

ILLINOIS POLLUTION CONTROL BOARD
October 27, 2022

IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO) R22-18
GROUNDWATER QUALITY) (Rulemaking – Public Water Supplies)
35 ILL. ADM. CODE 620)

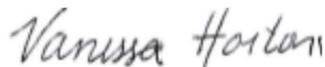
HEARING OFFICER ORDER

On December 7, 2021, the Illinois Environmental Protection Agency (IEPA, or Agency) filed a proposal to amend Part 620 of the Board’s groundwater quality regulations. The Board has held two hearings on this matter and will hold a third on December 7 and 8, 2022. The upcoming hearing will focus on participant testimony. The hearing officer set the deadline for pre-filed questions directed to participant witnesses for October 27, 2022.

The Board and Staff have questions based on pre-filed testimony filed by participant witnesses. Those questions are included with this order as Attachment A.

All filings in this proceeding will be available on the Board’s website at <https://pcb.illinois.gov/> in the rulemaking docket [R22-18](#). Unless the Board, hearing officer, Clerk, or procedural rules provide otherwise, all documents in this proceeding must be filed electronically through the [Clerk's Office On-Line](#). 35 Ill. Adm. Code 101.302(h), 101.1000(c), 101.Subpart J.

IT IS SO ORDERED.



Vanessa Horton
Hearing Officer
Illinois Pollution Control Board
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ATTACHMENT A**R22-18: Proposed Amendments to Part 620 Groundwater Quality Standards
Board and Staff Questions for the Participant Witnesses****Dynegy Midwest Generation, LLC, et al****Melinda Hahn**

1. The groundwater quality standards under 35 Ill Adm Code 620.410 and 420 recognize the possibility of constituents being present at concentrations above the Class I or Class II standards. For example, Section 620.410 provides, “Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded”. See 35 Ill Adm Code 410(a). In addition, many of the Board’s remediation regulations like Underground Storage Tank (UST), Site Remediation Program (SRP), and CCR Surface Impoundment include alternative source demonstration provisions to address background related issues when it comes to remediation. Please comment on why the Board must revise the proposed *health-based* Class I standards to reflect state-specific background concentrations.
2. On page 2, referring to USGS report of NWQAP data, you note that “a map of spatial distribution of cobalt concentration in groundwater (reproduced below) shows that approximately one-third of the Illinois samples exceed 0.001 mg/L”.
 - a. Does this mean two-third of the samples were below 0.001 mg/L?
 - b. If so, considering the non-degradation provisions under Part 620, comment on whether health-based Class I groundwater quality standards for cobalt must be set based on background concentration, which may allow contamination up to the background level in groundwater where cobalt concentrations are below the proposed standard.
 - c. Would such a standard be protective of human health?
 - d. Please address vanadium in the same context.
3. On page 5, you note, “In fact, laboratories currently operating in Illinois and laboratories certified by IEPA to analyze samples collected in Illinois may be unable to achieve reporting limits needed to show compliance with the very low proposed standards for cobalt and vanadium in unfiltered groundwater samples”. Please comment on whether your statement is based on a survey of all currently operating laboratories in Illinois, including those certified by IEPA. If not, how many laboratories in Illinois were contacted to draw your conclusion.

4. For chemical constituents like cobalt and vanadium, please comment on whether compliance with the health-based groundwater standards be based on filtered samples rather than unfiltered samples.

Lisa Yost

5. On pages 2 and 3, you summarize your opinion by stating that the proposed standards for selenium, fluoride and molybdenum are not appropriate for adoption based upon several reasons.
 - a. Please comment on whether you are aware of selenium, fluoride, and molybdenum levels in Illinois groundwater like the cobalt and vanadium data mentioned in Dr. Hahn's testimony.
 - b. If so, would it be possible provide that information into the record to show if compliance with the proposed standards would also be a concern.
6. In Table 1, your comparison of the proposed selenium standard with standards in neighboring states indicates that our neighbor states have standards based on USEPA MCL of 0.05 mg/L. Are you aware of Minnesota's selenium Health Risk Limit of 0.03 mg/L? If so, please comment on why Minnesota chose to set a limit lower than the federal MCL.

