Amendments to 18 AAC 75 - Setting Cleanup Levels for PFAS

Frequently Asked Questions

October 30, 2018 Updated

1. ***What are PFAS?***

   Per- and poly-fluoroalkyl substances, or PFAS, are man-made chemicals that have been used in industry and consumer products worldwide since the 1950s. PFAS are manufactured for their heat, water, and stain-resistant properties. These properties make PFAS beneficial for a wide variety of industrial, commercial, and residential applications, such as non-stick cookware, water-repellent clothing, stain-resistant fabrics, and firefighting foams.

2. ***Why is DEC setting new and updated soil and groundwater cleanup levels for these six PFAS?***

   These contaminants were identified in EPA's Third Unregulated Contaminant Monitoring Rule (UCMR3) issued in 2012 under the Safe Drinking Water Act. These contaminants have been found in drinking water supplies in some communities and have been detected in soil and groundwater at a number of sites across Alaska. Based on available science regarding these compounds, the state has determined that these six PFAS are hazardous substances under state law and must be regulated.

3. ***What are the levels?***

   DEC is proposing soil cleanup levels in Table B1 under 18 AAC 75.341 and groundwater cleanup levels in Table C under 18 AAC 75.345 for six PFAS as follows:

			Soil Arctic Zone	Soil Under 40 Inch Zone	Soil Over 40 Inch zone	Soil Migration to Groundwater	Groundwater
Compound	CAS Number	health effect that drives risk	Human Health (mg/kg)	Human Health (mg/kg)	Human Health (mg/kg)	(mg/kg)	µg/L
Perfluorobutane Sulfonic Acid (PFBS)	375-73-5	noncarcinogen	2200	1600	1300	1.4	400
Perfluoroheptanoic Acid (PFHpA)	375-85-9	noncarcinogen	2.2	1.6	1.3	0.00024	0.07*
Perfluorohexane Sulfonic Acid (PFHxS)	355-46-4	noncarcinogen	2.2	1.6	1.3	0.00029	0.07*
Perfluorononanoic Acid (PFNA)	375-95-1	noncarcinogen	2.2	1.6	1.3	0.00041	0.07*
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	noncarcinogen	2.2	1.6	1.3	0.00053	0.07*
Perfluorooctanoic Acid (PFOA)	335-67-1	noncarcinogen	2.2	1.6	1.3	0.00029	0.07*

* The sum of the concentrations of all these contaminants, or those that are present in a sample, cannot exceed 0.07 µg/L

4. Why is there a summed groundwater cleanup level for five of these PFAS?

The summed value of 0.07 µg/L in groundwater for the five PFAS listed above is based on the EPA's 2016 Lifetime Health Advisory Level for PFOS and PFOA of 0.07 µg/L and is applied for the following reasons:

- The molecular structure of the compounds PFNA, PFHxS, and PFHpA is substantially similar (between six and eight fluorinated carbons) to that of PFOS and PFOA, and therefore similar biological activities are predicted;
- Evidence indicates the compounds have similar biological half-lives, which is indicative of toxicity;
- Toxicity information, though limited, indicates these compounds cause adverse health effects at similar doses;
- The presence of multiple contaminants may cause additive or synergistic health effects; and
- The additive approach is consistent with EPA's LHA approach where PFOS and PFOA are summed together. Including the additional three PFAS with PFOS and PFOA when assessing exposure is a reasonable and protective approach given the similarities of the compounds.

5. Why is there a different level for PFBS?

The department has calculated separate cleanup levels in soil and groundwater for PFBS due to the shorter chain structure (four fluorinated carbons versus 6-8 in the other five compounds), which implies less persistence in the body. In addition, the available data, although limited, indicates that it exhibits lower toxicity than PFOS and PFOA. The cleanup levels for PFBS were calculated using EPA's 2014 Provisional, Peer-Reviewed Toxicity Value for this compound.

6. Are there other changes to the regulations?

A change has been to section 330, Interim Removal Actions, which allows the department to require a responsible party to provide alternative water if groundwater contamination exceeds cleanup levels established under 18 AAC 75.345.

