ILLINOIS POLLUTION CONTROL BOARD
October 17, 2024

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

Proposed Rule. Proposed Second Notice.

OPINION AND ORDER OF THE BOARD (by B.F. Currie and M. Gibson)

On March 7, 2024, the Board issued a first-notice opinion and order proposing amendments to its groundwater quality rules in 35 Ill. Adm. Code 620. The Board received comments from the proponent of this rulemaking, the Illinois Environmental Protection Agency (IEPA or Agency), as well as from many other participants. This opinion summarizes and discusses the issues raised in public comments filed since the publication of the first-notice amendments in the *Illinois Register*, as well as the Board's findings on those issues.

Today, the Board sends out for public comment the rules as the Board anticipates they will appear at second notice. The Board has made substantive changes to the proposed first notice rules and is taking this action today to receive comment on the changes before proceeding to second notice under the Illinois Administrative Procedure Act (5 ILCS 100/5-40(c) (2022)). By sending these rules out for public comment today, the Board will be able to consider any concerns participants may have before submitting second-notice amendment to the Joint Committee on Administrative Rules (JCAR).

In this opinion, the Board first provides an abbreviated procedural background on this rulemaking. The Board then discusses the issues raised during the first-notice comment period, along with the amendments to the first-notice proposal that the Board is considering for second notice. Anyone is welcome to file comments on any of the amendments in this proposed second notice. Public comments will be accepted until November 18, 2024. The full text of the proposed rule changes is included in Addendum B to this order.

PROCEDURAL BACKGROUND

Before adopting a proposal for first-notice publication in this rulemaking, the Board held three public hearings on March 9, June 21, and December 7 of 2022 (Tr.1, Tr.2, Tr.3). On March 7, 2024, the Board issued its first-notice amendments in an addendum (First-Not. Add.), accompanied by an opinion and order (First-Not. Op.). *See* Proposed Amendments to Groundwater Quality 35 Ill. Adm. Code 620, R22-18 (Mar. 7, 2024). Following first-notice publication in the *Illinois Register* on March 29, 2024 (48 Ill. Reg. 4608 (Mar. 29, 2024)), the Board received public comments from the following participants:

- Illinois Water Quality Association (PC 59)

- Email correspondence between the Board and the Joint Committee on Administrative Rules (PC 60)
- National Waste & Recycling Association (PC 61)
- IEPA (PC 63)
- Illinois Environmental Regulatory Group (PC 64)
- City of Springfield, Office of Public Utilities (PC 65)
- Dynegy[1] (PC 66)
- PFAS Regulatory Coalition (PC 67)
- Illinois Association of Wastewater Agencies (PC 68)
- International Molybdenum Association (PC 70)
- IEPA (PC 71)

On April 26, 2024, IEPA filed its responses to Board questions posed in the first-notice opinion (IEPA 4/26/24 Resp.). *See* First-Not. Op. at 68-69. On July 18, 2024, the hearing officer issued an order asking more Board questions of IEPA. IEPA responded with answers to those Board questions on August 9, 2024 (IEPA 8/9/24 Resp. or PC 71).

ISSUES RAISED BY PARTICIPANTS

Participants and IEPA raised numerous issues following the first-notice publication of the proposed amendments. Below, the Board summarizes, discusses and makes findings on those issues.

Federal Limits on PFAS in Drinking Water

On April 10, 2024, the United States Environmental Protection Agency (USEPA) published its final rule on national primary drinking water regulations for six PFAS. *See* 89 Fed. Reg. 49101 (Apr. 10, 2024). At first notice, the Board acknowledged the proposed federal rules for maximum contaminant levels (MCLs) in drinking water. First-Not. Op. at 7-8. Participants had suggested that the Board proceed with drinking water updates based on USEPA's PFAS MCLs first, and then move on to the proposed groundwater PFAS changes. At hearing, IEPA reported that the Agency was at the beginning of its process in developing the drinking water MCLs and their work on Part 620 was further along. TR 1 at 24-25. At first notice, the Board explained why it was proceeding with groundwater standards before drinking water standards:

> Regarding PFAS, the Board for several reasons moves forward with the groundwater standards before adopting drinking water standards. First, groundwater is a vital resource that needs to be protected for current and future uses. Second, adopting groundwater standards meets the policy of the Illinois Groundwater Protection Act, which recognizes "the essential and pervasive role of groundwater in the social and economic well-being of the people of Illinois, and its vital importance to the general health, safety, and welfare" and directs the

[1] "Dynegy" refers collectively to Dynegy Midwest Generation, LLC; Electric Energy Inc.; Illinois Power Generating Company; Illinois Power Resources Generating, LLC; and Kincaid Generation, LLC.

> "state to restore, protect, and enhance the groundwaters of the State." 415 ILCS 55/2(b) (2022). Third, all six PFAS chemicals have been detected in the State's public water supplies that rely on community water supply wells to serve large populations. Further, thousands of Illinoisans depend on groundwater from private potable wells, usually without access to treatment technologies. Hence, it is imperative that the State's groundwater resources are adequately protected from PFAS contamination. Finally, USEPA has proposed drinking water maximum contaminant levels for PFAS in drinking water. Once USEPA finalizes that proposal, the Board will propose amendments to the Safe Drinking Water Regulations standards under Part 611 consistent with the federal rules. *Id*. at 1-2.

Now, after publication of first notice, the Illinois Environmental Regulatory Group (IERG) again suggests that the Board pause this rulemaking and focus on adopting the federal drinking water standards. PC 64 at 2-3. IERG argues "the Board should postpone further groundwater rule development and instead focus on state drinking water standards." *Id*. The City of Springfield asked that the Board's groundwater quality standards mirror USEPA's MCLs for PFAS. PC 65 at 7.

Board Discussion and Findings

The Board has reserved rulemaking docket R25-1 for updates to the Safe Drinking Water Act and plans on pursuing an identical-in-substance rulemaking within the next six months to adopt USEPA's PFAS drinking water MCLs. Both this rulemaking and the upcoming identical-in-substance rulemaking can proceed independently. Therefore, the Board finds no reason to pause this rulemaking now to wait for R25-1's conclusion.

In its response to Board questions, IEPA reports that, "Part 620 Class I groundwater quality standards are based on MCLs if they are available." IEPA Resp. at 4 (Apr. 26, 2024). The Board agrees with IEPA and City of Springfield on this issue. As discussed below, the Board proposes revising the PFAS groundwater standards to reflect USEPA's final PFAS drinking water regulations.

PFAS Analytical Requirements

Laboratory Capacity to Analyze PFAS Samples

IERG raises concerns as to whether third-party laboratories will have the capacity to process a "sudden and unprecedented influx" of PFAS groundwater samples that would be triggered by the adoption of the PFAS groundwater quality standards (GWQS). PC 64 at 3. Because this issue was not fully explored at hearing, the Board posed questions to IEPA about IERG's concerns. Board Questions at 1 (No. 2) (Jul. 18, 2024).

In its response, IEPA agrees that more PFAS analyses will be performed if the Board adopts the proposed amendment. PC 71 at 4. According to IEPA, more laboratories in Illinois and other states have obtained the National Environmental Laboratory Accreditation (NELAC) for PFAS analyses in recent years. *See* IEPA Resp. at 4-5 (Aug. 9, 2024). *Id*. For example,

IEPA searched the NELAC website for laboratories that have accreditation for the PFAS methods used in Part 620 and found the following available laboratories:

- Drinking Water by EPA Method 537.1 – 56 laboratories with accreditation
  - Four Illinois laboratories with Illinois ELAP primary accreditation
  - 12 laboratories in other states with Illinois ELAP secondary accreditation
- Drinking Water by EPA Method 533 – 55 laboratories with accreditation
  - Four Illinois laboratories with Illinois ELAP primary accreditation
  - 11 laboratories in other states with Illinois ELAP secondary accreditation
- Non-Potable Water by EPA Method 1633 – 34 laboratories with accreditation
  - One Illinois laboratory with Illinois ELAP primary accreditation
  - One laboratory in other state with Illinois ELAP secondary accreditation
- Solid and Chemical Materials by EPA Method 1633 – 33 laboratories with accreditation
  - One Illinois laboratory with Illinois ELAP primary accreditation
  - One laboratory in other state with Illinois ELAP secondary accreditation
- Non-Potable Water by EPA Method 8327 – 3 laboratories with accreditation
- Solid and Chemical Materials by EPA Method 8327 – 3 laboratories with accreditation

IEPA Resp. at 5 (Aug. 9, 2024).

Because of this increased capacity, IEPA says that it was unnecessary "to contact individual laboratories to inquire about their capacity to analyze samples for PFAS." *Id.* at 5. Also, IEPA clarifies that the proposed rules would not require PFAS analyses to be performed only by Illinois laboratories. *Id.*

Board Discussion and Findings

The Board agrees with IERG and IEPA regarding an increase in demand for PFAS analyses due not only to the proposed PFAS GWQS here but also the recent adoption of the federal PFAS drinking water MCLs. However, as indicated by NELAC accreditation information, analytical laboratories in Illinois and other states are gearing up to meet the demand. As IEPA notes, many of the laboratories have received accreditation for PFAS analytical methods, which are proposed for inclusion under Part 620, like EPA Methods 533, 537.1, 1633, and 8327. PC 70 at 5. As of July 2024, more than 50 laboratories in the United States have obtained NELAC accreditation for one or more PFAS analytical methods.

USEPA first proposed its PFAS MCLs nearly two years ago (88 FR 18638). Since then, analytical laboratories nationwide have been on notice to increase capacity for PFAS analyses to meet the increased demand for PFAS analyses. Also, as proposed, Part 620 would not limit PFAS analyses to Illinois laboratories but rather would require using a laboratory with NELAC accreditation for the selected PFAS methods and analytes. Finally, the Board notes that any requirement to perform PFAS analyses will depend on how these standards are implemented within Illinois' various remediation programs. This may require additional rulemakings, which will provide more time for laboratories to increase capacity. Therefore, the Board finds that laboratory capacity for PFAS analyses is not a significant factor weighing against the adoption of the proposed PFAS GWQS.

Possible Contamination from Sampling Equipment

At first notice, the Board recognized participants' concerns regarding potential contamination of groundwater samples from sampling equipment containing PFAS. First-Not. Op. at 22. The Board then asked IEPA and other participants to "recommend PFAS sampling requirements, including proposed rule language, to address potential contamination of samples from sampling equipment." *Id*. IEPA responded by noting that each of the analytical methods for PFAS proposed for incorporation by reference under Section 620.125 addressed concerns about this potential for cross-contamination. IEPA Resp. at 1-2 (Apr. 26, 2024). These methods include ASTM D7979-20 and USEPA's Method 533, and Method 537.1 for analyzing PFAS. *Id*. at 1.

IEPA notes that each of the methods proposed for incorporation by reference under Section 620.125 specifies how to collect samples and requires analyzing field reagent blanks to assess potential contamination. IEPA Resp. at 2 (Apr. 26, 2024). Thus, IEPA argues that the proposed rules address cross-contamination concerns. However, the first-notice rules do not specify which sampling and analytical procedures must be used when collecting PFAS groundwater samples. To address this deficiency, IEPA proposes the following changes to current Section 620.510(b)(3)(C):

C) When sampling for Hexafluoropropylene oxide dimer acid (HFPO-DA), Perfluorobutanesulfonic acid (PFBS), Perfluorohexanesulfonic acid (PFHxS), Perfluorononanoic acid (PFNA), Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), the incorporations by reference in 620.125 that are applicable for sample collection, preservation, storage and analysis are:

"Standard Test Method for Determination of Per- and Polyfluoroalkyl Substances in Water, Sludge, Influent, Effluent, and Wastewater by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) ASTM D7979-20.

U.S. EPA, Office of Ground Water and Drinking Water, Standards and Risk Management Division. "Method 533: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry," November 2019. https://www.epa.gov/sites/default/files/2019-2/documents/method-533-815b19020.pdf.

U.S. EPA, Office of Research and Development, Center for Environmental solutions & Emergency Response.

Shoemaker, J. and Dan Tettenhorst, Method 537.1: Determination of selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass spectrometry (LC/MS/MS). U.S. Environmental Protection Agency, Office of Research and Development, Center for Environmental Assessment, Washington, DC. Version 2.0, March 2020.

Board Discussion and Findings

The Board agrees with IEPA that the methods proposed for incorporation by reference specify proper sample collection, preservation, and storage procedures. They also include requirements for collecting and analyzing field reagent blanks to assess potential contamination in the field during sample collection. For example, to minimize potential contamination of samples, USEPA's Method 533 for PFAS analyses includes requirements for sampling containers, vials, tubing, and laboratory equipment. Similar requirements are also specified in other PFAS methods (ASTM D7979-20, USEPA Method 537.1) to be incorporated by reference in Section 620.125. Given the expected increase in analyses of PFAS samples triggered by the new PFAS drinking water regulations, the Board expects improvements in sampling technology to further reduce or eliminate potential contamination from sampling equipment.

Therefore, instead of proposing specific PFAS sampling requirements in the proposed rules, the Board relies on the protocols specified in PFAS analytical methods, to be incorporated by reference in Section 620.125, which address the participants' concerns regarding potential contamination from sampling equipment. As suggested by IEPA, the Board clarifies Section 620.510(b)(3)(C) by prescribing the specific analytical methods that must be used when collecting PFAS groundwater samples.

PFAS GWQS

IERG, City of Springfield (CWLP), PFAS Regulatory Coalition, Illinois Association of Wastewater Agencies, and the National Waste & Recycling Association continue to oppose the adoption of the proposed PFAS GWQS. These participants raise concerns over the stringency of the proposed standards, implications for other regulatory programs like the Board's landfill rules and the Tiered Approach to Corrective Action Objectives (TACO), and the technical feasibility and economic impact of complying with the PFAS standards. In this section of the opinion, the Board addresses the concerns regarding the proposed numerical PFAS Class I and Class II GWQS. The issues concerning technical feasibility and economic reasonableness are addressed separately in a later section of this opinion.

Participants' Concerns

IERG argues that the proposed PFAS GWQS may create excessive liability for its members both because PFAS have been identified throughout Illinois from numerous sources and because the proposed amendments are more stringent than standards of other states. PC 64

at 1. PFAS Regulatory Coalition and the Illinois Association of Wastewater Agencies share IERG's concern over the stringency of the proposed GWQS compared to other states' standards. They argue that IEPA has not explained why the proposed PFAS standards are "so much more restrictive than PFAS standards proposed or adopted by most other states." PC 67 at 8-9 and PC 68 at 9 (quoting both). They note that the majority of states with PFAS groundwater regulations "have drawn significantly different scientific conclusions than IEPA from the same studies that IEPA has relied on" to support the proposed PFAS standards. *Id.*

IERG also argues that the Board should pause the rulemaking because ongoing research on PFAS chemistry, toxicology, and changes in regulatory approaches "is creating a rapidly changing understanding of PFAS." PC 64 at 2. Finally, IERG states that the Board should use USEPA's PFAS MCLs as the basis for the GWQS. *Id.* at 3. CWLP also supports the adoption of Class I standards that mirror the federal MCLs. PC 65 at 7. CWLP states that the Board should not attempt to deviate, be more stringent than, or "get out ahead of" USEPA on standards that have effective MCLs available. *Id*.

IEPA's Response

In response to Board questions about whether the proposed PFAS standards should mirror USEPA's MCLs or health-based water concentration (HBWC), IEPA states that Class I GWQS are based on MCLs if they are available. IEPA Resp. at 3 (Apr. 16, 2024). Thus, IEPA recommends that the Board revise the proposed PFOS standard from 7.7 ppt (0.0000077 milligrams per liter (mg/L)) to USEPA's MCL of 4 ppt (0.000004 mg/L); and the proposed PFOA standard from 2 ppt (0.000002 mg/L) to USEPA's MCL of 4 ppt (0.000004 mg/L). *Id.* Further, IEPA agrees that the proposed GWQS for PFNA, PFHxS, HFPO-DA should be based on the HBWC used in USEPA's MCL hazard index calculation. *Id.* at 3-4. IEPA recommends revising the proposed Class I and Class II GWQS for: PFNA from 12 ppt to 10 ppt; PFHxS from 77 ppt to 10 ppt; and HFPO-DA from 12 ppt to 10 ppt. *Id.*

Board Discussion and Findings

The Board agrees that the Part 620 Class I GWQS are based on USEPA's MCLs if they are available unless a more stringent standard is necessary to protect other uses like livestock or irrigation. Also, since the adoption of the first-notice proposal, USEPA has adopted individual drinking water MCLs for PFOA and PFOS and a hazard index MCL for mixtures of two or more of PFHxS, PFNA, HFPO–DA, and PFBS. 40 C.F.R. § 141 and 40 C.F.R. § 142 (2024). Therefore, as recommended by IEPA, IERG, and CWLP, the Board revises the proposed PFAS standards to be consistent with the USEPA MCLs or HBWC used in USEPA's hazard index MCL calculation. These revisions are discussed below.

Regarding the stringency of the proposed PFAS standards, the Board notes that other states' standards serve as a benchmark for comparison but not as a basis for developing Illinois GWQS. For developing groundwater standards, IEPA and the Board rely on USEPA's standards and guidance, as well as Part 620 procedures. As noted by IEPA, while some states have less stringent standards, the proposed PFAS standards are not the most stringent. PC 54 at 23. Many states are taking multiple actions to update their PFAS standards and guidance levels by

decreasing allowable concentrations. *Id.* at 24. Moreover, the Board expects many states to follow USEPA's lead and adopt standards consistent with the new PFAS drinking water MCLs to protect potable groundwater resources.

PFOA. At first notice, the Board proposed PFOA Class I and Class II GWQS of 4 ppt based on USEPA's proposed PFOA MCL of 4 ppt, which corresponds to the lowest reporting level for PFOA. First-Not. Op. at 26. As noted above, IEPA, IERG and CWLP agree that the proposed PFAS standards must be consistent with USEPA MCLs. Therefore, the Board proposes for second notice the PFOA Class I and Class II standards without any revisions. However, for second notice, the Board revises the explanatory footnotes to indicate that the PFOA is a carcinogen, and the standard is based on federal MCL. The Board replaces footnote "g" with footnotes "b" and "c" for PFOA Class I standard under Sections 620.410(b) and adds footnote "c" to the Class II standard under Section 620.420(b).

PFOS. The Board proposed PFOS Class I and Class II GWQS of 7.7 ppt for first notice but asked participants to comment on whether the standards should be revised to reflect USEPA's MCL of 4 ppt. First-Not. Op. at 29. IEPA notes that since the proposal of the noncarcinogen PFOS GWQS of 7.7 ppt in 2021, USEPA and the World Health Organization's International Agency for Research on Cancer designated PFOS a carcinogen. IEPA Resp. at 3. (Apr. 26, 2024). Considering PFOS as a carcinogen, USEPA set the Maximum Contaminant Level Goal (MCLG) for PFOS at zero as there is no safe level of the carcinogenic chemical in drinking water; and set an MCL of 4 ppt based on the minimum reporting level for PFOS. 89 FR 32576. Therefore, IEPA recommends that the proposed PFOS GWQS be revised to reflect the USEPA MCL. IEPA Resp. at 3 (Apr. 26, 2024). The Board agrees with IEPA that PFOS must be regulated as a carcinogen and revises the proposed PFOS Class I and Class II standards from 7.7 ppt to 4 ppt to be consistent with the USEPA's MCL for second notice. The Board also revises the explanatory footnotes to indicate that the PFOS is a carcinogen, and the standard is based on federal MCL. For Class I standard, the Board adds footnotes "b" and "c" and deletes footnote "a" under Section 620.410(b). For the Class II standard under Section 620.420(b), the Board adds footnote "c".

PFNA. The Board proposed PFNA Class I and Class II GWQS of 12 ppt (0.000012 mg/L) at first notice. First-Not. Op. at 31. The proposed standard is consistent with the USEPA's PFNA HBWC of 10 ppt (0.00001 mg/L), but IEPA explains that the proposed standard is based on two significant digits (significant digits are simply the nonzero digits of a number) under Part 620's Subpart F and Appendix A methods. IEPA Resp. at 3. (Apr. 26, 2024). In contrast, USEPA's HBWC extends to one significant digit. *Id*. IEPA states that the standard should be revised to one significant digit of 10 ppt (0.00001 mg/L) to be consistent with the HBWC used in the USEPA MCL hazard index calculation. *Id*. The Board agrees and, for this proposed second notice, revises the PFNA Class I and Class II standards from 12 ppt to 10 ppt. For second notice, the Board revises the explanatory footnote for PFNA Class I standard from "a" to "c" under Section 620.410(b) to indicate that the standard is based on federal MCL.

PFBS. At first notice, the Board proposed PFBS Class I and Class II GWQS of 1,200 ppt based on USEPA's PFBS chronic reference dose of 0.0003 mg/kg-day, which was also used by USEPA to develop the drinking water health advisory for PFBS. First-Not. Op. at 33, *citing* PC

54, Att. 2 at 4. However, as recommended by IEPA, IERG, and City of Springfield, the Board revises the proposed PFBS GWQS to be consistent with the HBWC used in USEPA's hazard index MCL calculation. Thus, the Board revises the PFBS Class I and Class II standards from 1,200 ppt to 2,000 ppt in this proposed second notice. The Board also revises the explanatory footnote for PFBS Class I standard from "a" to "c" under Section 620.410(b) to indicate that the standard is based on federal MCL.

PFHxS. At first notice, the Board proposed PFHxS Class I and Class II GWQS of 77 ppt (0.000077 mg/L). First-Not. Op. at 35. However, the Board directed IEPA to address "participants' questions regarding the thyroid effects of PFHxS and whether the proposed standard should be based on USEPA's HBWC." *Id*. at 35.

Responding to 3M Company's (3M) and the American Chemistry Council's concerns about the relevance of thyroid effects from PFHxS cited by the Agency for Toxic Substances and Disease Registry (ATSDR), IEPA notes that "ATSDR reviewed four studies to determine an appropriate intermediate MRL [minimal risk level] for PFHxS, not a single study, as referenced by 3M." IEPA Resp. at 3 (Apr. 26, 2024). Also, IEPA states that ATSDR is within USEPA's toxicity hierarchy relied upon to develop GWQS under Part 620, Subpart F. *Id.* USEPA adjusted the ATSDR MRL by an additional uncertainty factor of 10 for a subchronic-to-chronic extrapolation. *Id.* This toxicological value was used to calculate a HBWC for the MCL hazard index calculation. *Id.*

Regarding the American Chemistry Council's concern that increases in liver weight and hepatocellular hypertrophy may be related to activation of PPARα2, IEPA states that additional studies confirm thyroid effects from PFHxS. IEPA Resp. at 4 (Apr. 26, 2024). ATSDR agrees that histopathologic alterations in the thyroid may be the result of liver effects. *Id*. However, not enough data was available to tie the thyroid alterations to PPARα. *Id*. IEPA also notes that a recent USEPA Integrated Risk Information System (IRIS) Draft Toxicological Profile of PFHxS selected a reference dose (RfD) of 2 x 10-7 mg/kg-day, based on decreased total T4 hormone in Wistar rats. *Id*. According to the draft IRIS document, PFHxS exposure is likely to cause thyroid and developmental immune effects in humans, given sufficient exposure conditions. *Id*. Thus, the Board finds that there is sufficient evidence to support the thyroid effects of PFHxS.

Further, IEPA disagrees with 3M that ATSDR's selection of a half-life based on a five-year study of a group of retired fluorochemical production workers is overly conservative for an exposed community. 4/26/24 IEPA Resp. at 4. IEPA argues that ATSDR's selection of a human population of exposed workers following retirement is appropriate for determining an elimination half-life for PFHxS. *Id*.

Finally, IEPA agrees that the ATSDR's MRL must be adjusted for a subchronic-to-chronic duration by applying an additional uncertainty factor (UF) of 10, which results in a

[2] Peroxisome proliferator-activated receptor-alpha (PPARα) is a ligand-activated transcriptional factor that belongs to the family of nuclear receptors. PPARα regulates the expression of genes involved in fatty acid beta-oxidation and is a major regulator of energy homeostasis. First-Not. Op. at 24.

revised MRL for chronic exposure of 2 x 10^{-6} mg/kg-day. However, IEPA states that if USEPA adopts its PFAS drinking water proposal as a final rule, the proposed PFHxS GWQS should be based on HBWC (10 ppt or 0.00001 mg/L) used by USEPA's MCL hazard index calculation. Given that Part 620 Class I standards are based on MCLs if available, the Board agrees that PFHxS standards must be based on USEPA's HBWC. The Board therefore revises the PFHxS Class I and Class II standards from 77 ppt to 10 ppt for this proposed second notice. The Board also revises the explanatory footnote for PFHxS Class I standard from "a" to "c" under Section 620.410(b) to indicate that the standard is based on federal MCL.

