State of Oregon Department of Environmental Quality

Written Comments

PFAS 2025 Rulemaking
Rulemaking Advisory Committee Meeting 2

This document is a compilation of written comments received related to the second meeting of the advisory committee for the PFAS 2025 rulemaking held Jan. 22, 2025. Feedback is presented in the order received.

Comments

From: Haney, Jeremy NFG NG ORARNG (USA)
To: VANGLUBT Sarah * DEQ
Cc: LANDES Franziska * DEQ; HAFLEY Dan * DEQ; ROHLF Annie * DEQ
Subject: RE: PFAS 2025 second RAC meeting and materials
Date: Wednesday, January 22, 2025 12:42:06 PM
Attachments: image004.png

Hi Sarah,

What PFAS constituents should be considered to best protect human health and the environment?

a. Maybe go with a hybrid option: Option 1 to align with the revised EPA list and Option 3 to add only the four remaining PFAS with MCLs as a separate line. This gives DEQ authority to compel investigations for at least some PFAS in the event the EPA list is challenged or the OR additional PFAS are challenged. I assume if PFOS and PFOA are removed from the list in the future, DEQ would need to form a RAC if you wanted to also remove PFOS/PFOA and reference a newer EPA list.
b. I support the 6 since they are generally collocated which has minimal effect on RP investigation costs but could expand the release footprint. This also allows DEQ to compel investigations of multiple potential RPs and prevent overlooking RPs that may be upgradient/upstream. Because of different mobilities, if PFOA and PFOS have migrated away (say, downstream) but others are still discharging to surface water or groundwater, DEQ will still be able to compel investigation. Realistically, it's likely PFOA and/or PFOS will likely be present but why not add the other four to give DEQ the tools in needs in a few rare cases.
c. While I don't disagree with expanding the list to include additional or all PFAS, potentially responsible parties should not be forced to conduct a research project. Any additional PFAS added to the list should be limited to what can be analyzed using a commercially available EPA analytical method. Method 1633 already has a multi-month turnaround time which slows investigation/delineation if required over 8421, but if samples were required to be sent to research labs to identify "all" PFAS, analytical costs would be exorbitant, TATs would greatly increase, there are currently no cleanup standards for many, and this would cause the sort of confusion we experienced a few years ago when there were no or ever-changing screening levels to follow.

I fully support ensuring disadvantaged communities are not overlooked (or even prioritized) and agree with the Risk Based approach to cleanup, but in terms of RE and EJ, confirming a PFAS release in/under a disadvantaged community, say urban-developed adjacent industry or on former industry land, it will be challenging to tell a community remediation will not occur or only in insolated area (parks, greenspace) because there are no receptors…capped by concrete, asphalt, buildings. PFAS is currently big news and it's very easy to interpret risking

away the need for cleanup as being marginalized. Annie will have her work cut out for her making sure correct message is received and understood by the general population.

If compiled information or the results of sampling indicate no release has occurred, additional work will not be required nor financial impact incurred."

a. Ok, but I have seen more than one site where RPs/contractors get dragged into drawn out, costly investigations…

RP: "Oh good, no evidence of release at the locations in the DEQ-approved Work Plan."

DEQ: "Great. But….now we think you should look over here and here and here."

(This is more of a friendly jab than a comment.)

Thanks,

Jeremy

Jeremy Haney, R.G.
(He / Him)

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Working with community wastewater treatment and stormwater management agencies across the state to protect Oregon's water quality since 1987.

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February 18, 2025

Sarah Van Glubt, et al.
Oregon Department of Environmental Quality (DEQ)
700 NE Multnomah Street, STE 600
Portland, OR 97232

Re: Wastewater and Stormwater Feedback on PFAS 2025 RAC Mtg. No.2

Dear Sarah:

Thank you for the opportunity to provide feedback on the second RAC Meeting for the PFAS 2025 Rulemaking. This feedback is provided on behalf of Oregon's publicly owned water quality utilities represented by the Oregon Association of Clean Water Agencies (ACWA). ACWA respectfully requests DEQ to consider the following comments regarding the second PFAS 2025 RAC meeting:

Original Policy Objectives and RAC Charter – With respect to the rule language options presented at the second RAC meeting, we believe options 2 and 3 do not align with the stated policy objectives in the RAC charter, which states:

