

June 10, 2019

Andrew Wheeler, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Attn: Docket ID No. EPA-HQ-OLEM-2019-0229

The American Society of Civil Engineers (ASCE) is pleased to offer the following comments on the draft interim recommendation to address groundwater contaminated with perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). The draft interim recommendations were released by the U.S. Environmental Protection Agency (EPA) and published in the Federal Register for comment on April 25, 2019, with the comment period closing on June 10, 2019. This letter contains the comments of ASCE for the record.

Introduction

Founded in 1852, ASCE is the country's oldest civil engineering organization. Representing more than 150,000 civil engineers from private practice, government, industry, and academia, ASCE is dedicated to the advancement of the science and practice of engineering. ASCE members represent the profession that plans, designs, and builds much of the nation's infrastructure. As a result, civil engineers are keenly aware of and often most affected by regulations that either facilitate or impede expeditious, cost efficient, and environmentally effective infrastructure development to support our modern society.

Per-and polyfluoroalkyl substances (PFAS) are chemicals found in consumer products such as food packages, cookware, textiles, plastics, and other household products that when accumulated over time can have negative impacts on human health. Populations can be exposed to PFAS through contaminated groundwater, drinking water, and soil. For decades, ASCE has advocated public policies that reduce risk and hold paramount public safety and welfare. Given the ethical responsibility of our members to ensure the public remains safe and that infrastructure is designed to maximize the public interest, ASCE provides the following comments on the U.S. EPA's draft interim recommendations to address groundwater contaminated with PFOA and PFOS.

In general, ASCE supports continued research into improved methods governing the disinfection of drinking water to protect public health from any harmful byproducts. ASCE also supports and encourages implementation of federal and state regulations and international treaties to ensure hazardous wastes are properly identified, categorized, packaged and transported to authorized

waste disposal sites adequately designed for containment and prevention of degradation to air, land, surface water and groundwater resources.

Summary of U.S. EPA Draft Interim Recommendations

U.S. EPA summarized the draft interim recommendations as follows:

- “Screening sites using a screening level set to a Hazard Quotient of 0.1 for PFOA and PFOS individually, which is currently 40 [nanograms per liter] ng/L or parts per trillion (ppt);
- “Using the PFOA and PFOS [health advisories] HAs of 70 ng/L as the [preliminary remediation goal] PRG for groundwater that is a current or potential source of drinking water, where no state or tribal [Maximum Contaminant Level] MCL or other applicable or relevant and appropriate requirements [ARARs] exist.”

ASCE Comments on the Draft Interim Recommendations

Comment on the Value of Setting Screening Levels for PFOA and PFOS

We recommend providing a preamble or introduction to place the draft interim recommendations within the context of EPA activities at the time that the recommendations were developed and clearly state the value of setting screening levels for PFOA and PFOS. EPA has conducted multiple listening sessions with states. It is unclear whether this guidance is aligned with feedback from the states.

The guidance does not address whether the 40 ng/L screening levels are intended to apply to states or tribes that have existing MCLs or other applicable ARARs. If the 40 ng/L screening levels are interpreted to apply to all states and tribes, this may be counter to the intentions of EPA and states who have issued some form of other screening levels or guidelines. States may need to take additional steps to modify or clarify their own guidance in light of EPA’s screening level. Responsible parties and regulators may be in limbo until these clarifications are made.

The guidance seems to provide states who have not published their own guidelines with justification to not conduct additional investigation or sampling if PFOS and PFOA concentrations are detected at concentrations below 40 ng/L on an individual basis. Having a screening level of 40 ng/L will make it more difficult for regulators to request monitoring and follow up on low level detections of PFOS and PFOA. Because 40 ng/L is fairly close to 70 ng/L, there is very little room for regulators to make science-based decisions when reviewing preliminary investigation results. PFOS or PFOA detections below 40 ng/L would not warrant additional investigation. PFOS and PFOA detections between 40 ng/L (individually) and 70 ng/L (as a sum) would warrant additional investigation but would not exceed the preliminary remediation goal. Because the 40 ng/L is applied individually and 70 ng/L is applied as a sum, there are very few situations in which these criteria will be met and the difference between the situations may be insignificant, that is, within the range of sampling and analytical variability.

Scenario	PFOS (ng/L)	PFOA (ng/L)	Sum (ng/L)	Outcome
Scenario 1	42	25	67	Investigation
Scenario 2	35	35	70	Remediation
Scenario 3	34	34	68	No action

As written, the screening levels may increase confusion and frustration among environmental remediation professionals and regulators, potentially resulting in inconsistent application of the screening levels.

Furthermore, the state of the science on PFAS toxicity is changing quickly. Having published guidance may result in procedural delays while EPA updates the draft guidance to incorporate new information resulting in a change in toxicity value.

Comments on Hazard Quotients

Although setting the screening level at 40 ng/L for PFOS and PFOA seems acceptable from the perspective of practical quantitation limits, there is some concern with basing screening levels on arbitrary Hazard Quotient levels of 0.1 for PFOA and PFOS, individually. A Hazard Quotient level of 0.1 is inconsistent with previous screening level approaches. Although selecting a HQ of 0.1 is more conservative than a HQ of 1 and therefore could be considered to be more protective of health, this value does not seem to be based on scientific information regarding the potential hazards associated with PFOA, PFOS, or other PFAS.

First, it is not clear how a HQ of 0.1 considers background exposure to PFOS and PFOA. In U.S. EPA’s Human Health Risk Assessment Protocol (2005), it is recommended that background exposure levels be considered when quantifying risk. For example, drinking water, diet, and household (e.g., household dust) pathways all potentially contribute to human direct exposure to PFOA and PFOS. Because precursors can be selectively transformed to PFOA or PFOS, there are additional indirect exposure pathways that may contribute. A more scientifically-based approach would incorporate a specific quantitative estimate of background exposure (e.g., dietary, household, and indirect exposure pathways).

