



# Hazardous Waste Management Program

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## Commentary on DRAFT PFAS CAP Recommendations

Dear Ms. Steward:

Thank you for your ongoing work to create a per- and poly-fluoroalkyl substances (PFAS) chemical action plan (CAP). The Hazardous Waste Management Program (Haz Waste Program) appreciates its ongoing collaboration with the Washington State Department of Ecology (Ecology) and Department of Health (DOH) to identify sources and recommend actions to reduce the use, release, and exposure of PFAS in Washington.

The Haz Waste Program is proud to represent the interests of its five managing agencies: King County Solid Waste Division (SWD), King County Water and Land Resource Division (WLRD), Public Health – Seattle and King County (PHSKC), Seattle Public Utilities (SPU), and the Sound Cities Association (SCA). Furthermore, in the production of this letter, the Haz Waste Program has also worked with the King County Wastewater Treatment Division (WTD). Overall, this letter represents the interests of the Haz Waste Program, its partner agencies, and over 2 million residents in King County towards the protection and enhancement of public health and environmental quality by reducing the threat posed by the production, use, storage, and disposal of hazardous materials like PFAS.

The Haz Waste Program agrees with the assumptions used to create the Preliminary Draft Recommendation – namely that the recommendations refer to PFAS as a class and that short-chain PFAS, PFAS precursors, and fluoropolymers can degrade into perfluoroalkyl acids (PFAAs). However, the Haz Waste Program knows that the CAP can be a more progressive document – it can assert more ideas and innovative means to protect Washington residents.

As per the May 15, 2019, webinar, we developed comments on the Preliminary Draft Recommendations that reflect our various agency perspectives regarding the best-available science. For your consideration, please see below for a list of proposed changes to the Preliminary Draft Recommendations. Additionally, we included a list of potential recommendations that we feel would strengthen the DRAFT PFAS CAP.

### **Proposed changes to the overall DRAFT PFAS CAP Recommendations chapter**

- Proposed Change:  
Update the intro section and individual recommendations to provide information on how the DRAFT PFAS CAP chapters were used in formulating the recommendations and cite individual chapters to show how specific information within the chapters led to the recommendations.
  
- Why:  
The various DRAFT PFAS CAP chapters were written by several authors, as is common in large planning documents. However, it is unclear if the recommendations were formulated because of the knowledge collected in the chapters or as the result of an individual author's lens. Furthering this confusion is the lack of a cohesive narrative about how the DRAFT PFAS CAP chapters lead to the understanding of any subsequent chapter. For example, it appears that the DRAFT PFAS CAP chapters on Analytical Methods and Chemistry were made independently even though one would need a thorough understanding of Analytical Methods and Chemistry to evaluate the other sections. While we recognize that there are different authors for each chapter, weaving the body of information into a narrative is a critical element of science and policy communication especially to non-technical audiences.<sup>1</sup> Overall, there is a lack of cohesion between the DRAFT PFAS CAP Recommendations chapter and the rest of the DRAFT PFAS CAP chapters.

To justify the recommendations, the DRAFT PFAS CAP Recommendations chapter must provide a detailed account of how the preliminary recommendations were developed and how the DRAFT PFAS CAP chapters contain evidence to support them. While an intro section in the Recommendations chapter detailing assumptions does exist, it does not cite or mention how the information described in other chapters are used to inform the recommendations. Citations should be made throughout the Recommendations chapter to provide more transparency.

- Proposed Change:  
Embed racial and social equity as factors for consideration in each recommendation.
  
- Why:  
Several recommendations propose more work into understanding how PFAS exposures affect people and communities. These recommendations range from collaborating with communities (Recommendation 2.2) to evaluating Washington biosolids management (Recommendation 4.3). Regardless of the recommendation, special attention must be made to understanding how PFAS will affect communities of color, communities of low socioeconomic status, historically marginalized communities, immigrant and refugee communities, and native and tribal communities. As Ecology and DOH explore different PFAS sources in Washington, equitable approaches to understanding how communities and individuals are affected and developing community-informed solutions should be built into all of the proposed methods to address the preliminary recommendations.

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<sup>1</sup> [www.ncbi.nlm.nih.gov/pmc/articles/PMC4183170/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4183170/)

## 1.0 Ensure drinking water is safe

- Proposed Change:  
Seek sustainable funding sources for Recommendation 1.1
  - Why:  
The funding options presented in Recommendation 1.1 suggest resource-intensive processes that would put a disproportionate burden on lower-income communities and smaller water systems such as Group B and private wells. To ensure the implementation of Recommendation 1.1, Ecology and DOH should identify more sustainable funding.
- Proposed Change:  
Provide specificity into intended actions, methods, and strategies to achieve Recommendation 1.1.
  - Why:  
Recommendation 1.1 is meant to provide the state Legislature and local water systems a clear path in recovering costs for PFAS water mitigation when responsible parties are identified and costs are recovered. While its intentions are clear, Recommendation 1.1 provides no details in how it will achieve its goal.