> "The PFAS 2025 Advisory Committee's purpose is to provide input to the Department of Environmental Quality on proposed rulemaking DEQ is undertaking to include perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), [...] in the definition of hazardous substances in Oregon Administrative Rule (OAR) 340-122-0115 (30). **No language changes to the rule are proposed** *(emphasis added).* OAR 340-122-0115 (30) references the US Environmental Protection Agency's (EPA) list of hazardous substances in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). [...] **By updating this rule, DEQ will readopt the EPA's current list of hazardous substances, including PFOA and PFOS** *(emphasis added)."*

ACWA requests DEQ to remove the additional rule language options presented at the second RAC meeting from further consideration to remain consistent with the original PFAS 2025 Advisory Committee Charter.

Proposed Exclusion for "Confirmed Release of Hazardous Substances" – The listing of PFOA and PFOS as hazardous substances in both federal and state law puts Oregon's publicly owned water quality utilities at unprecedented risk. The ubiquity of PFAS compounds in waste streams and the environment is

a unique challenge for public utilities that are "passive receivers" of these chemicals, meaning the utilities do not use or generate the pollutant at the facility, but are susceptible to receiving the compounds from upstream sources. Furthermore, there are no reasonable treatment technologies available to remove PFAS compounds from the water in an effort to control releases to the environment, and we cannot simply stop treating wastewater or stormwater as it is a vital service to protect public health and the environment.

During the first RAC meeting, ACWA and other represented industries requested DEQ to consider an exemption for passive receivers of PFAS compounds. While this initial request may have been outside the scope of this rulemaking, ACWA proposes what it hopes is a simple yet effective measure to manage the risk that publicly owned water quality utilities will face.

The concept is that when acting in accordance with all applicable laws, permitted wastewater and stormwater discharges and application of recycled water and biosolids should be specifically excluded from the definition of "Confirmation of Release" in OAR 340-122-0073. The suggested approach is to add a category of authorized release to OAR 340-122-0073 (2). This section currently states that "A release shall not be defined as a "Confirmed Release" if the Director determines the release meets any of the following criteria" and "The release is a **permitted or authorized release**…" OAR 340-122-0073 (2)(c). The current language is not specific, and more problematically, migration of substances (such as PFAS compounds) is not protected. ACWA believes a publicly owned water quality utility may not be sufficiently protected from PFAS liability, as there may be an argument that permitted discharges migrate to water and would be considered a confirmed release. Making the existing "permitted or authorized release" more explicit is important to shield publicly owned water quality utilities from the risks, costs, and liabilities associated with third party lawsuits and potential joint and several liability—costs that would be directly passed through to the public ratepayers. Although DEQ may use enforcement discretion, that does not provide any protection from third party environment or industry lawsuits. Given that publicly owned water quality utilities are publicly funded critical infrastructure, leaving them vulnerable to costly lawsuits would divert finite resources away from more effective source reduction and elimination efforts.

As such, ACWA requests DEQ to help protect publicly owned utilities from risk by either:

1. Proposing a separate rulemaking to include language in OAR 340-122-0073(2) to specifically exclude facilities operating under a DEQ-approved NPDES or WPCF discharge permit, or
2. Including the "Confirmed Release" exemption as policy in an Internal Management Directive (IMD).

At a minimum, the IMD could build upon the existing langue exempting "permitted or authorized releases" to recognize and provide clarity regarding discharges covered by NPDES permits and the role that the DEQ Water Quality Division plays in the process.

Between these two options, ACWA's preference would be a separate rulemaking, as this would formally recognize releases from publicly-owned water quality facilities operating under a DEQ approved NPDES or WPCF discharge permit are excluded from "confirmed releases" and would provide increased protection from third party lawsuits interpreting the rule differently than DEQ. While the second proposal is less protective than a separate rulemaking for a confirmed release exemption, including language in an IMD would provide protection from differences of interpretation within DEQ, particularly when internal positions/roles change.

In either case, providing a clear exclusion is important to protect clean water agencies from the risks, costs, and liabilities associated with cleanup efforts resulting from a "confirmed release." It is also important to note either option would provide increased opportunities for DEQ to collaborate across departments on activities related to characterizing and regulating PFAS compounds across the organization. For example, DEQ's Water Quality Division is currently in the process of developing science to inform appropriate limits on PFAS compounds for water quality permits – which could have an impact on the implementation of the PFAS 2025 Rulemaking and vice versa.

