CEC Initiative Annual Partners Meeting Question and Answer Summary

MINNESOTA DEPARTMENT OF HEALTH CONTAMINANTS OF EMERGING CONCERN (CEC) INITIATIVE

Minnesota Department of Health (MDH) provided an update on the CEC Initiative program current and planned activities and projects at the annual CEC Initiative Partners meeting held August 24, 2022. A summary of the questions, answers and comments received at the meeting are summarized below. MDH did not receive additional questions or comments subsequent to the August 2022 meeting.

Questions related to the Introduction of Staff and Overview of CEC Initiative

Question 1

Question: You said you didn't have regulatory authority, is that just your group or the Department of Health? Is it correct that you have authority to do standards through rule making?

Answer: Our group does have regulatory authority to develop and promulgate Health Risk Limits (HRLs) for Groundwater under the Groundwater Protection Act. The authority and the rules do not include how the HRLs are applied or used. The Drinking Water Program at MDH enforces the federal Safe Drinking Water Act and uses Maximum Contaminant Levels (MCLs) as regulatory standards. Our health-based values are used as guidance but are not enforceable standards for public water systems. Other state programs can use our health-based values as enforceable standards if they have promulgated rules to do so.

Related Links:

Drinking Water Protection - Minnesota Dept. of Health (https://www.health.state.mn.us/communities/environment/water/dwp.html)

Comparison of State Water Guidance and Federal Drinking Water Standards - EH: Minnesota Department of Health (https://www.health.state.mn.us/communities/environment/risk/guidance/waterguidance.html)

Groundwater Protection Act (https://www.revisor.mn.gov/statutes/cite/103H.201)

Human Health-Based Water Guidance Table - EH: Minnesota Department of Health (https://www.health.state.mn.us/communities/environment/risk/guidance/gw/table.html)

Questions related to Water Reuse

Question 2

Question: The Minnesota Cities Stormwater Coalition (MCSC) has concerns regarding emerging contaminants within the context of urban stormwater. The first concern is PFAS. We have no cost-effective methods of treating or removing PFAS from urban stormwater. We also have current research showing that PFAS are in rainwater in non-trivial concentrations. MCSC is apprehensive about the following scenario –

1) The State will write water quality standards (WQS) for PFAS and the acceptable levels of PFAS in surface waters will be very low.
2) The PFAS WQS will be the basis for water quality assessments statewide.
3) Violations of the PFAS WQS will be found in many locations leading to listings of waters impaired for PFAS.
4) These impairments will lead to PFAS TMDLs. When these TMDLs are completed, the Waste Load Allocations (WLAs) for PFAS will be very low.
5) According to state statutes and federal requirements, these WLAs will be linked to wastewater and stormwater permits.
6) Because there are no cost-effective treatment or removal methods for stormwater, stormwater permittees will be left with unachievable permit requirements based on the WLAs.

MCSC wishes to work closely with MDH and Minnesota Pollution Control Agency (MPCA) to avoid this scenario. Without deliberate effort, this scenario seems quite likely. MCSC would appreciate hearing or reading a commitment from MDH and MPCA to work with us to avoid this scenario.

Answer: Thank you for this comment. This concern will be brought to the MDH and MPCA management group working on water reuse issues and planning.

Question 3

Question: A second MCSC concern - PFAS appears to be ubiquitous in rainwater and surface waters. We are less familiar with data and studies looking at PFAS in groundwater. Stormwater regulations encourage, promote, and, in some cases, require the infiltration of urban stormwater. MCSC requests that MDH and MPCA study the degree to which infiltrated urban stormwater is carrying PFAS into groundwater. Is PFAS attenuated or reduced as the stormwater passes through soil? Is collecting and concentrating urban stormwater in infiltration SCMs resulting in unacceptable PFAS concentrations in the soils or groundwater under the infiltration SCMs?

Answer: Thank you for this comment as well. This concern will be brought to the MDH and MPCA management group working on water reuse issues. We are happy to follow up with you in more detail if you email us at health.risk@state.mn.us.

Question 4

Question: Why was the MDH 2022 Reuse of Stormwater white paper or report produced and published with no stakeholder review or engagement? This deficiency was especially glaring in light of a recommendation in the 2018 report calling for more stakeholder engagement in looking at and developing guidance for stormwater reuse.

Answer: The 2022 white paper was intended to gather, summarize, and share the resources and research currently available. The white paper also proposed areas for further discussion and offered risk management options. It was intended to be a starting point for a larger discussion with stakeholders. It was not intended to be a policy paper. The original planned timeline included engaging stakeholders at the time the white paper was released but COVID disrupted those plans. We are just now getting back to our regular work and specifically plan to engage partners.

