STATE OF WISCONSIN
DEPARTMENT OF ADMINISTRATION
DOA-2049 (R09/2016)

DIVISION OF EXECUTIVE BUDGET AND FINANCE
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ADMINISTRATIVE RULES
Fiscal Estimate & Economic Impact Analysis

1. Type of Estimate and Analysis
☒ Original ☐ Updated ☐ Corrected

2. Date
6/1/2026

3. Administrative Rule Chapter, Title and Number (and Clearinghouse Number if applicable)
Ch. NR 140 – Groundwater Quality

4. Subject
Numeric standards to minimize the concentration of polluting substances for certain Per- and Polyfluoroalkyl Substances (PFAS) in groundwater based on the 2025 DHS recommendations.
DG-02-25

5. Fund Sources Affected
☒ GPR ☐ FED ☐ PRO ☐ PRS ☐ SEG ☐ SEG-S

6. Chapter 20, Stats. Appropriations Affected
20.370(4)(ma) and 20.370(4)(mq)

7. Fiscal Effect of Implementing the Rule
☐ No Fiscal Effect ☐ Increase Existing Revenues ☐ Increase Costs ☐ Decrease Costs
☐ Indeterminate ☐ Decrease Existing Revenues ☒ Could Absorb Within Agency's Budget

8. The Rule Will Impact the Following (Check All That Apply)
☐ State's Economy ☒ Specific Businesses/Sectors
☒ Local Government Units ☐ Public Utility Rate Payers
☐ Small Businesses **(if checked, complete Attachment A)**

9. Estimate of Implementation and Compliance to Businesses, Local Governmental Units and Individuals, per s. 227.137(3)(b)(1).

The Department of Natural Resources (department) anticipates that the highest two-year cost will be $9,917,838 as a result of the establishment of groundwater standards for perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorohexane sulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorobutane sulfonic acid (PFBS), and hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as "GenX Chemicals"). The estimated costs include all relevant cost components and conservatively identify facilities that will require additional action. In addition, 2025 Wisconsin Acts 200 and 201 were signed on April 6, 2026. 2025 Wisconsin Acts 200 and 201 authorize funding for several activities aimed at addressing PFAS contamination in the state, including certain activities accounted for in this EIA, such as sampling of liquid waste, and sampling of leachate and groundwater at certain landfills. While the specific allocation and implementation details of this funding have not yet been finalized, its availability will reduce the overall costs associated with implementing this rule. As a result, the estimated cost is assumed to be upper bound and therefore reasonable implementation and compliance costs will be less than what is estimated in this document.

10. Would Implementation and Compliance Costs to Businesses, Local Governmental Units and Individuals Be $10 Million or more Over Any 2-year Period, per s. 227.137(3)(b)(2)?
☐ Yes ☒ No

11. Policy Problem Addressed by the Rule

The objective of the proposed rule is to set numeric groundwater quality standards for six PFAS – PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA – to minimize the concentrations of such substances in groundwater [ss. 160.001 and 160.07(5), Stats.], and to establish clear numerical thresholds that determine when regulatory action is required. Proposed groundwater quality standards are based on recommendations developed by the Wisconsin Department of Health Services (DHS), which also reflect federal numbers and most state drinking water standards.

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The groundwater quality standards in ch. NR 140, Wis. Adm. Code, include Enforcement Standards (ES) and Preventive Action Limits (PAL). The rule proposes the ES and PAL standards shown in Table 1:

Table 1. Proposed NR 140 groundwater quality standards.

Substance	Enforcement Standard (in ng/L or ppt)	Preventive Action Limit (in ng/L or ppt)
PFOA	4	0.4
PFOS	4	0.4
PFHxS	10	1
PFNA	10	1
PFBS	2,000	200
HFPO-DA	10	1

The objective of the proposed standards is to protect public health, given that groundwater is the primary source of drinking water throughout Wisconsin. PFAS break down very slowly and can bioaccumulate in people. PFAS may cause reproductive effects such as decreased fertility and pregnancy-induced hypertension; developmental effects or delays in children (including birth defects and low birth weight); increased risk of some cancers, including prostate, kidney, and testicular cancers; decreased antibody response to vaccines; and increased cholesterol. Specific health effects for PFAS are described in more detail below and are included in the DHS recommendations for groundwater standards, available here: https://www.dhs.wisconsin.gov/publications/p03694.pdf and https://www.dhs.wisconsin.gov/water/gws.htm.