To achieve Recommendation 1.1's goal, four additional pieces of information should be accounted for. First, the recommendation should detail plans for Ecology to advocate to the Washington State Board of Health and the Washington Legislature regarding the need for finding and holding responsible parties accountable. Second, Ecology should explore PFAS mitigation funding mechanisms by reviewing actions taken by other governmental jurisdictions across the United States. Three, for cases where the source of contamination is unclear, potential sources of funding should be determined. For example, in cases where no responsible party is found, funds can be garnered from the Model Toxics Control Act (MTCA), fees assessed on manufacturers that create PFAS containing firefighting foam, or even a product stewardship program on all PFAS products. Lastly, details should be provided on how Ecology intends to conduct source investigations and arbitrate with responsible parties.

## 2.0 Manage environmental PFAS contamination

- Proposed Change:  
Review the Natural Resource Defense Council (NRDC) report Michigan PFAS 2019<sup>2</sup> as part of Recommendation 2.3's evaluation of other states' industrial and manufacturing uses of PFAS.
  - Why:  
The NRDC has extensively studied the PFAS contamination crisis occurring in Michigan. As a culmination of their work, the NRDC has created a detailed report about various areas where PFAS can be found. Specifically, the NRDC report, referencing work done by Michigan, can provide insight into identifying what types of facilities and sites where PFAS

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<sup>2</sup> [www.nrdc.org/sites/default/files/assessment-for-addressing-pfas-chemicals-in-michigan-drinking-water.pdf](http://www.nrdc.org/sites/default/files/assessment-for-addressing-pfas-chemicals-in-michigan-drinking-water.pdf)

has been detected.<sup>3</sup> Some examples of manufacturing activities that have been associated with PFAS contamination in Michigan include chrome plating, electroplating, petroleum refining, paint packaging, disposal, tanning, fuel storage, paper manufacturing, and more. These results can help prioritize site investigations in Washington by identifying these types of facilities and sites that may have a greater risk of PFAS contamination in soil and groundwater.

- Proposed Change:  
Amend Recommendation 2.1 to develop a detailed plan to identify, evaluate, and prioritize sites with PFAS contamination while Ecology determines cleanup levels. Ecology should evaluate approaches to establish cleanup levels for PFAS in other governmental jurisdictions in addition to information on PFAS consumer products and their potential contamination of the environment as produced in the implementation of Recommendations 3.0-3.3. Furthermore, Ecology should petition the U.S. Environmental Protection Agency (EPA) to develop cleanup levels within the next six to nine months.
  - Why:  
Recommendation 2.1 does not specify how Ecology will determine PFAS cleanup levels in Washington. Steps and a detailed plan should describe how the cleanup levels would be determined, along with a timeline. Due to the rapidly expanding body of knowledge related to PFAS, Ecology should make plans to evaluate new research and actions as they become available. With regard to new data that will be produced from implementing Recommendations 3.0-3.3, Ecology should explore which PFAS products are heavily used in the state and their contributions to environmental contamination. Furthermore, cleanup levels should be determined for other PFAS beyond PFOS and PFOA.
  
- Proposed Change:  
Seek more sustainable funding for Recommendation 2.2.
  - Why:  
The sources of funding for Recommendation 2.2 are inadequate. First, the provision of a Public Participation Grant (PPG) is dependent on PFAS being classified as hazardous substances under MTCA. Second, even if PFAS is classified as hazardous substances under MTCA, communities needing the funds must have the resources and knowledge to apply for the grant. Based on these two reasons, Ecology and DOH should amend the recommendation to explore new sources of funding or create a new recommendation that seeks to provide funding for this type of work. Altogether, the burden of PFAS contamination will be worse for affected communities if the development of feasible solutions is dependent on securing funding.

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<sup>3</sup> [www.michigan.gov/pfasresponse/0,9038,7-365-86511\\_82704---,00.html](http://www.michigan.gov/pfasresponse/0,9038,7-365-86511_82704---,00.html)

### 3.0 Reduce PFAS in products

- Proposed Change:  
Explicitly state that racial and social equity are factors for consideration in the implementation in SSB 5135.
- Why:  
As stated in SSB 5135, Section 1, Subsection 12, Ecology will focus its efforts on toxic chemicals that harm sensitive populations including “communities that are highly impacted by toxic chemicals.” While stating the inclusion of sensitive populations is a good start in addressing the harm that PFAS and other chemicals may have on populations, the language included is vague and does not use commonly accepted terminology.

To provide a better focus that would significantly reduce harm to sensitive populations, Ecology and DOH must define “communities that are highly impacted by toxic chemicals” as the following:

Communities of color, communities of low socio-economic status, historically marginalized communities, immigrant and refugee communities, native and tribal communities, in addition to other communities that have experienced inequities caused by past and current decisions, systems of power and privilege, and policies that have led to adverse outcomes.

