ILLINOIS POLLUTION CONTROL BOARD
March 20, 2025

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

Adopted Rule. Final Order.

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

Today, the Board adopts final amendments to Part 620, the Board's groundwater quality regulations. After conducting three public hearings, receiving 81 public comments, and considering the entire record, the Board amends Part 620 as called for by the Illinois Groundwater Protection Act (415 ILCS 55 (2022)). These amendments will help to restore, protect, and enhance Illinois' groundwater for present and future use by ensuring that the State's groundwater quality standards match current scientific data and methodologies.

Today's final amendments to Part 620 include groundwater quality standards for six per- and polyfluoroalkyl substances (PFAS) (PFOA; PFOS; PFNA; PFBS; PFHxS; and HFPO-DA (also known as "GenX")) based on the maximum contaminant levels and health-based water concentrations of the United States Environmental Protection Agency (USEPA). The Board also adopts new standards for molybdenum, lithium, aluminum, and 1-methylnapthalene; and revises existing Class I and Class II standards of 34 chemical constituents. In addition, the Board overhauls its 33-year-old groundwater management zone (GMZ) rules under Part 620. These amendments do not alter the purpose of GMZs or how they work but flesh out aspects of the GMZ process. Finally, the amendments include revisions to: nondegradation provisions; sampling procedures and analytical methods; and Part 620's Subpart F and Appendix A procedures and methodologies, which provide the basis to develop rulemaking proposals for new or revised numerical groundwater quality standards.

In its opinions at first notice, proposed second notice, and second notice, the Board reviewed the rulemaking record and discussed contested and uncontested issues. Rather than reproduce those lengthy opinions today, the Board refers those interested in reading them to the Board's website (pcb.illinois.gov) under this rulemaking's docket number, R22-18.

This final opinion begins with an abbreviated procedural history of this rulemaking. The Board then discusses the review of the proposed amendments by the Joint Committee on Administrative Rules (JCAR). Next, the Board addresses economic reasonableness (including the sub-docket) and technical feasibility, after which the Board adopts the final amendments to Part 620. Lastly, the Board issues its order, directing the Clerk to submit the amendments to the Secretary of State for publication in the *Illinois Register*. The final amendments to Part 620 are in the addendum to this order.

ABBREVIATED PROCEDURAL HISTORY

On December 8, 2021, the Illinois Environmental Protection Agency (IEPA) filed its rulemaking proposal to amend Part 620. Accompanying the proposal was IEPA's Statement of Reasons.

In a January 6, 2022 letter, the Board asked the Department of Commerce and Economic Opportunity (DCEO) to conduct an economic impact study of the proposed amendments. *See* 415 ILCS 5/27(b) (2022). The Board requested that DCEO determine by February 20, 2022, whether it would conduct the study. The Board did not receive a response to this request.

The Board held public hearings in this rulemaking on March 9, June 21, and December 7 of 2022. On March 7, 2024, the Board issued its first-notice amendments, accompanied by an opinion and order. First notice was published in the *Illinois Register* on March 29, 2024 (48 Ill. Reg. 4608 (Mar. 29, 2024)).

The Board issued a proposed second notice on October 17, 2024. On January 23, 2025, the Board proceeded to second notice and filed the proposed amendments with JCAR. In its second-notice opinion, the Board also opened a sub-docket (R22-18(A)), which the Board discusses later in this opinion. On March 4, 2025, JCAR issued a certification of no objection to the amendments, along with a recommendation.

JCAR

At its February 4, 2025 meeting, JCAR considered the Board's second-notice amendments. At that meeting, JCAR requested, and the Board agreed, to extend the second-notice period for an additional 45 days. The Board's proposal was again considered by JCAR at its March 4, 2025 meeting. At that meeting, JCAR issued a certification of no objection, subject to an attached list of second-notice changes agreed to by the Board. The final amendments adopted today also reflect numerous non-substantive wording and format changes suggested by JCAR.