3M Corporation

Robin Prueitt

7. On Page 4, you note, "IEPA followed its own process of choosing toxicity values by relying on values developed by other agencies to use in its calculations of the Proposed PFAS Standards" instead of developing toxicity values based on traditional human health risk assessment practices. Please clarify whether you are suggesting that IEPA must be developing toxicity information rather than relying on information developed by other agencies. If so, are you aware that IEPA generally relies on toxicity values developed by federal agencies to derive standards?
8. On page 4, you refer to IEPA's response that concerns brought up by the American Chemistry Council regarding the Agency for Toxic Substances and Disease Registry's (ATSDR's) interpretation of the data from the study used as the basis for its PFOS minimum risk level (MRL) (which was chosen as the PFOS toxicity value by IEPA) should be directed to ATSDR (citing IEPA, 2022a, Agency Answer 7).

- a. Please explain for the record the process ATSDR follows in establishing MRL for a hazardous substance.
 - b. Does the process of establishing MRL involve public comment, including an *external peer review* by experts in subjects related to content of Toxicological Profile?
 - c. Considering the expertise and resources available at the state level, please comment on why it is unreasonable for IEPA to rely on toxicity data developed by federal agencies responsible for developing health-based values to protect health of general population.
9. On page 5, you state that ATSDR's interpretation of the underlying study used for its PFOS MRL results in an overly conservative toxicity value because ATSDR chose a non-adverse effect as the critical effect for the MRL.
- a. Please comment on what you would consider as an appropriate critical effect that should have been considered in establishing the MRL.
 - b. Was the issue of critical effect raised during the development of the MRL's public comment process?
 - c. If so, how did ATSDR address the concerns regarding the conservative nature of toxicity values.
10. On page 5, you note, "ATSDR only considered studies with animal strains that had pharmacokinetic model parameters available for predicting serum concentrations of PFAS in the animals from the administered PFAS doses (ATSDR, 2021), which precluded the use of many studies of various endpoints."
- a. Please comment on whether the reason for relying on studies with pharmacokinetic model parameters is because they help in predicting human toxicity to contaminants more so than studies without such parameters.
 - b. Provide citations of the studies that were precluded by ATSDR with different endpoints.
 - c. Comment on the endpoints in the precluded studies in terms of whether they were higher or lower than ATSDR's determined MRLs for PFAS.
11. Also on page 5, regarding RSC for noncancer effects, you note that Michigan and Minnesota have used methodology described by USEPA in its "Exposure Decision Tree",

combined with publicly available data on background concentrations of PFAS in the serum of the general US population to select an RSC value of 50% for several PFAS.

- a. Please explain how the data on background concentrations of PFAS in general population was used in the decision tree.
 - b. Please submit the Michigan Department of Health and Human Services, and Minnesota Health Department publications cited on page 5 of your testimony into the record.
12. On page 7 regarding carcinogenic of PFOA, you state that “it is well-documented in the literature that PFOA is not genotoxic or mutagenic (Crebelli *et al.*, 2019; Kennedy and Symons, 2015; EFSA CONTAM, 2018; ATSDR, 2021)”. Please comment on whether the research has ruled out mutagenicity of PFOA or the chemical is still being studied to evaluate the carcinogenic effects.
13. Also on page 7, you state that “PPAR α {peroxisome proliferator-activated receptor alpha} receptor mediated processes occur much more readily in rats than humans.”
- a. Please elaborate on how PPAR α mechanisms is less relevant in humans.
 - b. Are the PPAR α mechanisms nonexistent or occur less often in humans?
 - c. If they do occur in humans, please comment on the extent of their occurrence.
14. On pages 11, you note that USEPA relied on an unpublished DuPont reproductive and developmental study to derive the RfD for HFPO-DA where the critical effect used was a “constellation of liver lesions” rather than a “single liver effect”. Please elaborate on why a “constellation” of liver lesions and/or effects is not appropriate to derive the RfD by considering adversity as a whole.