Related Links

2018 report Advancing Safe and Sustainable Water Reuse in Minnesota 2018 Interagency Report on Water Reuse (PDF) (https://www.health.state.mn.us/communities/environment/water/docs/cwf/2018report.pdf)

2022 white paper Reuse of Stormwater and Rainwater in Minnesota: A Public Health Perspective (PDF) (https://www.health.state.mn.us/communities/environment/water/docs/cwf/wpwaterreuse.pdf)

Question 5

Question: MCSC is also concerned about polycylic aromatic hydrocarbons (PAHs) in the sediments of constructed stormwater ponds. We have been aware of these contaminants for many years now. Early work on this issue resulted in a statewide ban on the sale or use of coal-tar-based sealcoating. This addressed the issue in the future but left us with a huge legacy problem. At current regulatory levels, the dredged material from many existing stormwater ponds must go to lined landfills. This makes dredging these ponds prohibitively expensive. MPCA has made no progress on resolving and finding a resolution of this issue in the last several years. We are not aware of any current effort or work being done by either MPCA or MDH to make progress on this issue. There has been work in Canada showing that it may be possible to use some PAH-contaminated soils in construction projects or as a soil amendment. Is MDH and/or MPCA willing to work on this PAH issue again?

Answer: Please add this question to your email to health.risk@state.mn.us.

Questions related to the Cooperative Research and Development Agreement (CRADA) with EPA

Question 6

Question: How much and how often is interagency work being done? Especially since most of the reporting is coming from other agencies? How much interagency work is getting to your unit?

Answer: We do quite a bit of interagency coordination. Our partners request our assistance in providing context to detections of environmental contaminants. MDH works collaboratively with other state agencies, in particular MPCA and the Minnesota Department of Agriculture (MDA) when it comes to monitoring chemicals in the environment. We assist in identifying monitoring locations and interpretation. We work closely with other state agencies so that we are not working in a vacuum. We want to put our research and limited resources toward focusing on where it will have the most impact. Regarding PFAS - multiple agencies work together specifically on PFAS issues through several interagency workgroups.

Question 7

Question: For future work looking at chemicals of potential concern, is MDH considering the application of non-targeted or suspect screening to analyze real-world samples to test these predictions?

Answer: We have supported the development of non-targeted analysis (NTA) at the Public Health Lab at MDH. At this point we have not had a good opportunity to really put it to work due to limited resources. In regarding testing predictions from the proactively identifying chemicals of potential concern we anticipate that a subgroup will have analytical methods and will have been monitoring for. This would allow for at least a partial test of the prediction in lieu of NTA.

Question 8

Question: Will MDH look for PFAS in rainwater?

Answer: Monitoring of rainwater is outside the scope of what our unit does. Other groups at MDH or MPCA may be planning to do this, but we are not directly involved.

> Note: subsequent to the meeting the following MPCA report was identified as containing limited sampling of rainwater: PFAS Air Monitoring Report . Additional information regarding MPCA's PFAS monitoring plans can be found at: MPCA PFAS Monitoring Plan | Minnesota Pollution Control Agency (state.mn.us)

Related Links:

Video presentation of our process for screening and ranking nominated chemicals: (https://youtu.be/VkC2YD-PoG0) [there is also a pdf transcript at

https://www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/nomscreenrank.pdf]

Current nominated contaminant status table: Nominated Contaminants Status and Information (https://www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/chemstatus.pdf)

EPA PFAS lists and tiered testing: PFAS Chemical Lists and Tiered Testing Methods Descriptions (https://www.epa.gov/chemical-research/pfas-chemical-lists-and-tiered-testing-methods-descriptions)

PFAS Air Monitoring Report (https://www.pca.state.mn.us/sites/default/files/tdr-g1-23.pdf)

MPCA PFAS Monitoring Plan | Minnesota Pollution Control Agency (https://www.pca.state.mn.us/waste/mpca-pfas-monitoring-plan)

Questions related to Relative Potency Factor Approach for PFAS newly detected in MN drinking water

Question 9

Question: US EPA has recently decreased their water guidance values. Do you have any comment and was that taken into account in these analyses?

Answer: Yes, we are aware of EPA guidance for several PFAS chemicals. The recently released interim Health Advisories (iHAs) for PFOA and PFOS are based on EPA's draft documents, which were released in December 2021. MDH submitted comments on the draft documents highlighting our concerns regarding EPA's analysis. We still have questions and concerns, which have not yet been answered, for example how the benchmark dose modeling was conducted. We are not using the iHAs in our work.

The US EPA Science Advisory Board (SAB) has just released their final report regarding their review of these draft documents and highlighted many key deficiencies. We anticipate that there will be changes to the 2021 documents. We are also talking with our Region 5 partners as well. We are in the process of evaluating key study reviews contained in the California EPA draft documents that were released in July of 2021 as well as US EPA and other reviews.

Question 10

Question: How will the development of relative potency factors (RPFs) affect Health Risk Index (HRI) calculations?

Answer: It is something we are certainly considering. It will depend upon the quality of the data we use to derive RPFs and this issue will be part of the internal review process.

Question 11

Question: How do you intend to derive RPFs for data poor PFAS?

Answer: For some of the PFAS that we are detecting there does seem to be sufficient data for deriving RPFs. This is something we are currently taking a close look at. There are PFAS for which there is no data. This is a more complicated situation and other options such as read-across where we use a structurally related chemical would need to be considered. This is one reason we identified PFAS for our next CRADA project.

