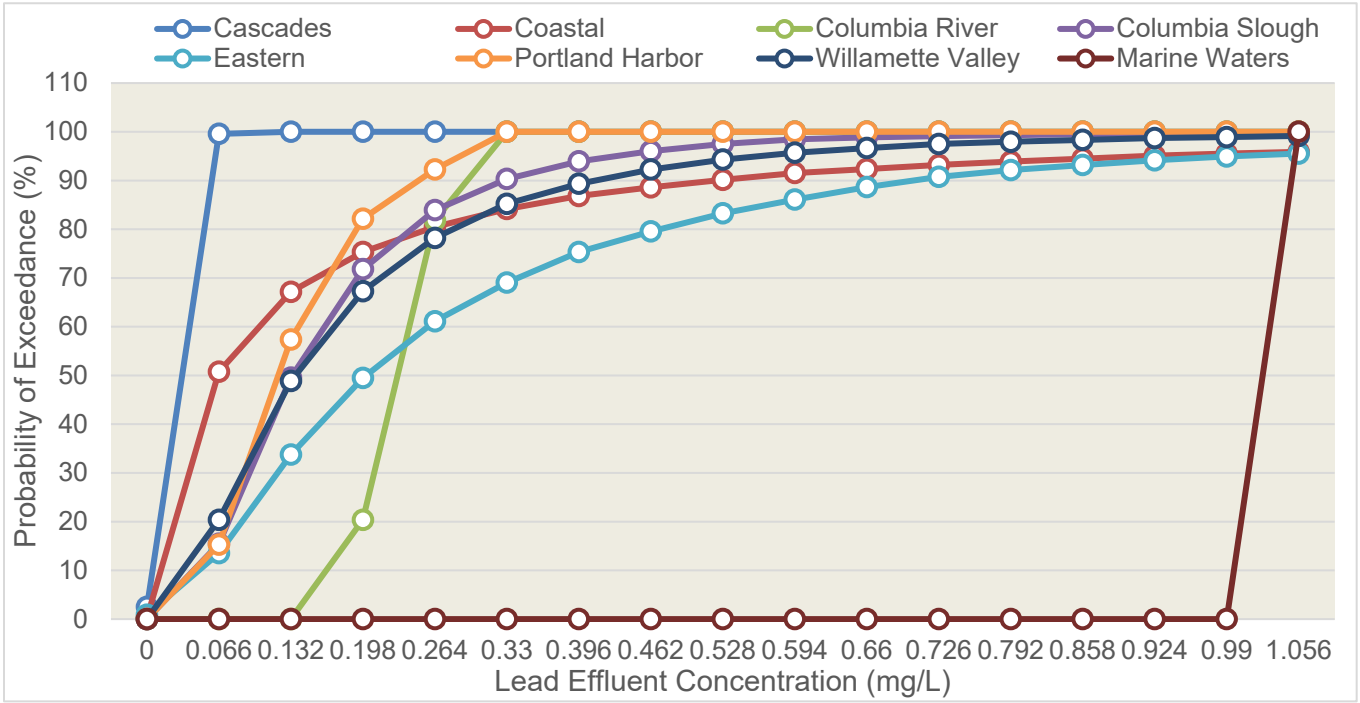

Figure A.5. Modeled risk-based benchmark curve for dissolved lead by georegion

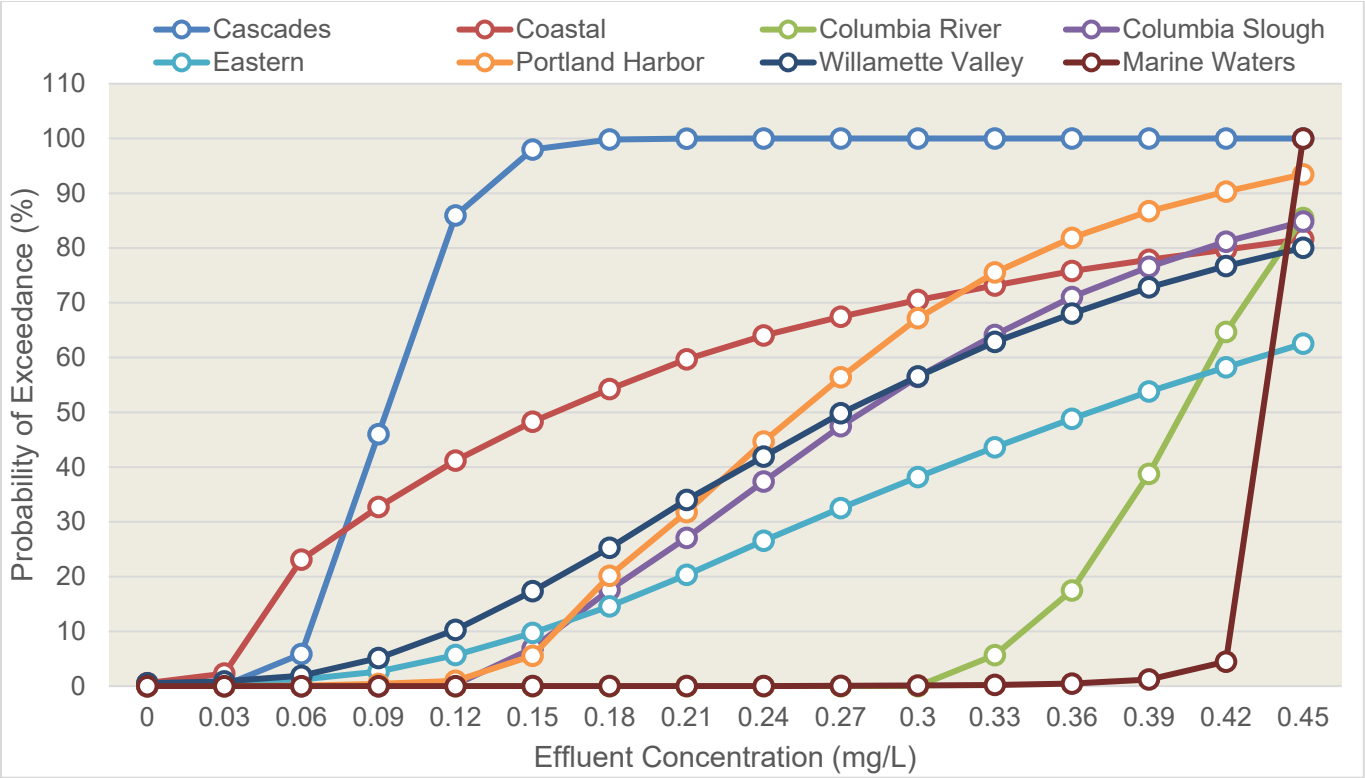

Figure A.6. Modeled risk-based benchmark curve for dissolved zinc by georegion

12.0 Final Benchmarks

Table A.9. Final Modeled Benchmarks converted to Total using either Footnote F TABLE 30: Aquatic Life Water Quality Criteria for Toxic Pollutants, or georegional translators, as applicable

Georegion	Total Copper (mg/L)	Total Lead (mg/L)	Total Zinc (mg/L)
Cascades	0.016	0.018	0.068
Coastal	0.017	0.039	0.086
Columbia River	0.023	0.21	0.35
Columbia Slough	0.017	0.10	0.24
Eastern	0.031	0.077	0.16
Portland Harbor	0.015	0.24	0.24
Willamette Valley	0.015	0.11	0.14
Marine Waters	0.025	1.10	0.46

13.0 Appendix B: Assessment of Dilution Rate

DEQ evaluated this work during the 2012 renewal. During the 2021 rulemaking PG Environmental presented during the advisory committee process an analysis on Oregon's benchmark methodology. This included literature review and comparison of other states and EPA. PG Environmental findings were to maintain risk-based assessment while discontinuing the use of technical achievability analysis. This is the benchmark methodology used in the metal modeling described in Appendix A. Further explanation of dilution used in development of the risk-based metals benchmark is described below.

Dilution is defined as the total streamflow divided by effluent flow (for this modeling, effluent flow is facility stormwater runoff). A higher dilution factor means that there is relatively less effluent in the receiving water, compared to a lower dilution factor. Thus, a higher dilution rate is more protective of the environment than a lower dilution rate.

DEQ's prior benchmarks in the 1200-Z permit are based on a dilution rate of 5, which accounts for higher receiving stream flows during storm events than during dry weather. To select an appropriate dilution rate for model input, DEQ assessed the adequacy of the current dilution rate. DEQ estimated potential dilution based on commonly occurring storm events in different regions of the state, the stormwater runoff from 48 randomly selected facilities, and the flow in streams to which they discharge. Facilities were selected using a stratified random sampling method. This method is appropriate when a known factor may contribute to differences between the items being sampled. In this case, stream size was the factor of concern. Therefore, the facilities were selected based on the size of the stream to which they discharged (see Table B.1 below). Because more facilities discharge to streams in larger watersheds, more facilities were selected from large watershed categories.