Conclusion – ACWA supports DEQ's original PFAS 2025 rulemaking proposal and agrees that PFOS and PFOA **should** be added to DEQ's list of "hazardous substances" to make the state's list consistent with EPA's list. ACWA members stand ready to advocate and support efforts to address PFOA and PFOS at the state and federal level through source control, product stewardship, and pretreatment. However, the potential of designation of PFOA and PFOS as 'confirmed releases' from permitted facilities without explicit protection could have significant unintended adverse consequences to the clean water community and must be avoided.

Sincerely,

Johnny Leavy

Johnny Leavy | Vice Chair, Oregon ACWA
WRD Manager, City of Medford Public Works
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541-774-2750

Port of Portland

February 19, 2025

VIA EMAIL

Dan Hafley
Sarah Van Glubt
Oregon Department of Environmental Quality
700 NE Multnomah Street
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Portland OR 97232
Dan.Hafley@deq.oregon.gov
Sarah.VanGlubt@deq.oregon.gov

Re: 2025 PFAS Hazardous Substance Rulemaking

Dear Mr. Hafley and Ms. Van Glubt:

Please accept the following initial comments on the Department of Environmental Quality's (DEQ) 2025 proposed rulemaking to designate certain per- and poly-fluoroalkyl substances (PFAS). The Port of Portland (Port) appreciates the opportunity to participate on the Rulemaking Advisory Committee.

The Port supports DEQ's ongoing efforts to address environmental risks posed by long chain PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). In early 2017, the Port joined DEQ's Voluntary Cleanup Program to investigate the presence of PFAS at the Portland International Airport (PDX). Beginning in the 1970s, the federal government required the military and later commercial airports like PDX to use and train with PFAS-containing firefighting foam because of its unique ability to fully suppress aircraft fuel fires. As a result of this federal requirement, PFAS compounds have been detected in soils and shallow groundwater at the site. To date, investigations have shown that the contamination in shallow groundwater is stable and not a threat to drinking water supplies. In 2023, the federal government lifted the requirement to use PFAS-containing foam and once suitable alternatives were commercially available, the PDX Fire Department promptly transitioned to a PFAS-free foam in 2024.

The Port supports a rulemaking that provides DEQ with the tools it needs to assess risks to human health and the environment and, where necessary, require containment or cleanup. As a part of DEQ's proposed rulemaking, the agency should articulate its priorities for state-wide cleanup work, taking the following factors into consideration: the many potential sources of PFAS; how adequately PFAS are currently controlled in products and waste streams; the risks posed to human health including through drinking water; equitable considerations for the public entities required to use or manage PFAS-containing materials; and the availability of state funding to lessen the ultimate financial burden on the public. As a policy example, EPA coupled its PFOS/PFOA hazardous substance designation with guidance on how it would prioritize enforcement and the

use of infrastructure funding to alleviate burdens on local governments and the communities they serve.[1] The Port would welcome a similar approach with DEQ's rulemaking.

DEQ requested that the Port provide information on past investigation costs to inform a fiscal impact analysis for its proposed rulemaking. The Port appreciates this inquiry and is happy to provide the following short summary of investigation costs for two recent remediation projects at PDX:

The Port has participated in DEQ's Voluntary Cleanup Program since 2017 to investigate past PFAS releases at the PDX Fire Department's fire training facility and former fire stations. To date, that investigation has included reviewing historical records, installing groundwater wells, multiple years of groundwater, soil, and stormwater sampling and analysis for PFAS, preparing associated plans and reports, and paying DEQ oversight costs. The Port has spent approximately $1.29 million to perform these investigation tasks, with work still ongoing. This cost estimate does not include Port staff time and other impacts associated with the presence of PFAS including material management.

In 2021, the Port voluntarily entered a consent order with DEQ to determine the nature and extent of releases of hazardous substances to sediments in a drainage ditch located primarily on PDX property, and to develop and evaluate a range of appropriate removal and/or remedial measures. The investigation included reviewing historical records, sampling and analysis for numerous contaminants of concern in sediment and soil, preparing associated plans and reports including a remedial investigation, risk assessment, and source control evaluation, and paying DEQ oversight costs. The Port has spent approximately $1.03 million to perform the remedial investigation and risk assessment, and an additional $238,000 on the source control evaluation. This cost estimate does not include Port staff time, the preparation of a feasibility study, or ultimate containment or cleanup costs.