At its March 4, 2025 meeting, JCAR also issued the following recommendation:

> that the Board assess the makeup of potentially impacted parties under each pending rulemaking and approach its obligation to consider the "economic reasonableness" of its rulemakings by engaging substantively and specifically with concerns raised by commenters, rather than by relying exclusively on its past practice. Section 27 of the Environmental Protection Act requires the Board to consider the "technical feasibility and economic reasonableness" of each rulemaking before it. During this rulemaking's lengthy docket process prior to first notice, commenters repeatedly asserted that the proposed groundwater quality standards would have an adverse economic impact, particularly on landfills, since 35 Ill. Adm. Code 620 groundwater quality standards are cross-referenced in 35 Ill. Adm. Code 811 and 814, which regulate landfills. The Board did not respond to this point substantively, instead just asserting that compliance

> costs in general cannot be considered as following from numeric standards, since rules governing specific remediation programs must be amended before compliance costs are incurred. Only after JCAR sent the Board a letter outlining the inadequacy of its economic analysis did the Board acknowledge that the proposed standards could have an economic impact on landfills prior to any subsequent rulemaking. JCAR Statement of Recommendation to Proposed Rulemaking (35 Ill. Adm. Code 620 (Mar. 4, 2024)).

The Board accepts JCAR's recommendation. Although the Board considers the economic reasonableness and technical feasibility of proposed regulations in all rulemakings that are subject to Section 27 of the Environmental Protection Act (Act) (415 ILCS 5/27 (2022)), the Board will emphasize economic impacts by requesting the rulemaking proponent and other participants, including affected entities, to submit specific economic information and testimony in support of or in opposition to the proposed rules.

ECONOMIC REASONABLENESS AND TECHNICAL FEASIBILITY

Section 27(a) of the Act requires the Board, when promulgating rules, to "take into account" the "technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS 5/27(a) (2022); *see also* Granite City Div. of Nat'l Steel Co. v. Illinois Pollution Control Board, 155 Ill. 2d 149, 182-83 (1993) (Board need only "consider or take into account" technical feasibility and economic reasonableness; Board need not conclude that compliance is technically feasible and economically reasonable to adopt regulations). In this rulemaking, issues of technical feasibility and economic reasonableness have concerned adding PFAS groundwater quality standards to Part 620. The Board discussed those issues in each of its opinions. *See* Proposed Amendments to Groundwater Quality 35 Ill. Adm. Code 620, R22-18, 1st-Not. Op. at 66-68 (Mar. 7, 2024); Prop. 2nd-Not. Op. at 50-55 (Oct. 17, 2024); 2nd-Not. Op. at 2-19 (Jan. 23, 2025).

The Board emphasized that "Part 620 does not impose any affirmative obligation to perform groundwater monitoring or corrective action." 2nd-Not Op. at 13; *see also id*. at 13-14 (same for preventive response); Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B), slip op. at 24 (Nov. 7, 1991) ("these are groundwater quality standards, not cleanup standards or requirements"). Additionally, the Board stated it anticipates that the Part 620 PFAS amendments would have little, if any, impact on compliance costs under those existing remediation programs relying on the current version of the Tiered Approach to Corrective Action Objectives or "TACO" (35 Ill. Adm. Code 742) "unless and until those programs and TACO are amended."[1] 2nd-Not Op. at 12. And the Board made clear that if it receives a rulemaking proposal subject to Section 27(a) that seeks to add PFAS provisions to TACO or a related remediation program based on today's action, the Board will consider the economic

[1] These remediation programs are: leaking underground storage tank or "UST" (35 Ill. Adm. Code 731 and 734); Site Remediation Program or "SRP" (35 Ill. Adm. Code 740); and Resource Conservation and Recovery Act or "RCRA" Part B permits and closure plans (35 Ill. Adm. Code 724 and 725).

reasonableness and technical feasibility of compliance with those proposed amendments at that time. *See* 2nd-Not Op. at 18.

However, JCAR asked that "the Board consider the 'technical feasibility and economic reasonableness' of these numeric [groundwater quality] standards insofar as they may have a regulatory impact prior to any subsequent rulemaking." PC 79 at 2, quoting 415 ILCS 5/27(a) (2022). The Board observed that other Board rules for specified regulatory programs (35 Ill. Adm. Code 615, 616, 811, 814, and 817) currently cross-reference Part 620's constituents or standards in imposing affirmative obligations to monitor and remediate groundwater.[2] *See* 2nd-Not Op. at 6-15. Accordingly, by adopting Part 620 PFAS groundwater quality standards, these other rules' affirmative obligations to perform groundwater monitoring and remediation could be triggered for PFAS, even without future Board rulemaking to amend those rules. *Id*.