Table B.1. Distribution of evaluated facilities based on regional location and the watershed size corresponding to the point the discharge enters the receiving body

	Watershed Size		Number of Facilities	
Bin	larger than (mi^2)	equal to or less than (mi^2)	NWR & WR region	ER region
A	0.01	0.1	1	
B	0.1	1	5	
C	1	10	10	1
D	10	100	9	
E	100	1000	10	2
F	1000	10000	8	1
G	10000	--	1	

The assessment utilized the rational method, a simple rainfall-runoff equation, to estimate facilities' stormwater runoff based on rainfall depth. The rational method accounts for surface conditions, such as impervious areas, through a runoff coefficient. To calculate the dilution for each facility, estimated facility runoff was compared to the estimated receiving water streamflow. Flows were calculated as follows:

Runoff from facility

- The impervious area for each facility was used to calculate the total area that contributes runoff for each facility. Facility impervious area was obtained from the facilities' application form and SWPCP.
- Rainfall intensity was then used to calculate runoff from the facility. Rainfall data were evaluated from three regions in the state (Rogue Valley, Willamette Valley and Eastern Oregon). For each region, the median storm size was calculated, and then three storms with median flow were selected. The rainfall intensity was estimated by looking at the maximum sustained intensity for the three storms.

Stream flow

- DEQ estimated a median streamflow using the daily average flows from the rainy season for the last three years.
- DEQ estimated the flows for each facilities' stream based on the contributing area size of the watershed.

Results:

DEQ's analysis indicated that the dilution factor of 5 in the current permit is reasonable for the following reasons:

- The estimated dilution factor was 5 or more for approximately 80% of the facilities (see histogram in Figure B.1 below). Approximately 20% of the facilities had estimated dilution factors that were less than 5. These facilities all discharged to smaller watersheds (less than 5 square miles) and typically had a large impervious areas contributing to stormwater runoff (see watershed size in Figure B.2 below).
- The estimated dilution factor was more than 10 for over three-quarters of the facilities.
- The estimated dilution factor was greater than 200 for over half of the facilities.

Because this is a general permit that applies to wide variety of sources discharging too many different water bodies, and the dilution factor of 5 in the current permit is appropriate for the majority of the facilities, DEQ concluded that the dilution factor of 5 is protective of the environment and appropriate for model input.