PFAS Coalition

Ned Beecher

15. On page 2, you state that it is “more prudent and efficient to set drinking water maximum contaminant levels (MCLs) before setting groundwater standards.” According to Illinois Environmental Protection Agency’s 2017 [Annual Groundwater and Drinking Water Program Review](#), about 35 percent of Illinois residents use groundwater for their water source. Additionally, [Illinois State Survey](#) reports that approximately 90 percent of rural citizens in Illinois utilize groundwater from private wells for their source of water. Considering this, please comment on why it is not appropriate to establish GWQS to protect state’s groundwater resources, which serve as source of drinking water for a

large population of the state who may not be afforded protection by implementing drinking water MCLs that apply to public water supplies.

16. On Page 3, you express specific concerns regarding the impact of the proposed standards on wastewater and biosolids management.
 - a. Do you have specific information regarding PFAS content of biosolids from Illinois POTWs or from other states? If so, please enter such information into the record.
 - b. Do you have information regarding the acreage of Illinois agricultural land upon which biosolids are applied as fertilizer? If so, please submit such information into the record.
 - c. Are you aware of any groundwater contamination issues in Illinois concerning PFAS specifically attributed to biosolids application to agricultural land? If so, please submit information regarding such contamination and any response action taken by regulatory agencies.
17. On Page 4 you note that on “average, as of 2020, a survey of WRRFs impacted by PFAS concerns found price increases averaging 37% in one year.”
 - a. Please submit the 2020 WRRF survey results into the record.
 - b. Also comment on whether there is an annual increase in biosolid management costs irrespective of any PFAS concerns. If so, what would be the range of that annual increase?
18. On Page 9, you state that the proposed groundwater standards are at or close to measured background groundwater levels in numerous places.
 - a. Please clarify as to what measured background levels you are referring to in the above statement.
 - b. Were these background levels measured in Illinois groundwaters?
 - c. If so, submit PFAS background level information into the record.
 - d. If not, comment on where and how the background levels were measured and submit any available information concerning the background levels.
19. On page 11 regarding Michigan’s PFAS standards, you state that “[t]hey did not shut down all biosolids programs, avoiding dramatically disrupting wastewater treatment.”

Please comment on whether the adoption of the proposed PFAS standards would result in shutting down all biosolids programs in the state.

20. On page 12, you note that the levels of PFOA and PFOS are going down in humans and waste streams such as biosolids citing ATSDR, 2022, Venkatesan and Halden, 2013 and MassDEP 2022. Please comment on whether, in addition to PFOA and PFOS, there are any concerns regarding PFCAs (perfluoroalkyl carboxylic acids) and PFSAAs (perfluoroalkane sulfonic acids) in biosolids.
21. On Page 13, you state that Maine imposed screening levels for PFOA and PFOS in biosolids without knowing whether their public wastewater treatment agencies' biosolids would be able to meet those screening levels.
 - a. Please comment on whether you believe that the proposed PFAS standards in this rulemaking would also be used as screening levels for biosolids application to agricultural land in Illinois.
 - b. If so, explain the rationale for your position.
22. On page 15, you state that “IEPA should now be using the data from its own CWS sampling and the increasing volumes of data on background PFAS levels elsewhere in order to understand what the costs will be for all these systems to meet not only the *current state standards*, but also the proposed Part 620 groundwater standards.” *Emph. added.*
 - a. Please clarify what you mean by asking IEPA to understand the cost of meeting “the current state standards” for “all these systems.”
 - b. If you mean public water supplies by referring to “all these systems”, please comment on whether you believe that the proposed groundwater standards apply to PWS.
 - c. If not, comment on whether the compliance cost of any proposed MCLs for PFAS should be considered in a future rulemaking addressing drinking water MCLs.