Economic Reasonableness

The Board reiterates that the PFAS groundwater quality standards adopted today in Part 620 mirror the federal PFAS drinking water maximum contaminant levels (MCLs) and health-based water concentrations used in USEPA's hazard index MCL calculation (89 Fed. Reg. 32532 (Apr. 26, 2024); 89 Fed. Reg. 49101 (June 11, 2024); 40 C.F.R. § 141.61(c)(2)).[3] *See* 2nd-Not. Op. at 4; Prop. 2nd-Not. Op. at 6-10. As required by the Safe Drinking Water Act (SDWA) (42 U.S.C. § 300g–1(b)(3)(C)), USEPA evaluated both quantifiable and nonquantifiable health-risk reduction benefits and costs associated with implementing its drinking water PFAS standards. Although USEPA considered these costs and benefits with respect to drinking water, they are relevant to the PFAS groundwater quality standards here because similar treatment technologies may be used to comply with groundwater-remediation requirements that could be triggered under other Board rules that cross-reference Part 620's groundwater quality standards.

For drinking water supplies, USEPA developed treatment cost estimates, including for groundwater treatment, across system type, source, ownership, and size. USEPA considered granular activated carbon (GAC) and ion exchange (IX) technologies for treating six PFAS—the same six Part 620 PFAS—to meet the federal drinking water standards. *See* 89 Fed. Reg. at 32533-34, 32633-719. For example, for a community water supply (CWS)

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[2] Generally, Part 615 applies to specified existing activities in a setback zone or regulated recharge area; Part 616 applies to specified new activities in a setback zone or regulated recharge area; Part 811 applies to new non-hazardous solid waste landfills, including new municipal solid waste landfills (MSWLFs); Part 814 applies to existing non-hazardous solid waste landfills, including existing MSWLFs; and Part 817 regulates non-putrescible wastes produced by processes of steel and foundry industries.

[3] Under Sections 7.2 and 17.5 of the Act (415 ILCS 5/7.2, 17.5 (2022)), the Board is conducting an "identical in substance" rulemaking to, among other things, add USEPA's PFAS drinking water standards to Illinois' drinking water standards. *See* SDWA Update, USEPA Amendments (January 1, 2024 through June 30, 2024), R25-1, SDWA Update, USEPA Amendments (July 1, 2024 through December 31, 2024), R25-9 (consol.).

using groundwater as its source and serving a population of 10,000 to 50,000, the annualized compliance costs for a privately owned CWS and a publicly owned CWS were estimated by USEPA at $154,480 and $176,300, respectively. *Economic Analysis for the Final Per- and Polyfluoroalkyl Substances National Primary Drinking Water Regulation Appendices*, EPA-815-R-24-002 (USEPA Apr. 2024) at Appendix C, Table C-1, cited at 89 Fed. Reg. at 32575. USEPA also assessed adverse health effects avoided due to its PFAS drinking water standards. Specifically, USEPA considered the benefits from avoided reductions in birth weight, avoided cardiovascular disease cases and deaths, avoided renal cell carcinoma cases and deaths, and avoided bladder cancer cases and deaths. *See* 89 Fed. Reg. at 32672-96. USEPA estimated "there will be 29,858 fewer illnesses and 9,614 fewer deaths in the communities in the decades following actions to reduce PFAS levels in drinking water." *Id*. at 32533.

USEPA compared the incremental costs and incremental benefits of its PFAS drinking water standards. *See* 89 Fed. Reg. at 32708. "The incremental cost is the difference between quantified costs that will be incurred if the final rule is enacted over current baseline conditions. Incremental benefits reflect the avoided future adverse health outcomes attributable to PFAS reductions and co-removal of additional contaminants due to actions undertaken to comply with the final rule." *Id*. At a 2% discount rate in 2022 dollars, the net annualized quantified incremental benefits (benefits minus costs) are $760,000. *Id*. at 32708-09; *see also id*. at 32708 (net benefits "nearly at parity" due to variation associated with statistical models).

USEPA also considered nonquantifiable costs and benefits, *i.e.*, those it could not assign specific dollar amounts to. *See* 89 Fed. Reg. at 32533-34, 32633-719. For example, USEPA had "insufficient nationally representative data to precisely characterize occurrence of HFPO–DA, PFNA, and PFBS." *Id*. at 32533. To better assess the costs of treating those three PFAS at systems both with and without PFOA, PFOS, and PFHxS exceedances of the MCLs, USEPA analyzed the costs "associated with Hazard Index and/or MCL exceedances" resulting from HFPO–DA, PFNA, and PFBS. *Id*. Based on that analysis, USEPA determined that the quantified national costs are "marginally underestimated (on the order of 5 percent)." *Id*. In addition, "PFAS-contaminated wastes are not considered RCRA regulatory or characteristic hazardous wastes at this time" and therefore USEPA did not include costs "associated with hazardous waste disposal of spent filtration materials." *Id*. at 32672. Still, USEPA determined that if all water systems "use hazardous waste disposal options national costs would increase by 7 percent." *Id*. at 32533.