HFPO-DA (GenX). The Board proposed HFPO-DA Class I and Class II GWQS of 12 ppt based on USEPA's Office of Water October 2021 Human Toxicological Profile of HFPO-DA. First-Not. Op. at 36, *citing* Exh. 2 at 12. The Board also directed IEPA to address participants' concerns regarding the scientific bases of the standards and explain why IEPA proposed a higher HFPO-DA standard (12 ppt) than USEPA's HBWC of 10 ppt. *Id.* at 38.

IEPA explains that the proposed standard, which is calculated using Part 620's Subpart F and Appendix A methods, is higher because the standard extends to two significant digits (0.000012 mg/L), while USEPA's HBWC extends to one significant digit (0.00001 mg/L.). 4/26/24 IEPA Resp. at 4. Also, rather than addressing the participants' concerns, IEPA recommends that the Board adopt HFPO-DA GWQS of 10 ppt to be consistent with the HBWC for USEPA's MCL hazard index calculation. *Id.*

Both IEPA and the Board rely on USEPA's standards and guidance to develop groundwater quality standards. As noted in the Board's first-notice opinion, USEPA has relied on the same study underlying IEPA's proposed HFPO-DA GWQS and has used the same uncertainty factors in developing the HBWC for HFPO-DA. First-Not. Op. at 38. Given that the Part 620 Class I GWQS are based on USEPA MCLs when available, the Board accepts IEPA's recommendation and revises the HFPO-DA Class I and Class II GWQS from 12 ppt to 10 ppt in this proposed second notice. The Board also revises the explanatory footnote for HFPO-DA Class I standard from "a" to "c" under Section 620.410(b) to indicate that the standard is based on federal MCL.

Molybdenum GWQS

Class I Molybdenum GWQS

At first notice, the Board proposed a Class I molybdenum GWQS of 0.019 mg/L based on the IRIS human health toxicity value. First-Not. Op. at 40. In response to the Board's first-notice directive to provide additional justification for the proposed molybdenum standard, IEPA now recommends that the Board revise both Class I and Class II standards to 0.01 mg/L based on protecting livestock watering. IEPA Resp. at 5 (Apr. 16, 2024). IEPA does so because this value is more stringent than the proposed health-based Class I standard of 0.019 mg/L. *Id*. The International Molybdenum Association (IMOA) and Dynegy are concerned about the proposed molybdenum Class I standard, as well as IEPA's newly recommended livestock watering-based standard. *See* PC 62 and 66. IEPA also submitted additional information and clarification in response to Board's July 2024 questions regarding the derivation of the molybdenum standard

based on the ATSDR MRL. *See* PC 71. Considering the participants' comments and IEPA's response, the Board revises the Class I molybdenum standard from 0.019 mg/L to 0.023 mg/L for this proposed second notice. As discussed below, this standard is based on the ATSDR MRL rather than the IRIS toxicity value.

Participants' Concerns. IMOA reiterates its concerns about the Class I molybdenum standard of 0.019 mg/L proposed for first notice, which is based on the toxicity value derived from USEPA's IRIS. IMOA maintains that the IRIS' molybdenum toxicity value from 1992 is based on an outdated, low-confidence study (Koval'skiy *et al*. (1961)), which does not reflect current science. PC 62 at 1. IMOA urges the Board to defer ruling on the proposed molybdenum GWQS until standards are developed based on "more recent, robust science assessed in the 2020 US ATSDR Toxicological Profile for Molybdenum." *Id.* at 1 and 3.

As support, IMOA submitted a recent USEPA Region 8 decision concerning the Colorado Department of Public Health & Environment's site-specific rulemaking to determine a human-health based water quality standard for molybdenum. PC 62 at 3. IMOA contends that USEPA Region 8 has definitively agreed that the ATSDR molybdenum toxicological profile provides "the most relevant and highest confidence toxicity and exposure information currently available." *Id.* at 1. IMOA also notes that Wisconsin's Department of Health Services has recommended the revision of that state's groundwater standards based on the ATSDR profile. *Id.* at 2.

Dynegy echoes IMOA's concerns about the first-notice Class I molybdenum standard, asserting that the IRIS toxicity value is "outdated, unreliable and scientifically questionable given significant additional information that has been collected since 1991." PC 66 at 8. In addition, Dynegy questions IEPA's recommendation to revise the Class I molybdenum standard to a more stringent livestock watering-based standard of 0.01 mg/L. *Id.* at 9. Dynegy contends that IEPA has not sufficiently justified adopting the newly proposed Class I and Class II molybdenum standard of 0.01 mg/L. *Id.*

IEPA's Response. As noted above, IEPA had recommended that the Board revise the IRIS health-based Class I molybdenum standard of 0.019 mg/L proposed at first notice to a more stringent livestock watering-based standard of 0.01 mg/L. 4/26/2024 IEPA Resp. at 5. However, in response to the Board's July 2024 questions about IMOA's continued opposition to using the IRIS toxicity value, as well as USEPA Region 8's approval of Colorado's molybdenum water quality standard based on the ATSDR profile, IEPA now recommends that the Board adopt the proposed molybdenum standard based on the IRIS toxicity value. PC 71 at 4. IEPA also submitted additional information and clarification, including a calculation of a molybdenum health-based standard of 0.023 mg/L based on ATSDR MRL. *Id*.

Livestock Watering-Based Standard. As discussed below under the proposed Class II molybdenum standard, IEPA recommends revising the Class II standard to 0.01 mg/L based on protecting livestock watering. Because this new standard is more stringent than the first-notice health-based Class I molybdenum standard of 0.019 mg/L, IEPA recommends that the Class I standard also be set at this Class II standard. IEPA Resp. at 5 (Apr. 26, 2024).

2020 ATSDR MRL. As for using the ATSDR MRL, IEPA notes that it contacted other states and USEPA about the basis for developing a potable resource standard for molybdenum. PC 71 at 1. Among the nine states that responded, six relied on the IRIS toxicity value, one (Colorado) used the ATSDR MRL with an additional UF, one (Wisconsin) had a state-derived standard, and one (Arizona) had no standard. *Id.* at 1-2.

IEPA states that, before first notice, it relied on the IRIS toxicity value for five reasons. PC 71 at 2. First, IRIS is a Tier 1 toxicity source in USEPA's hierarchy. *Id*. Second, the IRIS value is based on chronic exposure used in calculating health-based standards, as opposed to the ATSDR value, which is based on subchronic exposure. *Id*. Third, the IRIS toxicity value is used by USEPA for developing chronic health-based screening levels for residential populations (child and adult), including its Lifetime Health Advisory for drinking water. *Id*. Fourth, ATSDR's subchronic toxicity value should not be used without applying an additional uncertainty factor of 10 for subchronic to chronic extrapolation because the ATSDR value is not derived from benchmark dose (BMD) or pharmacokinetic (PK) models using time-weighted averages. *Id.* Finally, the IRIS value relies on the Koval'skiy *et al*. (1961) study, which is a human health study "conducted in a region selected specifically for its high molybdenum content in plants and its low copper content due to this inverse relationship." *Id*. at 2-3. In contrast, the ATSDR's toxicity value relies on an assumption "that the average copper intake of the U.S. population exceeds dietary requirements." *Id.* at 3. IEPA notes that while the IRIS toxicity value is specifically protective of populations with marginal copper intake, a modifying factor would have to be used with the ATSDR toxicity value. *Id*.

Additionally, IEPA is concerned about the calculation of Colorado's molybdenum water quality standard. PC 71 at 3. IEPA disagrees with USEPA Region 8's assessment to accept the ATSDR intermediate MRL without applying an uncertainty factor for extrapolating inhalation exposure to oral exposure. *Id*. Also, regarding Colorado's use of an uncertainty factor of 3 to extrapolate the ATSDR chronic value from the subchronic value, IEPA asserts, "the appropriate uncertainty factor to extrapolate the chronic RfD/MRL from the intermediate MRL calculated with dose estimations is ten, per USEPA's "'A Review of the Reference Dose and Reference Concentration Process,' incorporated by reference at Section 620.125." *Id.*

Further, IEPA argues that Colorado's use of a relative source contribution factor of 0.8, which represents 80% exposure via drinking water, is inappropriate because molybdenum exposure to general population is almost entirely through food. PC 71 at 3, *citing* PC 54, Att. 1 (ATSDR Molybdenum Toxicological Profile) at 120. IEPA maintains that a relative source contribution value of 0.2 (20%) is the more appropriate value for molybdenum's contribution to human exposure via water ingestion. *Id.* Finally, IEPA points out that while the Colorado standard is based on an adult body weight of 80 kg, the proposed standards here are based on exposure of a child (0-6 years) with a body weight of 15 kg. *Id.* at 4.

As the Board requested, IEPA calculated a molybdenum standard (human threshold toxicant concentration or "HTTAC") of 0.023 mg/L based on the ATSDR intermediate MRL of 0.06 mg/kg-d using Part 620's Subpart F procedures. PC 71 at 4. IEPA used an uncertainty factor of 10 for extrapolation from a subchronic value to a chronic value, a child's (0-6 years of

age) body weight of 15 kg, and a per capita daily water consumption for a child (0-6 years of age) of 0.78 L/day. *Id*.

Board Discussion and Findings

Before the Board now are competing recommendations to revise the first-notice Class I molybdenum standard. IEPA now recommends a standard based on a beneficial use value for watering livestock. On the other hand, IMOA and Dynegy recommend a standard based on the 2020 ATSDR toxicity value.

Regarding IEPA's proposed livestock watering-based standard of 0.01 mg/L, as discussed under the Class II molybdenum standard below, the Board agrees with Dynegy that IEPA has not sufficiently justified revising the proposed Class I molybdenum standard with a value based on protecting livestock watering. The Board further discusses this issue below in its discussion on Class II molybdenum standards. Therefore, the Board declines to replace the first-notice Class I molybdenum standard with IEPA's newly proposed standard. Below, the Board considers whether to apply the 2020 ATSDR MRL to revise the proposed Class I standard.

At first notice, the Board proposed the Class I molybdenum standard of 0.019 mg/L based on an IRIS toxicity value (0.005 mg/kg-d). First-Not. Op. at 40; IEPA Prop., Att. Ii-1 at 1. In doing so, the Board noted that the IRIS toxicity value addresses exposure of populations with marginal copper intakes. First-Not. Op. at 40. The IRIS toxicity value is based "on a human health study conducted in a region selected specifically for its high molybdenum content in plants and its low copper content due to their inverse relationship in humans." *Id*. at 40. Because IMOA and Dynegy continued to express concerns regarding the first-notice standard, the Board asked IEPA to calculate a standard based on the ATSDR MRL.

IEPA submitted a calculation of HTTAC for molybdenum of 0.023 mg/L based on an ATSDR-modified chronic MRL of 0.006 mg/kg-d. The Board agrees with IEPA using an uncertainty factor of 10 for extrapolation from a subchronic value to a chronic value, a relative source contribution of 0.2, a child's (0-6 years of age) body weight of 15 kg, and a per capita daily water consumption for a child (0-6 years of age) of 0.78 L/day. These values are consistent with the proposed revisions to Part 620's Appendix A procedures, which are used for developing GWQS. Therefore, the Board finds that the molybdenum HTTAC calculated by IEPA by using the ATSDR MRL would be protective of human health.

Further, recent determinations by USEPA and states like Colorado and Wisconsin to rely on the 2020 ATSDR MRL in developing molybdenum standards indicate a trend towards relying on more recent science. The 1991 IRIS value is based on a 53-year-old study (Koval'skiy *et al*. (1961)). Also, ATSDR is a source listed in the USEPA's revised toxicity values hierarchy, which is used to develop Part 620 groundwater standards. Exh. 2 at 6. Considering these factors, the Board agrees with IMOA and Dynegy that the Class I molybdenum standard should be based on the 2020 ATSDR MRL. Therefore, the Board replaces the first-notice Class I molybdenum standard with the ATSDR-based HTTAC of 0.023 mg/L in this proposed second notice.

Class II Molybdenum GWQS

The Board proposed a Class II molybdenum groundwater quality standard of 0.05 mg/L for first notice. First-Not. Op. at 40. However, the Board also directed IEPA to provide additional justification to support the proposed standard, which is based on protecting beneficial use for irrigation of crops and produce. *Id*.

IEPA's Response. IEPA notes that it selected proposed first-notice Class II molybdenum standard of 0.05 mg/L from the National Academy of Sciences' *Water Quality Criteria 1972* document, prepared for USEPA (USEPA 1972 Criteria Document). 4/26/24 IEPA Resp. at 5. The value is based on "toxicity of animals from forage grown in soils with short term use of irrigation water." *Id*. However, IEPA clarifies that the first-notice value of 0.05 mg/L is not representative for irrigation of *Illinois* soils. *Id*. It is intended for acid fine textured soils or acid soils with relatively high iron oxide content. *Id*. Most Illinois soils are neutral, with pH levels between 6.0 and 7.5. *Id*., *citing* IEPA Resp., Att. 8 (May 6, 2022). IEPA adds that the ability of the soil to inactivate molybdenum increases with decreases in pH. *Id.*, *citing* IEPA Prop. at 4858, Att. 1J 2. Thus, a higher amount of molybdenum could be added to acidic soils without producing excess concentration of that element. *Id.* In contrast, in Illinois soils, "the capacity of the soil to remove or inactivate molybdenum is decreased" because of neutral pH. *Id.*, *citing* IEPA Prop. at 4858. IEPA now states that Class II standard for molybdenum should be 0.01 mg/L based on livestock toxicity. *Id.*

IEPA notes that the USEPA 1972 Criteria Document cites the Kubota *et al*. (1963) finding that molybdenum concentrations of 0.01 mg/L or greater in soil solutions were associated with animal toxicity levels in alsike clover. PC 71 at 5. According to IEPA, alsike clover is very palatable to all grazing animals and is grown in combination with other grasses for hay or pasture. *Id.*, *citing* The Illinois Grazing Manual Fact Sheet (https://www.nrcs.usda.gov/sites/default/files/2022-12/AlsikeClover.pdf). Further, alsike clover grows throughout Illinois in roadsides, fields, and areas of disturbed soil. PC 71 at 5, *citing* https://dnr.illinois.gov/education/exoticshome/exoticherbaceous.html.

Dynegy's Concerns. Dynegy asserts that the origin of IEPA's newly proposed molybdenum standards of 0.01 mg/L is unclear and not supported by the record. PC 66 at 8-9. The "only reference in the 1972 Water Quality Criteria Document to a recommended 0.01 mg/L concentration of molybdenum is for irrigation '*waters used continuously* on all soil.'" *Id*. at 9, *citing* USEPA 1972 Criteria Document at 339, 344 (emphasis added). Dynegy argues that the irrigation criterion should not be used as a basis for the molybdenum standard because continuous irrigation is not used in Illinois. PC 66 at 9, *citing* Tr.1 at 154, 48. Further, Dynegy maintains that IEPA's new standard is not justified based on watering livestock, noting that the USEPA 1972 Criteria Document does not recommend a molybdenum criterion for livestock waters. PC 66 at 9, *citing* USEPA 1972 Criteria Document at 314. Thus, Dynegy contends that IEPA's new proposal for molybdenum lacks sufficient justification to be adopted by the Board. PC 66 at 9.

Board Discussion and Findings

The Board agrees with IEPA that the proposed Class II molybdenum standard of 0.05 mg/L is inappropriate for Illinois soils. The USEPA 1972 Criteria Document states that the 0.05 mg/L limit is applicable to "only acid fine textured soils or acid soils with relatively high iron oxide contents." Exh. 1J-2. As noted by IEPA, most Illinois soils are neutral. The Board also agrees with Dynegy, however, that IEPA has not sufficiently justified its newly recommended Class II molybdenum standard of 0.01 mg/L based on livestock watering.

Because of multiple factors influencing the toxicity of molybdenum to foraging animals, the USEPA 1972 Criteria Document does not recommend a molybdenum concentration limit to protect livestock watering. Exh. 1J-3 at 2. IEPA seems to have relied on the USEPA 1972 Criteria Document's recommended molybdenum criterion of 0.01 mg/L for *continuous irrigation* waters of all soils to protect livestock watering. IEPA Prop., Att. 1J-2, 1J-4. This criterion is based, at least in part, on Kubota *et al*. (1963) study's finding that molybdenum concentrations of 0.01 mg/L or greater in soil solutions were associated with animal toxicity levels in alsike clover. Exh. 1J-4. Considering that continuous irrigation is not practiced in Illinois, IEPA does not explain its rationale for applying a molybdenum concentration limit of 0.01 mg/L to irrigation waters for protecting livestock watering. Further, there is no information in the record to show that alsike clover is grown in Illinois by relying on continuous groundwater irrigation.

The Board finds that the proposed Class II molybdenum standard of 0.05 mg/L is inappropriate based on Illinois soil conditions. Further, IEPA has not sufficiently justified the adoption of the newly recommended livestock watering-based standard of 0.01 mg/L. Therefore, the Board revises the Class II molybdenum standard in this proposed second notice based on the Class I standard of 0.023 mg/L. This revision is consistent with previous Board rulemakings where Class II standards for many constituents have been adopted based on their Class I standards. *See* IEPA Prop., Att. IJ-1. Because of concerns with molybdenum levels in groundwater related to beneficial use for livestock watering, the Board adopts the Class II standard at the same level as Class I standard without applying a treatability factor. The Board also replaces the explanatory footnote for molybdenum Class II standard from "f" to "e" under Section 620.410(a)(1) to indicate that the standard is same as the Class I standard.

Selenium GWQS

At first notice, the Board proposed revising the existing selenium Class I and Class II groundwater standards from 0.05 mg/L to 0.02 mg/L. First-Not. Op. at 42. This revision would shift the basis of the selenium standard from USEPA's health-based MCL to the beneficial use of groundwater for irrigating crops. The irrigation value is more stringent, and would allow for irrigating crops with Class I potable groundwater. *Id*.

Dynegy is concerned that the USEPA 1972 Criteria Document relied on studies done in areas with agricultural conditions unlike Illinois soils and crops. PC 66 at 4. CWLP encourages the Board to assess whether it is appropriate to revise the selenium standard or if may be more appropriate to have different Class I and Class II standards. PC 65 at 9. Considering the

participants' concerns, as well as IEPA's response to those concerns, the Board retains the first-notice selenium Class I and Class II standards in this proposed second notice.

Participants' Concerns

Dynegy argues that IEPA's proposed selenium standard does not account for differences between irrigation rates in Illinois and the data relied on in the USEPA 1972 Criteria Document. PC 66 at 4. The selenium standard is based on conclusions from studies in Oregon, Wyoming, New Zealand, and Denmark, which Dynegy claims are inappropriate to apply here due to the differing agricultural and irrigation conditions between the study locations and Illinois. *Id*. Dynegy asserts that the USEPA 1972 Criteria Document's criterion for selenium relates to livestock *foraging on range plants*, which do not typically serve as forage for livestock in Illinois. *Id.* at 5, *citing* Exh. 24 at 6, 8-9. Dynegy contends that range plants typically require higher levels of irrigation than the types of forage crops that exist in Illinois. PC 66 at 5, *citing* Exh. 30 at 3-4. Additionally, Dynegy notes that the soils considered were fine textured with neutral to alkaline pH, which IEPA has not demonstrated are present in Illinois, according to Dynegy. PC 66 at 5.

Dynegy also argues that the proposed standard is based on continuous irrigation with rates of 3 acre-feet water use per acre, which is significantly higher than what Dynegy describes as Illinois' average of 0.5 acre-feet water use per acre. PC 66 at 5, *citing* Exh. 24 at 7, *citing* USDA (2018[3]).

Further, Dynegy maintains that the testimony of one of its experts, Ms. Lisa Yost along with Dynegy's post-hearing comments support the conclusion that Illinois soils are deficient in selenium. PC 66 at 5, *citing* Exh. 24; PC 57, Exhs. D, E. Dynegy contends that IEPA had the opportunity to question Ms. Yost. PC 66 at 5. Because Illinois soils are selenium deficient and thus crops grown in the soil would also be deficient, Dynegy asserts that IEPA's proposed selenium standard is inappropriate. PC 66 at 5, *citing* PC 57, Exh. D.

Dynegy recommends the Board review the above information and consider whether it would be appropriate to adopt IEPA's proposed selenium standard, especially when "reducing the standard may prove unnecessary or even detrimental." PC 66 at 5. CWLP also encourages the Board to assess whether it is appropriate to update the selenium standard based on a 50-year old report or whether the Class I standard should differ from the Class II standard. PC 65 at 9.

IEPA's Response

IEPA asserts that irrigation is a beneficial use of groundwater, agriculture is a "primary industry" in Illinois, and groundwater should be able to be used for irrigation without fear of

[3] United States Department of Agriculture (USDA), Census of Agriculture, 2018 Irrigation and Water Management Survey, Table 7 Irrigation by Estimated Quantity of Water Applied: 2018 and 2013, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Farm_and_Ranch_Irrigation_Survey/fris_1_0007_0007.pdf.

"reduced yields and livestock toxicity." PC 71 at 7. Additionally, selenium is not the only constituent with an irrigation-based Part 620 standard when a health-based criterion (MCL) is available. *Id.* For example, boron's Class I standard is based on irrigation because it is more stringent than its health-based MCL. *Id.*

IEPA disputes Dynegy's claim that Illinois' irrigation rate is 0.5 acre-feet water use per acre. PC 71 at 7. According to IEPA, irrigation rates have increased in Illinois due to climate change, as well as changes to corn contracts after the 2012 drought. *Id.* Since the 2005 and 2012 droughts, there have been efforts to increase the number of irrigators. PC 71 at 7, *citing* Exh. 21, Att. 6. at 69. Other factors leading to increased irrigation rates, continues IEPA, include increased commodity rates (*e.g.*, corn) that make irrigation more cost effective and requirements in seed-corn company contracts to guarantee yield amounts. *Id.* Additionally, river valleys have had historically higher irrigation rates in Illinois due to fine sandy soils and an abundance of available groundwater. *Id.*

As for Dynegy's concern about selenium deficiency in Illinois soils, IEPA states that it is common practice to give livestock mineral supplements that contain selenium. PC 71 at 7. IEPA maintains that the first-notice selenium standard is not "detrimental for the protection of livestock." *Id.* Also, average soil pH in Illinois ranges from mildly alkaline (7.0-7.5) to strongly acidic (5.2-5.5) in some parts of Southern Illinois. PC 71 at 7, *citing* Exh. 21, Att. 8 at 2. Thus, the proposed selenium standards are consistent with the USEPA 1972 Criteria Document's selenium recommendation, which is based on "use up to 20 years on fine-textured soils of pH 6.0-8.5 equal to the value for waters continuously on all soil as a factor of safety due to selenium's relative mobility in soils, bioaccumulation, and lack of information on soil reactions." PC 71 at 7.

Board Discussion and Findings

The Board finds that IEPA has adequately justified updating the Class I and Class II groundwater selenium standard from the current health-based value of 0.05 mg/L to the irrigation-based value 0.02 mg/L. While Dynegy raised concerns regarding differing rates of irrigation and soil type between Illinois and the locations considered in the USEPA 1972 Criteria Document, the Board finds IEPA has adequately addressed these concerns, as detailed above. IEPA has provided information on the soil pH and rates of irrigation in Illinois that demonstrate they are consistent with the characteristics considered within the USEPA 1972 Criteria Document. Therefore, the Board retains the retains selenium Class I and Class II standards in this proposed second notice.

Fluoride GWQS

At first notice, the Board proposed revising the current Class I and Class II groundwater fluoride standards of 4.0 mg/L to the livestock-based value of 2.0 mg/L. *See* First-Not. Op. at 60, 62 . This revision would shift the standard from the health-based USEPA MCL to the beneficial use for livestock. Dynegy voices concern that the Board would be revising these fluoride standards based on the same information that was before the Board when it adopted the

current standards in 1991. PC 66 at 5. As discussed below, the Board withdraws the proposed revisions to fluoride Class I and Class II GWQS.

