

Scott Walker  
Governor



**DIVISION OF PUBLIC HEALTH**

1 WEST WILSON STREET  
PO BOX 2659  
MADISON WI 53701-2659

Linda Seemeyer  
Secretary

**State of Wisconsin**  
Department of Health Services

Telephone: 608-266-1251  
Fax: 608-267-2832  
TTY: 711 or 800-947-3529

July 24, 2018

Division of Toxicology and Human Health Sciences  
Agency for Toxic Substances and Disease Registry  
NE, MS F-57  
1600 Clifton Rd  
Atlanta, GA 30329

Subject: WDHS's Comments on ATSDR's Draft Toxicological Profile: Perfluoroalkyls 2018  
(Docket No. ATSDR-2015-0004)

The Wisconsin Department of Health Services (WDHS) appreciates the release of ATSDR's Draft Toxicological Profile on perfluoroalkyl substances (pfas). Pfas has been a major topic of interest to WDHS, local health departments, and communities in Wisconsin and we expect this document to be a useful resource for risk assessments and risk communication by WDHS and health professionals at the local health departments.

The WDHS appreciates the fact that the draft includes the newly identified pfas compounds: PFDeA, PFUA, PFHpA, PFBuS, PFBA, PFDoA, PFHpA, PFOSA, Me-PFOSA-AcOH, and Et-PFOSA-AcOH. WDHS also appreciates that the mechanistic differences among compounds that share similar health outcomes are clearly explained. This draft provides updated minimal risk levels (MRLs) for four pfas (PFOA, PFOS, PFHxS, and PFNA) based on new scientific data that were published after the previous draft was released. We also found the Appendices to be very useful.

The WDHS offers three comments to the current draft:

## Chronic MRLs

EPA selected the study by Luebker et al., 2005 to derive their *chronic* lifetime drinking water Health Advisory Levels (HAL, 70 nanograms per liter) for PFOS. ATSDR used the same critical study in deriving their *intermediate* MRL for PFOS but did not derive chronic values from the study. **Please provide clarity on why ATSDR did not derive a *chronic* MRL from the Luebker et al., 2005 study by incorporating a sub-chronic to chronic extrapolation Uncertainty Factor (UF).** EPA uses an UF ranging from 1- to 10-fold for sub-chronic to chronic extrapolation when no critical chronic studies are available. In February 2018, ATSDR derived a chronic inhalation MRL for chlordane using data from a sub-chronic study suggesting that such a derivation is possible. We recommend the Luebker et al., 2005 study could be used to derive a *chronic* MRL for PFOS by adding a duration (sub-chronic to chronic) UF into the total UF. We also suggest that a similar approach be considered for PFOA, PFHxS and PFNA.

While the critical effect selected by ATSDR to establish the *intermediate* MRL for PFOS is the same as was selected by EPA to establish the drinking water HAL, ATSDR selected a different critical study than EPA to establish the *intermediate* MRL for PFOA. ATSDR selected two rodent studies (Onishchenko et al., 2011 and Koskela et al., 2016) where the critical effects were neurodevelopmental and skeletal alterations in offspring. EPA's critical study also focused on developmental effects in rodents where the critical effects were reduced ossification of proximal phalanges and advanced preputial separation (Lau et al., 2006). **Please provide additional explanation on why studies by Onishchenko et al., 2011 and Koskela et al., 2016 were selected instead of Lau et al., 2006 study to derive the *intermediate* MRL. Additionally, please provide clarity on why ATSDR did not perform sub-chronic to chronic extrapolation to derive *chronic* MRL for PFOA.**

## Subsections of "Chapter 2. Health Effects"

In the current draft, each health effect section within Chapter 2 begins with an overview, followed by compound-specific discussions that are further divided into epidemiology studies and laboratory animal studies. While this approach is consistent with other ATSDR Tox Profiles, we find it hard to read. We recommend reorganizing the subsections in Chapter 2 by pfas compound instead of toxicity endpoints (i.e. similar to Figure 1-4 and Figure 1-5). Because pfas

consist of multiple chemicals and their toxic effects vary from chemical to chemical, we think **health assessors would benefit from seeing all of the health effects of a specific PFAS chemical in one section.**

#### **Consider creating pfas health guidance level groupings**

As described in the draft, there are no health effect data for a number of the pfas structures. We understand that even though there are overlapping health outcomes for some pfas, the biological mechanism could be different. If possible, **we support grouping pfas that share similar biological mechanisms to allow for the derivation of combined health guidance levels or MRLs within mechanistic groups**, similar to the approach that EPA took to establish the lifetime HAL for PFOA and PFOS.

We appreciate the opportunity to review the Toxicological Profile on PFAS and we hope you find our comments useful.

Sincerely,



*Wisconsin Division of Public Health  
Bureau of Environmental and Occupational Health*

Clara Jeong, PhD, *Toxicologist*  
with  
Robert Thiboldeaux, PhD, *Senior Toxicologist*  
Sarah Yang, PhD, *Groundwater Toxicologist*  
Curtis Hedman, PhD, *Toxicologist*