As for nonquantifiable benefits from the PFAS drinking water standards, USEPA anticipated that "significant additional benefits" will result from "avoided negative developmental, cardiovascular, liver, immune, endocrine, metabolic, reproductive, musculoskeletal, and carcinogenic effects as a result of reductions in the levels of the regulated PFAS and other co-removed contaminants." 89 Fed. Reg. at 32533. For example, "elevated concentrations of both PFOA and PFOS negatively impact the immune and endocrine systems," but USEPA was unable to quantify the impacts. *Id*. at 32533-34. Also, because available treatment technologies can "remove co-occurring contaminants, there are benefits not quantified for removal of co-occurring contaminants for this regulation (*e.g.,* certain pesticides, volatile organic compounds)." *Id*. at 32534.

Considering both quantifiable and nonquantifiable costs and benefits of the PFAS drinking water standards, USEPA determined that the "quantifiable and nonquantifiable benefits of the final rule justify the quantifiable and nonquantifiable costs." 89 Fed. Reg. at 32534. USEPA's cost-benefit analysis for the PFAS drinking water standards under SDWA supports the Board's adoption of PFAS groundwater quality standards for Part 620. PFAS remediation that could be triggered under other Board rules that cross-reference Part 620 may entail pumping and treating groundwater. USEPA's economic analysis considered GAC and AIX for treating water to remove the same six PFAS.

The Board continues to recognize that the cost of remediating groundwater contamination depends on site-specific factors, including the concentrations and extent of contamination and the chosen remediation methodology. *See* Groundwater Quality, R89-14(B), slip op. at 24-25. Further, "*if remediation to the level of today's standards is subsequently required through other programs*, costs of remediation of groundwater could be substantial." *Id*. at 24 (emphasis in original). But "the remedial costs properly associated with the instant rules should be 'incremental costs over and above the costs associated with the currently applicable regulations for water quality standards and cleanup criteria.'" *Id*. at 25 (quoting economic impact statement). IEPA commented on the incremental costs to test for and remediate PFAS groundwater contamination:

> [I]n practical terms, the costs to address PFAS will be incremental to existing remediation costs. Most sites of concern are contaminated by a number of chemicals, and the same method of remediation is usually used to address multiple contaminants. *** The difference for sites that have to address PFAS contamination in addition to other contamination would be the cost for sampling and analysis to define the extent of the PFAS contamination." PC 78 at 20; *see also* 2nd-Not. Op. at 18 (Board found reasonable the expected cost of approximately $300 per sample for PFAS laboratory analysis).

The Board assessed the economic impact of first adopting groundwater quality standards in 1991. *See* Groundwater Quality, R89-14(B), slip op. at 23-26. The Board recounted the numerous benefits expected when the standards would be implemented through other programs, including reducing health risks and related expenses; preserving groundwater as a resource for future generations by avoiding contamination through preventive management practices and by addressing existing contamination through groundwater remediation; avoiding restrictions in siting private and community potable wells; reducing expenses to obtain alternate water supplies; reducing expenses to treat water at well heads; and increasing revenue for firms involved in groundwater remediation. *Id*.; *see also id*. at 26 ("It is important to note that although the benefits currently cannot be quantified, they are thereby no less real or substantial; it is only that they cannot be identified in terms of reliable, specific dollar figures."); *see also* 415 ILCS 55/2(a)(i) (2022) ("a large portion of Illinois' citizens rely on groundwater for personal

consumption")[4]; 415 ILCS 55/2(a)(ii), (a)(iv), (b) (2022) (restoring, protecting, and enhancing the State's groundwater is vital to the health and welfare of Illinoisians and to the well-being of Illinois' economy). The Board anticipates like benefits from implementing today's action.

The Board has considered the economic reasonableness of complying with other rules' affirmative obligations—to monitor groundwater for PFAS and remediate groundwater to Part 620 PFAS standards—that could be triggered once today's amendments take effect. *See* 415 ILCS 5/27(a) (2022). The Board finds that the potential costs of complying with those affirmative obligations are economically reasonable when balanced against the public health and economic benefits of having groundwater free of dangerous levels of PFAS. *See* Granite City, 155 Ill. 2d at 184 (in affirming Board's rules, Illinois Supreme Court observed, "the Board determined that the cost of compliance was economically reasonable when balanced against the benefits to be achieved by having [the rules] in place in order to prevent, rather than react to, toxic pollution from, as yet, unidentified toxics.").

