CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

1615 H STREET, NW
WASHINGTON, DC 20062
(202) 463-5310

August 20, 2018

VIA ELECTRONIC FILING

Ms. Susan Ingber
Division of Toxicology and Human Health Sciences
Agency for Toxic Substances and Disease Registry
1600 Clifton Road, NE, MS F-58
Atlanta, GA 30329

RE: Availability of Draft Toxicological Profile: Perfluoroalkyls, 83 Fed. Reg. 28,849 (June 21, 2018); Docket No. ATSDR-2015-0004

Dear Ms. Ingber:

The U.S. Chamber of Commerce submits these comments regarding the Agency for Toxic Substances and Disease Registry's ("ATSDR" or "Agency") 2018 draft toxicological profile ("Draft Profile") for perfluoroalkyls ("PFAS").[1] A number of Chamber members have produced PFAS in the past and ATSDR's Draft Profile would adversely affect them. It is imperative that Federal agencies base their policies and actions regarding PFAS on the best available science and weight of the scientific evidence.

I. Background

The Chamber and its members care profoundly about the health and safety of their employees, customers, and the communities in which they live. PFAS are a group of synthetic chemicals used in manufacturing and in consumer products. These chemicals are persistent in the environment and are subject to growing interest and debate due to concerns about effects on human health.

PFAS are typically found in food, commercial household products, drinking water, and the workplace. Aqueous film forming foam ("AFFF"), a product used by the U.S. military, firefighters,

[1] *See* Availability of Draft Toxicological Profile: Perfluoroalkyls, 83 Fed. Reg. 28,849 (June 21, 2018); Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls – Draft for Public Comment* (June 2018), *available at* https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf ("Draft Profile").

and airport safety professions because it was extremely effective in fighting fuel-fed fires, was the most common use of PFAS.

Companies historically used the two most studied PFAS, perfluorooctanesulfonic acid ("PFOS") and perfluorooctanoic acid ("PFOA"), in these important applications. However, beginning in the early 2000s, those same companies began to phase out the production of those and other PFAs.[2] Since then, there has been a significant decline in industrial releases of PFAS from chemical facilities[3] and a 70 – 80% decline in PFOS and PFOA levels in the U.S. population in the same period.[4] Clearly, regulators and the business community alike have taken the correct steps to mitigate the impact of PFAS.

It is imperative that ATSDR's Draft Profile uses the best available science, and the Chamber believes that ATSDR can achieve this goal by withdrawing or revising the Draft Profile. The Chamber and its members offer the following comments.

II. The Draft Profile Fails to Provide Stakeholders With an Adequate Perspective on the Toxicology of PFAS

The Draft Profile fails to meet its "primary purpose" of providing "public health officials, physicians, toxicologists" and others "with an overall perspective on the toxicology" of PFAS.[5] The Draft Profile relies on flaws and incomplete data that does not justify its conclusions. As a result, ATSDR's derivation of minimal risk levels ("MRLs") is deeply flawed. These errors make any reliance on ATSDR's analysis and conclusions unwarranted, and they would render any agency action that relies on the report "arbitrary and capricious" and subject to legal invalidation.

ATSDR must state that the MRLs neither define unsafe levels nor supply appropriate regulatory standards. As ATSDR indicates, MRLs are "not intended to define clean up or action levels" but rather are "intended only to serve as a screening tool."[6] ATSDR also states that an "MRL may be as much as 100-fold below levels that have been shown to be nontoxic in laboratory

---

[2] *See, e.g.,* Perfluoroalkyl Sulfonates; Significant New Use Rule; Final Rule and Supplemental Proposed Rule, 67 Fed. Reg. 11,007, 11,010 (Mar. 11, 2002) ("3M committed to phase out these chemicals voluntarily by discontinuing their manufacture on a global basis by the end of December 2000, and 3M has confirmed that these chemicals were discontinued on schedule").