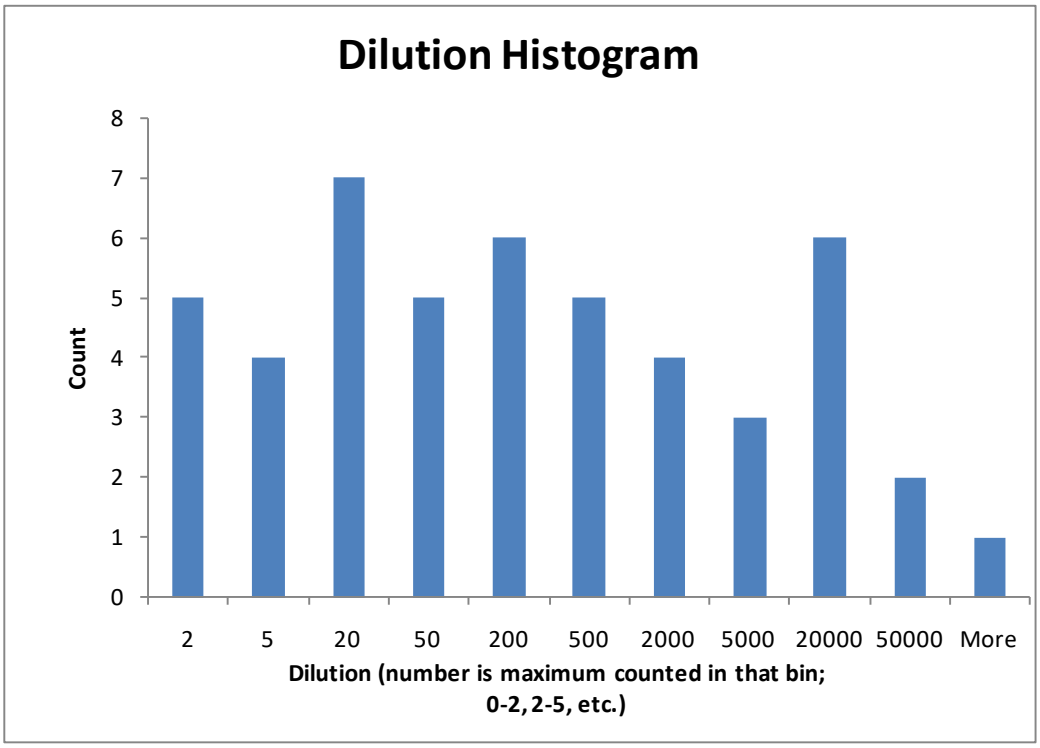

Figure B.1. Histogram of dilution factors available to 48 evaluated facilities

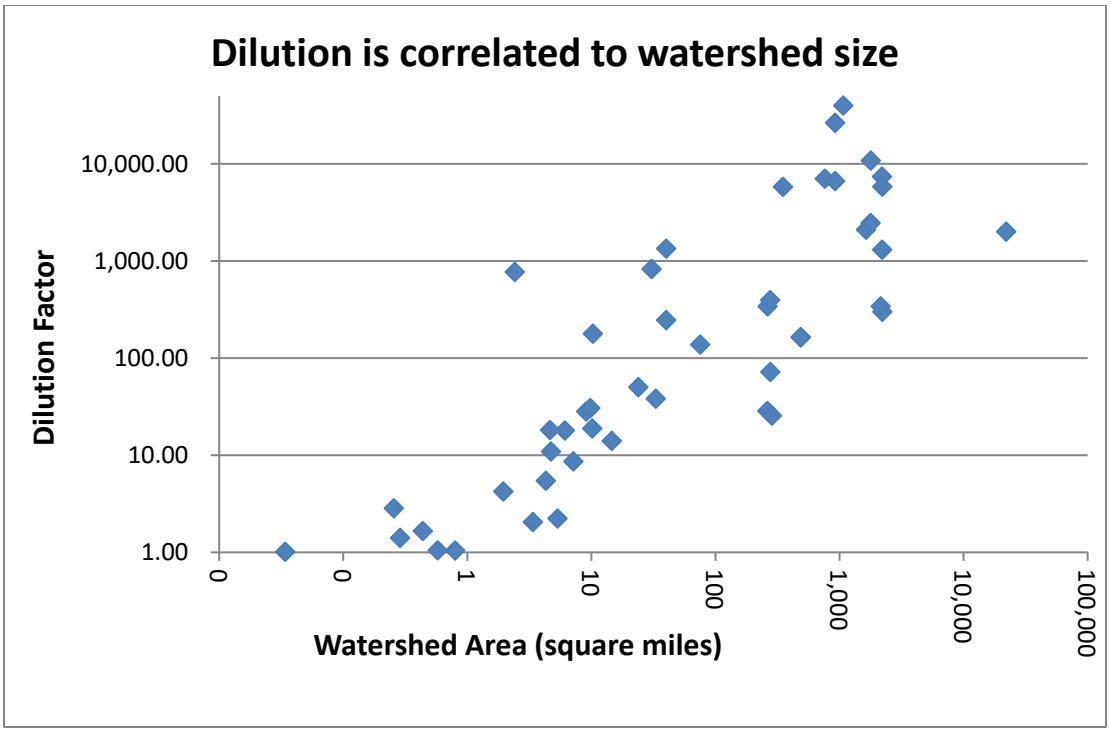

Figure B.2. Dilution factors available to 48 facilities plotted against the receiving bodies' watershed area defined by the point the discharge enters the receiving body

14.0 Appendix C: Regional Metals Translator Analyses

14.1 Introduction

A metal translator is a regulatory value for use in translating a dissolved metal concentration into a total recoverable metal concentration. 40 CFR 122.54(c) requires that National Pollutant Discharge Elimination System (NPDES) permits must specify permit conditions for metals in the total recoverable form. The U.S. Environmental Protection Agency (USEPA) has promulgated default translators which are protective of a diverse array of receiving waters, which are used in Oregon.[13] However, site- or region-specific translators may be developed tailored to specific receiving waters of interest.

DEQ reviewed and summarized existing ambient water quality monitoring data to ascertain the feasibility of estimating regional metal translators for the 1200-Z Permit. Parameters of interest were copper (Cu), lead (Pb), and zinc (Zn) for waters where freshwater criteria were applicable, and in estuarine waters where saltwater criteria were applicable.