Dynegy's Concerns

Dynegy asserts that the fluoride standards should not be changed. PC 66 at 5. Dynegy points out that when the Board adopted the current standards in sub-docket R89-14(B), the Board chose not to rely on the information being provided now by IEPA to support changing the standards. *Id*. Additionally, Dynegy argues that the proposed revision is unnecessary because it is based on a "potential aesthetic dental impact," while other harmful impacts do not appear until fluoride levels are multiple times higher. *Id.*

IEPA's Response

IEPA counters that both the livestock-based value of 2.0 mg/L and the health-based MCL of 4 mg/L for fluoride are intended to provide protection from dental fluorosis, which is a "cosmetic effect." PC 71 at 8. Additionally, IEPA notes that USEPA uses 2.0 mg/L for fluoride for its Secondary Drinking Water Regulations, which are non-enforceable federal guidelines that address cosmetic or aesthetic effects of contaminants in drinking water. *Id.*

Board Discussion and Findings

Based on the most recent information provided by Dynegy and IEPA, the Board revisits the fluoride Class I and Class II standards of 2.0 mg/L proposed for first notice. The Board proposed revising the current fluoride Class I and Class II standards of 4.0 mg/L based on the information in IEPA's proposal. However, Dynegy's comments and IEPA's response to the Board's additional questions shed more light on the proposed revision of the fluoride standards. The additional information clarifies that both the current standard, which is based on USEPA's MCL, and the proposed irrigation-based standard afford protection against fluorosis, which is a non-harmful "cosmetic" condition that results in white or brown speckles on teeth. While USEPA's MCL is intended to protect humans from fluorosis, the proposed standard is intended to protect livestock from the same cosmetic effect.

As noted by Dynegy, the Board adopted the current "MCL-based" fluoride standards even though the information on the irrigation-based standard for livestock protection was available. PC 66 at 7. Further, harmful health effects of fluoride occur at concentrations higher than the proposed or current fluoride Class I and Class II GWQS. Considering these factors, the Board finds that current fluoride standard of 4.0 mg/L affords adequate protection for both humans and livestock from fluorosis. Therefore, the Board does not include revisions to the fluoride GWQS in this proposed second notice. However, for second notice, the Board adds the explanatory footnote: "d" to the Class I fluoride standard under Section 620.410(a)(1) to indicate that it is based on the USEPA MCL; and "e" to the Class II standard to indicate that it is equal to the Class I standard.

Cobalt and Vanadium GWQS

At first notice, the Board proposed revising the current Class I cobalt groundwater standard from 1.0 mg/L to 0.0012 mg/L and the current Class I vanadium standard from 0.049 mg/L to 0.00027 mg/L. First-Not. Op. at 41, 43. Dynegy is concerned that Part 620 does not account for situations in which background levels of cobalt and vanadium are above the proposed standards. PC 66 at 7-8. As discussed below, the Board finds that the record supports the first-notice changes to the cobalt and vanadium standards and therefore retains those amended standards in this proposed second notice.

Dynegy's Concerns

Dynegy agrees that there are programs outside of Part 620 that are designed to address situations in which background levels of constituents are above the enforceable standards. PC 66 at 7-8. However, according to Dynegy, those programs' provisions do not apply when Part 620 standards are independently enforced, *i.e.*, outside the context of those programs. PC 66 at 8. This places an undue financial burden on property owners and operators, continues Dynegy, because of "costs associated with investigation, delineation, remediation, or other corrective actions." *Id*. Therefore, Dynegy recommends that the Board explicitly account—in Sections 620.410(b), 620.420(a), and 620.420(b)—for background levels established under 35 Ill. Adm. Code 742 (Tiered Approach to Corrective Action Objectives or "TACO" rules). *Id.*

Board Discussion and Findings

At first notice, the Board found that it is inappropriate to adopt Statewide potable resource groundwater standards based on background levels. First-Not. Op. at 41, 43. Further, the Board noted that by including an exception under Sections 620.410 and 620.420, Part 620 already recognizes that groundwater in certain parts of the State may exceed the groundwater quality standards due to natural causes. *Id*. at 41. However, if any constituent concentration is above Class I or II standards due to factors other than natural causes, it must be evaluated on a site-specific basis. Such an evaluation, as noted by IEPA, will usually be addressed under program-specific regulations that specify how to determine whether groundwater exceedances are attributed to background levels. Exh. 12 at 4. If Part 620 standards are being enforced independently of a specific program, the issue of whether an exceedance is due to background concentrations may be addressed in the enforcement action. Therefore, the Board declines to adopt the broad background exclusion proposed by Dynegy.

Exclusion of Part 845 CCR Surface Impoundments

On April 15, 2021, the Board adopted a new Part 845 of its waste disposal regulations (35 Ill. Adm. Code 845), creating Illinois' first Statewide standards for surface impoundment disposal of coal combustion residuals (CCR), commonly called "coal ash," which is generated when coal is burned at power plants to produce electricity. *See* Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845, R20-19 (Apr. 15, 2021).

Concerns of City of Springfield, Dynegy, and IEPA

Both the City of Springfield and Dynegy raise the issue of the interplay between Part 845's groundwater protection standards (GWPS) and the Part 620 groundwater quality standards (GWQS), including those being addressed in this rulemaking. IEPA agrees with both participants that changes should be made to clarify which regulation takes precedence for CCR surface impoundments. PC 63 at 11.

For CCR surface impoundments subject to Part 845, City of Springfield and Dynegy argue that Part 845's requirements should supersede the Part 620 requirements. PC 65 at 4-5; PC 66 at 2. According to Dynegy,

> If Part 620 and Part 845 concurrently apply, in the event of an exceedance, the owner or operator would likely have to simultaneously engage in corrective action steps under Part 845 and the submittal of a groundwater management zone under Part 620. It makes little sense to have these two regulatory regimes apply simultaneously. PC 66 at 2.

IEPA agrees with City of Springfield and Dynegy that the interplay between the GWPS under Part 845 and the GWQS under Part 620 must be addressed in this proceeding. PC 63 at 11. IEPA notes that the GWPS under Part 845 have been "narrowly tailored" to apply to groundwater within specific areas at electric utilities that have one or more CCR surface impoundments, which are monitored by IEPA-approved groundwater monitoring systems and includes "all of the … groundwater impacted by releases from a CCR surface impoundment," which can include both on-site and off-site groundwater. *Id*. IEPA considers the Part 845 GWPS to be more stringent than the Part 620 GWQS because Part 845 does "not recognize the characteristics of the geologic materials or location of the groundwater" or "the less stringent standards applied to Class II groundwater under Section 620.420." *Id*.

First, IEPA proposes adding a subsection to Section 620.240, specifying that groundwater regulated by Part 845 constitutes Class IV "Other Groundwater" under Part 620:

Except as provided in Section 620.250, Other Groundwater is:

***

h) Groundwater regulated under 35 Ill. Adm. Code 845 at both active and inactive electric utilities and independent power producers. CITE.

Second, to delineate where and when the GWPS of Part 845 apply, IEPA proposes adding a subsection (d) to Section 620.440, which concerns the numerical groundwater quality standards for Class IV groundwater:

d) For groundwater at both active electric utilities and independent power producers regulated under 35 Ill. Adm. Code 845, the groundwater protection standard (GWPS) under 35 Ill. Adm. Code 845.600 must not be

> exceeded for any constituent with a GWPS under 35 Ill. Adm. Code 845.600. For any constituent that does not have a GWPS under 35 Ill. Adm. Code 845.600, the groundwater quality standards (GWQS) of Sections 620.410, 620.420, 620.430 or 620.440(b) and (c) apply. PC 63 at 25.

IEPA argues that proposed subsection (d) clarifies that the Part 845 GWPS apply "wherever contamination regulated under Part 845 exists, even if the contamination has spread beyond the property owned or operated by an electric utility or independent power producer, because Part 845 does not limit the area of investigation under the corrective action process." PC 63 at 23. According to IEPA, any groundwater at an electric utility or independent power producer that is not subject to regulation under Part 845—because it is not subject to corrective action or groundwater monitoring requirements—would be regulated under Part 620. *Id*. IEPA concludes:

> Groundwater impacted by CCR surface impoundments is regulated for the entire active life of the CCR surface impoundment as defined in Section 845.120. At the end of the active life of a CCR surface impoundment, Part 845 regulations have been satisfied and the groundwater is no longer subject to the GWPS of Part 845, therefore Part 620 GWQS do apply to all constituents at that time. *Id*. at 24.

Dynegy supports IEPA's position that Part 845 regulates both onsite contamination at the property of an electric utility or independent power producer as well as contamination that travels offsite. PC 66 at 3. However, Dynegy notes that IEPA's proposed changes to Sections 620.240 and 620.440 do not reflect "that all groundwater contamination subject to Part 845 should be regulated exclusively under that program." *Id.* Dynegy claims that IEPA's proposed revisions "could be interpreted as resulting in the simultaneous application [of] Part 845 and Part 620 when contamination regulated under Part 845 migrates offsite." *Id.*

To clarify IEPA's intent, Dynegy proposes the following revisions to IEPA's suggested changes to Sections 620.240 and 620.440:

Section 620.240 Class IV: Other Groundwater

Except as provided in Section 620.250, Other Groundwater is:

***

h) Groundwater regulated under 35 Ill. Adm. Code 845~~ at both active and inactive electric utilities and independent power producers~~.

Section 620.440 Groundwater Quality Standards for Class IV: Other Groundwater

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d) For groundwater ~~at both active and inactive electric utilities and independent power producers~~ regulated under Part 845, the groundwater protection standard (GWPS) under Section 845.600 must not be exceeded for any constituent with a GWPS under Section 845.600. For any constituent that does not have a GWPS under Section 845.600, the groundwater quality standards (GWQS) of Sections 620.410, 620.420, 620.430 or 620.440(b) and (c) apply. *Id*.

Board Discussion and Findings

Part 845 created a comprehensive set of rules for CCR surface impoundments at electric generating facilities in the State. Those rules include GWPS applicable to CCR surface impoundments for specified constituents, along with a detailed corrective action process and closure requirements. In short, Part 845 accounts for the unique nature of CCR surface impoundments (siting, operation, closure, and post-closure care) by providing a heightened level of groundwater protection for those sites.

The Board takes official notice of its final opinion and order of April 15, 2021, from the CCR rulemaking, R20-19, and incorporates it into this record.[4] *See* 35 Ill. Adm. Code 101.306, 101.630. The Board recently evaluated the issues in that CCR rulemaking, and continues to explore related issues in sub-docket R20-19(A). The Board agrees with IEPA that the proposed inclusion of groundwater impacted by CCR surface impoundments regulated under Part 845 Class IV groundwaters and the corresponding addition of Class IV GWQS applicable to Part 845 surface impoundments alleviates potential confusion between the applicability of Part 845 GWPS and Part 620 GWQS. Therefore, the Board accepts IEPA's suggested amendments to Sections 620.240 and 620.440 with non-substantive changes. However, the Board asks IEPA to comment on why the Board should not include the Dynegy's revisions to IEPA's language.

Groundwater Management Zones (GMZs)

In this section of the opinion, the Board addresses public comments on the Board first-notice amendments concerning GMZs. The comments cover the twelve areas laid out below. The Board's discussion of these areas includes assessing whether the current rulemaking record supports any amendments to the first-notice proposal.

1. Why did the first-notice proposal require an "application" to establish a GMZ?
2. How would requiring a GMZ application "impair" the leaking underground storage tank (UST) program, the Resource Conservation and Recovery Act (RCRA) program, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program in Illinois?

[4] The Board directs the Clerk to add the R20-19 final opinion and order to this R22-18 rulemaking record.

3. Should GMZs at leaking UST, RCRA, and CERCLA sites be exempt from Section 620.250's "procedural" requirements?
4. Does the first-notice proposal fail to accommodate the "nuances" of the leaking UST, RCRA, and CERCLA programs?
5. Should the Board open a sub-docket to consider adopting GMZ rules for the leaking UST, RCRA, and CERCLA programs?
6. Do the current or first-notice rules require that a GMZ be subject to an IEPA-approved corrective action process for the *duration* of the GMZ?
7. Should the definition of "corrective action process" be further amended?
8. Does the Board have the authority to:
    a. Provide that a site owner or operator—seeking a GMZ that would extend off-site—must obtain the off-site property owner's permission to extend the GMZ onto that off-site property?
    b. Allow IEPA to amend a GMZ after it has been established?
9. Under the heading of "other off-site issues," the Board considers whether to amend the first-notice proposal to:
    a. Require *notifying* an off-site property owner that a GMZ will extend onto its property rather than requiring that the off-site property owner's *permission* be obtained.
    b. Address the responsibility—of the site owner or operator seeking a GMZ—for off-site contamination.
    c. Specify that a GMZ does not extend to an off-site property when that off-site property owner's permission is not obtained.
    d. Specify that an off-site property owner's permission to extend a GMZ to that off-site property must include *access* to the off-site property to perform corrective action.
    e. State that the requirement to obtain an off-site property owner's permission does not apply retroactively.
10. Does the GMZ termination provision require clarification?
11. Does the cross-reference to a GMZ ending under the Site Remediation Program require clarification?
12. How should IEPA make information about GMZs easily available to the public?

In addition, based on the first-notice comments received about GMZs, the Board poses questions throughout this section of the opinion, as well as in an attachment (Addendum A) to this order. The Board directs its questions primarily to IEPA but encourages other participants to respond as well.

Why Did the Board Require an "Application" to Establish a GMZ?

In its June 17, 2024 comment, IEPA expresses concern with the Board's proposal to "create a GMZ application" that IEPA would "formally receive, evaluate, and approve" to establish a GMZ. PC 63 at 11-12. IEPA asserts that this change "should not be applied broadly across all programs." *Id*. According to IEPA, the proposed GMZ application process would be a "marked shift" in how remediation sites are managed. *Id*. at 12. IEPA is concerned that this shift was proposed at first notice and not earlier. *Id*. IEPA argues that there is not "adequate

time for the Agency or impacted regulated entities to thoughtfully consider and evaluate how other regulatory programs may be impacted by these significant changes in substantive and procedure elements for the establishment and termination of GMZs." *Id*.

The Board recognizes that codifying a GMZ "application" requirement is a new idea, but the idea was introduced into this proceeding by IEPA. In its rulemaking proposal, filed in December 2021, IEPA proposed adding a new subsection (g) to Section 620.250, which began with, "All groundwater management zone *applications* submitted pursuant to subsection (a) shall contain the following:", after which IEPA's new subsections (g)(1) through (g)(10) specified the required contents of the GMZ application. IEPA Prop. at 5002-03 (emphasis added).

The Board asked IEPA to clarify whether it has "required that an 'application' be submitted to it under Section 620.250(a) to establish a GMZ" and, if so, what form that application has taken. IEPA 3/4/22 PFA at 20. IEPA answered, "Yes, the Agency has required the submission of 620.APPENDIX D." *Id*. at 21 (IEPA answer 21(a)). The Board then asked IEPA, "If subsection (g) is adopted, would the establishment of a GMZ under subsection (a) require the submittal of a GMZ 'application' to the Agency?" IEPA 3/4/22 PFA at 21. IEPA's answer was unequivocal: "*Establishment of a GMZ would still require the submission of an application*. The Agency envisions the continued use of 620.APPENDIX D for GMZ applications *under subsection (a)(1) or (a)(2)*." *Id*. (IEPA answer 21(b) (emphasis added)). Only through subsection (a)(1) or (a)(2) may a GMZ be established under Section 620.250—there is no other alternative.

Before the Board's first notice, IEPA provided additional comments, referring to GMZ applications. *See* IEPA 3/3/23 Resp. at 6-7. IEPA responded to questions about the workings of current Section 620.250(a)-(c), and consistently referred only to "site owners and operators" applying for GMZs and carrying out related corrective action. *See*, *e.g.*, IEPA 3/4/22 PFA at 8-9, 11-12 (IEPA answers 8(f)-8(j), 8(p)); IEPA 5/6/22 PFA at 6 (IEPA answer 8(l)).

In all, before proposing the first-notice amendments, the Board asked IEPA four rounds of written questions about GMZs. *See* 2/18/22 HOO, Att. A at 3-6, 11, 13-14; 3/11/22 HOO, Att. A at 3-6, 11, 13-14; 6/16/22 HOO, Att. A at 2-3; 1/6/23 HOO, Att. A at 1. IEPA also testified about GMZs at both the March 9 and June 21, 2022 hearings. *See* Tr.1 at 69-70; Tr.2 at 24-25, 75-81. In addition, IEPA filed GMZ-related amendments to its proposal four times, each retaining the GMZ application concept. *See* 3/4/22 IEPA PFA at 28, 29; 5/6/22 IEPA PFA at 4-7, 9, Att. 3; 12/16/22 IEPA Resp. at 5-7; 3/3/23 IEPA Resp. at 5-7.

Therefore, the Board's clarifying language at first notice provided that, "Before a GMZ may be established, the owner or operator of a site at which there has been a release of one or more contaminants to groundwater must submit to the Agency a GMZ application." First-Not. Add. at 19. The first-notice amendments on GMZs were amply supported by the record. *See* First-Not. Op. at 45-56. As the Board stated, these "clarifying changes reflect IEPA practice as described in this record." *Id*. at 45; *see also id*. at 3 ("Consistent with IEPA responses to Board questions during this rulemaking, the Board proposes to overhaul its 32-year-old groundwater management zone (GMZ) rules.").

How Would Requiring a GMZ Application "Impair" the Leaking UST, RCRA, and CERCLA Programs in Illinois?

According to IEPA, the Board's proposal to "homogenize" the GMZ process is "a profound change from existing practice" and will "impair existing remediation program [*sic*]." PC 63 at 12. IEPA provides an example of the claimed profound change and impairment. IEPA argues that the amendments "would likely materially alter the oversight of CERCLA remedial activities in Illinois." *Id*. IEPA explains:

> CERCLA requires the selection of a remedial action that is protective of human health and the environment and complies with "applicable or relevant and appropriate requirements" (ARARs). Currently, Part 620 serves as a substantive, rather than procedural, ARAR because Section 620.250 specifies that a GMS [*sic*] is established upon concurrence by the Agency that such a zone contains groundwater being managed to mitigate impairment caused by the release of contaminants from a site subject to a corrective action process. The Board's proposed amendment, which conditions establishing a GMZ on Agency approval of an application could result in Part 620 being recharacterized as a procedural requirement because of the emphasis on the word "application". *Id*.

IEPA offers this single example to show how the Board's first-notice proposal would be a "profound change from existing practice" and would "impair" not only the CERCLA program, but also the leaking UST program and the RCRA program. *Id*.

The Board asks that IEPA elaborate on this position. IEPA does not explain how requiring an application process to establish a GMZ would render non-substantive—and therefore not an ARAR—the entirety of Part 620. Nor does IEPA cite any authority to support its position. As compared to the current Part 620 rules, nothing in the GMZ amendments at first notice would (1) alter Subpart D's groundwater quality standards or their applicability, (2) eliminate the substantive requirement that establishing a GMZ be conditioned on an IEPA-approved corrective action process, or (3) change the relief provided by a GMZ.

The Board asks for comment on why, if the GMZ application process is adopted, establishing a GMZ at a CERCLA site would not remain subject to the substantive requirements of Section 620.250, *i.e.*, groundwater being managed to mitigate impairment caused by a release subject to an IEPA-approved corrective action process. And, at the same time, why would the GMZ application process not be disregarded as administrative or otherwise falling within the CERCLA permit exemption? *See* 42 U.S.C. § 9621(d), (e)(1); 40 C.F.R. § 300.5 (definitions of "applicable requirements" and "relevant and appropriate requirements"), § 300.400(e), (g); *see also CERCLA Compliance with the CWA and SDWA*, USEPA Office of Solid Waste and Emergency Response, Publication 9234.2-06/FS (Feb. 1990) at 1-2 ("An on-site discharge from a CERCLA site to surface waters must meet the substantive NPDES [National Pollutant Discharge Elimination System] requirements, but need not obtain an NPDES permit nor comply with the administrative requirements of the permitting process, consistent with CERCLA section 121(e)(1)."); R.I. Res. Recovery Corp. v. R.I. Dept. of Envtl. Mgmt., 2006 U.S. Dist. LEXIS 56072 *15 (D.R.I. July 26, 2006) ("the ban on permit requirements is part of a Congressional

effort to streamline remedial actions at hazardous waste sites and effect prompt cleanups of those sites, and can only be read to block 'written approval' requirements as well as permit requirements").

IEPA Proposes Exempting GMZs at Leaking UST, RCRA, and CERCLA Sites from Section 620.250's "Procedural" Requirements

IEPA asks that the Board adopt a new subsection (b) of Section 620.250 "[t]o emphasize appropriately scope [*sic*] the GMZ requirements to accommodate the nuances of the remediation programs." PC 63 at 13. IEPA explains that the amendment would "emphasize the separation of GMZ requirements for the Agency's Bureau of Water (BOW) versus [Bureau of Land] BOL programs." *Id*. at 30.

More concretely, IEPA states that its new subsection (b) would, at second notice, "exempt the BOL programs from the GMZ procedural requirements [in Section 620.250] (e.g., the application process)." PC 63 at 30. The proposed amendment reads:

> b) The procedural requirements for establishing, monitoring, and terminating a GMZ in accordance with this Section do not apply to GMZ's for contamination being remediated under the Leaking Underground Storage Tank Program (Title XVI of the Act), the Site Remediation Program (35 Ill. Adm. Code 740), the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). *Id*.

It is unclear what IEPA means by Section 620.250's "procedural" requirements for establishing, monitoring, and terminating GMZs. PC 63 at 13. If the Board accepted this latest IEPA proposal, it appears the only provision of Section 620.250 that would remain applicable to a GMZ under the leaking UST, RCRA, or CERCLA program would be IEPA's authority to establish the GMZ in the first place. *See, e.g., id*. at 16, 18 ("GMZs for the Agency's remediation programs are to be established and terminated according to those respective programs"). Everything else concerning GMZs would be left up to the leaking UST, RCRA, and CERCLA programs, even though IEPA concedes that those programs have no rules on GMZs. *Id*. at 12, 30.

As an alternative to this single exemption, IEPA proposes adding to Section 620.250 a patchwork of exclusions for GMZs at leaking UST, RCRA, and CERCLA sites. PC 63 at 13-18. In this alternative, the Board's proposed requirement—that the owner or operator provide the information specified by Section 620.Appendix D—is inapplicable to the leaking UST, RCRA, and CERCLA programs but may be used as, essentially, guidance:

- "However, the information required in Parts I, II, and III of Appendix D may be cited to and utilized with respect to establishing GMZs pursuant to corrective action remedies required by these other regulatory programs." *Id*. at 14.

- "However, the information required in Part IV of Appendix D may be cited to and utilized with respect to terminating GMZs pursuant to requirements by these other regulatory programs." *Id*. at 16.

IEPA does not explain what it means for a GMZ to be established "pursuant to corrective action remedies required by these other regulatory programs" or what it means for a GMZ to be terminated "pursuant to requirements by these other regulatory programs." PC 63 at 14, 16. The Board seeks comment on what IEPA intends by that language.

IEPA did not seek to exclude leaking UST, RCRA, or CERCLA sites from Section 620.250 until its June 17, 2024 comment. The only exclusion from Section 620.250 is for GMZs established under the Site Remediation Program (SRP) (35 Ill. Adm. Code 740). *See* 35 Ill. Adm. Code 620.250(d)-(f); 35 Ill. Adm. Code 740.530. Thus, all GMZs are established under either Section 620.250 or the SRP rules. *See* 35 Ill. Adm. Code 620.201(b), (c). No other Board rule provides IEPA with the authority to establish GMZs. Accordingly, the Board found at first notice:

> Except for GMZs established under SRP, all GMZs are established under Part 620. *See* 35 Ill. Adm. Code 620.250. For example, IEPA establishes GMZs under Section 620.250(a)(1) at RCRA hazardous waste management sites. *See* Ex. 21 at 4, link to IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001) at 1; Ex. 21 at 6, 23-24, Atts. 4, 13; *id*. at 25 (IEPA has "no intention to regulate GMZs at RCRA sites in a manner that is distinct from the Part 620 provisions."). First-Not. Op. at 51.

Therefore, GMZs at leaking UST, RCRA, and CERCLA sites have necessarily been established under Section 620.250.

