

November 30, 2022

Jay E. Eidsness, Staff Attorney  
Sam Brower, Law Clerk  
Minnesota Center for Environmental Advocacy  
1919 University Avenue West, Ste. 515  
Saint Paul, MN 55104

***RE: MCEA's Response to Request for Comments submitted March 22, 2021.***

Dear Jay Eidsness and Sam Brower:

The Minnesota Department of Health (MDH) has a long history regarding development of human health-based guidance (HBG) for per- and polyfluoroalkyl substances (PFAS). In 2002 MDH was among the first states to derive HBG for PFOA and PFOS and has repeatedly revised the values as new toxicity information has become available. MDH currently has HBG for six PFAS compounds (PFBA, PFHxA, PFOA, PFBS, PFHxS, and PFOS). MDH re-evaluates HBG values when significant new scientific information becomes available. The guidance values for each of these PFAS includes a database uncertainty factor, which is intended to address the potential that additional toxicity data could result in a lower point of departure.

In addition to the individual HBG for each PFAS, MDH under the Health Risk Limit (HRL) rules requires an additivity assessment when contaminants that affect the same health endpoint occur in mixtures. PFAS virtually always occur in mixtures and therefore the combined risk must be assessed by calculating a Health Risk Index (HRI). For each PFAS a ratio is calculated by comparing the water concentration to the HBG for that chemical and then summing the ratios to calculate an HRI. Even if the individual ratios do not exceed 1 the combined ratios may exceed 1. MDH calculates and makes decisions based on the combined HRI. For example, see the [Interactive Dashboard for PFAS Testing in Drinking Water webpage](#) for how this is implemented.

MDH has also been a leader for protecting the most sensitive and most highly exposed individuals by publishing and freely sharing new methods for incorporating placental and breastmilk transfer of PFAS compounds to infants ([Goeden et al 2019](#)).

MDH has promulgated new or revised HRL values on a regular basis since 2008/2009 (rules updated 2010/2011, 2012/2013, 2014/2015, and 2016/2018). MDH had intended to propose rules in early 2020, but unfortunately all staff who derive HBG were reassigned to COVID activities, several through the fall of 2021. As a result, there was a delay in revision of the HRL rules as well as any chemicals under review. For example, the review of PFHxA was announced in October 2020 but was not completed until December of 2021 due to staff COVID reassignments. PFBS, PFHxA, and PFHxS are included in the

proposed HRL rules revision. A complete list of contaminants currently included in the rules revision can be found at: [Health Risk Limits Rules Amendments - Contaminants - EH: Minnesota Department of Health](#). The proposed values for PFOA and PFOS were recently withdrawn from the proposed rules (GovDelivery notice sent July 20, 2022) and a re-evaluation, focusing on epidemiology data, has been initiated (GovDelivery notice sent September 29, 2022). To keep abreast of MDH's activities it is recommended that interested parties subscribe to the free GovDelivery service. Subscribing can be done by going to [MDH's Human Health-Based Water Guidance webpage](#) and entering an email address in the box near the "Get email updates" text at the bottom of the page.

Under the Groundwater Protection Act of 1989, MDH is authorized to derive HRLs using US Environmental Protection Agency (US EPA) risk assessment methods. These standard methods require sufficient relevant mammalian toxicity data. As discussed at the 2022 annual Contaminants for Emerging Concern (CEC) meeting, over 40 PFAS compounds have been nominated to MDH's CEC Initiative, however, more than 80% do not have sufficient *in vivo* mammalian toxicity data to derive HBG utilizing standard risk assessment methodology. PFAS are a very large group of diverse substances and treating them as a single group is not scientifically supportable. As presented at the 2022 annual meeting, MDH is partnering with US EPA to explore the use of recently released *in vitro* bioassay data for several of the PFAS of concern in Minnesota that do not have sufficient *in vivo* data. US EPA and MDH staff will review and determine whether the *in vitro* information can be used to group and identify surrogates and/or to derive relative potency factors so that risk context for additional PFAS compounds can be provided. MDH has previously utilized surrogates until sufficient chemical specific data becomes available. Identifying and utilizing a surrogate does require information regarding chemical similarity. For example, based on structural, toxicokinetic, and limited toxicity data PFOS was used as a surrogate for PFHxS from 2013 until 2017. A copy of the annual meeting slides and accompanying narrative as well as a summary of questions and answers can be found on MDH's [Contaminants of Emerging Concern webpage](#).