14.2 Data Assessment

DEQ evaluated freshwater samples dated from January 2010 through December 2019, and estuarine samples dated from April 2013 through September 2019. Paired metal measurements were identified by matching sample monitoring station, sample date and time, georegion, and parameter attributes. Duplicate sample observations (i.e., sample location, sampling time, parameter, metal fraction type, qualifier, and result/MRL were identical) were identified and discarded. The remaining data pairs were used to compute the fraction of dissolved metal present in the sample pair.

The dataset was reviewed and sample pairs meeting the following criteria were discarded:

- Sample did not indicate the metal fraction type (i.e., dissolved or total recoverable metal), rendering it infeasible to compute a dissolved metal fraction.
- Sampling date was not recorded, rendering it infeasible to identify paired values.
- Sample pairs where both the dissolved metal observation and the total metal observation were non-detect, due to the infeasibility of computing a suitably accurate dissolved metal fractions using two interval estimate concentrations (i.e., concentrations known only to be present on the interval between 0 and the MRL).
- Sample pairs where the dissolved concentration was double (2x) the total metal concentration or greater. A large fraction of these discarded pairs (69 percent of the pairs discarded based on this criterion) had non-detect dissolved values where the MRL was much greater than the detected total recoverable metal concentration, which suggests the sensitivity of the analytical methods utilized for these sample pairs were incommensurate and inappropriate for use in metal fractionation computations. The remainder were discarded as likely having other unidentified data quality issues, since by definition the dissolved fraction of metal cannot exceed 1.0. The cutoff threshold was selected based on best professional judgement as a value likely to correctly identify problematic sample pairs, without discarding too many pairs where the deviation above 1.0 fraction is due to imprecision of the dissolved and total metal analytical methods when compounded together. The overall effect of discarding these values reduces the number of sample pairs where metal is present entirely in the dissolved form and, in most cases, reduces the computed metal translator.

[13] See OAR 340-041-8033, Footnote F to Table 30: https://www.oregon.gov/deq/Rulemaking%20Docs/tables303140.pdf

Table C.1. Summary of Paired Metals Data

Georegion	Parameter	No. of Metal Pairs	Dissolved Metal (ug/L)				Total Metal (ug/L)			
			Percent Non-Detect (%)	Minimum	Median	Maximum	Percent Non-Detect (%)	Minimum	Median	Maximum
Cascades	Cu	12	8	0.15	0.22	0.39	25	0.15	0.19	7.6
	Pb	15	40	0.020	0.020	0.15	7	0.020	0.030	0.10
	Zn	2	0	5.1	5.4	5.6	100	5.0	5.0	5.0
Coastal	Cu	186	9	0.15	0.66	5.7	4	0.15	0.83	7.0
	Pb	183	29	0.020	0.030	0.20	1	0.02	0.10	1.1
	Zn	72	25	2.0	5.6	33	25	1.20	5.95	39
Columbia River	Cu	32	0	0.38	0.55	0.99	0	0.478	0.79	1.3
	Pb	34	47	0.010	0.012	0.67	0	0.049	0.13	1.3
	Zn	29	83	0.50	0.53	5.4	0	0.660	1.4	5.3
Columbia Slough	Cu	109	3	0.20	0.67	2.2	0	0.28	1.3	11
	Pb	101	90	0.040	0.10	0.60	0	0.10	0.46	5.2
	Zn	107	20	0.50	1.54	13	0	0.65	5.1	56
Eastern	Cu	228	25	0.25	1.32	5.3	3	0.15	1.6	15
	Pb	223	43	0.020	0.030	0.27	2	0.020	0.20	7.3
	Zn	70	63	5.0	5.0	43	13	2.7	6.2	173
Portland Harbor	Cu	77	1	0.15	0.53	2.7	0	0.47	0.85	13
	Pb	80	14	0.0050	0.017	0.20	0	0.005	0.11	6.9
	Zn	78	42	0.40	0.60	33	0	0.40	1.5	84
Willamette Valley	Cu	1,428	9	0.15	0.90	7.4	1	0.150	1.7	16
	Pb	961	20	0.0040	0.034	1.9	0	0.016	0.25	8.7
	Zn	1,422	5	0.0025	3.1	9,460	1	0.106	6.4	9,705
Marine/ Estuarine (coastal)	Cu	7	72	0.62	1.5	3.9	29	1.3	2.1	3.7
	Pb	15	100	0.02	0.07	0.24	0	0.2	0.24	0.47
	Zn	9	0	5.04	11.6	18.8	56	5	7.2	11.7

14.3 Sample Size Characteristics

Each data set was evaluated according to its sample size characteristics, geographic characteristics (i.e., can it reasonably represent water quality throughout the georegion), and temporal characteristics (i.e., is a reasonable time span represented in the dataset, and are wet and dry seasons present). The following subsections describe the methodology used in evaluating the data sets and summarizes any deficiencies identified.

Sample size characteristics of the data sets were evaluated to determine if a sufficient quantity of high-quality data was available to support deriving metal translators. Data which was poor quality (e.g., metal pairs which were both censored, high method reporting limits [MRLs], etc.) were identified and removed from the analysis, as discussed in the section above. Data sets where a high proportion of the dissolved or total metal data were censored were noted. Data sets where an insufficient number of samples were present to characterize the target empirical distributional percentiles were also excluded.

Minimum sample sizes necessary to capture the 80th percentile of a distribution were computed using the following relationship[14]:

$p_n = (1 - \text{Confidence Level})^{1/n}$

[14] Method according to Section 3.3.2 of USEPA's Technical Support Document for Water Quality-based Toxics Control guidance (1991)

Where,

p_n = Percentile of distribution represented by largest value in the sample data set
n = The number of samples in the data set

At a 97.5% overall confidence level (which is equivalent to a 95% confidence level for the dissolved metal computation and a 95% confidence level for the total metal computation), a minimum of 17 samples are needed to capture the 80th percentile of the underlying distribution in both sample data sets.