[3] *See* U.S. Environmental Protection Agency, EPA's Non-CBI Summary Tables for 2015 Company Progress Reports (Feb. 2017), *available at* https://www.epa.gov/sites/production/files/2017-02/documents/2016_pfoa_stewardship_summary_table_0.pdf.

[4] Geary W. Olsen, *et al.*, Per- and Polyfluoroalkyl Substances (PFAS) in American Red Cross Adult Blood Donors, 2000–2015, 157 Envtl. Research 87–95 (2017) (Percentage declines 2000–2001 to 2015 were…88% (PFOS), and 77% (PFOA)), *available at* https://www.sciencedirect.com/science/article/pii/S0013935117306916?via%3Dihub.

[5] Draft Profile at 21.

[6] *Id.* at A-1.

animals."[7] The Agency admits, "if someone is exposed to an amount above the MRLs, *it does not mean that health problems will happen*."[8]

This is particularly true with the proposed MRLs for PFAS, as ATSDR admits that the scientific evidence *does not support* causation in humans for any of the health effects that it examined, observing that it has not established "cause-and-effect" relationships for any of the effects.[9] ATSDR, however, buries this important concession deep in the Draft Profile.

While ATSDR briefly discusses the meaning of MRLs in Appendix A, it should instead acknowledge these facts at the outset of the Draft Profile in section 1.2, the "Summary of Health Effects."[10] Failing to provide clear and proper notice of these facts to affected stakeholders and failing to do so misrepresents the science and misleads readers.

III. ATSDR's MRLs for PFAS are Based on Flawed Studies of Limited Relevance to Humans

ATSDR uses unreliable science to support unnecessarily low MRLs and should withdraw or revise those levels to reflect a more realistic and scientifically supported risk assessment. Some of the critical flaws in the derivation include the following:

First, ATSDR derives its MRLs from adverse effects observed in rodent studies, even though their relevance to human health is questionable due to well-established differences between human and rodent physiology. For PFOA and PFOS, ATSDR relies on developmental effects purportedly seen in the offspring of mice and rats exposed to high levels of PFAS.

ATSDR acknowledges, however, "there is strong evidence that some effects observed in rodents, such as…immunotoxicity, and developmental toxicity, involve the activation of the peroxisome proliferator-activated receptor alpha ("PPARα"); however humans and non-human primates are less responsive to PPARα agonists than rodents."[11] In fact, ATSDR does not consider the particular developmental effects observed in these rodent studies (altered bone development and neurological effects) to be associated with PFAS in humans at all.[12]

---

[7] *Id.*

[8] Agency for Toxic Substances and Disease Register, Minimum Risk Levels, *available at* https://www.atsdr.cdc.gov/minimalrisklevels/index.html.

[9] Draft Profile at 636.

[10] *Id.* at 4.

[11] *Id.*

[12] *Id.* at 141-145; 293-296.

Additionally, ATSDR's reliance on these rodent studies is inappropriate because researchers gave rodents large doses of PFAS that resulted in PFAS blood levels considerably higher than the general population's exposure today. ATSDR acknowledges the questionable relevance of these animal studies to humans and that effects are seen only at large exposure levels in animals that respond differently to PFAS exposures due to physiological differences. As ATSDR states: "[t]hese factors [differences in doses and modes of actions between animals and humans]…make it somewhat difficult at this time to determine the true relevance of some effects reported in animal studies to human health."[13]

ATSDR nevertheless mechanically extrapolates these exposures to so-called human-equivalent doses to derive MRLs, and then applies the unsupported presumption that humans are more sensitive to these effects than rodents. This cascade of errors renders ATSDR's levels scientifically unjustified and wholly unreliable. ATSDR should either rely on studies with more direct relevance to humans, such as human or non-human primate studies, or take into account the fact that rodents are much more sensitive to PFAS effects than humans are. At a minimum, ATSDR should remove their uncertainty factor of three for animal to human extrapolation.