National Waste & Recycling Association (NWRA)

Eric Ballenger

23. On page 2, you state that it should be understood by the regulating agencies and the Board that landfills are receivers of PFAS, not users or producers. Please comment on whether most of the contaminants in landfill leachate are derived from wastes received by the landfills and not produced by the landfills.

24. On page 2, you state, “this will affect 807 sites as well as “greenfield” sites all the way through post-closure of currently active facilities.”
- a. Regarding Part 807 facilities, please clarify whether you are referring to landfills or all types of waste disposal facilities regulated under that Part.
 - b. If you are referring to landfills, please comment on whether landfills in the State that are still being regulated under Part 807 or they generally regulated under Parts 813 and 814.
 - c. Please explain what you mean by “greenfields” in the above statement
25. On page 2, you state, “data reported by others in various studies and sample results for our landfills in other states indicate PFAS will be detected in landfill leachate especially at such proposed conservative low detection limits.”
- d. Please submit the studies you mention above and PFAS sampling data from your landfills in other states into the record.
 - e. In what states are your landfills located where PFAS were sampled? Do these states require monitoring of PFAS constituents?
 - f. Please clarify whether the PFAS data reported in various studies attribute the presence of PFAS to the waste generating the leachate or to leaching of PFAS from monitoring systems, sampling and/or laboratory equipment.
26. On page 3 you state because of PFAS background conditions landfills would be required to perform multiple sampling events of upgradient wells and potentially all wells if intra-well statistical values are permitted. Please comment on whether this is the case for any contaminant that is detected in the landfill leachate not just PFAS.
27. Also on page 3, you state that dedicated sampling systems may include materials with PFAS that have nothing to do with impacts from the facility.
- a. Please clarify whether PFAS detected in groundwater monitoring wells may be leaching from the sampling systems as opposed to coming from the waste.
 - b. If so, what’s the basis for your statement? Have there been any studies done to indicate that well monitoring systems contribute significant amounts of PFAS in relation to the amounts leaching from the waste disposed in the landfill? If there area, please submit them into the record.

28. On page 3, you repeat your concerns regarding contamination associated with lab or sampling equipment with respect to analysis of PFAS in landfill leachate.
- a. Is it your position that any analysis of PFAS in leachate or groundwater samples would be suspect because of contamination from sampling or lab equipment?
 - b. If so, do you have any alternatives for protecting groundwater from potential PFAS contamination from landfills?
29. Regarding ground water impact assessment (GIA) at landfills, you state that the current modeling requirements have the potential to be substantially affected and become unreasonably complicated. Please comment on whether the Board's Part 811 landfill regulations could be modified to accommodate concerns regarding application of GIA provisions to PFAS.
30. On page 4 regarding treatment of landfill leachate at publicly owned treatment works (POTWs), you state that there is a significant risk that POTWs will begin to refuse landfill leachate due to concerns about PFAS.
- a. Please comment on whether you are aware of any specific POTW in the states you operate that currently do not accept landfill leachate for treatment.
 - b. Are you aware of any state or federal PFAS surface water quality standards or NPDES (National Pollution Discharge Elimination System) permit limits that may cause POTWs to refuse acceptance of landfill leachate containing PFAS?
31. On Page 5, you state that landfills monitor water bearing units that are not potable water sources and we believe that setting potential "drinking water limits", i.e., Class I limits, in these zones is not warranted.
- a. Please clarify whether you are referring to "zone of attenuation" under Part 811.
 - b. If so, are you aware that groundwater within the "zone of attenuation" is classified as Class IV under Part 620 where Class I standards will not apply.
 - c. If not, clarify whether you are referring to Class I groundwater outside the zone of attenuation that is currently not being used as a drinking water source.