The Port appreciates DEQ's consideration of these initial comments. Please reach out to me at 503-415-6129 if additional information would be helpful or you have questions.

Sincerely,

Anzie St. Clair
Assistant General Counsel

cc: David Breen, Port of Portland
Jenn Bies, Port of Portland

[1] EPA, PFAS Enforcement Discretion and Settlement Policy Under CERCLA (Apr. 19, 2024), *available at* https://www.epa.gov/system/files/documents/2024-04/pfas-enforcement-discretion-settlement-policy-cercla.pdf

OREGON BUSINESS & INDUSTRY | OBI

February 19, 2025

VIA EMAIL

Dan Hafley
Sarah Van Glubt
Department of Environmental Quality
700 NE Multnomah Street
Suite 600
Portland OR 97232

Re: PFAS 2025 Rulemaking

Dear Mr. Hafley and Ms. Van Glubt:

Please accept the attached comments on the Department of Environmental Quality's (DEQ) PFAS 2025 rulemaking. Oregon Business & Industry's (OBI) appreciates the opportunity to participate on the Rulemaking Advisory Committee (RAC) and to submit these comments in response to the proposed rulemaking.

OBI is a statewide association representing businesses from a wide variety of industries and from each of Oregon's 36 counties. Our 1,600 member companies, more than 80% of which are small businesses, employ more than 250,000 Oregonians. Oregon's private sector businesses help drive a healthy, prosperous economy for the benefit of everyone.

DEQ's Proposed Update to the Definition of Hazardous Substances under OAR 340-122-0015(30)

First RAC Meeting

During the first RAC meeting on the proposed rulemaking, DEQ explained that it was not proposing *any changes* to its definition of "hazardous substance" under OAR 340-122-115(30). Rather, DEQ explained that it would only change the effective date of the rule thus incorporating the "current list of CERCLA hazardous substances" which included the two per- and polyfluoroalkyl substances (PFAS): perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), including their salts and structural isomers, which EPA adopted as hazardous substances under CERCLA in 2024. 89 Fed. Reg. 39,124 (May 8, 2024). DEQ's proposal for the rulemaking and the RAC was also described in its November 5, 2024 Charter for the rulemaking.

OBI submitted comments on January 10, 2025 in response to DEQ's proposal. OBI generally agreed that DEQ's definition of hazardous substances under its regulations should be consistent with the list of hazardous substances under CERCLA. However, OBI encouraged DEQ to postpone the rulemaking due to the incoming federal administration and the on-going litigation challenging EPA's 2024 PFAS rulemaking.

OBI also proposed that if DEQ was going to continue with the rulemaking, the rule update should clarify that the current list of hazardous substances under CERCLA is not tied to a specific date, but rather be tied to the federal CERCLA list of "hazardous substances" as amended, modified or vacated in the future.

As OBI explained, this would keep DEQ's rules current and avoid expending substantial time, effort and agency resources necessary for any future rulemaking. OBI prepared a suggested edit to OAR 340-122-115(30) to accomplish this.

OBI also asked DEQ to take into consideration the potential retroactive application of including two new substances as hazardous substances under DEQ's Hazardous Substance Remedial Action Rules. This is an issue because regardless of DEQ's intent, as soon as these substances are designated as hazardous substances under DEQ's rules, facilities with suspected past releases (including passive receivers) could potentially be subject to additional investigation, treatment, or remediation requirements on active as well as closed sites as well as triggering liability under ORS § 465.255.

Second RAC Meeting

As a RAC member, OBI is obligated to call attention to several procedural and substantive concerns in DEQ's conduct of the RAC and this PFAS rulemaking. During the second RAC meeting, OBI's suggested edits to DEQ's rules and concerns were not addressed or even allowed to be raised. Indeed, the DEQ representative refused to discuss any of OBI's proposed edits claiming they were "not within the rulemaking scope", but yet DEQ allowed other RAC members to discuss issues and considerations that had no relevance to the rulemaking's purpose of having DEQ's list of hazardous substances conform to EPA's list of hazardous substances.