Second, ATSDR chose a study for its PFOA MRL derivation that is fatally flawed and that researchers cannot use to derive a scientifically defensible MRL. This study only evaluated effects in animals at a single dosing level, making it impossible to confirm that there was a positive-dose response attributable to PFOA exposures. It is also impossible to determine the "point of departure" (POD) from a "no observed adverse effect level" (NOAEL) or a "lowest observed adverse effect level" (LOAEL).

Without that information, ATSDR cannot reliably derive MRLs from the study. In addition, the study involved too few animals to generate reliable results and failed to follow standard protocols. ATSDR should not use this study in its derivation.

Third, in extrapolating exposure levels from rodents to humans, ATSDR purported to account for differences in the rate of PFAS clearance from blood between rodents and humans. However, ATSDR utilizes PFAS human blood half-lives from groups exposed as part of their occupations (e.g., a 5.4-year half-life for PFOS) that are excessive. This results in lower human equivalent doses and lower MRLs. ATSDR should use the more realistic and relevant half-lives of the general community.

Fourth, ATSDR improperly employs excessive and unnecessary uncertainty factors that artificially lower the PFAS MRLs. For example, ATSDR should not use the uncertainty factor of three for interspecies extrapolation (animal to human) for any of the MRLs, given that rodents are more sensitive to the effects at issue than humans are.

In addition, ATSDR should not utilize an uncertainty factor of 10 in its PFOS or PFHxS MRL derivations to account for potential immunological effects associated with PFAS. The 10-fold factor is arbitrary and has not been justified. Notably, after reviewing the body of toxicology and

[13] *Id.* at 10.

epidemiologic studies examining the potential immune effects of PFOS, EPA did not include an uncertainty factor of 10 for potential immunological effects in its derivation of the PFOS drinking water guidance level.[14]

ATSDR should have reached a similar conclusion, because it otherwise acknowledges that the human evidence for immune effects is insufficient to support causation.[15] In addition, the uncertainty factor of 10 that ATSDR used for PFOA for a LOAEL-to-NOAEL extrapolation is not valid because the study design precluded establishing any LOEAL or NOAEL values. There is also no reliable evidence that PFAS exposure increases the risk of infectious disease in humans.[16] ATSDR should remove the potential immunological effects' uncertainty factor of 10.

ATSDR's PFAS MRLs are lower than virtually all of the 190-plus other chemicals for which ATSDR has developed MRLs. As such, one can conclude that ATSDR's PFAS MRLs are excessively low. Notably, the PFOA and PFOS MRLs are lower than contaminants such as arsenic, chromium, PCBs and parathion. Only the MRL for 2,3,7,8-TCDD (dioxin) is lower, and ATSDR has described dioxin as one of the most highly toxic chemicals. Yet, ATSDR acknowledges that there is insufficient evidence to conclude that PFAS causes any adverse effects in humans.

Finally, the PFAS blood levels experienced in the general population today are exponentially lower than the blood levels in animal models experiencing adverse effects. It is imperative that ATSDR base its regulatory guidance on credible, realistic, and scientifically based risk assessment. ATSDR's draft PFAS MRLs do not meet this standard. ATSDR should either withdraw them or revise them to account for the issues identified above.

---

[14] *See, e.g.*, U.S. Environmental Protection Agency, EPA Response to External Peer Review Comments on EPA Draft Documents: Health Effects Support Document for Perfluorooctanoic Acid (PFOA) and Health Effects Support Document for Perfluorooctane Sulfonate (PFOS), (May 2016) *available at* https://www.epa.gov/sites/production/files/2016-05/documents/response_to_pfoa_pfos_peer_review_comments_508.pdf.

[15] Draft Profile at 636.

[16] *Id.* at 276, 282.

IV. Conclusion

The Chamber appreciates ATSDR's consideration of these comments and urges the Agency to withdraw or revise the Draft Profile, as the identified errors warrant a revision of the Draft Profile. If you have questions regarding these comments, please contact me at (202) 463-5558 or at kharbert@uschamber.com.

Sincerely,

Karen A. Harbert