As shown in Table 1, the copper, lead, and zinc datasets for the Cascades georegion do not meet the 97.5% confidence level sample size threshold, nor do the copper, lead, and zinc datasets for the Estuarine waters.

14.4 Geographic Characteristics

Geographic characteristics of the data set were evaluated to determine if the data sets were adequate to represent their geographic regions, and if pooling all data within a georegion was appropriate. To assess the first attribute, monitoring station locations were mapped along with state rivers[15] to assess general levels of regional coverage. To assess whether pooling data was appropriate, dissolved and total metal concentration boxplots for each monitoring station were constructed and reviewed. Boxplots were also compared along latitudinal and longitudinal gradients. Regional coverage maps are shown in Figures C.1 and C.2. Estuarine water bodies are tidally influenced water bodies along the Pacific Ocean coastline (Figure C.3). No issues were identified via the station boxplots.

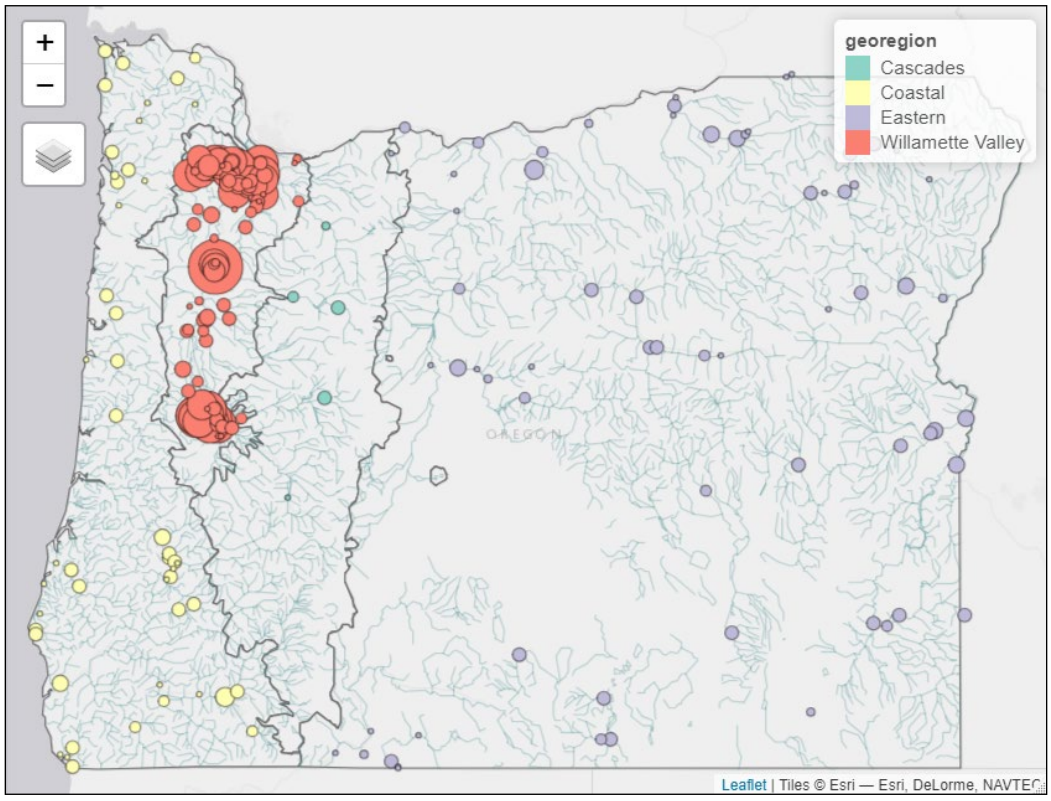

Figure C.1. Monitoring station locations for the Coastal, Willamette Valley, Cascades, and Eastern georegions. Size of dot indicates the number of samples associated with the monitoring station

[15] Source: Oregon Spatial Data Library, 2009. Obtained December 2020: https://spatialdata.oregonexplorer.info/geoportal/details;id=01606665b1034dc6877fbad58bb9879a

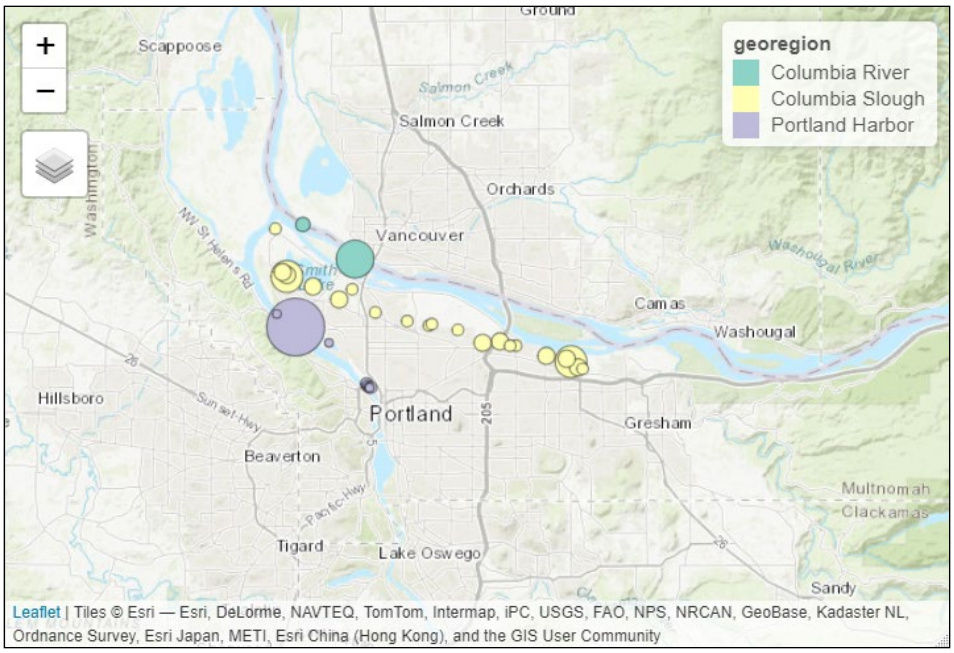

Figure C.2. Monitoring station locations for the Columbia River, Columbia Slough, and Portland Harbor georegions. Size of dot indicates the number of samples associated with the monitoring station