Once established, those GMZs became subject to Section 620.250's provisions on when a GMZ takes effect and when a GMZ expires, as well as its provisions on confirming attainment of Subpart D standards or assessing the on-going adequacy of controls and management after corrective action ends. This has been the case since the GMZ rules were adopted some 33 years ago. As stated in IEPA's own guidance document for GMZs at RCRA facilities:

> Pursuant to 35 Ill. Adm. Code 620.250(b), the GMZ cannot be established without the Illinois EPA concurrence that the conditions required by 35 Ill. Adm. Code 620.250(a) have been met. ***
>
> Once it is confirmed that the groundwater corrective action has been completed and the groundwater quality standards applicable to the class of groundwater have been achieved the GMZ expires. If concentrations specified in 35 Ill. Adm. Code 620.450(a)(4)(B) will remain in groundwater after completion of the corrective action, the Illinois EPA will review the adequacy of controls and site management at least once every five (5) years, based on a written report submitted to the Illinois EPA. PC 69 at 1 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001)).

IEPA characterizes these other requirements of Section 620.250 as "procedural" and proposes that they not apply to GMZs under the leaking UST, RCRA, and CERCLA programs. IEPA also proposes to lump the leaking UST, RCRA, and CERCLA programs in with each provision of Section 620.250 that refers to excluding GMZs under SRP. *See* PC 63 at 34-35.

The Board reminds that while a GMZ is in effect, the Subpart D standards *do not apply* to groundwater within the GMZ:

> Prior to completion of a corrective action described in Section 620.250(a), the standards as specified in Sections 620.410, 620.420, 620.430, and 620.440 are not applicable to such released chemical constituent, provided that the initiated action proceeds in a timely and appropriate manner. 35 Ill. Adm. Code 620.450(a)(3).

Because the Subpart D standards do not apply, the exceedances being addressed within the GMZ do not constitute violations of those standards while the corrective action continues in compliance with Section 620.450(a)(3). Under these circumstances, the GMZ provides an affirmative defense to alleged violations of the standards based on those exceedances, regardless of whether the violations are alleged by Illinois Attorney General's Office or anyone else. *See* 415 ILCS 5/31(c), (d) (2022). Further, the GMZ process may result in *changing* those standards to the higher concentrations existing in groundwater within the GMZ when corrective action is complete. *See* 35 Ill. Adm. Code 620.450(a)(1), (a)(4)(B).

Given the substantive significance attached to GMZs, the Board emphasized at first notice that it is critical to know precisely when and how a GMZ is established, a GMZ is terminated, and the "on-going adequacy" submittals and reviews take place. First-Not. Op. at 48-50, 51-54. IEPA states that its proposed exclusions will "set the stage for allowing procedural requirements for GMZs to be set forth in individual program rules where appropriate, such as in the LUST, SRP, RCRA, and CERCLA programs." PC 63 at 14. But there is no need to do that. If IEPA proposes and the Board adopts GMZ rules for these programs, it may amend Part 620 accordingly at the same time. In contrast to this IEPA suggestion, when the Board adopted the SRP exclusions in Section 620.250, it simultaneously adopted GMZ provisions in the SRP rules. *See* Site Remediation Program and Groundwater Quality (35 Ill. Adm. Code 740 and 35 Ill. Adm. Code 620), R97-11 (Feb. 6, 1997); *see also* 35 Ill Adm. Code 620.250(d), (e), (f); 35 Ill Adm. Code 740.530. The Board finds that IEPA's proposed amendments would create a vacuum. For an undetermined period, GMZs at leaking UST, RCRA, and CERCLA sites would lack any promulgated rules on crucial issues. The Board therefore declines to include IEPA's proposed changes.

Finally, IEPA asks that the "completion of 'corrective action'" for the leaking UST, RCRA, and CERCLA programs "be governed by their respective statutory authorities and not subject to the [proposed] subsection (d) [demonstration] requirements" of Section 620.250 when the owner or operator completes corrective action. PC 63 at 16. The Board finds IEPA's concern misplaced. First, Section 620.250(c) already requires "appropriate documentation" when corrective action is complete. *See* 35 Ill. Adm. Code 620.250(c). The Board's proposal therefore did not introduce the requirement. Second, in addition to not defining "corrective action", Part 620 does not specify when corrective action is complete. It simply states what is

required *whenever* corrective action is complete. *Id*. Third, nothing in the Board's proposal precludes the subsection (d) demonstration requirement from being satisfied with documentation required by, as applicable, the leaking UST, RCRA, or CERCLA program at the conclusion of corrective action.

IEPA Claims That the First-Notice Proposal on GMZs Does Not Accommodate the Subtleties of the Leaking UST, RCRA, and CERCLA Programs in Illinois

The "existing process for approving GMZs includes minor, but significant, nuances between various Agency-administered programs," according to IEPA. PC 63 at 12. IEPA states that "[m]any programs have their own unique procedures for receiving, reviewing, and approving applications, plans, reports, and other submittals from regulated parties." *Id*.

IEPA does not identify the "existing process" for approving GMZs in the leaking UST, RCRA, or CERCLA program or the "minor, but significant, nuances between" these programs. PC 63 at 12. Nor does IEPA provide reasons why the first-notice proposal will not accommodate these nuances. The Board's first-notice proposal attempted to account for distinctions among remediation programs, as discussed below.

As proposed at first notice, an owner or operator subject to one of these remediation programs and seeking to establish a GMZ was neither limited to using the GMZ application form (Section 620.Appendix D, Parts I, II, and III) nor limited to that form's required contents. First, if the program required more information than what is called for by the GMZ application form, then the proposal required that the additional information be included. *See* First-Not. Add. at 20, proposed Section 620.250(b)(2). Second, if the program required using a form other than the GMZ application form, the proposal required using that other form. *See* First-Not. Add. at 20, proposed Section 620.250(b)(3). The proposal expressly provided that, regardless of the form used, it would constitute the "GMZ application" for Section 620.250. *Id*. ("In that case, for Part 620, the submittal is nevertheless considered a GMZ application."). Because any applicable form that provides the required information may serve as the GMZ application, the Board declines IEPA's current request to add a definition of "GMZ application" limited to Parts I, II, and III of Section 620.Appendix D. *See* PC 63 at 8.

In proposing subsections (b)(2) and (b)(3) of Section 620.250, the Board's objective was to ensure that the GMZ application process would not interfere with corresponding requirements of any applicable remediation program. However, the first-notice language spawned confusion and misinterpretation. For example, the Board did not intend to "require that all permits and reports be completed before a GMZ is established." PC 63 at 15. In retrospect, the Board finds it unnecessary to have Section 620.250 *require* the inclusion of additional information or *require* the use of another form if those requirements already exist under the applicable programs. Accordingly, in this proposed second notice, the Board narrows subsections (b)(2) and (b)(3) to achieve the Board's objective:

> 2) Nothing in this subsection (b) precludes ~~If the release is subject to a corrective action process that requires the submittal of more information to the Agency to establish a GMZ than that specified~~

~~in this subsection (b),~~ the owner or operator from including ~~must include the~~ additional information in its GMZ application.

3) Nothing ~~Except as provided~~ in this subsection (b)~~(3),~~ requires that a GMZ application ~~must~~ be ~~submitted to the Agency~~ in the form specified in Section 620.Appendix D, Parts I, II, and III. ~~However, if the release is subject to a corrective action process that requires the information specified in subsection (b) to be submitted to the Agency in a different form (e.g., plan, agreement, report, permit application), the owner or operator must submit the information in that form. In that case, for Part 620, the submittal is nevertheless considered a GMZ application.~~

The Board makes corresponding changes to subsection (d) in this proposed second notice, as well as a change to clarify that the subsection (d) demonstration, made after completion of the corrective action process, may be satisfied with any form of documentation:

d) When it ~~the owner or operator~~ completes the corrective action process under subsection (c)(2), the site owner or operator must submit to the Agency a written demonstration that complies with subsection (d)(1) or (d)(2) and contains the information required by ~~includes~~ the completion certification specified in Section 620.Appendix D, Part IV. The Agency must review this demonstration and issue a written determination approving or rejecting the demonstration. Nothing in this subsection (d) requires the owner or operator to make the demonstration using any specific type of documentation or precludes the owner or operator from including additional information in the demonstration.

For the above changes concerning the GMZ application and the completion certification, the Board proposes related changes to Note 1 of Appendix D:

The owner or operator is neither required to use the form specified in Part I, II, III, or IV of this Appendix D nor precluded from including information in addition to that required by this Appendix D. See 35 Ill. Adm. Code 620.250(b)(2), (b)(3), (d).

IEPA Proposes a Sub-docket on GMZ Rules for the Leaking UST, RCRA, and CERCLA Programs

IEPA asserts that "[p]rocedures for receiving, reviewing, and approving GMZs" in different remediation programs should be "set forth with the program's own rules to avoid confusion and inconsistency with individual program rules." PC 63 at 12. IEPA notes that SRP already has separate GMZ rules and claims that "[t]he same should be done for other programs where appropriate, such as" the leaking UST, RCRA, and CERCLA programs. *Id*. "Given the importance of harmonizing all Agency programs with respect to the establishment and termination of GMZs," IEPA proposes that the Board open a sub-docket to "further flesh out the

programmatic procedural requirements for GMZs under the various Agency remediation programs (state, federal) administered by the Bureau of Land." *Id*. at 30.

In Addendum A to this order, the Board poses detailed questions to IEPA about GMZs, many of which concern the leaking UST program, RCRA, and CERCLA. Other rulemaking participants may respond to them, too. The Board will consider all responses in determining how to proceed. The Board encourages IEPA to consider including, in its responses, proposed text changes to Part 620 that are tailored to jibe with rather than simply carve out GMZs under the leaking UST, RCRA, and CERCLA programs. If IEPA wishes for those programs to have their own GMZ rules, like SRP has, IEPA may propose rules to the Board in the future. But updating the GMZ provisions of Part 620 now and considering separate GMZ rules for those programs later should not be mutually exclusive propositions.

Are Further Amendments to the Definition of "Corrective Action Process" Warranted?

At first notice, the Board proposed the following amendments to the definition of "corrective action process":

> "Corrective action process" means the ~~those~~ procedures and practices that ~~may be imposed by~~ a regulatory agency may impose or perform ~~when a determination has been made that contamination of groundwater has taken place, and are necessary~~ to address a potential or existing violation of any Subpart D standard due to a release of one or more contaminants ~~the standards set forth in Subpart D~~. First-Not. Op. at 48, Section 620.110 (definition of "corrective action process")).

Contrary to IEPA's suggestion in its first-notice comment, the Board did not add "or perform" to "emphasize[] the authority of the State or United States." PC 63 at 8. The Board added "or perform" to clarify the use of the definition in current Section 620.310(d), which provides that "[n]othing in this Section shall in any way limit the authority of the State or of the United States to require *or perform* any corrective action process." 35 Ill. Adm. Code 620.310(d) (emphasis added). In the context of this reservation of authority, if Illinois or the United States *performs* rather than requires a corrective action process, the "procedures and practices" would not have been *imposed* by a regulatory agency. The current definition of "corrective action process" is therefore too narrow to encompass this concept. The Board thinks that "procedures and practices" contained in a consent decree or settlement agreement with a regulatory agency qualify as having been "imposed" but seeks IEPA comment on that.

Besides questioning the addition of "or perform", IEPA proposes to amend the definition of "corrective action process" more significantly. PC 63 at 8. Specifically, IEPA would change the Board's first-notice definition as follows:

> "Corrective action process" means the procedures and practices ~~that a regulatory agency may impose or perform~~ necessary to address a potential or existing violation of any Subpart D standard due to a release of one or more contaminants. *Id*.

Accordingly, IEPA would restore the word "necessary" while removing any reference to "a regulatory agency" and thus the words "impose or perform."

The Board finds that IEPA's changes would introduce ambiguities into the definition and, therefore, into the use of the term in Part 620. The term "regulatory agency" is defined. It means "the Illinois Environmental Protection Agency, Department of Public Health, Department of Agriculture, the Office of Mines and Minerals in the Department of Natural Resources, and the Office of State Fire Marshal." 35 Ill. Adm. Code 620.110. If IEPA's changes were accepted, who would decide which procedures and practices are "necessary" to address the release? Might it be up to the owner or operator to decide? And as a GMZ's demonstration of compliance with the standards is "as specified in a corrective action process" (35 Ill. Adm. Code 620.505(a)(4)), that too could be left up to the owner or operator. IEPA's changes to the definition risk inviting unnecessary disputes.

Relatedly, IEPA proposes restoring the phrase, "subject to a corrective action process", in Section 620.250(a) on GMZs—but IEPA does not propose restoring "subject to a corrective action process *approved by the Agency*." PC 63 at 12. Given IEPA's suggested removal of the "regulatory agency" reference from the "corrective action process" definition, coupled with IEPA's proposed exclusion of leaking UST, RCRA, and CERCLA sites from the GMZ application process, could an owner or operator establish a GMZ without any IEPA involvement at those sites? Obviously, these outcomes are not what IEPA intends. The Board declines to propose these amendments to the definition. The Board seeks comment on whether USEPA and any other federal agency should be added to the agencies listed in the definition of "regulatory agency", a term used not only in the "corrective action process" definition but throughout Part 620.

IEPA notes that Part 620 does not define the term "corrective action." IEPA asserts that "[t]his omission allows each impacted regulatory program the space needed to accommodate the unique activities set forth in their respective authorities." PC 63 at 16. The Board proposes changing "corrective action" to "corrective action process" in what appear to be appropriate instances within Sections 620.250, 620.450, and 620.Appendix D, some of which IEPA suggests. PC 63 at 14, 16-17. These changes, besides making more use of the defined term, are consistent with the Board's first-notice finding that, "whatever the circumstances under which an owner or operator seeks to establish a GMZ—being 'subject to a corrective action process approved by the Agency' [Section 620.250(a)(1)] or undertaking 'adequate corrective action, equivalent to a corrective action process approved by the Agency' and confirming that with IEPA [Section 620.250(a)(2)]—a GMZ cannot come into existence without an IEPA-approved 'corrective action process.'" First-Not. Op. at 46-47.

Finally, before proceeding to first notice, the Board asked IEPA to "identify corrective action *processes* that have qualified as 'a corrective action process approved by the Agency', as that phrase is used in Section 620.250(a)(1). *See* Section 620.110 (definition of 'corrective action process')." IEPA 3/4/22 Resp. at 7 (emphasis added). IEPA responded by describing "corrective actions":

> The Agency has approved a number of different *corrective actions*, including groundwater collection and discharge under NPDES Permit, groundwater extraction and treatment prior to permitted discharge, capping waste and monitored natural attenuation with a modeled compliance date, lining previously unlined impoundments, slurry walls and source material removal for beneficial use. Some of these methods are used together or have been used serially. *Id*. (emphasis added).

The Board asks IEPA to revisit the question. The Board would like IEPA to comment on whether it provided examples of "corrective actions" or examples of "corrective action processes." If they are examples of both, the question becomes, why use both terms in Part 620 if they mean the same thing? But if they are examples of "corrective actions" and not examples of "corrective action processes," the Board asks IEPA to identify corrective action *processes* that have been approved by IEPA under Section 620.250(a)(1).

Do the Current or First-Notice Rules Require That a GMZ Be Subject to an IEPA-Approved Corrective Action Process for the *Duration* of the GMZ?

The First-Notice Proposal Did Not Remove Any Substantive Requirement for Establishing a GMZ. The Board viewed the first-notice version of Section 620.250(a) as definitional, *i.e.*, "to simply describe what a GMZ is." First-Not. Op. at 47.

> a) Within any class of groundwater, a groundwater management zone (GMZ) may be established as a three-dimensional ~~three-dimensional~~ region containing groundwater being managed to mitigate impairment caused by a ~~the~~ release of one or more contaminants ~~from a site:~~
>
> ~~1) That is subject to a corrective action process approved by the Agency; or~~
>
> ~~2) For which the owner or operator undertakes an adequate corrective action in a timely and appropriate manner and provides a written confirmation to the Agency. Such confirmation must be provided in a form as prescribed by the Agency~~. First-not. Add. at 19.

This view is in accord with IEPA's own description of a GMZ: "A GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site." PC 69 at 1 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001)).

IEPA claims that returning the words "subject to a corrective action process" to Section 620.250(a) would "restore the substantive requirements for establishment of a GMZ." PC 63 at 12. As proposed by the Board at first notice, however, establishing a GMZ still required IEPA-approved corrective action, which would necessarily mean the release was "subject to a corrective action process approved by the Agency." *See* 35 Ill. Adm. Code 620.250(a)(1); *see also* First-Not. Add. at 20, proposed Section 620.250(c)(2) ("A GMZ ~~groundwater management~~

~~zone~~ is established when the Agency issues a written determination approving the GMZ, *including its corrective action*." (emphasis added)). As the Board explained, "a GMZ cannot come into existence without an IEPA-approved 'corrective action process.'" First-Not. Op. at 47. *Id*.; *see also id*. at 48 ("what matters for establishing a GMZ under Part 620 is that IEPA approve the GMZ, including its corrective action").

Accordingly, at first notice, the substantive requirement that a GMZ be subject to IEPA-approved corrective action was not removed; it just came in subsection (c)(2) of Section 620.250—with the GMZ application approval. The Board removed "subject to a corrective action process approved by the Agency" from subsection (a) to avoid having the phrase misinterpreted as a condition of the continuing *existence* of a GMZ. Again, if the "subject to" phrase is viewed as a component of what is effectively the definition of a GMZ, then how could a GMZ continue to exist after it is no longer "subject to a corrective action process approved by the Agency"?

As discussed below, because a GMZ may continue to exist *after* the completion of the IEPA-approved corrective action, requiring that a GMZ be subject to that corrective action process for the *duration* of the GMZ would conflict with the only provision of current Section 620.250 that addresses a GMZ's termination—subsection (c).

A GMZ May Continue to Exist After Corrective Action is Complete. Current subsection (c) of Section 620.250 applies *when corrective action is complete*:

> c) A groundwater management zone expires upon the Agency's receipt of appropriate documentation which confirms the *completion of the action taken pursuant to subsection (a)* and which confirms the attainment of applicable standards as set forth in Subpart D. The Agency shall *review* the on-going adequacy of controls and continued management at the site *if* concentrations of chemical constituents, as specified in Section 620.450(a)(4)(B), remain in groundwater at the site *following completion* of *such action*. The *review* must take place no less often than every 5 years and the results shall be presented to the Agency in a written report. 35 Ill. Adm. Code 620.250(c) (emphasis added).

Under Section 620.250(c)'s first sentence, a GMZ "expires" when IEPA receives "appropriate documentation" confirming that the Subpart D standards have been attained and "the action taken pursuant to subsection (a)" has been completed. The "action taken pursuant to subsection (a)" of Section 620.250 is "corrective action." This is made plain in subsection (a) itself ("subject to a corrective action process"; "undertakes an adequate corrective action"), as well as in both Section 620.450(a)(3) ("Prior to completion of a corrective action described in Section 620.250(a)") and Section 620.450(a)(4) ("After completion of a corrective action as described in Section 620.250(a)"). 35 Ill. Adm. Code 620.250(a)(1), (a)(2); 35 Ill. Adm. Code 620.450(a)(3), (a)(4).

Section 620.250(c)'s final two sentences describe IEPA review when elevated concentrations of contaminants remain *after completion* of "such action." Again, "such action"

refers to "the action taken pursuant to subsection (a)," which is "corrective action." 35 Ill. Adm. Code 620.250(a)(1), (a)(2); 35 Ill. Adm. Code 620.450(a)(3), (a)(4). And the referenced "Section 620.450(a)(4)(B)" may apply only "[a]fter completion of a corrective action as described in Section 620.250(a)." 35 Ill. Adm. Code 620.250(c); 35 Ill. Adm. Code 620.450(a)(4); *see also* PC 69 at 1 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001)) ("If concentrations specified in 35 Ill. Adm. Code 620.450(a)(4)(B) will remain in groundwater after completion of the corrective action, the Illinois EPA will review the adequacy of controls and site management at least once every five (5) years, based on a written report submitted to the Illinois EPA.").

Accordingly, Section 620.250(c) contemplates two scenarios for a GMZ and each one applies only if corrective action is *complete*. In the first scenario, the GMZ *expires* when IEPA receives documentation confirming *attainment* of applicable Subpart D standards. *See* 35 Ill. Adm. Code 620.450(a)(4)(A). In the second scenario, however, the GMZ *continues to exist* because *exceedances*, which become the new standards "as specified in Section 620.450(a)(4)(B)," remain in groundwater, necessitating IEPA's periodic assessment of "the on-going adequacy of controls and continued management." 35 Ill. Adm. Code 620.250(c); *see also* IEPA 3/3/23 Response at 1-2 ("[For] groundwater management zones with completed corrective actions [that] still require continued management at the site because concentrations of chemical constituents above applicable groundwater standards remain in the groundwater at the site[, the] Agency does not intend to terminate the groundwater management zones").

These continuing controls and management in the second scenario cannot be considered "corrective action" because, as shown above, the provision applies only after correction action is complete. This is further evidenced by the second sentence of Section 620.250(c), which uses the wording, "if concentrations of chemical constituents, *as specified in Section 620.450(a)(4)(B)*, remain in groundwater." 35 Ill. Adm. Code 620.250(c) (emphasis added). If the second scenario were intended to accommodate situations in which corrective action was *not* complete, the second sentence of subsection (c) would simply have echoed the first sentence but replaced "attainment" with "exceedances", *i.e.*, "confirms *exceedances* of applicable standards as set forth in Subpart D remain in groundwater." The Board did not choose those words. Instead, the rule refers to Section 620.450(a)(4)(B), the provision which *changes* the numerical standards and applies only *after* corrective action is complete. *See* 35 Ill. Adm. Code 620.450(a)(4)(B).

Current subsection (f) of Section 620.250 bolsters the conclusion that subsection (c)'s continuing controls and management apply only after the completion of corrective action. Subsection (f) reads:

> f) Notwithstanding subsection (c) above, the review requirements concerning the on-going adequacy of controls and continued management at the site shall not apply to groundwater within a three-dimensional region formerly encompassed by a groundwater management zone established in accordance with 35 Ill. Adm. Code 740.530 while a No Further Remediation Letter issued in accordance with the procedures of 35 Ill. Adm. Code 740 is in effect. 35 Ill. Adm. Code 620.250(f).

A No Further Remediation Letter under SRP, referenced above, issues only *after* corrective action is complete. *See* 35 Ill. Adm. Code 740.605(b), 740.610(a)(1), (a)(4). There would be no reason for subsection (f) to specify that subsection (c)'s "review requirements" do not apply while a No Further Remediation Letter is in effect (*i.e.*, post-corrective action) unless those review requirements would otherwise apply. Likewise, because subsection (c)'s "review requirements" apply only after corrective action is complete, it was unnecessary for the rule to say that they do not apply *during* corrective action, *i.e.*, *before* a No Further Remediation Letter issues.

Although Part 620 does not define "corrective action", it would be incongruous for the continuing controls and management in the second scenario to be considered part of the "corrective action process" even though they are not "corrective action." The terms "corrective action" and "corrective action process" should not be two ships passing in the night. More importantly, the definition of "corrective action process" is tied to procedures and practices that "address a potential or existing *violation* of the standards set forth in Subpart D." *See* 35 Ill. Adm. Code 620.110 (emphasis added).

When controls and management must continue after the completion of corrective action (*i.e.*, the second scenario), that means Section 620.450(a)(4)(B) applies. And when Section 620.450(a)(4)(B) applies, that means "the standard for such released chemical constituent is *** [t]he concentration as determined by groundwater monitoring" because "such concentration exceeds the standard for the appropriate class . . . ." 35 Ill. Adm. Code 620.450(a)(4), (a)(4)(B). When the exceedance (*i.e.*, the existing concentration) becomes the standard, the exceedance is not a *violation*. It is unimportant whether the exceedance is viewed as a "Subpart D" standard or, alternatively, a standard that applies instead of the Subpart D standard.[5] Either way, the continuing controls and management are *not* addressing a violation of a Subpart D standard, *i.e.*, by definition, they cannot be part of the "corrective action process." Requiring that a GMZ *always* be subject a corrective action process would therefore conflict with the second scenario under current subsection (c) of Section 620.250, *i.e.*, when the GMZ continues to exist even though no longer subject to IEPA's corrective action process.