Since its inception in 2010 MDH's CEC initiative has completed screening and prioritization of over a hundred contaminants as well as completed full reviews and guidance derivation for nearly 50 unique contaminants. A full list of the contaminants that have been nominated and evaluated by the CEC initiative can be found at: [Updated Nominated Status Table December 2021 \(PDF\)](#).

The Health Risk Limit rules are not regulatory in nature and do not include or mandate use of the guidance values. MDH's Drinking Water Program implements the federal Safe Drinking Water Act (SDWA). Under the SDWA Maximum Contaminant Levels are enforceable standards, MDH's HRLs are not enforceable standards. Because PFAS are not currently regulated under the SDWA, MDH works with local water suppliers to reduce health risks but cannot require that action be taken.

Health-Based Values (HBVs) represent MDH's recommended guidance value and are the values incorporated into the [Additivity Calculator \(Excel\)](#) for assessing potential individual as well as combined risks. HBVs as well as HRLs can be referenced in rules promulgated by other state agencies for regulatory purposes. Some regulatory programs have referenced both the HRLs and HBVs in regulatory documents

such as consent decrees or permits. MDH is committed to promulgating HBVs for contaminants that have been found in Minnesota's groundwater in a timely manner as its resources allow.

Thank you again for submitting your comments regarding the HBVs being considered for adoption into HRL rules. We encourage you to subscribe to our [email updates](#) on this topic if you have not already done so.

If you have additional questions or concerns we invite you to contact us at [health.risk@state.mn.us](mailto:health.risk@state.mn.us) or 651-201-4899 to arrange a continued discussion.

Sincerely,

/s/ Sarah Johnson

Sarah Fossen Johnson, Supervisor

Health Risk Assessment  
Minnesota Department of Health  
PO Box 64975  
St. Paul, MN 55164  
651-204-4899  
[health.risk@state.mn.us](mailto:health.risk@state.mn.us)  
[www.health.state.mn.us](http://www.health.state.mn.us)

Resources:

[Additivity Calculator \(Excel\)](https://www.health.state.mn.us/communities/environment/risk/docs/guidance/gw/guidance.xlsx)

<https://www.health.state.mn.us/communities/environment/risk/docs/guidance/gw/guidance.xlsx>

[Contaminants of Emerging Concern](https://www.health.state.mn.us/communities/environment/risk/guidance/dwec/index.html)

<https://www.health.state.mn.us/communities/environment/risk/guidance/dwec/index.html>

Goeden, H. M., Greene, C. W., & Jacobus, J. A. (2019). A transgenerational toxicokinetic model and its use in derivation of Minnesota PFOA water guidance. *Journal of exposure science & environmental epidemiology*, 29(2), 183-195. (<https://pubmed.ncbi.nlm.nih.gov/30631142/>)

["Get Email Updates" on Health-Based Water Guidance](https://public.govdelivery.com/accounts/MNMDH/subscriber/new?topic_id=MNMDH_39)

[https://public.govdelivery.com/accounts/MNMDH/subscriber/new?topic\\_id=MNMDH\\_39](https://public.govdelivery.com/accounts/MNMDH/subscriber/new?topic_id=MNMDH_39)

[Health Risk Limits Rules Amendments - Contaminants - EH: Minnesota Department of Health](https://www.health.state.mn.us/communities/environment/risk/rules/water/chemicals.html)

<https://www.health.state.mn.us/communities/environment/risk/rules/water/chemicals.html>

[Human Health-Based Water Guidance webpage](https://www.health.state.mn.us/communities/environment/risk/guidance/gw/table.html)

<https://www.health.state.mn.us/communities/environment/risk/guidance/gw/table.html>

[Interactive Dashboard for PFAS Testing in Drinking Water webpage](https://www.health.state.mn.us/communities/environment/water/pfasmap.html)

<https://www.health.state.mn.us/communities/environment/water/pfasmap.html>

[Nominated Contaminant Status and Information \(PDF\)](https://www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/chemstatus.pdf)

<https://www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/chemstatus.pdf>