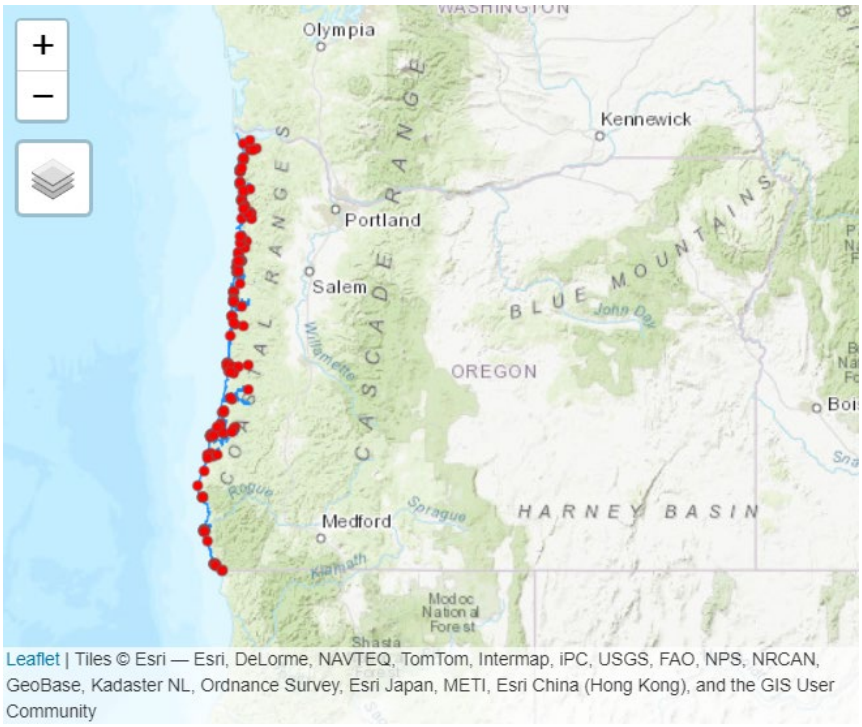

Figure C.3. Monitoring station locations for estuarine waters on the Pacific coast

The metals data sets for the Columbia River are all localized in the vicinity of the Portland metro area (Figure C.2) and do not include the vast majority of the mainstem of the Columbia River within Oregon's jurisdiction which stretches along two-thirds of the northern border of the state. The data for the Cascades georegion is relatively broad but is missing data from drainage networks in the northern and southern portions of the georegion (Figure C.1).

14.5 Temporal Characteristics

Temporal characteristics of the data sets were reviewed to identify whether an adequate historical record was present to characterize long-term water quality behavior, and to ensure a range of seasonal conditions were represented in the data set. Figure C.4 displays the frequency and timespan of data included in the analysis for the georegions and C.5 (estuarine waters) displays the day of each year on which each sample was collected and reflects the seasonal coverage of the dataset.

Each of the georegion metal data sets possessed at least three years of data and reflected the full range of seasonal conditions, except for the Cascades data which was limited due to the low sample count.