Accordingly, at first notice, the Board clarified that a GMZ must be subject to IEPA-approved corrective action (proposed Section 620.250(c)(2)) but not necessarily for the duration of the GMZ (proposed Section 620.250(d)(2), (e)). First-Not. Add. at 20-21. As discussed below, a prerequisite to proposed subsection (e)'s applicability is IEPA's written determination—under proposed subsection (d)(2)—that correction action is over. The continuing controls and

[5] That an existing concentration may be considered a Subpart D standard would not be unique to Section 620.450(a)(4)(B). *See*, *e.g.*, 35 Ill. Adm. Code 620.440(a) ("Class IV: Other Groundwater standards are equal to the existing concentrations of constituents in groundwater"). And Section 620.450, entitled "Alternative Groundwater Quality Standards", is located within Subpart D.

management under proposed subsection (e) are very much still subject to IEPA review and approval, but they cannot logically be considered "corrective action."[6]

IEPA Misunderstands Proposed Subsections (d) and (e) of Section 620.250. Noting that, "at a CERCLA site a groundwater pump and treat system is going to be installed and operated for more than thirty years," IEPA states that "[t]he 'corrective action process' under CERCLA . . . is not complete until the groundwater standards (and other remediation objectives) are met." PC 63 at 16. IEPA argues that, "[i]f concentrations are above the standards, the corrective action process is not complete, so there is no demonstration to be made and the owner/operator needs to go onto [proposed] subsection (e). But subsection (e) requires an approved demonstration from [proposed] (d)(2), which will never happen." *Id*.

However, IEPA misunderstands that neither subsection (d) nor subsection (e) would apply in its example "while the corrective action process is not complete." PC 63 at 16. Subsection (d) addresses what is required to demonstrate that corrective action is complete. Subsection (e) addresses what is required, if anything, after IEPA approves the demonstration that corrective action is complete. Accordingly, while the 30-plus years of groundwater pump and treat is ongoing in IEPA's example, subsections (d) and (e) would be inapplicable.

Subsection (e) requires periodic submittals and reviews concerning the "on-going adequacy" of controls and management after corrective action is complete. But whether subsection (e) ever becomes applicable at a remediation site depends on which subsection (d) demonstration—(d)(1) or (d)(2)—is made upon the completion of corrective action. If IEPA approves a subsection (d)(1) demonstration, meaning that the completed corrective action attained the Subpart D standards, then subsection (e) never applies. But if IEPA approves a subsection (d)(2) demonstration, meaning that exceedances remain after the completed correction action, then subsection (e) applies. Therefore, if IEPA is right that no CERCLA corrective action process would ever be considered complete unless and until the Subpart D standards are met, then subsections (d)(2) and (e) would never apply at a CERCLA site.[7] Instead, when the completed corrective action process attains the standards, subsection (d)(1) would apply.

In this regard, the proposal is no different than the current rule. Proposed subsection (d)(1) corresponds to the first sentence of current subsection (c) of Section 620.250, *i.e.*, the first scenario discussed above in which the completed corrective action attains the Subpart D standards. Proposed subsections (d)(2) and (e) correspond to the final two sentences of current subsection (c) of Section 620.250, *i.e.*, the second scenario discussed above in which exceedance concentrations remain after the completed corrective action, necessitating continuing controls and management with IEPA oversight. The proposal simply fleshes out current subsection (c).

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[6] To be clear, the Board here is discussing the meaning of "corrective action" as used within Part 620, not the meaning of the term under other Board rules, such as 35 Ill. Adm. Code 724 on hazardous waste storage, treatment, and disposal facilities or 35 Ill. Adm. Code 734 on petroleum USTs.

[7] It would also follow that Section 620.450(a)(4)(B) could never apply.

If GMZs at leaking UST sites, RCRA sites, and CERCLA sites have been complying with current subsection (c), it is unclear why they would be unable to comply with proposed subsections (d) and (e).

The Board is unsure what IEPA means by, "the owner/operator needs to go onto subsection (e)." PC 63 at 16. However, neither subsection (d) nor subsection (e) would prevent IEPA from making the "on-going adequacy" submittals and reviews a part of the corrective action process. The scenario is simply not addressed because Part 620 is not a corrective action program. *See* Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 25 (Nov. 7, 1991). If IEPA would like this rule to require the on-going adequacy steps *before* corrective action is complete, it may propose amendments to that effect for the Board to consider.

IEPA suggests modifying proposed subsection (e) to specify that IEPA may require additional corrective action if it rejects a subsection (e) demonstration of the on-going adequacy of controls and management. PC 63 at 17. IEPA states that, "[f]or consistency with other existing text and clarity regarding what constitutes 'rejecting the demonstration', the Agency proposes adding language that is at the end of subsections ([d])(1) and ([d])(2)": "If the Agency rejects a demonstration, the Agency must, in its written determination, specify the reasons for the rejection, which may include the Agency's basis for amending the GMZ to require additional corrective action." *Id*. As referenced in IEPA's comment, the Board proposed the following first-notice text for the end of both subsections (d)(1) and (d)(2), specifying that IEPA may require additional corrective action if it rejects a subsection (d) demonstration that corrective action is complete: "If the Agency rejects this demonstration, the Agency must, in its written determination, specify the reasons for the rejection, which may include the Agency's basis for amending the GMZ to require additional corrective action under subsection (c)(2)." First-Not. Add. at 21.

The Board explained above how proposed subsections (d) and (e) apply at different stages of the GMZ process. At the subsection (d) stage, the owner or operator must demonstrate that correction action is complete. If IEPA approves the subsection (d)(1) or (d)(2) demonstration, then corrective action is necessarily complete. But if IEPA rejects a subsection (d)(1) or (d)(2) demonstration, then amending the GMZ to require additional corrective action is expressly made an option for IEPA.

At the subsection (e) stage, on the other hand, the owner or operator has already demonstrated that corrective action is complete. Subsection (e) applies only after IEPA has issued a written approval of a subsection (d)(2) demonstration, which means not only that corrective action is complete and the numerical standards for the groundwater within the GMZ became the Section 620.450(a)(4)(B) exceedance concentrations, but also that "compliance with Section 620.450(a)(4)(B)(i) and (ii)" was demonstrated:

> i) To the extent practicable, the exceedance has been minimized and beneficial use, as appropriate for the class of groundwater, has been returned; and

ii) Any threat to public health or the environment has been minimized. 35 Ill. Adm. Code 620.450(a)(4)(B)(i), (ii).

Accordingly, if and when subsection (e) applies, the only remaining issue is "the on-going adequacy of controls and management." Of course, nothing in Board's proposal would restrict IEPA in the exercise of its enforcement discretion should it believe that additional corrective action is necessary, such as if there are exceedances of the Section 620.450(a)(4)(B) standards. But there is no mechanism, either in this proposal or Part 620's current GMZ rules, that provides for resuming corrective action after IEPA has already agreed that it is complete.

Consistent with these points, and to approximate IEPA's suggestion, the Board proposes alternative text at the end of subsection (e), using "additional controls or management" instead of "additional corrective action": "If the Agency rejects a demonstration, the Agency must, in its written determination, specify the reasons for the rejection, which may include the Agency's basis for amending the GMZ to require additional controls or management under this subsection (e)." If IEPA thinks that this rule should allow for a post-corrective action reinstituting of corrective action, it may propose corresponding amendments for the Board's consideration.

In sum, both current Section 620.250(c) and Section 620.450(a)(4) apply only upon the completion of corrective action. At that point, the current rules present a binary choice:

- Section 620.250(c)'s first sentence and Section 620.450(a)(4)(A) apply, in which case the GMZ expires and the standards in Section 620.410, 620.420, 620.430, or 620.440 apply; or

- Section 620.250(c)'s last two sentences and Section 620.450(a)(4)(B) apply, in which case the GMZ continues in effect, the existing concentrations become the applicable numerical standards, and the periodic submittals and reviews of the on-going adequacy of controls and continued management apply.

The Board's proposal works the same way.

Does the Board Have the Authority to Require Off-Site Permission for GMZs or to Allow IEPA to Amend GMZs

IERG maintains that two provisions proposed for first notice go beyond the Board's authority to adopt. The first, subsection (b)(1) of Section 620.250, provides that, "If the GMZ would extend off-site, the GMZ application must include each affected property owner's written permission to the establishment of the GMZ on its property." The second provision, a sentence from subsection (c)(2) of Section 620.250, provides that, "Once a GMZ is established, the Agency may, as new information warrants, issue written determinations amending any part of the GMZ, including its size, the contaminants that are subject to it, and its corrective action." IERG argues that neither provision finds support in the Act. PC 64 at 6-7, 9.

The Board disagrees. It is well settled that "administrative agencies have both express and implied powers to do all that is reasonably necessary to accomplish statutory objectives, and

not every agency power must be explicitly articulated in the governing statute." Ikpoh v. Dept. of Prof. Regulation, 338 Ill. App. 3d 918, 927 (1st Dist. 2003); *see also* Taylor v. State Universities Retirement System, 203 Ill. App. 3d 513, 522 (4th Dist. 1990) ("Administrative agencies have, in addition to the powers conferred upon them by explicit statutory language, the power to do all which is reasonably necessary to effectuate the powers and authorities explicitly granted to them."). As discussed below, both proposed rules are reasonably necessary to accomplish the statutory objectives of protecting Illinois groundwater and human health. *See* 415 ILCS 55/2, 8 (2022); 415 ILCS 5/27 (2022).

Off-Site Permission for GMZs. Of course, groundwater contamination does not respect property boundaries. Obtaining an off-site property owner's permission to extend a GMZ onto its property allows access to the off-site property "so that monitoring wells may be installed and other corrective actions designed and implemented *as necessary to achieve compliance with 35 Ill. Adm. Code 620*." 35 Ill. Adm. Code 840.116(b) (emphasis added). The off-site permission allows access, which permits a complete and effective cleanup. The Board finds proposed Section 620.250(b)(1) reasonably necessary to accomplish the statutory objectives of protecting Illinois groundwater and human health, and therefore within the Board's authority to adopt. *See* Ikpoh, 338 Ill. App. 3d at 927; *see also* Taylor, 203 Ill. App. 3d at 522. The rule's adoption would have the additional benefit of codifying IEPA's long-standing practice. *See* Pre-Filed Testimony of Richard P. Cobb (IEPA) at 6 (Aug. 18, 2009), Ameren Ashpond Closure Rules (Hutsonville Power Station): Proposed 35 Ill. Adm. Code 840.101 through 840.152, R09-21 ("the Agency has always required the written permission of affected property owners for the establishment of off-site GMZs").

Amending GMZs. IERG questions not the Board's power authorizing IEPA to *establish* GMZs but the Board's power authorizing IEPA to *amend* them. As discussed above, GMZs suspend the applicability of Illinois' otherwise applicable numerical groundwater quality standards. *See* 35 Ill. Adm. Code 620.250(a)(3). After IEPA approves a GMZ, the GMZ might last for many years. *See* Sierra Club v. Midwest Generation, LLC, PCB 13-15, slip op. at 13 (Feb. 6, 2020). As corrective action proceeds, GMZs might require modification to account for changes in groundwater contaminant concentrations. Or perhaps unexpected site conditions will be encountered. Or perhaps the remedy will end up not working as planned. IEPA must be able to amend the GMZ as new information warrants. The Board finds proposed Section 620.250(c)(2) reasonably necessary to accomplish the statutory objectives of protecting Illinois groundwater and human health. Therefore, the Board has the authority to adopt proposed Section 620.250(c)(2). *See* Ikpoh, 338 Ill. App. 3d at 927; *see also* Taylor, 203 Ill. App. 3d at 522.

With the first-notice language, the Board did not intend to confer upon IEPA "[t]he unilateral and plenary ability" to amend a GMZ, as IERG fears. PC 64 at 10. IERG asserts that the determination to change a GMZ:

> should be a joint decision between the remedial applicant or owner and the Illinois EPA; or, in the alternative, the remedial applicant should have the opportunity to petition Illinois EPA to decline to exercise its authority to do so, or

otherwise adjust its decision making to incorporate comments from the remedial applicant. *Id*. at 9-10.

The proposed rule does not bar the typical exchange of information that occurs between IEPA and an applicant leading up to an IEPA determination. For example, the proposed rule does not prohibit that sort of back-and-forth from occurring after the GMZ application is submitted and before IEPA issues a written determination approving or rejecting the GMZ. Nor does the Board intend to restrict IEPA's determination to a "thumbs up" or "thumbs down" on the GMZ application as received. The GMZ that IEPA approves may vary from the one proposed by the owner or operator, much like IEPA's grant of a permit may include conditions not proposed in the permit application.

A GMZ is a form of regulatory relief. By subjecting itself to the terms of the GMZ imposed by IEPA, the site owner or operator enjoys not having the Subpart D standards apply to groundwater within the GMZ while corrective action is taking place. *See* 35 Ill. Adm. Code 620.450(a)(3). But "the groundwater management must continue as approved by the Illinois EPA for the GMZ to remain in effect." PC 69 at 1 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001)). Before corrective action is complete, if the owner or operator disagrees with an IEPA-directed amendment to the GMZ, or IEPA declines to amend the GMZ as requested by the owner or operator, then IEPA may terminate the GMZ, either on its own initiative or at the request of the owner or operator. Upon such a termination, the Subpart D standards would again apply to the groundwater within what would then be the former GMZ.

To address these process-related concerns, and incorporate some minor revisions IEPA seeks (PC 63 at 14), the Board proposes amending the first-notice version of Section 620.250(c) as follows:

c) The Agency must review each GMZ application submitted under subsection (b) and issue a written determination approving or rejecting the GMZ.

1) In determining whether to approve a GMZ, the Agency must consider the substantive information provided in support of ~~the completeness of~~ the GMZ ~~application~~, the technical sufficiency of the GMZ, the likelihood that the GMZ will protect public health and the environment, and the likelihood that the GMZ's corrective action process will, in a timely manner, result in compliance with the applicable standards in Section 620.410, 620.420, 620.430, or 620.440 or otherwise minimize exceedances to restore beneficial use as appropriate for the class or classes of groundwater. If the Agency rejects a GMZ, the Agency must, in its written determination, specify the reasons for the rejection.

2) A GMZ is established when the Agency issues a written determination approving the GMZ, including its corrective action

process. Once a GMZ is established and before the corrective action process is complete, the Agency may, as new information warrants and subject to the standards of subsection (c)(1), issue written determinations amending any part of the GMZ, including its size, the contaminants that are subject to it, and its corrective action process, as provided in this subsection (c)(2). A GMZ is amended when the Agency issues a written determination amending the GMZ. If the Agency rejects a submittal of the site owner or operator to amend the GMZ under subsection (c)(2)(i) or (c)(2)(ii), the Agency must do so in a written determination that specifies the reasons for the rejection.

i) The Agency may issue a written determination directing that the site owner or operator submit to the Agency a written proposal to amend the GMZ, consistent with subsection (b). The Agency's determination must identify the amendment to be proposed and specify the reasons why the amendment is necessary. If the owner or operator fails to submit a proposal or the Agency rejects the proposal, the Agency may terminate the GMZ under subsection (f) either on its own initiative or at the written request of the owner or operator.

ii) If it wishes to have the Agency amend the GMZ, the site owner or operator must submit to the Agency a written proposal to amend the GMZ, consistent with subsection (b). If the Agency rejects the proposal, the Agency may terminate the GMZ under subsection (f) either on its own initiative or at the written request of the owner or operator.

The Board intends nothing novel about this approach to amendments. The changes describe a basic process designed to achieve the objectives of Part 620 while not conflicting with the amendment process of any remediation program that might apply. *See*, *e.g.*, 35 Ill. Adm. Code 734.335(e) ("If, following approval of any corrective action plan or associated budget, an owner or operator determines that a revised plan or budget is necessary in order to mitigate any threat to human health, human safety, or the environment resulting from the underground storage tank release, the owner or operator must submit, as applicable, an amended corrective action plan or associated budget to the Agency for review. The Agency must review and approve, reject, or require modification of the amended plan or budget in accordance with Subpart E of this Part."); 415 ILCS 5/31(a)(7.5) (2022) ("Any Compliance Commitment Agreement entered into under item (i) of this paragraph may be amended subsequently in writing by mutual agreement between the Agency and the signatory to the Compliance Commitment Agreement, the signatory's legal representative, or the signatory's agent.") The Board seeks comment on whether these proposed changes would run afoul of any remediation program's applicable amendment process.

Note that, as a safeguard, the Board adds text to subsection (c)(2) specifying that the subsection (c)(1) standards—applicable to IEPA's exercise of discretion in *approving* a GMZ—also apply to IEPA's exercise of discretion in *amending* a GMZ. Additionally, amending a GMZ remains subject the threshold requirement of being warranted by new information.

Also note that these subsection (c)(2) revisions contemplate amending the GMZ only *before* the corrective action process is complete. They do not address the scenario covered by proposed subsection (e), in which the corrective action process is complete, but the GMZ remains in effect and subject to continuing controls or management. To accommodate the potential for amending the controls or management during this phase, whether the amendment is initiated at the direction of IEPA or the request of the owner or operator, the Board reorganizes subsection (e) to add a new subsection (e)(2):

e) Within five years after the Agency issues a written determination approving a demonstration under subsection (d)(2), the site owner or operator must submit a report to the Agency demonstrating the on-going adequacy of controls and management to mitigate impairment caused by the release to groundwater within the GMZ. The Agency must review the report and issue a written determination approving or rejecting the demonstration.

1) The submittal of these reports by the owner or operator and the corresponding issuance of these written determinations by the Agency must occur at least every five years while the GMZ remains in effect. If the Agency rejects a demonstration, the Agency must, in its written determination, specify the reasons for the rejection, which may include the Agency's basis for amending the GMZ to require additional controls or management under this subsection (e).

2) Any amendment to controls or management under this subsection (e) is subject to the amendment provisions of subsection (c)(2), except that the standard for the Agency's determination is whether the controls or management, as amended, would be adequate to mitigate impairment caused by the release to groundwater within the GMZ.

Should the GMZ Rules Address These Other Off-Site Issues?

Notification v. Permission. IERG argues that extending a GMZ to an off-site property should only require a notification to—not the permission of—the off-site property owner. PC 64 at 8. According to IERG, "if establishing a GMZ would extend to off-site property owners, but such off-site owners could not otherwise use the groundwater because a groundwater ordinance applies, obtaining their consent to establish a GMZ is an exercise in futility." *Id*. at 8-9, *citing* 35 Ill. Adm. Code 742.1015.

IERG appears to conflate two concepts. Eliminating the exposure pathway to contaminated groundwater through the institutional control of a groundwater ordinance is distinct from remediating contaminated groundwater through a GMZ. Under the Tiered Approach to Corrective Action Objectives or "TACO" (35 Ill. Adm. Code 742), if a local government adopts an ordinance that effectively prohibits installing potable water supply wells and their use, then the groundwater ingestion exposure route may be excluded from consideration and no remediation objectives need be developed for that exposure route. *See* 35 Ill. Adm. Code 742.300(a), 742.320(d). A GMZ, on the other hand, will not be established unless it is subject to corrective action designed to remediate the contaminated groundwater. "In any management zone, the goal is remediation, if practicable, of the groundwater to the level of the standards applicable to that class of groundwater." Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 14 (Nov. 7, 1991); *see also* PC 69 at 1 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001) ("any action must improve the quality of groundwater caused by the release of contaminants from the site. GMZs can only be approved for areas where groundwater improvement is occurring.")). The Board declines IERG's suggestion to replace permission with notice.

Responsibility for Off-Site Contamination. IEPA points out that in Illinois' hazardous waste rules, the off-site access provision differs from the Board's proposed rule concerning off-site GMZ permission, Section 620.250(b)(1). PC 63 at 15, *citing* 35 Ill. Adm. Code 724.201(c). The same could be said of the off-site access provision in the Part 734 leaking UST rules. *See* 35 Ill. Adm. Code 734.350. Both those off-site access rules address variables on which subsection (b)(1) is silent. For example, each refers to "best efforts" by the owner or operator to obtain off-site access. But neither rule addresses GMZs or conflicts with the Board's first-notice proposal.

IEPA would add a sentence to proposed Section 620.250(b)(1): "The owner and operator are not relieved of responsibility to clean up a release that has migrated beyond the facility boundary where GMZ permission has not been obtained." PC 63 at 15. Both the hazardous waste rules and the leaking UST rules, however, are corrective action programs. It makes sense that their respective off-site access provisions would specify that failing to obtain off-site access does not relieve the owner or operator of responsibility for cleaning up off-site contamination. *See* 35 Ill. Adm. Code 724.201(c) ("The owner and operator are not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied."); 35 Ill. Adm. Code 734.350(f) ("The owner or operator is not relieved of responsibility to clean up a release that has migrated beyond the property boundary even where off-site access is denied."). Again, as Part 620 is not a corrective action program, it would be odd to address cleanup responsibility in the proposed off-site provision. The Board declines to add that language.

What Constitutes the GMZ If Off-Site Permission Is Not Obtained? The Board considered it evident in the language of its proposed Section 620.250(b)(1) that, absent an off-site property owner's written permission, the GMZ would simply not extend to that off-site property. IEPA proposes making this explicit by adding a sentence, "If off-site property owner permissions are not obtained, then the GMZ will not include those off-site properties." PC 63 at 14-15. The Board accepts IEPA's suggestion with non-substantive changes.

"Access" to the Off-Site Property. The Board understands the first-notice phrase, "written permission to the establishment of the GMZ", to entail more than the off-site property owner's agreement to the suspension of otherwise applicable Subpart D standards within the GMZ on the off-site property (35 Ill. Adm. Code 620.450(a)(3)). The permission also entails the off-site property owner's agreement to allow for *access* to the off-site property to carry out parts of the corrective action process there (*e.g.*, installing groundwater monitoring wells, collecting samples from them).[8] The Board recognizes, however, that there could be circumstances under which off-site contamination is addressed exclusively through on-site measures.

To avoid an unduly restrictive reading of proposed Section 620.250(b)(1), one that would exclude "access," the Board adds language to clarify that the off-site property owner's written permission to the establishment of the GMZ on its property includes access to that property to perform corrective action. In this proposed second notice, the Board amends its first-notice version of Section 620.250(b)(1) as follows:

> 1) If the GMZ would extend off-site, the GMZ application must include each off-site ~~affected~~ property owner's written permission to the establishment of the GMZ on its property, including access to perform corrective action. If an off-site property owner's written permission is not obtained, the GMZ will not include that off-site property.

The Board also adds corresponding language to Appendix D.

"Pre-Existing" GMZs. IERG claims that the proposed off-site access rule is "silent and thus ambiguous as to pre-existing GMZs." PC 64 at 8. IERG asks the Board to clarify that proposed Section 620.250(b)(1) would apply "only to new GMZs on a going-forward basis, and has no application to pre-existing GMZs, including any proposed modifications to such GMZs." *Id*. The Board notes that "there is nothing in the language of the amendment to support retroactive application." Nyhammer v. Basta, 2022 IL 128354, ¶ 61. The Board intends no retroactive effect for subsection (b)(1). It would apply to GMZs established after the rule takes effect.

However, if a GMZ established *before* the rule takes effect (a "pre-existing GMZ") were to be amended *after* the rule takes effect, the rule would apply to amending the GMZ. For example, if a pre-existing GMZ were to be extended to an off-site property after the rule takes effect, the site owner or operator would need to obtain the written permission of the off-site property owner. This requirement is effectuated through new subsections (c)(2)(i) and (c)(2)(ii) of Section 620.250 discussed above, as the written proposal to amend the GMZ must be "consistent with subsection (b)." The Board views this as prospective, not retroactive, application.

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[8] "The off-site landowner concurrence is important because establishment of the GMZ off-site substantially limits the off-site landowner's ability to seek compliance with the groundwater standards during the existence of the GMZ." PC 69 at 2 (IEPA's "Establishment of Groundwater Management Zones at RCRA Facilities" (Oct. 12, 2001)).

If a pre-existing GMZ already extends to an off-site property, the Board does not intend this rule to require that the site owner or operator, after the fact, obtain the off-site property owner's permission. But, given IEPA's long-standing practice discussed above, off-site permission for such a pre-existing GMZ is likely to already have been obtained.

Nothing in the plain language of the rule requiring an off-site property owner's permission would suggest it applies retroactively. *See* People v. Wilhelm, 346 Ill. App. 3d 206, 208 (2nd Dist. 2004) ("Administrative rules and regulations have the force of law and must be construed under the same standards that govern the construction of statutes."). Accordingly, the Board sees no need for the rule to say it applies prospectively only.