The Board again notes that a facility may pursue regulatory relief, such as a variance, an adjusted standard, or a site-specific rule before the Board or a GMZ from IEPA. As the Illinois Supreme Court pointed out, "Indeed, the Act specifically provides for variance and adjusted standard procedures by which the Board may relieve a discharger from compliance with its environmental control standards upon a showing of unreasonable economic or individual hardship." Granite City, 155 Ill. 2d at 183; *see also* Groundwater Quality, R89-14(B), slip op. at 25 ("It also must be borne in mind that exception procedures associated with adjusted standards and features such as the groundwater management zones must temper any attempt to broadly cast cost estimates.").

Finally, on this record, PFAS are generally expected to appear in the leachate of non-hazardous solid waste landfills (facilities subject to Part 811 or 814). *See* PC 53 at 10-11. No entities regulated under the other programs (Part 615, 616, or 817) came forward in this rulemaking to state whether they handle PFAS or have any economic concerns with the Part 620 PFAS groundwater quality standards. In addition, as the Board discussed in its second-notice opinion, remediation required under Parts 811 and 814 at or beyond the zone of attenuation is generally to "background" levels, rather than to Part 620 standards as with Parts 615, 616, and 817. *See* 2nd-Not. Op. at 8-12. At second notice, the Board therefore opened a sub-docket (R22-18(A)) to explore, more fully, potential compliance costs under the Board's non-hazardous solid waste landfill rules due solely to the addition of PFAS groundwater quality standards to Part 620. *Id*. at 19. The Board added an exception to Part 620 for these landfills, relieving them, for the time being, from complying with any requirement or standard of Part 811 or 814 to the extent it incorporates or is otherwise based on any of PFAS constituents or standards being added to Part 620. *Id*. at 18; *see also* new Sections 620.410(f) and 620.420(e).

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[4] PFAS have been detected in the finished water of CWS wells that provide drinking water for over 910,000 Illinoisians (7.2% of Illinois' population). Exh. 2 at 15. Non-CWS systems serve approximately 500,000 people at facilities such as schools, daycares, factories, restaurants, resorts, and churches. *Id*. And thousands more use groundwater from private potable wells, usually without access to treatment technologies. *Id*.

Technical Feasibility

As discussed, in its cost-benefit analysis, USEPA considered GAC and IX technologies for treating water to remove the six PFAS to the federal drinking water standards. *See* 89 Fed. Reg. at 32633-719; *see also Economic Analysis for the Final Per- and Polyfluoroalkyl Substances National Primary Drinking Water Regulation*, EPA-815-R-24-001 (USEPA Apr. 2024) at 5-14, 5-15, Table 5-9; 40 C.F.R. § 141.61(d), Table 5 (GAC and anion exchange (AIX) each included as a best available technology or "BAT"). The Board has already found that there are proven sampling and analytical methods for PFAS, as well as an adequate capacity of accredited laboratories to analyze groundwater samples for PFAS. *See* Prop. 2nd-Not. Op. at 4-6.

Accordingly, the Board finds it technically feasible to comply with affirmative obligations under other rules—to monitor groundwater for PFAS and remediate groundwater to Part 620 PFAS standards—that could be triggered once the Part 620 amendments become effective.

CONCLUSION

The Board adopts final amendments to Part 620, the Board's groundwater quality regulations. The Board finds that the amendments, including the PFAS groundwater quality standards, are technically feasible and economically reasonable and will not have an adverse economic impact on the people of Illinois. The amendments appear in the attached addendum.

As noted, the Board opened a sub-docket at second notice in this rulemaking. The Board will issue an order detailing the procedures for that sub-docket.

ORDER

The Board adopts final amendments to Part 620 and directs the Clerk to submit them to the Secretary of State for publication in the *Illinois Register*. In the addendum to this order, changes to the current rules appear with additions underlined and deletions stricken through.

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2022); *see also* 35 Ill. Adm. Code 101.300(d), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm Code 101.902, 102.700, 102.702. Filing a motion asking that the

Board reconsider this final order is not a prerequisite to appealing the order. 35 Ill. Adm. Code 101.902.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on March 20, 2025, by a vote of 5-0.

Don A. Brown, Clerk
Illinois Pollution Control Board