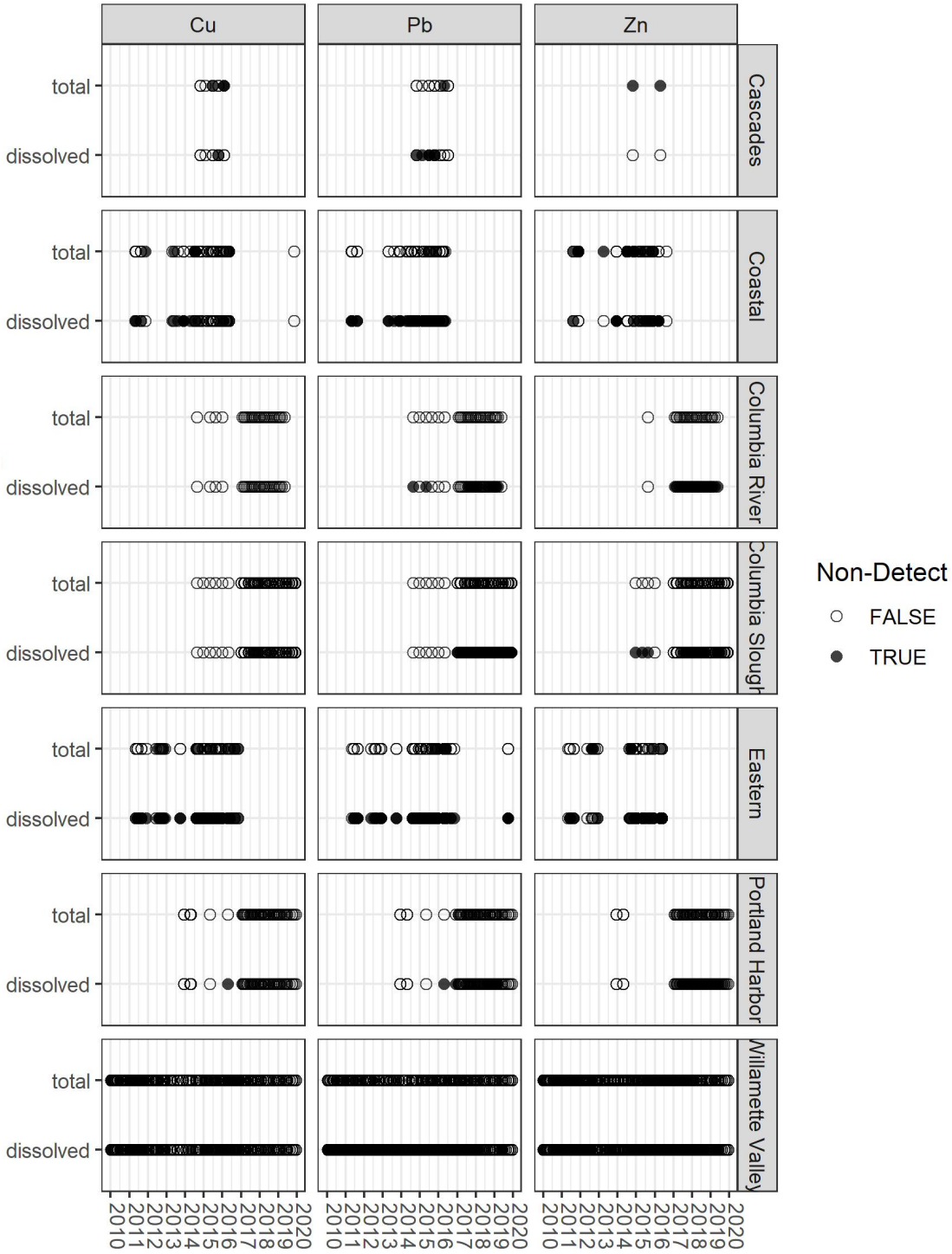

Figure C.4. Dates samples were collected. Non-detect status: false indicates a detected value, and true indicates a non-detect value

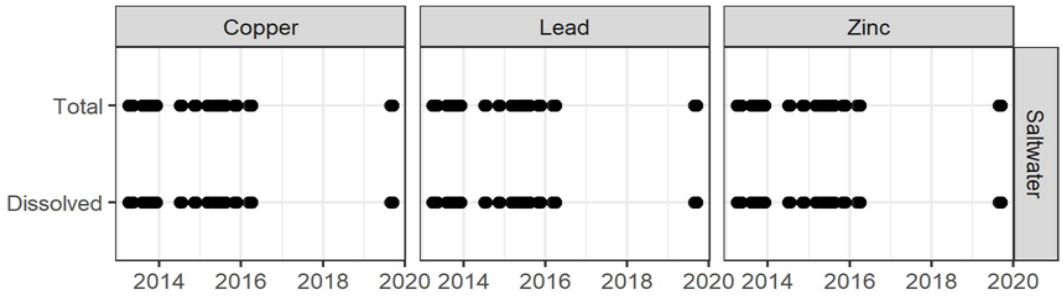

Figure C.5. Estuarine water bodies. Dates samples were collected.

14.6 Summary of Data Assessment

Based on the above assessment, it was determined that calculation of region-specific Cu, Pb, and Zn translators would be infeasible for the Columbia River and Cascades georegions. Similarly, for the estuarine waters, translators for copper, lead and zinc are infeasible due to an insufficient quantity of data. The use of the default translators is recommended for copper, lead and zinc in the Cascades, Columbia River georegions, and the estuarine water bodies. Metal translators were computed for the remaining georegions.

15.0 Metals Translators

Metal fractions were computed for all data pairs according to the following formula:

fd = Cdissolved / Ctotal

Where,

fd	= Fraction of metal in the dissolved form
Cdissolved	= Dissolved metal concentration, mg/L
Ctotal	= Total recoverable metal concentration, mg/L

Where non-detect values were present, the full value of the MRL was substituted in for the sample concentration. This substitution value will tend to overestimate fd when the dissolved metal sample is non-detect, and underestimate fd when the total recoverable sample is non-detect. Sample pairs where both values were non-detect were discarded from the analysis.

Non-detect values were more common among dissolved metal measurements than among total metal, so use of the full MRL substitution value was more conservative (i.e., protective of water quality) than use of the half-MRL substitution value. In addition, sample pairs where fd $\geq$ 2 were discarded which tended to capture sample pairs where the dissolved metal analytical methods were less sensitive than those used for the total metal (e.g., a pair with a dissolved metal concentration at <2 mg/L and a total recoverable metal at 0.01 mg/L) and corrected for some biases introduced by differences in dissolved and total MRLs.

Figure C.8 displays the resulting empirical cumulative distributions for fd by parameter and georegion with a blue vertical line marking the 80th percentile of the distribution.

An empirical 80th percentile value of the dissolved metal fraction distribution was used to estimate the translator, instead of a median or geometric mean, to provide a margin of safety on the regional translators. The rationale for assuming a margin of safety is discussed in the following section of this memo. Table 2 presents the computed metal translators for each georegion. Where it was infeasible to estimate a translator, or if the computed translator exceeds the default metal translator, the default translator has been selected in lieu of a region-specific translator.