Lastly, to ensure that the above definition is used, Ecology and DOH must explicitly state that exposure to these communities will be considered as it identifies priority consumer products.

- Proposed Change:  
Amend Recommendation 3.0 to include all PFAS – not only PFOA and PFOS.
- Why:  
As stated in several areas of the DRAFT PFAS CAP and state law, only one fluorocarbon bond is needed for a substance to be considered as PFAS. Furthermore, the DRAFT PFAS CAP recommendations chapter treats PFAS as a class.
- Proposed Change:  
Amend Recommendation 3.1 to seek a reduction in PFAS for all prioritized consumer products.
- Why:  
Although carpet and carpet care products are an important area to explore, the mandate of SSB 5135 is much broader. In order to account for the litany of products that contain PFAS, Recommendation 3.1 must be used to plan, or set in motion a plan, to implement SSB 5135 as it relates to all prioritized consumer products. Furthermore, carpet and carpet care products can still be addressed in this format. However, rather than these products be the focus, they can act as a template for how Ecology will address future products that will be prioritized. However, a clear plan for how other products will be identified and prioritized should be included in the recommendation.

- Proposed Change:  
Amend Recommendation 3.2 to clarify how the list of potential prioritized products was created, investigate additional consumer products, and expand the work of understanding PFAS exposures to include a plan to understand other PFAS that contribute exposures of concern to Washington residents in addition to PFOS and PFOA.
- Why:  
First, it is unclear how the list of products in Recommendation 3.2 was formulated. There needs to be greater transparency in what research was used to generate the list. Second, Recommendation 3.2 should explicitly include additional food contact materials and provide detail (e.g., names, CAS numbers, and structures that define PFAS products) into which products are covered. While the product types provided are good, there remains ambiguity in how Ecology will implement this recommendation. Third, Recommendation 3.2 implies that PFOS and PFOA are the main exposures through ingestion despite there being little data on other PFAS exposures. This area should be amended to convey the amount of data available.

#### **4.0 Understand and manage PFAS in waste**

- Proposed Change:  
Mention PFAS as a persistent state dangerous waste under halogenated organic compound classification as described by Chapter 173-303 WAC Dangerous Waste Regulations.
- Why:  
Citing PFAS as a persistent state dangerous waste will lend consistency with Washington's dangerous waste regulations. The State should identify if there is capacity for the disposal of PFAS-containing Class B foam identified in Recommendation 2.3 as a state dangerous waste. If the capacity does not exist currently, then the State should develop a plan for creating enough capacity for the disposal of this waste.
- Proposed Change:  
Outline the role and expectations for jurisdictional health departments as found in Recommendation 4.2. Clarify if the testing of landfill leachate and gas emissions would be voluntary or required.
- Why:  
Providing detail into Recommendation 4.2 will help jurisdictional health departments in understanding their roles and responsibilities. Needed detail includes clarification on what is covered under Ecology's existing regulations in Chapter WAC 173-350 and -351 compared to what is needed for rule updates. The aforementioned changes will help jurisdictional health departments in identifying required permit updates and enforcement. Additionally, clarification is needed on the differences in types of 23 landfills identified in this recommendation compared to the 63.

- Proposed Change:  
Recommendation 4.1 should be amended to include the following changes that add clarity to the process of evaluating PFAS in wastewater treatment plant (WWTP) effluents and influents:
  - Ecology should develop a study design and work plan to identify the fundamental behavior and fate of PFAS in different treatment plant types and processes. Sampling should include products of selected WWTP unit processes (for example primary and secondary clarifiers or dechlorination) to help differentiate removal efficiencies of the different treatment types.
  - The study design should ensure that the WWTPs that are sampled receive industrial discharges that are likely to contain PFAS or that have drinking water sources with known PFAS contamination.
  - Ecology should identify industries that are likely to generate wastewater containing PFAS.
  - Based on the information from the study, Ecology should consider additional monitoring requirements for WWTP dischargers. This should include consideration of whether the U.S. EPA has developed approved analytical methods for PFAS suitable for WWTP effluent and a regulatory target (a nationally recommended water quality criterion for PFAS) for waters of the state.
- Why:  
The initial writing of Recommendation 4.1 presumes an outcome with its evaluation of PFAS in WWTP effluents and influents. By making the above changes, Recommendation 4.1 will allow results of the evaluation to drive what steps should be taken next.