12. Summary of the Businesses, Business Sectors, Associations Representing Business, Local Governmental Units, and Individuals that may be Affected by the Proposed Rule that were Contacted for Comments.

In 2021 and 2023, the department initiated rulemaking for new groundwater standards for several PFAS, including PFOA, PFOS, PFBS, and HFPO-DA (proposed rules SS 090-19 (DG-15-19) and SS 075-22 (DG-17-22)). At those times, the department solicited and received comments on draft EIAs prepared for both proposed rulemakings during the public comment periods and stakeholder meetings. Feedback was received from several organizations and individuals, including Citizens for Safe Water Around Badger, Clean Wisconsin, League of Wisconsin Municipalities, League of Women Voters of Wisconsin, Madison Metropolitan Sewerage District, Municipal Environmental Group-Wastewater Division, Midwest Food Products Association, Save Our Water, Wisconsin Conservation Voters, Wisconsin's Greenfire, Wisconsin Manufacturers and Commerce, Wisconsin Paper Council, and Wisconsin Solid Waste PFAS Coalition.

The current rulemaking includes a larger set of PFAS and incorporates updated numeric groundwater standards that differ from those proposed in prior rulemaking. However, in Wisconsin, the majority of known exceedances of the currently proposed standards are associated with PFOA and PFOS, both of which were included in previous efforts. Moreover, the department's statutory requirements have offset some of the implementation and compliance costs of PFAS groundwater standards since the department last pursued rule changes and developed an EIA in 2023. As a result of 2025 Wisconsin Act 201, the department is now required by statute to impose limitations or conditions for PFAS in every permit for landspreading of sewage sludge. Hence, when preparing the draft EIA for this rulemaking, the department considered the comments received on prior EIAs related to the cost of implementing PFAS groundwater

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standards, while also accounting for subsequent legal, regulatory, and policy developments that affect implementation costs.

As part of this rulemaking, the department also solicited comments and information relevant to the potential economic impacts of the proposed rule. Notification of the comment period was emailed to the subscribers of the following department distribution lists: Drinking Water and Groundwater Study Group, Landfill, NR 140 Rule Changes, PFAS Contamination in Wisconsin, Remediation and Redevelopment Newsletter, and Solid Waste News.

The department received comments on the draft EIA from several individuals and organizations: Dana Boehm, Lee Donahue, Luke Hellermann, Madison Metropolitan Sewerage District, Midwest Environmental Advocates, Milwaukee River Keeper, Municipal Environmental Group-Wastewater Division, Oneida County Clean Waters Action, River Alliance of Wisconsin, Save Our Water, Sierra Club Wisconsin, Wisconsin Conservation Voters, Wisconsin Green Fire and an industry coalition consisting of Wisconsin Manufacturers & Commerce, Wisconsin Paper Council, Midwest Food Productions Association, and American Chemistry Council.

The department considered these comments when finalizing the EIA.

13. Identify the Local Governmental Units that Participated in the Development of this EIA.

In 2023, as part of the prior rulemaking for SS 075-22 (DG-17-22), many local government units were included in a virtual stakeholder meeting. The department provided these local governments an opportunity to submit comments and information relevant to the potential economic impacts of the proposed rule during that meeting. At that time, the department received written comments from the League of Wisconsin Municipalities, an association with 607 member cities and villages, the Municipal Environmental Group-Wastewater Division, an organization of over 100 municipalities statewide that own and operate wastewater treatment plants, and the Madison Metropolitan Sewerage District.