Thomas Hilbert

32. On page 3, regarding performing groundwater impact Assessment (GIA) for PFAS constituents, you state that GIA is highly sensitive to the concentration difference

between the modeled leachate constituent and the applicable groundwater quality standard.

- a. Please clarify whether the applicable PFAS groundwater quality standards for landfills under 35 Ill Adm Code 811.320 would be based on Part 620 PFAS standards, or the site-specific background concentrations of the PFAS constituents.
 - b. Please comment on whether a landfill in Illinois could be required to monitor PFAS constituents and establish background-based groundwater quality standards under Part 811 if PFAS constituents are detected in the landfill leachate.
33. On page 3, you state, “The groundwater standard concentrations proposed for PFOA and PFOS are at levels that are up to 1000 times higher than the typical leachate concentrations.” Please clarify whether you meant the proposed standards are 1000 times lower than typical leachate concentrations. If not, comment on why compliance with the proposed PFAS standards a significant issue for landfills.
34. On page 4, you state that “every Illinois MSW landfill must review and update the GIA every 5 years when it applies for the renewal of its landfill operating permit.”
 - a. Please comment on whether any Illinois-based NWRA members have performed GIA for their landfills using the proposed PFAS standards or standards based on PFAS background concentrations that support your concerns.
 - b. Also comment on whether NWRA has considered proposing any changes to the landfill GIA regulations to address the concerns regarding PFAS constituents.
35. On page 5, you state that “when POTWs refuse to accept landfill leachate, which is beginning to happen, there is a significant economic impact on the landfill which threatens the landfill’s ability to maintain compliance with the leachate removal requirements of the Part 811 rules...”. Please clarify whether any POTW in Illinois has adopted pretreatment standards under 35 Ill Adm Code 310 that prohibit acceptance of landfill leachate because of PFAS presence. If so, submit any relevant pretreatment program information into the record.
36. Also on page 5, you state that the “estimated capital costs to implement leachate pretreatment at a moderate-sized landfill to the extent necessary to reduce PFAS to the levels proposed, should such reductions even be feasible, range from \$2 million to \$7 million. Please explain how you determined the estimated range of capital costs.

American Chemistry Council (ACC)

Stephen P. Risotto

37. On pages 5 through 8, you raise several concerns regarding USEPA's 2021 Assessment of HFPO-DA and PFBS. Please clarify whether you are referring to the updated toxicity assessments published in April 2021.
38. Please comment on whether USEPA's toxicity assessment process allows for public comment and expert peer review prior to final publication.
- a. If so, did ACC or any other researchers/groups raise the "underlying" concerns noted in your testimony (pages 5-8) during the public comment/peer review process?
 - b. If concerns noted in your testimony were raised, how did USEPA respond to them. Please submit any relevant documents from the USEPA toxicity assessment process into the record.
39. On pages 9 through 13, you raise several concerns regarding ATSDR minimum risk levels (MRLs) for PFHxS, PFNA and PFOS that were used by IEPA to propose Class I/II standards.
- a. Please comment on whether the process for developing MRLs at ATSDR allows for peer review and public comment prior publication of the MRL.
 - b. If so, did ACC or any other researchers/groups raise the concerns noted in your testimony (pages 8-13) during the public comment/peer review process of MRL development?
 - c. If concerns noted in your testimony were raised during MRL development, how did ATSDR respond to them. Please submit any relevant documents from the ATSDR MRL development process into the record.
40. On page 4, you state, "the calculation of an acceptable daily exposure (ADE) for a child between the ages of 0 and 6 years of age is similarly not appropriate for PFNA and PFOS for which the ATSDR MRL is based on developmental effects among laboratory animals in utero."
- a. Please elaborate on why the use of ATSDR MRLs are inappropriate.

- b. What would you recommend that the Board consider as the bases for establishing groundwater standards for PFNA and PFOS that would be protective of children between ages of 0 to 6 years instead of ATSDR MRLs?