The statutory purpose of a rulemaking advisory committee is to solicit and consider comments and information from the RAC members including the RAC's input on whether the proposed rule will have a fiscal impact, what the extent of that impact will be and whether the rule will have a significant adverse impact on small businesses. ORS § 183.336. It is OBI's position that DEQ has failed to comply with purpose and intent of ORS § 183.336.

Moreover, in the second RAC meeting DEQ abruptly changed the original rulemaking proposal and the Charter by proposing that the two PFAS compounds should be expressly listed as state "Hazardous substances" under OAR 340-122-0015(30) versus simply updating the date to align with the federal list of hazardous substances.

It remains OBI's position that separately identifying the two PFAS compounds as "Hazardous substances" is confusing and DEQ should stay with its original proposal. If DEQ is essentially updating its rules to align with the federal rule, it should follow the procedures under ORS § 183.337. There is no reason to deviate from those procedures in this instance.

OBI also requests that DEQ consider the minor revisions to OAR 340-122-0030 that OBI originally identified. As set forth in DEQ's proposed Draft Fiscal and Racial Equity Impact Statements, DEQ expressly states:

> Facilities that have a DEQ permit, for example wastewater treatment plants or landfills, are not expected to be directly impacted by this rulemaking. The Cleanup Program defers to the DEQ program issuing the permit for addressing releases to the environment from these facilities.

Consistent with the above statement of DEQ's intent, DEQ needs to clarify that permitted "releases" of the two PFAS compounds are exempt from the requirements under OAR 340-122. Otherwise, a facility could be subject to inconsistent regulatory requirements as well as potential liability. For DEQ's further consideration, attached are the suggested edits that OBI originally proposed.

OBI also requests that DEQ not consider identifying other PFAS compounds as "Hazardous substances." Identifying other PFAS compounds would not align with EPA's list of hazardous substances and neither DEQ nor the RAC has fully evaluated the appropriateness of adding other PFAS compounds at this late stage of the rulemaking. Also as discussed during the second RAC meeting, facilities that may discharge other PFAS compounds in industrial wastewater or stormwater discharges should be regulated by the DEQ programs that issue such permits, not by the DEQ Cleanup Program.

OBI appreciates your consideration of these comments which are made with goal of keeping the scope of the rulemaking and RAC process in line with DEQ's stated purpose.

Please call Jeff Hunter at (503) 727-2265 if you have any questions regarding these comments or the attachment.

Sincerely,

Sharla Moffett
Senior Policy Director

Proposed Amendments to OAR 340-122-0030

(1) Exempted Releases. These rules shall not apply to:

(a) releases exempted pursuant to ORS 465.200(22)(a), (b), (c), and (d)**; and**

(b) the following discharges or releases of any per- or polyfluoroalkyl substance designated as a hazardous substance under OAR 340-122-0115(30) unless the Director determines, based on substantial evidence, the application of these rules are necessary to abate a substantial documented threat to public health, safety, or welfare or the environment:

(A) the disposal, discharge, release or threatened release from facilities which occurred or may occur in a manner consistent with all applicable federal or state laws governing such disposal or release at the time the activity is or was carried out including, without limitation, regulated airports, governmental facilities and other facilities or sites that were or are required under law to use or train with aqueous film forming foam containing per- or polyfluoroalkyl substances;

(B) a discharge, release or threatened release, including stormwater discharges, from a disposal site, landfill, landfill disposal site, or regional disposal site (as defined in ORS 459.005), a publicly owned or operated treatment works (treatment works) (as defined in ORS 454.010) or a municipality or community water system, pursuant to a permit issued under ORS 468B.050 or the federal Clean Water Act, regardless of whether the permit contains limitations on per- or polyfluoroalkyl substances;

(C) a discharge, release or threatened release from a disposal site, landfill, landfill disposal site, or regional disposal site (as defined in ORS 459.005) or other industrial facility, pursuant to the pre-treatment standards of Section 307(b) and (c) of the Federal Water Pollution Control Act (33 U.S.C. 1317(b) and (c)), regardless of whether the pretreatment standard or the applicable enforceable requirement contains limitations on per- or polyfluoroalkyl substances;

(D) a discharge, release or threatened release from any site where the disposal of biosolids was authorized by federal or state law, regardless of whether the permit or other applicable law contains limitations on per- or polyfluoroalkyl substances; or

(E) a discharge, release or threatened release from public water systems including the disposal or release of water treatment residuals or any other byproduct of drinking water or wastewater treatment activities, regardless of whether the permit or other applicable law contains limitations on per- or polyfluoroalkyl substances.