While the recommended groundwater standards proposed in this rulemaking differ from those in prior efforts and include a larger number of PFAS, there are commonalities in general concerns and in cost-related issues associated with implementation. However, as stated above, certain factors have changed since the prior EIA, including enactment of new laws and other regulatory and policy developments. In preparing the draft EIA for this rulemaking, the department considered the comments related to the economic impacts and costs of implementing PFAS groundwater standards that were received during the previous draft EIA processes and stakeholder engagement activities from the aforementioned local government units.

Local government units were included in the notifications to solicit comments and information relevant to the potential economic impacts of this proposed rule. One comment was received from the Municipal Environmental Group-Wastewater Division. The department considered this comment when finalizing the EIA.

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14. Summary of Rule's Economic and Fiscal Impact on Specific Businesses, Business Sectors, Public Utility Rate Payers, Local Governmental Units and the State's Economy as a Whole (Include Implementation and Compliance Costs Expected to be Incurred)

The department acknowledges that addressing PFAS contamination is an expensive problem facing Wisconsin. The costs of dealing with PFAS through the various regulatory and voluntary actions happening across the state are substantial. The department also recognizes that there is a significant benefit derived from preventing and remediating PFAS contamination, including benefits to human health and wellbeing, economic productivity (avoided costs), and ecosystem integrity.

Many of the costs associated with addressing PFAS contamination in Wisconsin are not directly related to the implementation of this proposed rule – which focuses on the establishment of numeric groundwater standards in ch. NR 140, Wis. Adm. Code, for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA. Some of the costs of addressing PFAS contamination in Wisconsin relate to compliance with surface water and state drinking water standards that have already been adopted or are expected to be adopted soon. Other costs relate to voluntary actions that private individuals and facilities may choose to take but are not required by law to do so. For example, industry has begun transitioning to alternatives for certain PFAS, and PFOA and PFOS are no longer manufactured in the United States. Some other costs are currently incurred under the department's existing authority to require such actions. For example, remedial actions are required by existing laws for addressing discharges of hazardous substances, which include certain PFAS. Likewise, under recent legislation, 2025 Wisconsin Act 201, the department is required to impose limitations or conditions related to PFAS in all permits for the land application of sewage sludge. These other actions are necessary to effectively address the public health and environmental risks of PFAS in Wisconsin and have a separate cumulative cost. However, those costs are not the result of groundwater standards for PFAS or this proposed rule, and the costs will be incurred regardless of whether this proposed rule is adopted.

In accordance with s. 227.137, Stats., the department focused this EIA on the economic impact of setting numeric groundwater standards for the six PFAS proposed in this rule. This analysis evaluates the implementation and compliance costs that are reasonably expected to be incurred by or passed along to businesses, local governmental units, and individuals. These estimates reflect the department's current administrative and statutory authority, including the regulatory programs and rules that reference standards in ch. NR 140, Wis. Adm. Code.

The department expects that both the technology and the regulatory requirements for addressing PFAS will be the subject of continued attention and development. All state regulatory agencies, including the Department of Natural Resources, Department of Transportation, Department of Agriculture, Trade, and Consumer Protection, and Department of Safety and Professional Services, are required under ss. 160.19 to 160.25, Stats., to review any new groundwater standards and, if necessary, commence promulgation or amendment of their administrative rules for their regulatory programs that use NR 140 groundwater standards. The implementation and compliance costs of this rule could be affected – either increased or decreased – by changes in the regulatory authority or requirements of the programs that use the standards. Future rule changes cannot be defined here and would be assessed as part of the preparation of separate EIAs to evaluate the economic impacts of possible future proposed rules.

In addition, 2025 Wisconsin Acts 200 and 201 provides funding for several activities aimed at addressing PFAS contamination in the state. While the department anticipates that some of this funding could lower the costs of certain

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activities associated with this rulemaking, the specific allocation and implementation details are not yet finalized. Therefore, the cost estimates included in this EIA do not reflect potential cost reductions from this funding and should be considered conservative.

Implementation and compliance costs that are reasonably expected to be incurred by setting numeric groundwater standards for the six PFAS, as proposed in this rule, are summarized and explained in subsequent sections of this document.