#### **Suggested recommendations for the DRAFT PFAS CAP**

- Proposed Recommendation:  
Identify and seek funding for all proposed recommendations.
- Why:  
Currently, the Preliminary Draft Recommendations only seek funding for drinking water mitigation (1.1) and biomonitoring (1.2). Despite these efforts, the other Preliminary Draft Recommendations require funding but do not have clear funding mechanisms. Essentially, the same recommendations for funding exploration need to apply to every recommendation provided by the CAP. As a prime example, Preliminary Draft Recommendation 2.2 cannot solely rely on funding from Ecology's Public Participation Grant. As the PPG program requires a lengthy application process, and is already limited in funds, it is likely that minimal to no community-based action will be funded – especially for areas where the affected community lacks knowledge of the grant or the experience, time, English language skills, human capital, and expertise to apply for the grant. This should be built into the process to address contamination issues when Ecology and DOH works with communities.

- Proposed Recommendation:  
Explore product stewardship as a funding mechanism for CAP recommendations.
  - Why:  
Product stewardship programs are environmental management strategies that require those involved in the manufacture, distribution, sale, or use of a product to manage the product's impact throughout its lifecycle. In Washington, product stewardship programs, enacted by the state Legislature, have required manufacturers and retailers to pay for the end-of-life costs for paint products and medication. While product stewardship programs can be designed for all products, they are especially useful in dealing with products that have unique needs, for example specialized infrastructure for disposal. A product stewardship program will provide necessary funds to assist governments dealing with PFAS' unique cleanup, disposal, and educational costs.
  
- Proposed Recommendation:  
Create a strategy and work plan for Ecology to encourage the purchase of fluorine-free firefighting foam.
  - Why:  
Ensuring that RCW 70.75A is fully implemented is crucial to reducing harmful PFAS exposures in Washington. While the law fully takes effect in 2020, Ecology should assist in providing technical assistance and outreach for entities who may not know about the law or entities that lack the necessary information to switch. Interstate Chemicals Clearinghouse (IC2) and IPEN reports identify fluorine-free firefighting foams that have sufficient performance standards for Class B fires.
  
- Proposed Recommendation:  
Investigate differences in T-PFAA concentrations in the Puget Sound and urban freshwater sites.
  - Why:  
The Dinglasan-Panlilio (2014) study identified that "T-PFAA concentrations in marine waters of the Puget Sound were lower than the urban freshwater sites and comparable to levels measured in the more remote sampling locations in Clayoquot and Barkley Sounds." The findings of the study demonstrate potentially critical consequences for a large degree of issues that range from Orca recovery to marine WWTP monitoring. To understand the findings of the study, Ecology should pursue follow-up investigations to confirm or refute this conclusion and inform future monitoring priorities.
  
- Proposed Recommendation:  
Develop strategies to identify data gaps and create a list of recommended actions that can fill data gaps.
  - Why:  
The DRAFT PFAS CAP has several areas where more data is needed. For example, the CAP lacked information about stormwater runoff being a potential PFAS source to urban lakes.



Another example is the lack of studies regarding the effect of land use and PFAS runoff – e.g., the presence of PFAS depending on the type of land. In order to reduce the prevalence of data gaps, it is recommended that Ecology and DOH chapter authors work to identify relevant data gaps and provide recommended actions that may fill data gaps.

- Proposed Recommendation:  
Incorporate recommendations found in the DRAFT PFAS CAP Sources and Uses chapter.
  - Why:  
The DRAFT PFAS CAP Sources and Uses chapter uses its understanding of PFAS to create several recommendations. These recommendations range from creating a list of regionalized fire training centers to surveying civilian airports to determine where PFAS containing firefighting foam and personal protective equipment is stored or used. Overall, the recommendations provided would decrease the data gaps that exist and allow for more informed policy decisions.
  
- Proposed Recommendation:  
Require Ecology to collaborate with state and local agencies to develop a fish and shellfish sampling plan to determine the need for fish and shellfish advisories in both fresh water and salt water within the next three years.
  - Why:  
The DRAFT PFAS CAP Recommendations do not include plans to investigate PFAS related to fish or shellfish consumption. However, in both the DRAFT PFAS CAP Environment and Health chapter, enough evidence merits further investigation. First, the Environment chapter indicates that while few lakes were tested, those sampled contained PFOS above the provisional general population screening level. Based on these early indications, it is imperative to collect more data – especially from lakes and other bodies of water where people frequently fish and consume their catch. Second, the Health chapter notes that there are provisional levels for fish consumption that were developed at DOH, but there is no fish advisory for PFAS at this time. Due to the prevalence of PFOS from the samples collected, more effort must be made to determine if a fish advisory is necessary.

As always, thank you for supporting the ongoing collaboration between the Haz Waste Program, Ecology, and DOH. We are thankful that Ecology and DOH are undertaking this important work to prevent harmful exposures to PFAS. If you have any questions or comments, please contact Matthew Bangcaya, Policy Liaison, at [mbangcaya@kingcounty.gov](mailto:mbangcaya@kingcounty.gov) or 206-477-4764.

Sincerely,



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