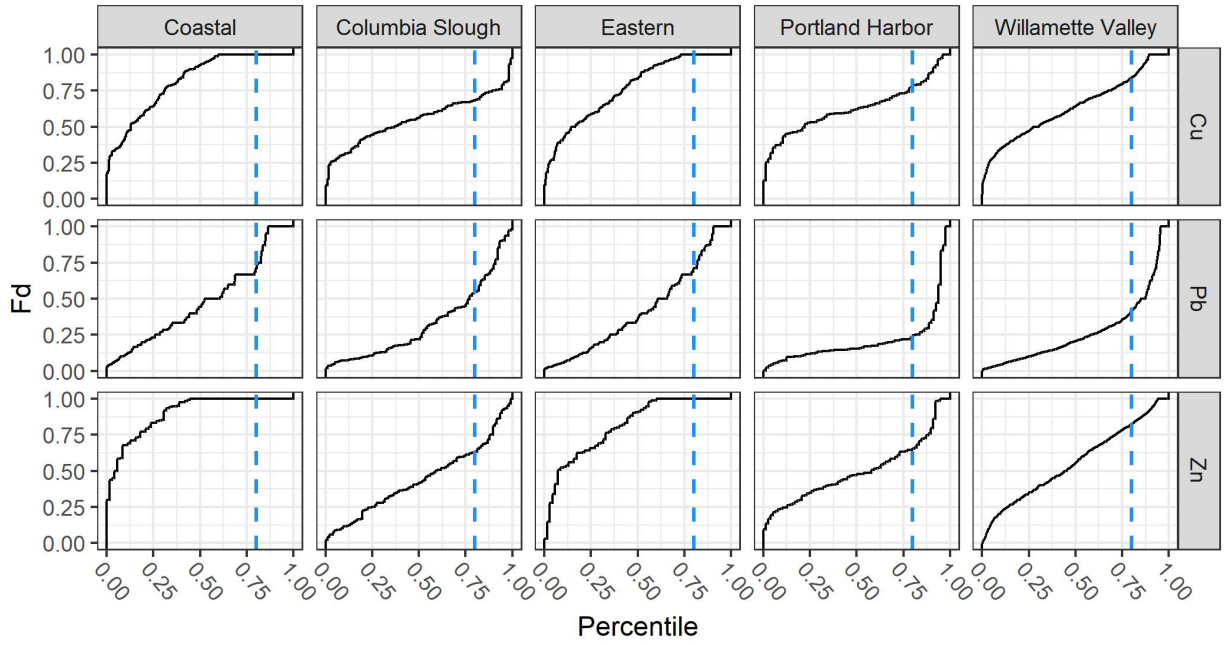

Figure C.6. Empirical cumulative distributions of dissolved metal fractions (fd) by parameter and georegion. Percentile represents the percent of values which are exceeded by a given fd value. 80th percentile marked with blue line

Table C.2. Georegional metals translators

Georegion	Copper	Lead	Zinc
Cascades	Default[1]	Default[1]	Default[1]
Coastal	Default[2]	0.70	Default[2]
Columbia River	Default[1]	Default[1]	Default[1]
Columbia Slough	0.68	0.55	0.63
Eastern	Default[2]	0.70	Default[2]
Portland Harbor	0.78	0.24	0.65
Willamette Valley	0.84	0.41	0.82
Marine Waters	Default[2]	Default[2]	Default[2]

[1] Infeasible to estimate translators for the Cascades and Columbia River georegions, and for estuarine water bodies
[2] Computed translator was less stringent than the OAR 340-041-8033 default metal translator and were not used

15.1 Translator Percentile and Assumptions Protective of Water Quality

The use of 80th percentile threshold (Figure C.6) is a conservative assumption designed to ensure the maintenance of water quality standards in a diverse array of receiving waters throughout each georegion. The Coastal, Willamette Valley, and Eastern georegions are large and the within-region sampling intensity can be uneven. The Willamette Valley displays some regional variation in dissolved metal fraction behavior with the less well-sampled central portion of the region showing higher dissolved metal fractions than the northern and southern portions (Figure C.7). No other region displayed a strong geographic pattern in dissolved metal fractionation at the 80th percentile dissolved metal fraction threshold.

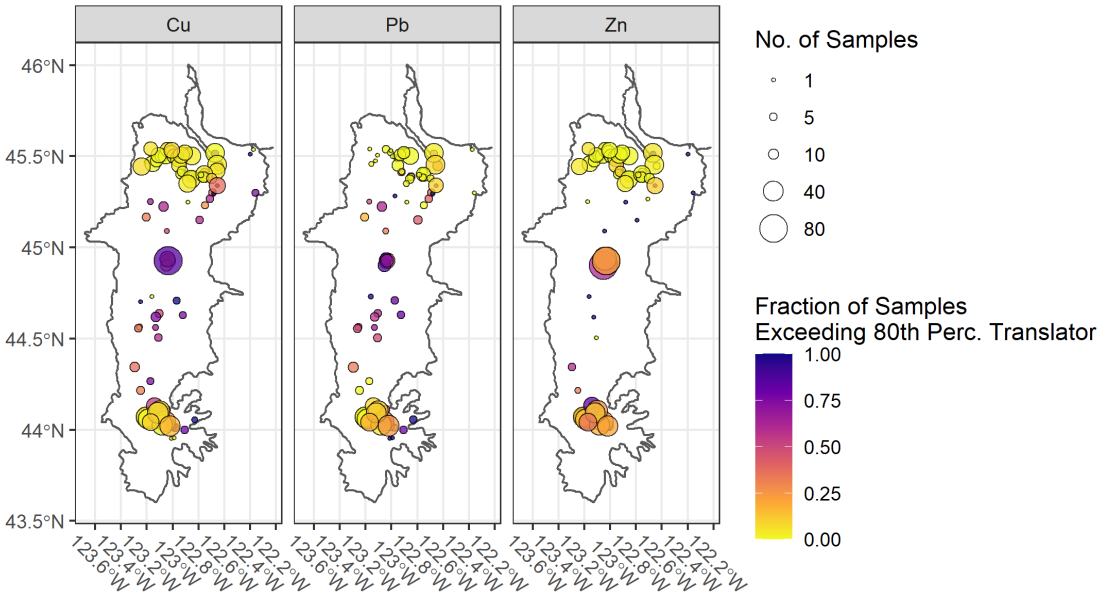

Figure C.7. Willamette Valley monitoring locations. Size of bubble indicates number of metal sample pairs included in translator computation. Color indicates the fraction of sample pairs where the dissolved metal fraction exceeds the computed regional translator.

The Columbia Slough lead metal translator was computed from a dataset which included a large proportion of non-detects (90% non-detect for dissolved metal, 0% non-detect total metal; refer to Table C.1). In this case, it was determined the data set could be used despite the limited availability of uncensored data. Use of the full MRL as the non-detect substitution value provides a conservative upper bound on the dissolved fraction since the MRL represents the maximum possible concentration which might be accurately quantified using an analytical method. The true concentration is somewhere on the interval of zero to the MRL. Therefore, the estimated Columbia Slough metal distribution represents a conservative estimate of metal fractionation despite the high prevalence of non-detect dissolved values.