Question 12

Question: What standard, which chemical, will you be using for the RPF comparison? Is that likely to be a source of uncertainty when it comes to comparing a whole range of PFAS of chemical structures and potencies. Seems if you get the wrong standard you will be comparing apples to oranges.

Answer: As mentioned in the RPF presentation a requirement is a quantitative dose response for your index chemical. So a fair bit of data is required for the index chemical. That means that at this point the index chemical would likely be PFOA or PFOS. We are still taking a look those data sets to determine which would more appropriate. It is possible that a different index chemical may be appropriate for different classes of PFAS. For example, PFOA may be more appropriate for the carboxylates whereas PFOS may be more appropriate for sulfonates. Identification of the index chemical(s) is something we are carefully discussing.

We do not intend to treat PFAS as one large group. Unfortunately, the number of PFAS that we currently have toxicity data for are very clustered in terms of structure, so we do not have much coverage across the PFAS landscape. EPA is planning to use the Tier 1 screening data to inform more animal testing so we may have more data in the future. One of the reasons we are initiating the PFAS project with EPA is to better inform appropriate grouping for PFAS chemicals. The focus of this project is not on the universe of PFAS chemicals, but rather a smaller group that is currently being detected in Minnesota waters.

Question 13

Question: Is there expected to be a move to make PFAS a hazardous substance in Minnesota during the next legislative session?

Answer: That is under the purview of the MPCA. It is also our understanding that US EPA will likely be identifying at least PFOA and PFOS as hazardous substances.

> Note: subsequent to the meeting US EPA has proposed designating certain PFAS as hazardous substances under Superfund: EPA Proposes Designating Certain PFAS Chemicals as Hazardous Substances Under Superfund to Protect People's Health | US EPA. (https://www.epa.gov/newsreleases/epa-proposes-designating-certain-pfas-chemicals-hazardous-substances-under-superfund)

Question 14

Question: PFAS half-lives were mentioned earlier when discussing bioaccumulation. With the shorter half-lives for short chain PFAS in the ATSDR tox profile for PFAS, some industries have argued that it is not a problem. Any thoughts?

Answer: It is good that the shorter chain chemicals appear to have shorter half-lives and would not bioaccumulate to the same extent that the longer chain PFAS do. However, it is still a concern that they are ending up in our water supplies. The short-chain compounds are highly soluble and are difficult to remove from water. We do have guidance for some of the shorter-chain PFAS chemicals. While the guidance values for these are higher than for the longer-chain compounds they are still relatively low, compared to other water contaminants.

Question 15

Question: General question. You feel more pressure to get more toxicity data on substances of concern but equally there are also pressures to the use of animals for toxicity testing. There was recently an opinion editorial in Financial Times regarding the use of organoids (human tissues), rather than animals, for toxicological work. Do you have any thoughts or comments on that direction?

Answer: In vitro assays are an artificial system. It requires a lot to keep the organoids healthy and grow. From a mechanistic perspective there is a barrier to use in vitro assays as a replacement for animals, but they can still be useful to inform toxicology and risk assessment. Organoid systems are an exciting development because of the speed at which we can generate data. Our group is very interested in these new approach methodologies and we are forging a productive partnership with EPA to see how we can use these technologies.

In terms of PFAS – the intent of the proposed project is to determine whether we can use this type of information to provide risk context, even if it is at a screening level recommendation. Currently there is not clear guidance on how to use this type of information to derive risk-based guidance. We are hoping that with our smaller PFAS project, which focuses on chemicals that have structural similarity, we have a reasonable foundation, since that structural group does contain PFAS chemicals that we have whole animal data on. We hope that this will allow us to start moving into using these other sources of toxicity data. Our need for whole animal toxicity data for our standard approach is not sustainable. The PFAS situation highlights the need for toxicity information before chemicals are approved for use. There are not enough animals or money to conduct toxicity testing on all the chemicals we need data for, so we need to find alternative approaches for providing risk context.

Additional Questions/Answers

Question 16

Question: Where can I find the information/contaminants for various community drinking water sources? How can I find out what is in my drinking water and the sources of the contamination?

Answer: If you are on a public water supply you can look at your Consumer Confidence Report (CCR). These are provided on an annual basis by your city or water utility. You can search for your CCR on MDH's website: Consumer Confidence Reports (https://www.health.state.mn.us/communities/environment/water/com/ccr.html).

Data for Community Water Systems that have been sampled for PFAS can be found at: Interactive Dashboard for PFAS Testing in Drinking Water – (https://www.health.state.mn.us/communities/environment/water/pfasmap.html)

MPCA maintains a site called "What's in My Neighborhood," (https://www.pca.state.mn.us/data/whats-my-neighborhood) which is an on-line tool to access a wide variety of environmental information about your community using a map or text-based search.

US EPA also has a tool called "My Community" which allows you to search by address, ZIP code or state. This can be found on US EPA's home page (www.epa.gov). Scroll down the page to find the tool.

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