…

(3) Relationship to Other Cleanup Actions:

(a) Except as provided under subsection (3)(b) of this rule, these rules do not apply to releases where one of the following actions has been completed:

…

(E) Where prior to the designation of any new hazardous substance under OAR 340-122-0115(30), the Director issued a No Further Action determination for a release or threatened release of a hazardous substance.

"Hazardous substance" means:

…

(b) Any substance defined as a hazardous substance pursuant to section 101(14) of the federal Comprehensive Environmental Response, Compensation and Liability Act, P.L. 96-510, as amended, and P.L. 99-499, ***as such laws and related regulations may be amended, modified, or vacated in the future;***

February 19, 2025

Mr. Dan Hafley
Ms. Sarah Van Glubt
Ms. Franziska Landes
Oregon Department of Environmental Quality (DEQ)
700 NE Multnomah Street
Suite 600
Portland, OR 97232

Dear Mr. Hafley, Ms. Van Glubt, and Ms. Landes,

Thank you for the opportunity to provide input on the per- and polyfluoroalkyl substances (PFAS) rulemaking process. I am enclosing some additional comments for consideration during this process. As a licensed geologist in Oregon, I take my code of professional conduct very seriously, which requires a geologist to be guided by the highest standards of ethics, honesty, and integrity. A licensed geologist is also required to the fullest extent possible to protect the public health and welfare and property in their professional duties. I have prepared these comments with this code of professional conduct and ethical obligation in mind.

PFAS CONSTITUENTS

I believe strongly that Oregon DEQ should regulate all PFAS on which there is data indicating they are harmful to human health and the environment, such as the list of 15 PFAS from the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs; EPA, 2024a). This list includes:

- Bis(trifluoromethylsulfonyl)amine (TFSI)
- Hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as GenX)
- Perfluorobutanesulfonic acid (PFBS)
- Perfluorobutanoic acid (PFBA)
- Perfluorodecanoic acid (PFDA)
- Perfluorododecanoic acid (PFDoDA)
- Perfluorohexanesulfonic acid (PFHxS)
- Perfluorohexanoic acid (PFHxA)
- Perfluorononanoic acid (PFNA)
- Perfluorooctadecanoic acid (PFODA)
- Perfluorooctanesulfonic acid (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluoropropanoic acid (PFPrA)
- Perfluorotetradecanoic acid (PFTetDA)
- Perfluoroundecanoic acid (PFUDA)

If including this entire list is not practicable, DEQ should at a minimum regulate the list of PFAS for which EPA has developed Maximum Contaminant Levels (MCLs), which includes PFOA, PFOS, PFHxS, PFNA, HFPO-DA, and PFBS. Because DEQ is responsible for ensuring the quality of Oregon's air, land, and water, I believe DEQ must regulate harmful substances that have made their way into the environment to fulfill DEQ's statutory and/or legislatively mandated obligations. I also believe the rule should be written to ensure that more PFAS can be included or added as the science develops and additional compounds are studied and determined to be harmful. There is considerable evidence that PFAS are harmful to human health, from numerous toxicological studies that have been

conducted. Many of these studies are discussed and referenced in ITRC's PFAS Technical and Regulatory Guidance Document (ITRC, 2023), specifically Sections 7 and 17, as well as EPA's RSLs User's Guide (EPA, 2024b). Additionally, I believe DEQ should consider regulating PFAS as a class of chemicals at the same time, similar to Washington's Model Toxics Control Act (MTCA) rule where all PFAS are defined as hazardous substances in the state of Washington. Kwiatkowski et al (2020) documented that the combination of highly persistent PFAS, their accumulation potential, their mobility, and the already known harm identified to date justifies regulating PFAS as a single class of chemical. Exposure to PFAS often occurs in complex mixtures of multiple PFAS; only a small number of PFAS are commonly measured in environmental media. Only approximately 40 of more than 12,000 PFAS (ITRC, 2023) are commonly measured. New analytical methods are being developed to enable more comprehensive screening, and also reveal that the mass of PFAS in the environment may be larger than previously understood. Given the large number of as-yet-unstudied PFAS and the difficulty in developing new methods while achieving the quantitation levels needed in analysis, DEQ should adopt a comprehensive approach that ensures adequate protection for human health in Oregon.