Other Ways to Gain Off-Site Access. Finally, the Board recognizes that a site owner or operator may lawfully obtain off-site access by means other than getting the off-site property owner's written permission. *See*, *e.g.*, 415 ILCS 5/22.2c (2022) ("if the owner of the adjoining land refuses to permit entry onto the adjoining land for the purpose of effecting remediation, then the owner or operator of the site may bring an action to compel the owner of the adjoining land to permit immediate entry"). And there might be circumstances in which IEPA or USEPA, on behalf of a site owner or operator, would use or otherwise bring to bear authorities to obtain lawful access to an off-site property where that off-site property owner refused access. The Board seeks comment on these scenarios in the context of establishing or extending GMZs but does not today propose amending the rule to account for them.

Does the GMZ Termination Provision Require Clarification?

IEPA proposes clarifying amendments to the first-notice version of Section 620.250(f), which concerns the grounds for terminating GMZs. PC 63 at 17-18. The Board accepts some of the changes and, in this proposed second notice, amends subsection (f) as follows:

> f) Without limiting any other legal authority of the Agency to terminate a GMZ, the Agency may issue a written determination terminating a GMZ based on any of the grounds specified in this subsection (f). The determination must specify the grounds for terminating the GMZ. The termination takes effect when the Agency issues this determination~~, specifying the grounds for termination~~. The Agency may terminate a GMZ if:
>
> 1) The site owner or operator fails to perform or comply with the schedule for any part of the GMZ, including its corrective action process under subsection (c)(2) or controls or management under subsection (d)(2) or (e);
>
> 2) The Agency rejects a proposal to amend the GMZ under subsection (c)(2) or a demonstration under subsection (d) or (e); ~~or~~
>
> 3) The owner or operator commits fraud or misrepresentation in any submittal under subsection (b), (c)(2), or (d), or (e); or

4) The site owner or operatory submits to the Agency a written request to terminate the GMZ under subsection (c)(2).

IEPA asks the Board to "clarify what 'schedule' means" in subsection (f)(1), adding that "[t]his is the first occurrence of the term and there is no definition in 620.110." PC 63 at 17. IEPA proposes a rewritten subsection (f)(1): "The owner or operator fails to perform or comply with the any [*sic*] of the requirements set forth as part of the Agency's approval to establish the GMZ." *Id*. at 18.

When the Board proposed, as a ground for terminating a GMZ, that "[t]he owner or operator fails to perform or comply with the schedule for any part of the GMZ", the Board intended to give the word "schedule" its ordinary meaning. The word "schedule" appears four times in Section 620.Appendix D, despite Part 620 not defining it. IEPA's comment, in fact, uses the word "schedule" without any confusion. PC 63 at 15, 21.

The Board retains the word "schedule" because it conveys more specifically the timing and sequencing elements of the GMZ than does IEPA's choice of the word "requirements." Also, IEPA's proposal—which uses the phrase, "the Agency's approval to establish the GMZ"—fails to clearly account for non-compliance with amendments to GMZs.

In addition, the Board seeks comment from IEPA on whether IEPA terminating the GMZ during its subsection (e) "continuing controls and management" phase should remain an option. As discussed, when this phase begins, IEPA would have already determined in writing that: (1) corrective action has been completed; (2) the numerical standards for groundwater within the GMZ are the remaining exceedance concentrations; (3) to the extent practicable, the exceedance has been minimized and beneficial use, as appropriate for the groundwater class, has been returned; and (4) any threat to public health or the environment has been minimized. *See* 35 Ill. Adm. Code 620.250(c), 620.450(a)(4)(B). Because elevated concentrations of contaminants remain, however, the GMZ stays in effect and subject to periodic IEPA reviews of the on-going adequacy of controls and management. Terminating the GMZ would not make the standards for the groundwater class (in Section 620.410, 620.420, 620.430, or 620.440) applicable again. Nor would termination be a prerequisite to IEPA pursuing enforcement. It is unclear what incentives IEPA might have to terminate a GMZ during the subsection (e) phase, though the Board would appreciate hearing IEPA's perspective on that.

The Board also adds a new subsection (f)(4) to account for scenarios in which the site owner or operator wishes to terminate the GMZ because, as discussed above, IEPA and the owner or operator cannot agree on an amendment to the GMZ.

Does the Cross-Reference to a GMZ Ending Under the SRP Require Clarification?

At first notice, the Board proposed non-substantive, clarifying amendments to current subsection (d) of Section 620.250 in newly proposed subsection (g):

g~~d~~) Regardless of ~~Notwithstanding~~ subsections (a) through (f) ~~and (b) above~~, a "groundwater management zone", as defined in 35 Ill. Adm. Code 740.120, may be established under ~~in accordance with the requirements of~~ 35 Ill. Adm. Code 740.530 for sites in ~~undergoing remediation pursuant to~~ the Site Remediation Program (35 Ill. Adm. Code 740). A GMZ established under 35 Ill. Adm. Code 740.530 remains ~~Such a groundwater management zone shall remain~~ in effect until any condition of ~~the requirements set forth at~~ 35 Ill. Adm. Code 740.530(c) is ~~are~~ met. First-Not. Add. at 22.

The Agency argues that the Board should not use the word "condition" because it "is typically used in a permit" but here "the trigger for GMZ termination is driven by the occurrence of an event rather than an operating condition as set forth in a permit." PC 63 at 18. IEPA explains that, under SRP's Section 740.530(c), "a GMZ is in effect until one of two events occur—either the [No Further Remediation] NFR becomes effective, or the SRP agreement is terminated." *Id*. IEPA does not propose swapping out the word "condition" for another word. Rather, it proposed wholesale changes, rejected above, to add GMZs at leaking UST, RCRA, and CERCLA sites to the SRP exclusions.

Section 740.530(c) of SRP reads:

c) Groundwater management zones designated under this Section shall remain in effect until a No Further Remediation Letter becomes effective under this Part or an Agreement is terminated. 35 Ill. Adm. Code 740.530(c).

At first notice, the Board replaced the plural "requirements" with the singular "condition" because either the NFR Letter becoming effective or the Agreement being terminated would bring an end to the GMZ. Plus, terminating an Agreement is not a "requirement." *See* 35 Ill. Adm. Code 740.530(a).

The word "condition" is accurate, which IEPA does not dispute. The Board finds no serious risk of the term being mistaken for a permit condition in this context. The word "conditions" is used throughout Part 620 in the sense the Board intends here, including in current Section 620.250(b). *See* 35 Ill. Adm. Code 620.240(e), (f), 620.250(b), 620.310(c), 620.505(a)(5), 620.605(a). The Board retains "condition" in Section 620.250(g) of the proposed second notice.

The Board also proposes amending the first-notice version of Section 620.250(i) to clarify that the subsection (d) demonstration submittals and reviews do not apply to a GMZ under SRP. The text corresponds to the subsection (e) exclusion for SRP from "on-going adequacy" submittals and reviews:

i) Regardless of subsection (d), that subsection's submittal and review requirements concerning the demonstration when corrective action is complete do not apply to a GMZ under 35 Ill. Adm. Code 740.530.

> Regardless of subsection (e), that subsection's submittal and review requirements concerning the on-going adequacy of controls and management do not apply to groundwater within a three-dimensional region formerly encompassed by a GMZ established under 35 Ill. Adm. Code 740.530 while a No Further Remediation Letter issued under 35 Ill. Adm. Code 740 is in effect.

How Should IEPA Make Information About GMZs Easily Available to the Public?

The Board's first-notice proposal included a new subsection (j) of Section 620.250:

> j) At least annually, the Agency must publish in the Environmental Register a list of all GMZs that have not been terminated, along with a brief statement of each GMZ's status. First-Not. Add. at 22.

IEPA proposes using the following rule text instead: "The Agency must publish on its website a list of all GMZs that have been established but not terminated, along with information identifying the site for which each GMZ was established." PC 63 at 22. IEPA states that using its website rather than the Board's *Environmental Register* "will be less administratively burdensome for both the Agency and the Board, will allow easy access to the information by anyone, and allow for quicker updating of the information for the public." *Id*. IEPA proposes that its website list would "provide a description of the site within which a GMZ has been established and the date the GMZ was established." *Id*. IEPA adds that it maintains other lists on its website that would be "akin to a GMZ registry." *Id*., *citing* IEPA's Uniform Environmental Covenants Act Registry (https://epa.illinois.gov/topics/cleanup-programs/ueca/registry.html).

The Board applauds and incorporates IEPA's idea. The Board proposes adding a requirement that IEPA update the GMZ list on its website at least annually. The Board also finds that it would not be unduly burdensome for IEPA to, at least annually, provide the Board with a copy of the list for publication in the *Environmental Register*, which is a familiar source for Part 620 information. *See* 35 Ill. Adm. Code 620.230(b), 620.450(a)(5). Additionally, as a GMZ cannot be terminated if it was never established, the Board finds redundant IEPA's choice of "have been established but not terminated" rather than the Board's "have not been terminated".

IEPA did not comment on the Board's first-notice changes to a similar provision, Section 620.450(a)(5), which refers to Section 620.450(a)(4)(B), the rule by which exceedance concentrations become the numerical standards:

> 5) The Agency must ~~shall~~ develop and maintain a list ~~listing~~ of concentrations derived under ~~pursuant to~~ subsection (a)(4)(B), identifying the location of each corresponding GMZ. The Agency must make the ~~This~~ list ~~shall be made~~ available to the public and, at least ~~be updated periodically, but no less frequently than~~ semi-annually, update it. The Agency must publish the list ~~This listing shall be published~~ in the Environmental Register at least annually.

First-Not. Add. at 54.

Consistent with Section 620.250(j) as proposed for second notice, the Board proposes requiring that IEPA not just generally make the list of exceedance concentrations and associated GMZs "available to the public" but instead specifically publish the list, at least annually, on its website.

Board Conclusion on GMZs

When IEPA proposed a GMZ application, the Board took the opportunity to update the GMZ rules. The Board's objectives today remain the same as at first notice. The proposal for second notice "fleshes out aspects of the GMZ process on which the current rules are silent and clarifies existing provisions that are vague or confusing." First-Not. Op. at 2.

The Board intends the proposed second-notice amendments to *require* only what is necessary to accomplish the purposes of GMZs under Part 620, without interfering with other requirements that may apply, including under the leaking UST program, RCRA, or CERCLA. However, if IEPA or any other participant believes that these amendments would interfere with existing remediation programs, the Board asks that their comments provide specific reasons to support that position, and, ideally, proposed rule text to reconcile the discrepancies.

The Board's proposals are faithful to the Part 620 GMZ rules as written. None of the changes conflict with the existing Part 620 requirements for establishing, monitoring, or terminating GMZs. The Board acknowledges, however, that since the original GMZ rules were adopted in 1991, IEPA's practices for implementing GMZs might have evolved. The Board is amenable to considering amendments that reflect IEPA's practices, but IEPA must first fully explain what those practices are. That end should be served by the responses to the questions the Board poses in both this opinion and Addendum A.

Economic Reasonableness and Technical Feasibility

Since the Board issued its first notice, four participants have again raised the issues of economic reasonableness and technical feasibility. PC 61 at 3-5; PC 64 at 3; PC 67 at 2; PC 68 at 2. IERG argues that the proposed PFAS GWQS have not been accompanied by an adequate evaluation of the technical feasibility of achieving compliance or the costs associated with it. PC 64 at 1. PFAS Regulatory Coalition and the Illinois Water Quality Association argue that the Board has not properly accounted for the technical feasibility or economic viability of implementing the proposed requirements. PC 67 at 2; PC 68 at 2. The National Waste & Recycling Association expressed concern over potential immediate impacts to landfills. PC 61 at 3-5.

PFAS Regulatory Coalition points to Section 27(a) of the Act, and argues that the proposed standards will have impacts as soon as they are adopted, *i.e.*, before any corresponding regulatory changes are made to specific programs. PC 67 at 3. Referring to the Site Remediation Program and landfill regulations, PFAS Regulatory Coalition argues, "Illinois' groundwater changes will have impacts apart from any that will be felt when Illinois adopts USEPA's drinking water MCLs". *Id*. at 4. Further, the Coalition raises concerns about "existing

physical conditions" and looking to the background levels at facilities that would be affected by the proposed standards. "Such a provision was necessary because it is often either prohibitively expensive or simply impossible to remediate sites to levels below such background levels." *Id*. at 2.

PFAS Regulatory Coalition presents two scenarios. PC 67 at 4. First, "where groundwater is being routed through public water systems, the Federal MCLs would allow those water systems to treat the groundwater in their treatment plants before distribution, so that the MCLs are met 'at the tap.' The proposed State groundwater standards would not allow that option." *Id.* at 4. Second, PFAS Regulatory Coalition points to private wells, adding:

> In these situations, the groundwater standards will clearly result in treatment costs that would not be incurred otherwise. In fact, this is true as well for groundwater that is not withdrawn at all, and never used in any water system. Regulated parties would need to incur costs to comply with the standards in those cases too. *Id.* at 5.

The National Waste & Recycling Association reiterates its concern that the Board's approach of amending Part 620 before addressing the corrective action programs, "fail[s] to address the impact to other Board regulatory programs, especially programs that are required to monitor and meet Part 620 Groundwater Quality Standards, such as the Board's landfill regulations." PC 61 at 1. The Association is also concerned about the lack of data provided by IEPA on the estimated cost to industry to implement the proposed standards. *Id*. at 3. The Association worries that landfills could be immediately impacted by the proposed changes to Part 620. *Id*. at 1-2. IERG raises concerns that the PFAS GWQS amendments had not been evaluated for their potential impact on TACO. PC 64 at 2.

Board Discussion and Findings

At first notice, the Board addressed comments regarding the economic reasonableness of the proposed changes to Part 620. The Board found that it was necessary to update Part 620 to protect Illinois' groundwater resources from PFAS and other constituents. First-Not. Op. at 68. "The Board recognizes that these new standards may impose economic burdens when they are implemented under specific remediation programs; however, the Board also recognizes that the health concerns of these constituents are significant." *Id*.

The Board asked two questions of IEPA about investigating the economic reasonableness of the proposed amendments. First, the Board stated in its first-notice opinion that it understood IEPA "will address impacts of the proposed PFAS GWQS to landfills and other programs in separate, future rulemakings." First-Not. Op. at 69. The Board then asked, "Can the Agency provide any details regarding its timeline on this issue?" *Id*. IEPA responded that it could not, at this time, provide:

> a firm timeline as to specific proposed rulemakings but anticipates amending Part 740 and 742 with certainty. Should any of the hazardous waste management facilities (Parts 702 through 750 generally) or solid waste disposal facilities (Parts

> 807, 811 through 817 generally) regulations require amendment in response to the revised Part 620 standards, then those rulemakings proposals will be prepared accordingly. IEPA Resp. at 6-7 (Apr. 26, 2024).

Second, after issuing first notice, the Board asked IEPA if it had any additional information on the economic reasonableness of the proposed PFAS GWQS that could be considered by the Board. Board Questions at 9 (No. 6) (July 18, 2024). IEPA responds that it "agrees with the Board's conclusion and reiterates that the economic impact resulting from each program's specific utilization of the PFAS GWQS will be addressed in the appropriate rulemakings as they occur over time." PC 71 at 9. Further, IEPA:

> reiterates the Board's finding that, for facilities that may be impacted by the groundwater standards, compliance and any potential remediation will be addressed under specific programs like Part 811 and 814 landfills, the Site Remediation Program and the Underground Storage Tank program. Following the adoption of the proposed amendments to Part 620, the Agency will identify and develop amendments needed in other rules addressing specific programs. *Id*.

Under the Illinois Groundwater Protection Act, the Board "shall, in addition to the factors set forth in Title VII of the Environmental Protection Act, consider . . . existing methods of detecting and quantifying contaminants with reasonable analytical certainty." 415 ILCS 55/8(b)(6) (2022). The Groundwater Protection Act established the inherent value of groundwater by finding that "a large portion of Illinois' citizens rely on groundwater" and that "protection of groundwater is a necessity for future economic development in the State." 415 ILCS 55/2(a) (2022). The Groundwater Protection Act directs IEPA to prepare groundwater regulations that address "those contaminants which have been found in the groundwaters of the State and which are known to cause, or are suspected of causing, cancer, birth defects, or any other adverse effect on human health according to nationally accepted guidelines." 415 ILCS 55/8(a) (2022).

IEPA's Statement of Reasons (SR) addresses the statutory authority it relied upon in developing the proposed changes to Part 620. Following the Groundwater Protection Act's enactment in 1989, IEPA proposed, and the Board later adopted, comprehensive groundwater quality standards. *See* Groundwater Quality Standards (35 Ill. Adm. Code 620) R89-14 (Nov. 7, 1991). In that initial rulemaking, the Board acknowledged the need to regularly update Part 620 as new scientific methods develop. *Id*. at 19. In its Statement of Reasons, IEPA said that it has proposed the changes at issue here to meet the Board's expectations of ensuring "that the numerical groundwater quality standards continued to evolve with the supporting scientific data and methods." SR at 2-3. IEPA has adhered to the directives of the Groundwater Protection Act by routinely proposing updates of Part 620 so that it conforms with current scientific methodologies. For example, in 2012, the Board adopted Part 620 amendments, including "adding groundwater quality standards for 39 chemicals constituents," to "keep Illinois' groundwater quality standards current with the latest science and technical data." Proposed Amendments to Groundwater Quality Standards (35 Ill. Adm. Code 620), R08-18, slip op. at 27 (Oct. 4, 2012); *see also* Proposed MTBE and Compliance Determination Amendments to Groundwater Quality Standards: 35 Ill. Adm. Code 620, R01-14 (Jan. 24, 2002) (Board added

standards for methyl tertiary-butyl ether (MTBE)). The Board is doing so again in this rulemaking.

> Section 27(a) of the Act requires, in part:
>
> In promulgating regulations under this Act, the Board shall take into account the existing physical conditions, the character of the area involved, including the character of the surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution. 415 ILCS 5/27(a) (2022).

Section 27(b) of the Act requires, in part:

> In adopting any such new rule, the Board shall, in its written opinion, make a determination, based upon the evidence in the public hearing record, including but not limited to the economic impact study, as to whether the proposed rule has any adverse economic impact on the people of the State of Illinois. 415 ILCS 5/27(b) (2022).

On January 6, 2022, the Board requested that the Department of Commerce and Economic Opportunity (DCEO) perform an economic impact study on the proposed amendments to Part 620. DCEO neither responded to the Board's request nor performed an economic impact study.

The Act requires the Board to "take into account" the technical feasibility and economic reasonableness of the proposed regulations. 415 ILCS 5/27(a) (2022). The Board "need not conclude that compliance with a proposed regulation is 'technically feasible and economically reasonable' before it can adopt such regulation." Granite City Div. of Nat'l Steel Co. v. Illinois Pollution Control Board, 155 Ill. 2d 149, 182 (1993). As the Illinois Supreme Court held in Granite City:

> [W]e conclude that section 27(a) does not impose specific evidentiary requirements on the Board, thereby limiting its authority to promulgate only regulations that it has determined to be technically feasible and economically reasonable. Rather, section 27(a) requires only that the Board consider or take into account the factors set forth therein.[9] The Board must then use its technical expertise and judgement in balancing any hardship that the regulations may cause to dischargers against its statutorily mandated purpose and function of protecting our environment and public health. *Id.* at 183.

[9] "In fact, under certain circumstances, the Board can promulgate standards which it has found to be technically infeasible. If the Board, in its discretion and based on its technical expertise, determines that a proposed regulation is necessary to carry out the purpose of the Act, it may adopt technology-forcing standards which are beyond the reach of existing technology." Granite City, 155 Ill. 2d at 182-83 (citations omitted), *citing* Monsanto Co. v. Pollution Control Bd., 67 Ill. 2d 276, 292-93 (1977).

The General Assembly's findings and purposes as articulated in the Act and the Groundwater Protection Act are aligned. "[E]nvironmental damage seriously endangers the public health and welfare." 415 ILCS 5/2(a)(i) (2022). Accordingly, a primary purpose of the Act is to "restore, protect and enhance the quality of the environment." 415 ILCS 5/2(b) (2022). In the Groundwater Protection Act, the General Assembly found that, "contamination of Illinois groundwater will adversely impact the health and welfare of its citizens and adversely impact the economic viability of the State." 415 ILCS 55/2(a)(ii) (2022). Further, the General Assembly found that "protection of groundwater is a necessity for future economic development in this State" and, "[t]he State recognizes the essential and pervasive role of groundwater in the social and economic well-being of the people of Illinois, and its vital importance to the general health, safety, and welfare." 415 ILCS 55/2(a)(iv), (b) (2022). Therefore, "it is the policy of the State of Illinois to restore, protect, and enhance the groundwaters of the State, as a natural and public resource." 415 ILCS 5/2(b) (2022).

In the first Part 620 rulemaking, the Board found the economic benefits that would result from adopting groundwater standards were a reduction of carcinogenic health risks; reduced expenses for treatment of water at wellheads; and reduced expenses for obtaining water supplies. Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(A), (B), slip op. at 27-28 (July 25, 1991). In a subsequent Part 620 rulemaking, the Board found that the proposed amendments were, "designed to further the General Assembly's intent to protect groundwater not only for the health of Illinois citizens, but also for their economic well-being." Proposed Amendments to Groundwater Quality Standards (35 Ill. Adm. Code 620), R08-18, slip op. at 25-26 (Oct. 20, 2011).

In this rulemaking, the Board is amending Class I and Class II groundwater quality standards for specified constituents. "[T]hese are groundwater quality standards, not cleanup standards or requirements." Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 24 (Nov. 7, 1991). As in previous groundwater rulemakings, the Board found at first notice that the proposed amendments will not impose an unreasonable economic or technical burden. First-Not. Op. at 68; *see also* Proposed Amendments to Groundwater Quality Standards (35 Ill. Adm. Code 620), R08-18, slip op. at 27 (Oct. 4, 2012). In the past, the Board has evaluated the economic reasonableness of those standards in detail when updating the corrective action programs that use them, such as the landfill regulations found in Part 811 and 814, as well as the Site Remediation Program and the leaking UST rules. The Board reiterated at first notice that it will continue to do so in the future. First-Not. Op. at 68. In addition, the Board made clear that site-specific relief may be sought in the form of adjusted standards or site-specific rulemakings. *Id*. at 19, 68.

Under Section 27(a) and (b) of the Act, the Board considered the economic reasonableness of the proposed Part 620 amendments and found, at first notice, that they would not have an adverse economic impact on the people of the State of Illinois. First-Not. Op. at 68. After considering the information subsequently received, the Board has no basis to alter this finding. Further, the Board finds, as discussed earlier, that there are enough laboratories to handle the increased capacity of PFAS testing. Relatedly, the Board finds that laboratories have been certified to be able to test these new, low levels of PFAS. At first notice, the Board found that, "adequate sampling and analytical methods are available to measure PFAS and other

standards at or below the proposed GWQS." First-Not. Op. at 68. Both these findings are evidence of the technical feasibility of the newly proposed PFAS standards.

When the Board receives a proposal to amend a corrective action program to account for these updated groundwater quality standards, the Board will, of course, fulfill its statutory duty, as it has many times before. Accordingly, in that future rulemaking, the Board will consider the economic reasonableness of compliance with the proposed corrective action program amendments, and determine whether they will have any adverse economic impact on the people of Illinois. Here, the Board finds that in balancing its "statutorily mandated purpose and function of protecting [the] environment and public health," that the three issues raised by participants, on balance, do not outweigh the economic benefits afforded to the people of the State of Illinois of clean groundwater. The Board asks IEPA to comment on the PFAS Regulatory Coalition's concerns of (1) not having the option of meeting the MCL "at the tap" and (2) treatment costs for groundwater that is not withdrawn and not used in a water system.

Additional Changes and Corrections Suggested by IEPA

In its public comments, IEPA suggests numerous changes to the Board's first-notice amendments in addition the most significant ones discussed above. *See* PC 63, 71. Below, the Board addresses the other proposed changes that require explanation.

Section 620.125 Incorporations by Reference

IEPA recommends that the Board incorporate by reference USEPA's Method 1633 for PFAS analyses. PC 63 at 9. At first notice, the Board noted that USEPA's draft Method 1633 was expected to be finalized for analyses of 40 PFAS in aqueous media, including all six PFAS in these proposed rules. *See* First-Not. Op. at 8. Now that USEPA has finalized Method 1633 the Board proposes incorporating that method by reference in Section 620.125(a) for second notice, as IEPA recommends:

> U.S. EPA, Office of Water, Engineering and Analysis Division.
>
> > "Method 1633: Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS", Jan. 2024, EPA 821-R-24-001.
> >
> > U.S. EPA, Office of Resource Conservation and Recovery. "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance", Mar. 2009, EPA 530/R-09-007. PC 63 at 9.