Summary of Costs

The department's reasonable estimate of implementation and compliance costs from all regulatory programs impacted by the proposed rule for groundwater standards for the six PFAS are summarized in Table 2. The cost assessment is based on identifying the highest costs incurred during any two-year period following implementation. Because wastewater treatment facilities operate under five-year permit cycles, the department assumes that these facilities will renew permits on a staggered basis over the five-year period. As a result, cumulative costs for these facilities are evaluated across the full five-year cycle, and the two years with the highest combined costs are selected for the analysis. Cost assumptions are based on prevailing market rates and professional judgment informed by recent PFAS testing contracts and laboratory fee schedules.

Table 2. Summary of costs associated with this rulemaking.

Category	Activity	Total Cost ($)	Total Cost per category ($)
Publicly owned treatment works that discharge treated wastewater through a land treatment/application system	PFAS sampling of groundwater	94,050	4,441,572
	PFAS sampling of liquid discharge	29,150	
	Source reduction measures	4,318,372	
Industrial wastewater treatment facilities that discharge liquid wastewater through a land treatment system	PFAS sampling of groundwater	65,850	3,195,866
	PFAS sampling of liquid discharge	21,200	
	Treatment of liquid effluent discharge	3,108,816	
Landfills	PFAS groundwater monitoring and well installation	2,280,400	2,280,400
TOTAL			9,917,838

The department estimates that no cost will be incurred for the following categories: current and future remediation and redevelopment sites, private wells, public water systems, pit trench dewatering operations, and Wisconsin Pollutant Discharge Elimination System (WPDES)-permitted discharges for biosolids and industrial sludge. The rationale behind the estimate for each category is outlined below.

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Current and Future Remediation and Redevelopment Sites with PFAS Contamination
Wisconsin's remediation and redevelopment program requires responsible parties to take actions necessary to restore the environment from a discharge of a hazardous substance under ch. 292, Stats. (the "Spills Law"). The definition of hazardous substance is a narrative standard defined in s. 292.01(5), Stats., and PFAS are regulated as hazardous substances under the Spills Law. In June 2025, this authority was confirmed by the Supreme Court of Wisconsin in *Wisconsin Manufacturers and Commerce, Inc. and Leather Rich, Inc, v. Wisconsin Natural Resources Board, et al.*, 2025 WI 26, ¶ 62, 416 Wis. 2d 561, 593, 21 N.W.3d 718, 733-734.

The department already has the ability to require responsible parties to test for several PFAS including PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA. To date, there are over 140 open remediation and redevelopment sites with identified PFAS contamination. These sites are at various stages of site investigation and remediation. The department recognizes that the costs for PFAS site investigations and remedial actions can be substantial. In the prior rulemaking effort, the department received comments estimating costs of over $10 million in a two-year period for site investigation and remediation. While these costs are significant, the costs will not substantially change as a result of this rulemaking. These costs are for responsible parties to investigate and conduct remedial actions for discharges of PFAS – costs that are already occurring today because PFAS are regulated as a hazardous substance under the Spills Law.

When remediating for hazardous substances in groundwater that do not have a standard under ch. NR 140, Wis. Adm. Code, department rules authorize the development of a site-specific standard, which is usually based on the DHS health advisory levels, to protect public health, safety or welfare, or to prevent a significant damaging effect on groundwater or surface water quality for present or future consumptive or non-consumptive uses (*see* s. NR 722.09(2)(b)2., Wis. Adm. Code). Once statewide standards are promulgated, the cleanup goal established in s. NR 722.09(2)(b)1., Wis. Adm. Code, will be the Preventive Action Limit when economically and technically feasible. Responsible parties would be required to use promulgated Enforcement Standards rather than site-specific standards for remedial action. The site-specific standards currently in use and the groundwater standards recommended in this rulemaking for the six PFAS compounds are consistent, because they are both based on DHS health advisory levels. Therefore, responsible parties would not see a change in their cleanup responsibilities as a result of the establishment of groundwater standards.