Two adopted by reference documents are being updated as a result of the new cleanup levels. These documents are the *Procedures for Calculating Cleanup Levels* (PCCL) (adopted by reference in 18 AAC 75.340) and the *Procedures for Calculating Cumulative Risk* (PCCR) (adopted by reference in 18 AAC 75.325). The changes in these two documents pertain only to the six PFAS compounds, as follows:

- In the PCCL, a new section 2.6 was added to discuss how the summed cleanup level for the five PFAS was developed, and Appendix A was updated to include toxicity and chemical specific parameters for the six PFAS.
- In the PCCR, the human health risk based concentrations were added or updated for the six PFAS in Appendix B.

Both documents are available for review and comment on the regulations project web page.

7. ***Are the only changes to 18 AAC 75.341(c) the addition of PFBS, PFHpA, PFHxS and PFNA as entries to Table B1?***

   Including the addition of PFBS, PFHpA, PFHxS and PFNA, the migration to groundwater cleanup levels for PFOS and PFOA have changed in Table B1. No other cleanup levels have changed and no other compounds were added.

8. ***Did the footnotes to Tables B1 and B2 and Table C change?***

   Although 18 AAC 75.341(d) is indicated as repealed and readopted for changes to the footnotes, in fact none of the footnotes have changed; only the existing footnote 8 has been added to four new PFAS in Table B1. Therefore, in the final adoption version of the regulations this drafting error will be corrected and the repeal and readoption of 18 AAC 75.341(d) will be removed since nothing in this subsection has changed.

   The footnotes to Table C groundwater cleanup levels in the amendment to 18 AAC 75.345(b)(1) were changed to include a new footnote 9 that explains the summed value for the five PFAS.

9. ***Is it possible to get a copy of the actual data inputs, assumptions, and actual equations / spreadsheets that resulted in the proposed migration-to-groundwater standards for PFAS chemicals?***

   All the input values for the cleanup levels are found in Appendices A and B of the public comment version of the *Procedures for Calculating Cleanup Levels*. The equations are found in this document as well. To carry out the calculations, access the cleanup level calculator here: http://dec.alaska.gov/spar/csp/calculators/. In the tool, select migration to groundwater, choose site-specific, user –provided, and then select the chemicals.

10. ***I wanted to clarify how ADEC addresses non-detects in ground water samples. This becomes could become a significant issue under the proposal to apply the 70-ppt value to multiple substances. It appears that ADEC recommends the ProUCL software. Is that correct? Have you looked at how that might affect compliance with the proposed limit?***

    Under 18 AAC 75.380, the department determines compliance with groundwater cleanup levels based on the maximum concentrations of a hazardous substance detected in the final confirmation samples. Therefore, the use of statistics is not applicable for groundwater.

    For the treatment of non-detects, please see our April 2017 technical memorandum, "Treatment of Non-Detect Values, Data Reduction for Multiple Detections, and Comparison of Quantitation Limits to Cleanup Values" found here: http://dec.alaska.gov/spar/csp/guidance-forms/

11. ***Has an economic analysis been performed for the proposed changes?***

    Under AS 44.62.190(d), DEC is required to estimate annual costs, based on a good faith effort to estimate the costs in the aggregate for each of the following categories, using information available to the state agency: private persons, state agencies, and municipalities to comply with

the proposed action, and the state agency for implementation of the proposed action. This information is presented in the Additional Regulations Notice, found in the public notice of proposed changes, posted on our regulations page here: http://dec.alaska.gov/spar/regulation-projects/pfas-cleanup-level-amendments/

12. ***If the new cleanup levels for groundwater are adopted in regulation, will they be considered Maximum Contaminant Levels for drinking water?***

    The draft cleanup levels are only for contaminated sites. The cleanup levels establish the threshold for requiring a responsible party to provide alternative water or treatment where groundwater used for drinking is impacted, and to perform site characterization, monitoring, and cleanup. The proposed groundwater cleanup levels would not become drinking water Maximum Contaminant Levels (MCLs). The DEC Drinking Water Program does not create MCLs, but instead adopts federal MCLS that are established by EPA.

13. ***How can I learn more?***

    You can find more information in the documents posted on the web page for these proposed regulations, here: http://dec.alaska.gov/spar/regulation-projects/pfas-cleanup-level-amendments.

    DEC's website has information about PFAS contamination: http://dec.alaska.gov/spar/csp/pfas-contaminants/.

    For questions about the regulations, you can email Sally Schlichting at sally.schlichting@alaska.gov.

    Responses to questions received at least 10 days prior to the end of the comment period will be made available in this FAQ document and posted on our regulations project page and on Alaska Online Public Notice System here: https://aws.state.ak.us/OnlinePublicNotices/.