IEPA also proposes incorporating by reference USEPA's "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, (March 2009 Unified Guidance)". PC 63 at 7. But that guidance document was already proposed to be incorporated by reference at first notice. *See* First-Not. Add. at 13-14. Finally, the Board has updated the "Illinois Integrated

Water Quality Report and Section 303(d) List" to reflect the latest report published on June 2022.

Section 620.201 Groundwater Designations

"Every groundwater in the State belongs to one of the four classes or to the waters in a groundwater management zone." Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 9 (Nov. 7, 1991). Accordingly, Section 620.201 on groundwater designations provides for the four classes (Class I, Class II, Class III, and Class IV) and the two categories of GMZs (under Section 620.250 or SRP's Section 740.530).

All groundwaters of the State are designated as:

a) One of the following four classes of groundwater in accordance with Sections 620.210 through 620.240:

1) Class I: Potable Resource Groundwater;

2) Class II: General Resource Groundwater;

3) Class III: Special Resource Groundwater;

4) Class IV: Other Groundwater;

b) A groundwater management zone in accordance with Section 620.250; or

c) A groundwater management zone as defined in 35 Ill. Adm. Code 740.120 and established under 35 Ill. Adm. Code 740.530. 35 Ill. Adm. Code 620.201.

At first notice, the Board proposed two non-substantive amendments to Section 620.201, changing legalese to plain English (*e.g.*, replacing "accordance" with "compliance"). First-Not. Add. at 14-15. IEPA proposes changes to the first-notice versions of subsections (b) and (c) of Section 620.201 "[f]or consistency with the Board's proposed changes in Section 620.250." PC 63 at 9. Specifically, IEPA asks the Board to reference individual subsections of Section 620.250 on GMZs:

b) A groundwater management zone in compliance with Section 620.250 subsections (a)-(d); or

c) A groundwater management zone as defined in 35 Ill. Adm. Code 740.120 and established under 35 Ill. Adm. Code 740.530, in compliance with Section 620.250, subsections (g)-(i). PC 63 at 9.

As discussed above, GMZs are established under Section 620.250 or SRP's Section 740.530. When the Board added the GMZ provisions to SRP in 1997, it also added subsections (d), (e), and (f) to Section 620.250: "These changes generally duplicated the provisions of Section 740.530 and are intended simply to alert the reader of Part 620 to the relationship between Parts 620 and 740." Site Remediation Program and Groundwater Quality (35 Ill. Adm. Code 740 and 35 Ill. Adm. Code 620), R97-11, slip op. at 16 (Feb. 6, 1997).

Subsection (d) of Section 620.250 addresses establishing and terminating a GMZ under SRP. It notes that, "[n]otwithstanding subsections (a) and (b)," a GMZ may be established under SRP. 35 Ill. Adm. Code 620.250(d). And the GMZ established under SRP "shall remain in effect until" Section 740.530(c) is met. *Id*. Subsection (e) of Section 620.250 provides that while the SRP GMZ is in effect, the otherwise applicable Subpart D standards do not apply, which corresponds to Section 620.450(a)(3). *See* 35 Ill. Adm. Code 620.250(e). And subsection (f) of Section 620.250 states that, "[n]otwithstanding subsection (c)," the "review requirements concerning the on-going adequacy of controls and continued management" do not apply to "groundwater within a three-dimensional region formerly encompassed by" the SRP GMZ "while a No Further Remediation Letter" under SRP is in effect. 35 Ill. Adm. Code 620.250(f).

Without any substantive changes, subsections (d), (e), and (f) of Section 620.250 became proposed subsections (g), (h), and (i) of Section 620.250 at first notice. *See* First-Not. Add. at 22. And, as detailed earlier in this opinion, as well as at first notice, proposed subsections (a) through (e) of Section 620.250 are designed only to flesh out and clarify current subsections (a) through (c) of Section 620.250. Accordingly, the split in Section 620.250's subsections is nothing new. The Board's first-notice amendments alone therefore would not justify IEPA's proposed revisions to the groundwater designation provisions of Section 620.201.

The question then becomes whether there is another reason to propose IEPA's changes. As a GMZ may be established within any class of groundwater (*see* 35 Ill. Adm. Code 620.250(a)), the rules defining each of the four classes of groundwater includes an exception for Section 620.250 (see 35 Ill. Adm. Code 620.210, 620.220, 620.230, 620.240). For example, Section 620.220 states, "Except as provided in Section 620.250, General Resource Groundwater is . . . ." Because Section 620.250 houses not only the original GMZ provisions (subsections (a)-(c)) adopted in R89-14(B), but also the SRP provisions (subsection (d)-(f)), the Board considers SRP GMZs to fall within the "Except as provided in Section 620.250" language. The Board seeks IEPA comment on this interpretation.

For purposes of groundwater designations in Section 620.201, the Board finds no need to add individual subsections of Section 620.250 to either subsection (b) or (c) of Section 620.201. Whether a GMZ is established under SRP or Section 620.250 is straightforward. But, to make the connection between SRP and Section 620.250 explicit to the reader of Section 620.201, the Board adds to subsection (c) a cross-reference to Section 620.250(g)-(i). The Board also proposes to simplify some of Section 620.201's language:

All groundwaters of the State are designated as:

a) One of the following four classes of groundwater under ~~in accordance with~~ Sections 620.210 through 620.240:

1) Class I: Potable Resource Groundwater;

2) Class II: General Resource Groundwater;

3) Class III: Special Resource Groundwater;

4) Class IV: Other Groundwater;

b) A groundwater management zone under ~~in accordance with~~ Section 620.250; or

c) A groundwater management zone ~~as defined in 35 Ill. Adm. Code 740.120 and established~~ under 35 Ill. Adm. Code 740.530. See Section 620.250(g)-(i).

Finally, the Board asks for IEPA's view on whether voiding a No Further Remediation Letter under SRP would make the Subpart D standards applicable again within the area formerly encompassed by the GMZ—instead of "the groundwater objectives achieved as documented in the approved Remedial Action Completion Report." *See* 35 Ill. Adm. Code 620.450(c) ("While a No Further Remediation Letter is in effect"); 35 Ill. Adm. Code 740.530(f) ("While the No Further Remediation Letter is in effect").

Section 620.210 Class I: Potable Resource Groundwater

Class I Groundwater Specified in Subsection (a). Generally, under current Section 620.210, "Potable Resource Groundwater is . . . [g]roundwater located 10 feet or more below the land surface and within" any region or geologic material described in subsection (a)(1), (a)(2), (a)(3), or (a)(4). 35 Ill. Adm. Code 620.210(a). At first notice, the Board added subsection (a)(5) to Section 620.210 as proposed by IEPA (SOR at 7):

> 5) The wellhead protection area of a community water supply well or well field, as defined in Section 620.110 and delineated according to the methods incorporated by reference in Section 620.125. For the purposes of this Subpart, when a maximum setback zone has been adopted under Section 14.3 of the Act, the WHPA includes the delineated area within the maximum setback zone. First-Not. Add. at 15.

Since the Board issued the first-notice amendments, IEPA further reviewed testimony concerning the definition of Class I groundwater under proposed Section 620.210(a)(5) and

analyzed "the interplay of maximum setback zones and wellhead protection areas (WHPAs) as defined in Section 620.110." PC 63 at 9. Based on that review and analysis, IEPA proposes to include an adopted 2,500-foot maximum setback zone as Class I groundwater. *Id*. at 9-10. Because a WHPA, by definition, would be outside of applicable setback zones, IEPA recommends amending Section 620.210. *Id*. at 10. Specifically, to clarify the Class I groundwater designation in wellhead protection areas and maximum setback zones, IEPA proposes modifying the first-notice version of new subsection (a)(5) and adding a subsection (a)(6):

> 5) The Phase I and Phase II wellhead protection areas ~~area~~ of a community water supply well or well field, as defined in Section 620.110 and delineated according to the methods incorporated by reference in Section 620.125; or ~~For the purposes of this Subpart, when a maximum setback zone has been adopted under Section 14.3 of the Act, the WHPA includes the delineated area within the maximum setback zone.~~
>
> 6) The maximum setback zone of a community water supply well adopted under Section 14.3 of the Act. First-Not. Add. at 15; PC 63 at 10.

The Board agrees with IEPA's amendments but proposes additional clarifying changes to new subsection (a)(5). The lengthy phrase "Phase I and Phase II wellhead protection areas of a community water supply well or well field" is followed by as "defined in Section 620.110" and as "delineated according to the methods incorporated by reference in Section 620.125." It is unclear what term or terms are defined in Section 620.110. It is also unclear what term or terms are delineated and by which Section 620.125 methods.

Clarifying new subsection (a)(5) requires considering the Part 620 definition of "wellhead protection area", which was not substantively changed at first notice:

> "Wellhead protection area" or "WHPA" means the surface and subsurface recharge area surrounding a community water supply well or well field, delineated outside of any applicable setback zones ~~(~~under ~~pursuant to~~ Section 17.1 of the Act [415 ILCS 5/17.1]~~),~~ and ~~pursuant to~~ Illinois' Wellhead Protection Program, through which contaminants are reasonably likely to move toward such well or well field. First-Not. Add. at 9.

Because "community water supply well or well field" is already in the definition of "wellhead protection area", subsection (a)(5) includes redundant language. There is no need to say "wellhead protection areas *of a community water supply well or well field*" when the defined term "wellhead protection areas" suffices. Removing the unnecessary language reveals that what is "as defined in Section 620.110" is "wellhead protection areas".

But now IEPA proposes modifying "wellhead protection areas" with "Phase I and Phase II". Neither "Phase I wellhead protection area" nor "Phase II wellhead protection area" is

defined in Part 620. The concept of Phase I and Phase II wellhead protection areas comes from two documents incorporated by reference in current Section 620.125. The first document, the "Illinois Wellhead Protection Program," provides for delineating both Phase I and Phase II wellhead protection areas. Phase I delineation is based on a 1,000-foot fixed radius. Phase II delineation is based on the second document, the "Groundwater Protection Needs Assessment". With these understandings, it becomes clear that what are "delineated according to the methods incorporated by reference in Section 620.125" are Phase I and Phase II wellhead protection areas and that the methods by which they are delineated are specified in those two documents.

Accordingly, for this proposed second notice, the Board revises IEPA's proposed version of subsection (a)(5) as follows:

> 5) A ~~The Phase I and Phase II~~ wellhead protection area ~~areas of a community water supply well or well field~~, as defined in Section 620.110, that is a Phase I or Phase II wellhead protection area ~~and~~ delineated in compliance with the "The Illinois Wellhead Protection Program" and the "Guidance Document for Groundwater Protection Needs Assessments", both ~~according to the methods~~ incorporated by reference in Section 620.125; or

The Board Note to Section 620.210. Current Section 620.210 contains the following Board Note:

> BOARD NOTE: Any portion of the thickness associated with the geologic materials as described in subsections 620.210(a)(2), (a)(3) or (a)(4) should be designated as Class I: Potable Resource Groundwater if located 10 feet or more below the land surface.

At first notice, the Board moved this Board Note up into its own subsection (c) of Section 620.210, resulting in the following:

> Except as provided in Sections 620.230, 620.240, or 620.250, Potable Resource Groundwater is:
>
> ***
>
> c) Any portion of the thickness associated with the geological materials as described in subsections 620.210(a)(2), (a)(3), or (a)(4) is designed as Class I: Potable Resource Groundwater if located 10 feet or more below the land surface. First-Not. Add. at 15-16.

As proposed, groundwater is Class I by falling within any one of the subsections of Section 620.210: this new subsection (c); revised subsection (a) discussed above; or current subsection (b), meaning groundwater reclassified by the Board as Class I under the adjusted standard petition procedures of Section 620.260 (35 Ill. Adm. Code 620.210(b)).

On further review, the Board finds that the new subsection (c) of Section 620.210, like the current Board Note, *explains* the subsection (a) criteria on geologic material thickness. New subsection (c) does not *define* what "Potable Resource Groundwater is." The Board therefore proposes deleting new subsection (c) and restoring Section 620.210's Board Note.

But the Board takes the opportunity to clarify and amplify the current Board Note, which has been a source of some confusion. *See*, *e.g.*, Tiered Approach to Corrective Action Objectives (TACO): 35 Ill. Adm. Code Part 742, slip op. at 58-60 (Apr. 17, 1997). The thicknesses it refers to are specified in subsections (a)(2), (a)(3), and (a)(4)(A):

> a) Groundwater located 10 feet or more below the land surface and within:
>
> ***
>
> 2) Unconsolidated sand, gravel or sand and gravel which is 5 feet or more in thickness and that contains 12 percent or less of fines (i.e., fines which pass through a No. 200 sieve tested according to ASTM Standard Practice D2487-06, incorporated by reference at Section 620.125);
>
> 3) Sandstone which is 10 feet or more in thickness, or fractured carbonate which is 15 feet or more in thickness; or
>
> 4) Any geologic material which is capable of a:
>
> A) Sustained groundwater yield, from up to a 12 inch borehole, of 150 gallons per day or more from a thickness of 15 feet or less; or ***. 35 Ill. Adm. Code 620.210(a)(2), (a)(3), (a)(4) (omitting subsection (a)(4)(B).

As the Board determined when it originally adopted the "10-foot" rule for Class I groundwater:

> [Q]uestion has been raised whether potable groundwaters found below 10 feet, but located in a geologic unit that meets one of the thickness criteria only because part of the unit is at a depth less than 10 feet, would still be considered a Class I water. The Board intends that the answer to this question be "yes". Simply, if the water is below 10 feet and is naturally potable, it should be supported as a potable water resource. Prior to second notice a Board note to this effect was added to Section 620.210 upon the recommendation of the Agency. Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 12 (Nov. 7, 1991) (record citations omitted).

The passage above from the original Part 620 rulemaking speaks to the "straddling geologic unit" situation, meaning the specified geologic unit extends from above to beneath the 10-foot depth. And in the following passage from that opinion, the Board addressed the "straddling groundwater unit" situation, meaning the groundwater itself extends from above to beneath the 10-foot depth:

> [T]he 10-foot rule arises from the need to recognize that many surface activities can impact very shallow underground water without also impacting the great bulk of potable groundwaters. *** [T]o assure that legitimate use of agricultural chemicals or other legitimate activities are not proscribed, . . . the potable resource (Class I) groundwater standards specifically apply only to groundwaters below a depth of 10 feet, irrespective of whether these waters would otherwise qualify as potable waters; groundwaters shallower than 10 feet would always be Class II, III, or IV, depending upon local circumstances. Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 12 (Nov. 7, 1991) (emphasis in original).

Consistent with these passages from the R89-14(B) rulemaking and the text of Section 620.210(a), the Board revises the current Board Note for this proposed second notice to address both the "straddling geologic unit" and "straddling groundwater unit" situations:

> BOARD NOTE: In determining whether geologic material meets a subsection (a)(2) or (a)(3) thickness minimum or the subsection (a)(4)(A) thickness maximum, the entire thickness of the geologic material is considered, regardless of whether all or only some of the thickness is 10 feet or more below the land surface. For example, groundwater that is 10 feet or more below the land surface and within any geologic material described in subsection (a)(2), (a)(3), or (a)(4)(A) is ~~Any portion of the thickness associated with the geologic materials as described in subsections 620.210(a)(2), (a)(3) or (a)(4) should be~~ designated as Class I: Potable Resource Groundwater ~~if located~~, even if some of the geologic material's thickness is within 10 feet of the land surface. But if a sustained groundwater yield, from up to a 12-inch borehole, of at least 150 gallons per day requires a geologic material thickness of greater than 15 feet, then subsection (a)(4)(A) is not met, even if only 15 feet or less of the thickness is 10 feet or more below the land surface. In addition, if groundwater that is 10 feet or more below the land surface—and within any region or geologic material described in subsection (a)—also extends upward to within 10 feet of the land surface, then the groundwater 10 feet or more below the land surface is designated as Class I: Potable Resource Groundwater but the groundwater within 10 feet of the land surface is not.

The Board requests that IEPA comment on the revised Board Note.

Section 620.240 Class IV: Other Groundwater

For this proposed second notice, the Board has made clarifying changes to subsections (b), (e)(1), and (f)(1) of Section 620.240. The existing provision under subsection (b) describes

"Other groundwater" as "groundwater within a point of compliance under 35 Ill. Adm. Code 724, but not to exceed a distance of 200 feet from a potential primary or secondary source." 35 Ill Adm Code 620.240(b). To avoid any confusion with the delineation of Class IV groundwater, the Board clarifies that the "200-feet" distance under subsection (b) must be measured "laterally" from the "edge of" a potential primary or secondary source in the proposed second notice:

b) Groundwater within a point of compliance under ~~as provided in~~ 35 Ill. Adm. Code 724, but not to exceed a lateral distance of 200 feet from the edge of a potential primary or secondary source.

Next, the Board clarifies existing subsection (e)(1), which specifies one of the conditions that must be met for groundwater underlying a potential primary or secondary source to be classified as Class IV groundwater, as follows:

e) Groundwater that~~which~~ underlies a potential primary or secondary source, in which contaminants may be present from a release, if the owner or operator of the ~~such~~ source notifies the Agency in writing and the following conditions are met:

1) The outermost edge of what would be considered the Class IV groundwater is the closest practicable distance from the~~such~~ source, but does not exceed:

The Board notes that proposed change to subsection (e)(1) clarifies that the phrase "outermost edge" is associated with what would be considered as Class IV groundwater under this subsection. The Board has made a similar change to subsection (f)(1). The Board seeks IEPA comment on the proposed changes to subsections (b), (e)(1), and (f)(1).

Section 620.301 General Prohibition Against Use Impairment of Resource Groundwater

Current Section 620.301(a) prohibits any person from causing, threatening, or allowing the release of any contaminant to a resource groundwater "such that . . . [t]reatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater" or "[a]n existing or potential use of such groundwater is precluded." 35 Ill. Adm. Code 620.301(a).

IEPA notes that the current Section 620.301(c) exception—for underground injection—from the Section 620.301(a) general prohibition against use impairment of resource groundwater is limited to underground injection in compliance with a "permit" issued either by IEPA under the Act or by "the Department of Mines and Minerals" under the Illinois Oil and Gas Act. PC 63 at 22. However, IEPA states first that not all injection wells under the Underground Injection Control (UIC) program receive permits. *Id*. For example, Class V UIC wells are "authorized by rule." *Id*. Class V UIC wells, IEPA maintains, should be included in the subsection (c) exception even though they "do not have a 'permit' to regulate those activities." *Id*.

To accurately reflect the scope of IEPA's UIC program, as well as update the name of the State agency that administers the Oil and Gas Act and acknowledge that USEPA-administered

UIC wells are also exempt, IEPA proposes the following changes to current subsection (c) of Section 620.301:

> c) Nothing in this Section limits ~~limit~~ underground injection in accordance with ~~pursuant to a permit issued~~ an underground injection control program administered by the Agency under the Act, ~~issued~~ by the Department of Natural Resources, Office of Mines and Minerals under the Illinois Oil and Gas Act [225 ILCS 725], or by the U.S. EPA under the federal UIC regulations [40 CFR 144]. *Id*.

The Board agrees with IEPA that the subsection (c) exception should be broadened to include underground injection wells that are not required to have permits, but which are still regulated under specified UIC programs. Further, a covered UIC program may be administered not only by IEPA or the Illinois Department of Natural Resource's Office of Mines and Minerals, but also by USEPA. In this proposed second notice, the Board amends subsection (c) as suggested by IEPA but with non-substantive revisions.

Section 620.302 Applicability of Preventative Notification and Preventative Resource Activities

IEPA proposes changes to current Section 620.302(a)(1), which was unchanged at first notice. Section 620.302(a) reads:

> a) Preventive notification and preventive response as specified in Sections 620.305 through 620.310 applies to:
>
> 1) Class I groundwater under Section 620.210(a)(1), (a)(2), or (a)(3) that is monitored by the persons listed in subsection (b); or
>
> 2) Class III groundwater that is monitored by the persons listed in subsection (b). 35 Ill. Adm. Code 620.302(a).

IEPA suggests changes to subsection (a)(1) of Section 620.302 that would correspond with its proposed revisions of the Class I groundwater criteria at subsections (a)(5) and (a)(6) of Section 620.210, which the Board accepted above: "Class I groundwater under Section 620.210(a)(1), (a)(2),~~ or~~ (a)(3), (a)(5) or (a)(6) that is monitored by the persons listed in subsection (b)." PC 63 at 23. The Board finds these related changes necessary and includes them in this proposed second notice.

However, the Board seeks IEPA comment on why preventive notification and preventive response would not also apply to Class I groundwater under subsections (a)(4) and (b) of Section 620.210. Subsection (a)(4) of Section 620.210 is the only provision of the Class I "10-foot" rule left out of Section 620.302(a)(1). Subsection (b) of Section 620.210 provides for reclassifying groundwater as Class I through a Board adjusted standard proceeding. It is unclear why groundwater designated Class I under subsection (a)(4) or (b) would not be afforded the same protections as groundwater designated Class I under (a)(1), (a)(2), (a)(3), (a)(5), or (a)(6). That is, should current subsection (a)(1) of Section 620.302 be amended to simply read: "Class I

groundwater under Section 620.210(a)~~(1), (a)(2),~~ or (b) ~~(a)(3)~~ that is monitored by the persons listed in subsection (b)"?

As referenced in subsection (a) of Section 620.302, subsection (b) of Section 620.302 lists persons who conduct groundwater monitoring. IEPA recommends that the Board revise the first-notice version of subsection (b)(1). PC 63 at 23. At first notice, the Board proposed the following changes to Section 620.302(b)(1):

> b) For purposes of subsection (a), the persons that conduct groundwater monitoring are:
>
> 1) An owner or operator of a regulated entity for which groundwater quality monitoring must be performed under ~~pursuant to~~ State or Federal law or regulation (e.g., 35 Ill. Adm. Code Parts 615, 616 and 807; 62 Ill. Adm. Code Parts 1816 and 1817. This subsection (b)(1) does not apply to an owner or operator of a regulated entity subject to program-specific requirements regarding groundwater contaminant notification and remediation (e.g., 35 Ill. Adm. Code Parts 731, 734, 740, 750, 807, 811, 814, or 815)~~section 106 and 107 of the Comprehensive Environmental Response, Compensation and Liability Act (42 USC 9601, et seq.); sections 3004 and 3008 of the Resource Conservation and Recovery Act (42 USC 6901, et seq.); sections 4(q), 4(v), 12(g), 21(d), 21(f), 22.2(f), 22.2(m) and 22.18 of the Act; 35 Ill. Adm. Code 724, 725, 730, 731, 750, 811 and 814)~~; First-Not. Add. at 25.

IEPA has three concerns with the "example lists" proposed at first notice in subsection (b)(1). PC 63 at 23. First, IEPA notes that "reporting under program requirements does not assure that the appropriate regulatory agency is made aware of those results." *Id*. Second, "Preventive Response Activities under Section 620.310 may be tied to the entities identified in subsection 620.302(b)(1), which the Board has proposed for deletion." *Id.* Third, including Part 815 is not a good example because "Part 815 does not require the review by the Agency of documents submitted under Part 815." *Id.* IEPA therefore recommends excluding example lists and having subsection (b)(1) read, "An owner or operator of a regulated entity for which groundwater quality monitoring must be performed under State or Federal law or regulation." *Id*.

In its proposal, IEPA had suggested additions to the example list of Section 620.302(b)(1), including the addition of Part 815. *See* IEPA Prop. at 5004. IEPA sought to "make the list in this subsection more comprehensive" by "adding examples of persons that conduct groundwater monitoring." SOR at 8. Based on IEPA's current reservations about including examples, the Board proposes IEPA's revised subsection (b)(1) today.