Whether the remedial goal is site-specific or based on a promulgated standard, the Spills Law requires responsible parties to take actions to minimize the harmful effect and restore the environment to the extent practicable (s. 292.11(3), Stats.). Selection of remedial actions that are practicable, taking into consideration what is technically and economically feasible, will be the same regardless of whether there are promulgated or site-specific standards. While remediation costs can be significant, those costs will not change as a result of the promulgation of standards for these six PFAS.

Private Wells
Private wells are regulated under ch. NR 812, Wis. Adm. Code. Based on the department's research, approximately 4% of private wells have PFAS detections exceeding recommended DHS groundwater quality Enforcement Standards. Wisconsin has approximately 800,000 private wells, meaning that an estimated 32,000 private wells may exceed the recommended PFAS Enforcement Standards. Individual private well owners may choose to install treatment or drill a new well to address PFAS pollutants in their well water. In some cases, where contamination is the result of a release or unauthorized discharge of PFAS to groundwater, responsible parties under the Spills Law may be required to provide an alternative source of drinking water to a private well owner. For individual private well owners, there are no regulatory implementation or compliance costs associated with the proposed PFAS groundwater standards that apply to private wells.

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Public Water Systems
During previous rulemaking efforts that included groundwater standards for PFOA and PFOS, the department received comments regarding the cost of water treatment for public water supply systems. Public water supply systems are regulated under ch. NR 809, Wis. Adm. Code, and are not subject to groundwater standards. Therefore, there are no implementation or compliance costs for public water supply systems as a result of the proposed groundwater standards.

In 2024, the department began a rulemaking process (CR 25-068/DG-01-24) to amend chapter NR 809, Wis. Adm. Code, and update state drinking water standards for PFOA and PFOS, and establish state drinking water standards for PFHxS, PFNA, PFBS, and HFPO-DA. These regulatory changes will take effect on July 1, 2026.

Pit Trench Dewatering
The vast majority of dewatering project discharges are directed to surface water, as the primary purpose of construction dewatering is to remove groundwater from trenches or excavation pits to allow construction activities to proceed. Contractors typically strive to avoid a discharge back to groundwater because that makes it more difficult to establish and maintain a cone of depression needed to lower the water table for construction activities.

Pit trench dewatering discharges are typically regulated under a Wisconsin Pollutant Discharge Elimination System (WPDES) general permit (GP), and these discharges are temporary rather than ongoing. During dewatering of a construction site pit/trench, contaminated groundwater may be encountered or intercepted from a nearby or unidentified contamination site. In such cases, discharges of contaminated groundwater to waters of the state, which includes surface waters and groundwater, is regulated under the GP for *Contaminated Groundwater from Remedial Action Operations* (WI-0046566-07-0). In addition to applying for coverage under this GP, applicants must also contact and notify the department's Remediation and Redevelopment Program about the site.

Although the current general permit does not explicitly require PFAS sampling, the department is currently requiring initial PFAS screening of groundwater discharges at sites located near known PFAS contamination. PFAS-contaminated groundwater may be encountered during pit trench dewatering operations. Infiltration of this PFAS-contaminated groundwater back to the same aquifer it was pumped from is allowed, but is not anticipated to occur often. The department is aware of only three cases where a GP has been issued to allow discharges back to an aquifer in the past five years.

As current department policy now allows discharges of PFAS-contaminated groundwater under a GP, and as the Remediation and Redevelopment Program currently has the authority to require necessary remedial actions to protect public health and groundwater and surface water quality, the department does not anticipate that establishing groundwater standards for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA would incur any additional costs at sites where PFAS-contaminated groundwater is encountered during pit trench dewatering operations. Therefore, costs associated with pit or trench dewatering are not included in the economic impact estimates for this rule.