Second, setting the screening level at a HQ of 0.1 for PFOS and PFOA individually appears to be arbitrary and inconsistent with previous site-specific EPA approaches for deriving risk-based levels. EPA’s Regional Screening Levels (RSLs) are presented as values calculated for both HQ = 0.1 and HQ = 1. EPA notes that the HQ = 0.1 screening level is for used “when multiple contaminants of concern are present at a site or one or more are present in multiple exposure media.¹” However, the actual application of these screening levels is made on a case-by-case basis. This approach should not be used to account for “the possibility that other PFAS compounds, which may be toxic but for which toxicity values may not currently be available, may be co-located with PFOA and/or PFOS.” Previous efforts to set remediation goals for classes of compounds (e.g., petroleum hydrocarbons or polycyclic aromatic hydrocarbons (PAHs)) utilized a set of selected compounds with robust quantitation methods, with the implicit assumption that remediation to address the risk of the listed compounds would also address the

¹ <https://www.epa.gov/risk/regional-screening-levels-frequent-questions>

broader family of compounds. Regulation of a risk to an HQ of 0.1 in this case is not considered necessary. If a screening level associated with HQ of 0.1 for PFOA and PFOS is published, it should be listed along with the screening level that corresponds to a HQ of 1 (400 ng/L), with a note that either screening level may be applied at particular sites.

Additionally, it should be noted that studies have shown that PFOS and PFOA concentrations in surface water and groundwater have a wide range, and it is possible for aquifers and surface waters to exhibit ambient concentrations of > 40 ng/L when no clear direct cause or point source is evident. For example, Vedagiri et al., 2018² summarize background concentrations reported in freshwater surface water bodies as ranging from 0.8 to 138 ng/L PFOS and from 0.45 to 287 ng/L PFOA. There is a wide range in the geometric mean of detected concentrations as well – the mean PFOA concentration ranged from 0.65 to 43.4 ng/L. Within the Third Unregulated Contaminant Monitoring Rule (UCMR 3) study of drinking water concentrations, geometric means ranged from <40 to 43 ng/L for PFOS and from <20 to 22 ng/L for PFOA. Groundwater sources had twice the detection rate as surface water sources in UCMR 3 dataset. Additional evaluation of ambient levels is needed in the screening level ranges of 40 to 400 ng/L.

Comments on the Use of 70 ng/L HA Level as a Preliminary Remediation Goal

The proposed guidance provides interim recommendations for addressing groundwater contaminated with PFOA and/or PFOS at sites being evaluated and addressed under federal cleanup programs. The guidance states that recommendations may also be useful for state, tribal, or other regulatory authorities. Some states have already taken action to regulate PFOA and PFOS (e.g., NJ) and others are considering setting guidance values and/or standards. We recommend that the purpose of PFOS and PFOA PRGs be clearly defined in this document together with how these PRGs will be used.

The inconsistency between the 40 ng/L screening levels for PFOS or PFOA and the combined 70 ng/L PRGs may lead to unnecessary confusion among the states and regulated communities. We strongly advise that a consistent framework of considering the two compounds together, in all circumstances, be implemented to avoid confusion. We recommend that the EPA explicitly detail how the proposed screening levels and PRGs apply to PFOA and PFOS occurrence data obtained through the UCMR 3. Specifically, if a public water system (PWS) with a groundwater source detected a sum of PFOA and PFOS greater than 70 ng/L and/or PFOA and PFOS were individually measured above 40 ng/L, what next steps would be recommended by the EPA for the PWS? It should be considered that samples collected under UCMR 3 were taken at the entry to or within a PWS distribution system (i.e., following water treatment), and therefore the ambient PFOS and PFOA concentrations in groundwater may be higher or lower than the concentrations reported through UCMR 3, depending on the treatment processes used by the PWS. Further, it should be considered that the UCMR 3 minimum reporting limits (MRLs) for PFOA and PFOS were 20 ng/L and 40 ng/L, respectively. Should the EPA recommend that the screening levels and/or PRGs be applied to UCMR 3, analytical variability at concentrations near these MRLs should be considered.

² Vedagiri, U.K., Anderson, R.H., Loso, H.M., Schwach, C.M., 2018. Ambient levels of PFOS and PFOA in multiple environmental media. *Remediation Journal* 28:9-51.

The treatment of PFAS in groundwater is currently limited to pump-and-treat which is often an expensive and unsustainable approach. The Department of Defense is making significant investments in developing in situ destructive technologies, but the state of science is not yet field-ready. This guidance provides interim recommendations for screening levels and PRGs to inform final cleanup levels for PFOA and/or PFOS contamination of groundwater that is a current or potential source of drinking water. Although a PRG does not necessarily need to consider feasibility of cleanup, we strongly encourage EPA to ensure that future efforts, including the setting of MCLs, consider the technical and economic feasibility of treating water to these levels.

Although the document mentions that modifications can be made to PRGs on a site-specific basis based on risk exposure pathways, it should be made clear that modifications could also be made based on technical limitations and economic cost considerations for feasibly achieving a PRG at a given site.

Conclusion

In conclusion, ASCE thanks the EPA for its effort in developing these draft interim recommendations to address groundwater contaminated with PFOA and PFOS. We encourage the agency to take our suggestions, which seek to ensure public safety and welfare, into consideration as it proceeds in the development of such guidance. We ask that you do not hesitate to contact us if we can be of any assistance to you.