Sections 620.410 Class I GWQS and Section 620.420 Class II GWQS

IEPA notes that three constituents had incorrect proposed Class I and Class II standards in the Board's first-notice order. PC 71 at 9. The Board corrects those errors as follows:

Section 620.410(b)

CASRN	Constituent	Incorrect Class I GWQS at First Notice	Corrected at Proposed Second Notice Class I GWQS
99-65-0	1,3-Dinitrobenzene	0.0007	0.001
121-14-2	2,4-Dinitrotoluene	0.00025	0.001
606-20-2	2,6-Dinitrotoluene	0.001	0.0001

Section 620.420(b)

CASRN	Constituent	Incorrect Class II GWQS at First Notice	Corrected at Proposed Second Notice Class I GWQS
99-65-0	1,3-Dinitrobenzene	0.0007	0.001
121-14-2	2,4-Dinitrotoluene	0.00125	0.005
606-20-2	2,6-Dinitrotoluene	0.0005	0.005

Section 620.420(d)

The Board notes that the renumbered subsection (d) specifies that "[e]xcept due to natural causes, a pH range of 6.5 - 9.0 units must not be exceeded in Class II groundwater that is within 5 feet of the land surface." The Board asks IEPA to comment on whether it would be acceptable to delete the phrase "that is within 5 feet of the land surface".

Section 620.440 Groundwater Quality Standards for Class IV: Other Groundwater

IEPA recommends four changes to current Section 620.440. First, to accommodate IEPA's proposed additions of new subsections (d) and (e) to Section 620.440, discussed below, IEPA proposes that the Board revise subsection (a) as follows:

> a) Except as provided in subsection (b),~~or~~ (c), (d), or (e), Class IV: Other Groundwater standards are equal to the existing concentrations of constituents in groundwater. PC 63 at 24.

Second, IEPA states that current Section 620.440(b) needs revision to address the application of Class IV groundwater quality standards to Part 815 landfills. PC 63 at 23. IEPA explains that these landfills are not required to obtain a permit but are required to meet the regulatory standards for Part 811 landfills. *Id*. IEPA suggests following changes to subsection (b):

> b) For groundwater within a zone of attenuation as defined in 35 Ill. Adm. Code Part 810 and 35 Ill. Adm. Code 811.320(c), ~~as p~~rovided in 35 Ill. Adm. Code 811 and 814[,] the standards specified in Section 620.420 must not be exceeded, except for concentrations of contaminants within leachate released from a permitted unit. *Id*. at 24.

Third, as discussed above, IEPA proposes adding a new subsection (d) to Section 620.440 that clarifies "where and when the GWPS of Part 845 apply versus the GWQS of Part 620":

> d) For groundwater at both active and inactive electric utilities and independent power producers regulated under Part 845, the groundwater protection standard (GWPS) under Section 845.600 must not be exceeded for any constituent with a GWPS under Section 845.600. For any constituent that does not have a GWPS under Section 845.600, the groundwater quality standards (GWQS) of Sections 620.410, 620.420, 620.430 or 620.440(b) and (c) apply. PC 63 at 23-25.

Fourth, IEPA proposes that the Board add a new subsection (e) to Section 620.440 that would exempt UIC programs, including those administered by USEPA, from the Class IV groundwater standards:

> e) Regardless of the limitations in subsection (a), nothing in this Section shall limit underground injection in accordance with an underground injection control program administered by the Agency under the Act, by the Department of Natural Resources, Office of Mines and Minerals under the Illinois Oil and Gas Act [225 ILCS 725], or by the U.S. EPA under the federal UIC regulations [40 CFR 144]. PC 63 at 24-25.

The Board declines to revise subsection (b) of Section 620.440 as proposed by IEPA. At first notice, the Board proposed these revisions to subsection (b): "For groundwater within a zone of attenuation under ~~as provided in~~ 35 Ill. Adm. Code 811, ~~and~~ 814, and 817, the standards specified in Section 620.420 must not be exceeded, except for concentrations of contaminants within leachate released from a permitted unit." First-Not. Add. at 52. The Board finds IEPA's proposed subsection (b) revisions confusing. The Board asks IEPA to consider filing different amendments that more clearly effectuate IEPA's described intent.

The Board accepts IEPA's suggested changes to subsection (a) of Section 620.440, which accommodate new subsections (d) and (e). Earlier in this opinion, the Board discussed the groundwater standards applicable to active and inactive electric utilities and independent power

producers regulated under Part 845. *Supra* at 19. The Board also accepted IEPA's proposed addition of this new subsection (d) to Section 620.440. *Id*.

Above, the Board also accepted IEPA's proposed changes to Section 620.301 that exempt—from Section 620.301's anti-degradation prohibition—underground injection under specified UIC programs. *Supra* at 63. Likewise, the Board accepts IEPA's proposed addition of a new subsection (e) Section 620.440 that would similarly exempt those underground injections from the Class IV groundwater standards. However, the Board requests that IEPA explain how it interprets its subsection (a) phrase, "Except as provided in subsection . . . (e)," with its subsection (e) phrase, "Regardless of the limitations in subsection (a)." The phrases would seem to conflict with one another.

Section 620.450 Alternative Groundwater Quality Standards

At first notice, the Board proposed two changes to subsection (b)(1) of Section 620.450:

> b) Coal Reclamation Groundwater Quality Standards
>
> 1) Any inorganic chemical constituent or pH in groundwater, within an underground coal mine, or within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed from a permitted coal mine area under ~~pursuant to~~ the Surface Coal Mining Land Conservation and Reclamation Act [225 ILCS 720] and 62 Ill. Adm. Code 1700 through 1850, is subject to this subsection (b) ~~Section~~. First-Not. Add. at 54.

IEPA asks the Board to change "subsection (b)" back to "Section" but provides no explanation for why the Board should do so. PC 63 at 38.

Section 620.450 is entitled, "Alternative Groundwater Quality Standards." Its subsection (a) ("Groundwater Quality Restoration Standards") concerns the standards for groundwater addressed by a GMZ under Section 620.250. Subsection (c) ("Groundwater Quality Standards for Certain Groundwater Subject to a No Further Remediation Letter under Part 740") covers the groundwater standards for a region formerly encompassed by a GMZ under SRP while the No Further Remediation Letter is in effect. Subsection (b), the subject of IEPA's comment, concerns coal reclamation groundwater quality standards.

The Board's intent in changing "Section" to "subsection (b)" in subsection (b)(1) was to be more precise, *i.e.*, any inorganic chemical constituent or pH in groundwater within either of the specified areas is subject to this subsection (b) on coal reclamation groundwater quality standards. The Board asks IEPA to provide the reasons for its proposed change.

Section 620.505 Compliance Determination

At first notice, the Board proposed these amendments to Section 620.505(a):

a) Compliance with the standards under Subpart D at a site is to be determined as follows: First-Not. Add. at 57.

IEPA explains that these changes are "problematic" because Subpart D contains only the numerical standards, but "the non-degradation provisions of Subpart C also need to have a specified point of compliance." PC 63 at 38. IEPA does not propose alternative text but rather simply asks that the Board "not make the proposed edits." *Id*.

The Board agrees with IEPA that the Subpart C non-degradation provisions also need a specified point of compliance. The Board's addition of "Subpart D" narrows Section 620.505(a) too much. But the Board seeks IEPA's thoughts on whether the current text—"[c]ompliance with standards"—might be made more specific. Is the reference to "standards" limited to the standards of Part 620"? If not, what other standards are covered? For this proposed second notice, the Board changes its first-notice version of Section 620.505(a) as follows:

a) Compliance with the standards of this Part ~~under Subpart D~~ at a site is to be determined as follows:

IEPA also notes that "certain Class II standards in 620.420(a)(3) have modified points of compliance as do certain coal mine activities under 620.450(b)." PC 63 at 38. Does IEPA interpret these other provisions as exceptions to Section 620.505(a)? If so, should text be added to Section 620.505(a) that accounts for these exceptions, such as, "Except as this Part provides otherwise,"?

Finally, for Section 620.505(a)(5)(A), the Board proposes changes related to the Board's Class I discussion above about eliminating redundant rule text based on language already in the definition of "wellhead protection area". Because that definition includes "a community water supply well or well field, delineated outside of any applicable setback zones," the Board deletes the same language in Section 620.505(a)(5)(A) where the defined term "wellhead protection area" is used. The Board also breaks up subsection (a)(5)(A) to make it easier to understand. The following shows the amendments to current subsection (a)(5)(A):

5) For groundwater, any point where monitoring is conducted using a water well or a monitoring well that meets one of the following conditions:

A) For a potable water supply well if: ~~geologic~~

i) Geologic logs exist for this well; ~~or geologic~~

ii) Geologic logs in the immediate 1,000-foot area of this well are representative of the hydrogeologic materials encountered by this well as determined by a licensed professional geologist or a licensed professional engineer; or ~~a~~

iii) A WHPA has been delineated ~~outside of an applicable setback zone of a community water well or well field~~ in compliance ~~accordance~~ with the "Guidance Document for Groundwater Protection Needs Assessments~~,~~" ~~incorporated by reference at Section 620.125,~~ and "The Illinois Wellhead Protection Program~~,~~", incorporated by reference in ~~at~~ Section 620.125.

Section 620.605 Issuance of a Health Advisory

For this proposed second notice, the Board clarifies that the new terms "LLOQ" ("Lower Limit of Quantitation") and "LCMRL" ("Lowest Concentration Minimum Reporting Level") in the first-notice version of subsection (b)(2) of Section 620.605 apply to the chemical substance for which a guidance level is being determined under that subsection. The Board therefore proposes the following changes to the first-notice version of subsection (b)(2):

2) If there is no MCLG for the chemical substance, the guidance level is either the Human Threshold Toxicant Advisory Concentration or the Human Nonthreshold Toxicant Advisory Concentration for the ~~such~~ substance as determined in compliance with ~~accordance~~ Appendix A, whichever is less, unless the lower concentration ~~for such substance~~ is less than the substance's lowest appropriate LLOQ ~~PQL~~ specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846 (SW-846), incorporated by reference in ~~at~~ Section 620.125, or the substance's lowest appropriate LCMRL specified in the drinking water methods incorporated by reference in Section 620.125 ~~for the substance~~.

The Board asks IEPA to comment on these changes.

Section 620.Appendix A Procedures for Determining Human Threshold Toxicant Advisory Concentration for Class I: Potable Resource Groundwater

As suggested by IEPA, the Board restores the word "Threshold" to the heading of Appendix A's subsection (a), amending the first-notice version as follows: "Calculating the Human Threshold Toxicant Advisory Concentration for Noncancer Effects". PC 63 at 39. This corresponds with the rule's use of "HTTAC" and, as IEPA points out, subsection (d) of Appendix A uses the term "Human Nonthreshold Toxicant Advisory Concentration" or "HNTAC". *Id*. As Appendix A now addresses not only HTTAC but also HNTAC, the Board had deleted "Threshold" from Appendix A's tile and continues to propose doing so: "**Procedures for Determining Human ~~Threshold~~ Toxicant Advisory Concentrations ~~Concentration~~ for Class I: Potable Resource Groundwater**".

Section 620.APPENDIX B Procedures for Determining Hazard Indices for Class I: Potable Resource Groundwater for Mixtures of Similar-Acting Substances

The Board revises the existing language in subsections (f)(1) and (f)(2) of Section 620.Appendix B to ensure that the standards under Section 620.410 for one-in-one-million cancer risk concentration, LLOQ, and LCMRL are specifically associated with the "substance" for which the acceptable level is being determined under subsection (d). Subsection (f)(2) also includes changes, which track IEPA's suggested revisions to subsection (c), to clarify what constitutes the acceptable level of a substance when the one-in-one-million cancer risk concentration of a substance is less than its LLOQ or LCMRL. *See* PC 63 at 4-5. For this proposed second notice, the Board makes the following changes and non-substantive revisions:

f) For a carcinogenic substance~~s that are carcinogens~~, the substance's acceptable level in subsection (d) is:

1) The substance's standard specified~~standards listed~~ in Section 620.410; or

2) If a substance has no standard specified in ~~For those substances for which standards have not been established under~~ Section 620.410, the substance's one-in-one-million cancer risk concentration, unless that ~~the~~ concentration ~~for such substance~~ is less than the substance's lowest appropriate LLOQ ~~PQL~~ specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846, incorporated by reference in~~at~~ Section 620.125, or the substance's lowest appropriate LCMRL specified in the drinking water methods incorporated by reference in Section 620.125.; If the concentration for the substance is less than its ~~in which case the guidance level of the substance is~~in which ~~case the~~ lowest appropriate LLOQ or LCMRL, the guidance level is the lowest appropriate LLOQ or LCMRL~~PQL shall be the acceptable level~~.

The Board requests that IEPA comment on these changes.

Section 620.Appendix C Guidelines for Determining When Dose Addition of Similar-Acting Substances in Class I: Potable Resource Groundwaters is Appropriate

Through a May 21, 2024 order of the hearing officer, the Board posed three questions to IEPA about the first-notice version of subsection (c) of Appendix C. The questions concern use of the terms "Health Advisory Concentration", "lower concentration", and "guidance level". As proposed for first notice, subsection (c) of Appendix C consisted of five sentences. First-Not. Add. at 72.

In response to the Board's questions, IEPA proposes that the term "Health Advisory Concentration" in the fourth sentence of subsection (c) be replaced with "Human Nonthreshold Toxicant Advisory Concentration" to correlate with the term "Human Threshold Toxicant Advisory Concentration" used in the third sentence. PC 63 at 4. IEPA also proposes adding text to and splitting the fourth sentence into two sentences, creating a new fifth sentence. *Id*. Next,

IEPA suggests language for the new fifth sentence to clarify that the "lower concentration" refers to the lesser of the Human Threshold Toxicant Advisory Concentration and the Human Nonthreshold Toxicant Advisory Concentration. *Id.* at 5-6. Finally, in what would be the new sixth sentence of subsection (c), IEPA suggests that the Board replace "concentration" with "guidance level" to correspond with terminology in Section 620.605(b)(2). *Id*. at 4-5.

The following incorporates all IEPA's proposed changes to the first-notice version of Appendix C's subsection (c), along with other non-substantive clarifying changes:

> c) Substances that ~~which~~ are components of a complex mixture of related compounds ~~which are~~ produced as commercial products (e.g.~~for example~~, PCBs or technical grade chlordane) are not mixtures, as defined in Appendix B. ~~Such~~ These complex mixtures are equivalent to a single substance. In that~~such a~~ case, the Human Threshold Toxicant Advisory Concentration must~~may~~ be derived for threshold effects of the complex mixture, using the procedures specified~~described~~ in Appendix A, if valid toxicological or epidemiological data are available for the complex mixture. If the complex mixture is a carcinogen, the Human Nonthreshold Toxicant ~~Health~~ Advisory Concentration is the one-in-one-million cancer risk concentration, calculated from methods located at Appendix A. The guidance level is either the Human Threshold Toxicant Advisory Concentration or Human Nonthreshold Toxicant Advisory Concentration, whichever is less, unless the lower concentration ~~for such substance~~ is less than the substance's lowest appropriate LLOQ ~~PQL~~ specified in "~~"~~Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods~~,""~~", EPA Publication No. SW-846, incorporated by reference in ~~at~~ Section 620.125, or the substance's lowest appropriate LCMRL specified in the drinking water methods incorporated by reference in ~~at~~ Section 620.125. ~~for the substance.,~~ If the concentration for the substance is less than ~~in which case~~ the lowest appropriate LLOQ or LCMRL ~~PQL for the substance incorporated by reference in at Section 620.125~~, the guidance level is the lowest appropriate LLOQ or LCMRL~~shall be the Health Advisory Concentration~~. PC 63 at 4-6.

These proposed changes from IEPA address the Board's concerns over some of the terms associated with the health advisory levels for similar-acting substances. For this proposed second notice, the Board accepts IEPA's suggested changes with non-substantive revisions.

Other Proposed Clarifications of Rule Text

Section 620.110 Definitions—"Unit"

Part 620's definition of "unit" quotes the Act's definition of the term but only the first sentence of the statutory definition, not its second sentence. For this proposed second notice, the Board therefore adds the second statutory sentence to the rule's definition of "unit":

"Unit" means any device, mechanism, equipment, or area (exclusive of land used *only for agricultural production). This term includes secondary containment structures and their contents at agrichemical facilities.* [415 ILCS 5/3.515]

Section 620.125 Incorporations by Reference

At first notice, the Board proposed incorporating by reference four Class III Special Resource Groundwater listings associated with dedicated nature preserves. Under Section 620.230(b), IEPA had each final listing published in the Board's Environmental Register (issues from May 2005, May 2003, December 2009, and July 2012). JCAR staff asked where the Environmental Register could be found. PC 60 at 26. Board staff responded by suggesting the addition of a Board Note to briefly explain what the Environmental Register is and where the publication may be found.

In the Board's first-notice proposal, Part 620's first mention of the Environmental Register appeared in Section 620.125 where the Board proposed incorporating by reference the four Class III Special Resource Groundwater listings discussed above. Accordingly, in this proposed second notice, the Board adds the Board Note following those proposed incorporations by reference. The Board also proposes putting the Environmental Register issues in chronological order and, for each issue's number, using the abbreviation "No.", which is used throughout Part 620. The first-notice version of the corresponding text is amended as follows:

Illinois Pollution Control Board, 60 E. Van Buren, Suite 630, Chicago, IL 60605 (312) 814-3669.

~~"Class III Groundwater Listing Notice Pautler Cave Nature Preserve and Stemler Cave Nature Preserve", Environmental Register, Num. 611, May 2005.~~

"Class III Groundwater Listing Notice Fogelpole Cave Nature Preserve", Environmental Register, No. ~~Num.~~ 587, May 2003.

"Class III Groundwater Listing Notice Pautler Cave Nature Preserve and Stemler Cave Nature Preserve", Environmental Register, No. 611, May 2005.

"Class III Groundwater Listing Notice Armin Kruger Speleological Area", Environmental Register, No. ~~Num.~~ 666, Dec. 2009.

"Class III Groundwater Listing Notice Cotton Creek Marsh Nature Preserve and Spring Grove Fen Nature Preserve", Environmental Register, No. ~~Num.~~ 697, July 2012.

BOARD NOTE: The Environmental Register is a Board publication available on the Board's website at https://pcb.illinois.gov/Resources/EnvironmentalRegister

Section 620.260 Reclassification of Groundwater by Adjusted Standard

Section 620.260 provides an adjusted standard petition procedure before the Board to reclassify groundwater. At first notice, the Board proposed a handful of non-substantive changes to Section 620.260 and corrected a citation to Illinois Endangered Species Protection Act. In this proposed second notice, the Board proposes additional clarifying amendments to Section 620.260's preamble, subsection (a), and subsection (b). The following shows the changes to the first-notice version of these provisions:

> Any person may petition the Board for an adjusted standard to reclassify a groundwater under Section 28.1 of the Act and 35 Ill. Adm. Code 104.Subpart D ~~106.Subpart G~~. In any proceeding to reclassify specific groundwater by adjusted standard, in addition to complying with ~~the requirements of~~ 35 Ill. Adm. Code 104.406 ~~106.Subpart G,~~ and Section 28.1(c) of the Act, the petition must contain information to allow the Board to determine:
>
> a) The specific groundwater for which reclassification is requested, including geographical extent of any aquifers, depth of groundwater, and rate and direction of groundwater flow, and that the specific groundwater exhibits the characteristics of the requested class specified in Section ~~Sections~~ 620.210(b), 620.220(b), 620.230, or 620.240;
>
> b) Whether the proposed change or use restriction is necessary for economic or social development, ~~by providing information~~ including information concerning any negative economic or social~~, the~~ impacts of compliance with the currently applicable groundwater quality standards (e.g., job losses, facility closings) ~~on the regional economy, social benefits like loss of jobs or closing of facilities~~, as well as an ~~and~~ economic analysis contrasting the costs of meeting the current standards with cost savings due to health and environmental benefits resulting from compliance with those ~~costs likely to be incurred in meeting the~~ standards ~~would be beneficial or necessary~~;

The Board seeks IEPA comment on whether these proposed changes more clearly effectuate the purposes of Section 620.260.

Section 620.302 Applicability of Preventive Notification and Preventive Response Activities

For second notice, the Board revises Section 620.302(a)(1) to include Class I groundwater under subsections 620.210(a)(5), (a)(6) and (b) as follows:

> a) Preventive notification and preventive response activities, as specified in Sections 620.305 through 620.310, apply to:
>
> 1) Class I groundwater under Section 620.210(a)(1), (a)(2), ~~or~~ (a)(3), (a)(5),

(a)(6), or (b) that is monitored by any person specified in subsection (b);

The Board asks IEPA to comment on whether the above changes are acceptable.

Section 620.430 Groundwater Quality Standards for Class III: Special Resource Groundwater

At first notice, the Board included IEPA's proposed (IEPA Prop. at 5035) extensive revisions to Section 620.430:

> Except due to natural causes, concentrations ~~Concentrations~~ of inorganic and organic chemical constituents must not exceed the standards set forth in Section 620.410, except for: ~~those~~
>
> a) The chemical constituents for which the Board has adopted a standard under ~~pursuant to~~ Section 620.260; and~~.~~
>
> b) The standards listed below for Class III Special Resource Groundwater established under Section 620.230(b) and depicted in the Environmental Register as indicated for each dedicated nature preserve.
>
> 1) The following standards are applicable for Pautler Cave Nature Preserve and Stemler Cave Nature Preserve (Environmental Register, May 2005, Num. 611), Fogelpole Cave Nature Preserve (Environmental Register, May 2003, Num. 587), and Armin Krueger Speleological Nature Preserve (Environmental Register, December 2009, Num. 666):
>
> | | |
> |---|---|
> | Chloride | 20 mg/L |
> | pH | range of 7.0-9.0 Standard Units |
>
> 2) The following standard is applicable for Cotton Creek Marsh Nature Preserve and Spring Grove Fen Nature Preserve (Environmental Register, July 2012, Num 697):
>
> | | |
> |---|---|
> | Chloride | 45 mg/L |

First-Not. Add. at 51-52.

In this proposed second notice, the Board reworks the new rule language for clarity. First, the preamble sentence of the first-notice version of Section 620.430 contains a confusing double exception: "Except due . . ., except for . . . ." This construction could lead to misinterpreting the subsection (a) and subsection (b) exceptions as exceptions to the "natural causes" exception. To avoid this, the Board revises the preamble as follows: "Except due to natural causes, concentrations of inorganic and organic chemical constituents must not exceed

the standards specified ~~set forth~~ in Section 620.410. This prohibition does not apply to~~, except for~~:".

Second, as revised, the prohibition in the preamble—"concentrations of inorganic and organic chemical constituents must not exceed the standards specified in Section 620.410"—does not apply to what is described in subsections (a) and (b) of Section 620.430. The first-notice version of subsection (a) describes chemicals for which the Board has set standards under Section 620.260, *i.e.*, if chemical X has a Section 620.260 standard, then the prohibition against chemical X exceeding its Section 620.410 standard does not apply. But the first-notice version of subsection (b) begins with "[t]he standards listed below." It is awkward to read that a prohibition against exceeding standards does not apply to standards. The Board therefore revises subsection (b) as follows:

> b) ~~The standards listed below for~~ Class III Special Resource Groundwater established under Section 620.230(b) and depicted in the Environmental Register, but only at the dedicated nature preserves identified in this subsection (b), and only for the conditions at those preserves for which standards are specified in this subsection (b) ~~as indicated for each dedicated nature preserve~~.

Finally, the standards specified in subsection (b)(1) are for chloride (20 mg/L), which is a chemical, and for pH (range of 7.0-9.0 Standard Units), which is not a chemical. It is unnecessary for subsection (b)(1) to say that the preamble's prohibition against chemical exceedances does not apply to pH. But pH, like chloride, has a Section 620.410 standard for Class I groundwater. *See* 35 Ill. Adm. Code 620.410(a) (for chloride, 200 mg/L), 620.410(e) ("a pH range of 6.5 - 9.0 units"). To make relevant the pH exception in subsection (b)(1) of Section 620.430, the Board broadens the preamble's prohibition to include pH: "concentrations of inorganic and organic chemical constituents and ranges of pH must not exceed the standards specified in Section 620.410".

CONCLUSION

The Board issues this proposed second notice for public comment before the Board submits second-notice amendments to JCAR. This step allows participants to comment on the contemplated substantive changes to the first-notice proposal. Importantly, it also allows the Board's second notice to benefit from those comments.

The Board's proposed second-notice amendments appear in Addendum B to this order. The Board opens a 30-day period of public comment during which any person may file public comments with the Board's Clerk.

ORDER

1. All public comments on the proposed second-notice amendments in Addendum B to this order must be filed by November 18, 2024.

2. IEPA is directed to include, in its public comment, responses to the Board's questions found within this opinion and Addendum A to this order. Any other participant may include, in their respective public comments, responses to these questions as well.

IT IS SO ORDERED.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on October 17, 2024, by a vote of 4-0.

Don A. Brown, Clerk
Illinois Pollution Control Board