Regulating PFAS in the state of Oregon would also bring us into alignment with what our neighbor states, Washington and California, are already doing, as well as many other states across the U.S. There is no justifiable reason for Oregonians to live with fewer protections, and thus, greater risk than our neighboring states. The regulation should apply to existing and new releases where there is a threat to human health or the environment.

FISCAL IMPACT STATEMENT

I believe it would be beneficial for DEQ to include additional language in the fiscal impact statement regarding the costs of not having this regulation in place. Existing language includes the cost of adverse health effects on the public, such as developmental effects, liver effects, immune effects, and cancer. Based on the academic studies I have read, I believe these unaccounted costs are high, and public benefit from regulating PFAS will exceed the costs, and this should be emphasized. The costs of continuing exposure to PFAS are long-term, wide-ranging, and externalized onto the public, as well as disproportionately experienced by disadvantaged communities such as indigenous communities, black and brown communities, immigrant communities, other communities of color, and poorer communities. Health-related costs have been estimated for the U.S. in the range of $37-59 billion, annually. These indirect social costs are difficult to calculate, as they include lost wages and productivity, lost years of life, reduced quality of life, increased stress, anxiety, and depression, and subsequent impacts on families and communities (Goldenman et al, 2019; Cordner et al, 2021). A separate study estimated the potential cost of health-related costs in the U.S. due to PFAS exposure to be within the range of $5.52-62.6 billion, annually (Obsekov et al, 2022). While these estimates are national, they could be used to calculate a proportional estimate for the state of Oregon.

While the costs to remediate PFAS impacts may be high, they may not be substantially higher than the existing cost to remediate other already-regulated contaminants, such as chlorinated solvents and petroleum. One study noted that after comparing sites impacted with PFAS to sites impacted with chlorinated solvents, benzene, 1,4-dioxane, and methyl tert-butyl ether (MTBE), PFAS remediation may pose a greater challenge than hydrocarbon sites, but only a slightly larger challenge than chlorinated solvent sites. The study concluded that while remediating PFAS sites will be challenging, the groundwater remediation community does have relevant past experience that may prove useful (Newell et al, 2020). Suthersan et al (2016) noted that there are many examples of historical emerging contaminants that included contaminants that are considered 'normal' now, such as MTBE and pesticides. The lessons learned from these 'mainstream' contaminants indicate that there will be ways to cost-effectively remediate emerging contaminants, even if they are difficult to treat. While costs may be higher initially, I believe that the costs to investigate and remediate PFAS sites will be reduced as technology and our understanding of this contaminant class improves. Site remediation professionals and researchers have solved difficult technical challenges in the past, and there is no reason to believe those feats cannot be repeated with PFAS.

PFAS are also documented to frequently co-occur with other regulated contaminants, particularly in areas with industrial activity or historical contamination (Guelfo and Adamson, 2018; Smalling et al, 2023; Hu et al, 2016; Suthersan et al, 2016). This mitigates the cost impacts of regulating PFAS, because if a site is already investigating and remediating other contaminants, adding PFAS to the investigation may not increase overall costs significantly.

If appropriate, the fiscal impact statement could include additional information regarding potential funding sources that potentially responsible parties (PRPs) may have access to that would actually lower the effective cost of adhering to this regulation, including current and historical insurance policies, as well as various grant and loan programs (both state and federal). It may also be prudent for the statement to note that regulating PFAS could open the door to funding sources that are not available for unregulated contaminants.

CASE STUDIES

I would like to provide information to support DEQ in estimating the costs for the cleanup case scenarios presented in the draft fiscal impact statement. This information is based on my experience conducting PFAS investigations as an environmental consultant. I have commented on the cleanup case scenarios as presented in the draft fiscal impact statement and provided some case studies to consider that may be useful. I have anonymized the case studies to the best of my ability and limited the details to protect my current and former clients. All sites are in the U.S., but not necessarily the Pacific Northwest.

Scenario 1: Existing Investigation for Releases of Other Hazardous Substances, and Scenario 2: No Known or Suspected PFAS Use. DEQ should take into account the low detection limits for PFAS analysis. At many sites, even if there is not a historical or current PFAS source on-site, PFAS may be detected in collected soil, groundwater, stormwater, or surface water samples due to existing background contamination, or sources that may be upgradient. Low concentrations of PFAS are considered hazardous; therefore, there may be additional costs for delineating the extent of identified low-level impacts, conducting a background/upgradient investigation, source identification, beneficial water use survey and/or receptor evaluation, etc. These additional items should be considered in the cost scenarios.

> *Example Project:* Project initiated in 2024. Commercial/light industrial facility with no documented PFAS storage, use, or release. Historic fill identified across the site during a Phase I Environmental Site Assessment (ESA). Fire system observed within the on-site building; however, system did not use PFAS-containing aqueous film-forming foam (AFFF) currently or historically. During the Phase II ESA, soil and groundwater samples were collected from seven soil borings and PFAS was included in the analyte list to rule out the fire system and the historic fill as an environmental concern. PFAS were detected in most soil samples and all groundwater samples, at concentrations above the EPA MCLs, and the distribution indicated a potential upgradient source. A receptor evaluation and desktop review for potential sources was conducted. Three permanent monitoring wells were installed to confirm the detections and similar PFAS detections were observed. Total costs incurred to date related to PFAS work: $100K. Additional upcoming work includes upgradient investigation and quarterly sampling and reporting. No other contaminants of concern were detected at the property.

Scenario 3: Some PFAS Use, Low Release Concern. A Phase I ESA for an uncomplicated small to medium site is often $10K or less, and a simple Phase II can range from $10-50K, as stated in the draft fiscal impact statement. However, this scenario does not include the costs for the next steps of an investigation, should contamination be identified. As stated above, PFAS have low detection limits and the likelihood of detecting PFAS may be higher than other contaminants of concern due to their ubiquitous use and identified background concentrations in the environment. DEQ should clarify that the costs included in this scenario assume that no PFAS are detected and no additional cleanup is warranted, or include additional costs for investigation and cleanup.

Scenario 4: Significant PFAS Use, Releases Documented or Likely, and Scenario 5: Cleanup Required. The cleanup costs within these scenarios may be low. Disposal of investigation-derived waste (IDW) remains a complicated task and the costs remain high, especially for remediation approaches such as excavation and disposal at a hazardous waste landfill. For the most complex sites, I would update the range of costs (currently listed from $250K to millions of dollars) to $500K to $15M or more. At the most complicated sites I have managed or supported, we have spent more than $1M just on investigation costs, and there is still more investigation, remediation, and IDW disposal to be completed, along with all the reporting and documentation required. At a large confidential site, a remediation cost estimate predicted the total cost of cleanup to be between $12-19M. This site included more than 30 monitoring wells (in more than one aquifer), and numerous samples collected in soil and surface water as well.
I do understand that every PFAS site has its unique challenges, and that it can be difficult to provide general cost scenarios for this work. However, in my experience, many of these projects end up costing more than initially budgeted (at least 10% more) due to various factors (such as unexpected detections in multiple media, impacted receptors, changing rules regarding IDW disposal, etc.) and it might make sense for the fiscal impact statement reflect these challenges.

> *Example Project:* Medium-size industrial facility. A Phase I ESA identified a historical release from a tank farm. PFAS-containing AFFF was applied within the bermed tank farm; however, the assessor observed that the tank farm contained significant cracking in the concrete flooring. A Phase II ESA was conducted and PFAS was detected in most of the soil and groundwater samples collected beneath the tank farm. A remediation cost estimate was prepared, and the estimated the cost of cleanup was $3M.
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> *Example Project:* Small community fire training facility. Based on known historical use of PFAS-containing AFFF, a limited investigation was conducted. Four soil borings were installed and soil and groundwater samples were collected. PFAS was detected in most soil samples and all groundwater samples. A receptor evaluation was conducted to determine if the detected PFAS impacts could impact nearby and adjacent receptors. Additional follow-up sampling was conducted to determine if the site pavement and storm drains were also impacted with PFAS due to historical fire training activities, and PFAS was detected in several of these samples as well. Initial investigation, limited IDW disposal, and reporting activities totaled approximately $60K. Additional work may include installation of permanent monitoring wells, quarterly sampling, delineation of PFAS impacts, and remediation.

Thank you again for inviting me to be a part of this Rulemaking Advisory Committee. If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Respectfully yours,

Heather Gosack, RG
Senior Geologist

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