WPDES-Permitted Discharges for Liquid Waste
Facilities that discharge under a WPDES permit are required to comply with state groundwater quality standards in ch. NR 140, Wis. Adm. Code. Under ss. 283.31(3) and (4), Stats., WPDES permits must include terms and conditions that prevent exceedances of groundwater standards. Some WPDES-permitted Wastewater Treatment Facilities (WWTFs) discharge municipal, domestic, or industrial liquid waste through a land treatment or disposal system, such as an absorption pond or seepage cell. Such facilities will be affected by the proposed groundwater standards for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA. Since these permits are reissued every five years, PFAS-related sampling

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and reduction requirements would typically be incorporated at the next permit reissuance and in subsequent cycles. Consequently, the department anticipates that approximately 20% of permitted facilities will be affected each year during the first five years following implementation of the proposed groundwater standards.

1. **Publicly Owned Treatment Works That Discharge Liquid Wastewater Through a Land Treatment/Application System**
   The department identified 87 Publicly Owned Treatment Works (POTWs) that discharge effluent to groundwater, with six of these having significant industrial users discharging to them. Should this rule be promulgated, these six facilities will be required to conduct quarterly monitoring of liquid discharges, and groundwater monitoring as outlined in s. NR 206.10, Wis. Adm. Code.

   Permits are issued on a five-year cycle. In year one, two POTWs would become subject to the new monitoring requirements. In each subsequent year, one additional facility would be required to perform PFAS sampling. This schedule represents approximately 20% of facilities per year over a five-year cycle. However, because there are six facilities in total, two facilities would be included in the first year to align with the five-year schedule. The estimated cost per sample is $550 *[$450 for PFAS laboratory analysis and $100 for sample handling and logistics]*. A comment received during the solicitation of comments on the draft EIA noted that the estimated cost per blank sample should be $450 rather than the $300 previously identified in the draft EIA. In response, the department consulted with the State Laboratory of Hygiene and relevant department program staff and determined that field blanks are required only for drinking water samples. For other sample types, equipment blanks are collected to verify that sampling equipment is not a source of PFAS contamination. For groundwater sampling, equipment blanks are generally collected only at the beginning of a sampling project, and equipment blanks are optional for grab samples because sampling equipment is not used. For purposes of this analysis, the department conservatively assumes that each facility discharging liquid wastewater through a land treatment or land application system would collect one equipment blank at the beginning of each sampling year for both groundwater and liquid discharge sampling. The cost of the equipment blank is $450, consistent with the public comment received. Given this new information, the department revised the estimated equipment blank costs accordingly.

   Groundwater sampling
   According to s. NR 206.10(4), Wis. Adm. Code, PFAS groundwater sampling may be required every six to seven weeks until eight samples have been collected, after which sampling will occur quarterly. This results in a total of nine sampling events in year one and four samples in year two. The department assumes that two facilities will be up for permit renewal in year one, and one additional facility would be up for permit renewal for each subsequent year (for a total of six facilities over a five-year period).

   - In year one, two facilities would be in their first year of monitoring and would each collect nine samples, for a total of 18 samples *[nine sampling events × two facilities]*. Assuming that monitoring wells are already installed, and that each facility has three wells, the cost of PFAS sampling would be $1,650 per facility per sampling event *[$550 for PFAS sampling × three wells]*. In addition, the department assumes that each facility would collect one equipment blank at the beginning of the sampling year at a cost of $450 per facility. Accordingly, the total estimated PFAS groundwater monitoring cost for year one would be $30,600 *[$1,650 per sampling event × 18 total sampling events plus $900 in equipment blanks].*

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- In year two, one additional facility would enter its first year of monitoring and collect nine samples, while the two facilities permitted in year one would transition to quarterly sampling. The first-year facility would incur a cost of $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank]* and the two existing facilities would incur a combined cost of $14,100 *[$1,650 cost per sampling event × four sampling events × two facilities plus $900 for equipment blanks]* resulting in a total cost of $33,150 for year two.
- In year three, one new facility would enter its first year of monitoring, while three facilities would conduct quarterly sampling. The first-year facility would incur a cost of $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank]*, and the three facilities conducting quarterly sampling would incur a combined cost of $21,150 *[$1,650 cost per sampling event × four sampling events × three facilities plus $1,350 for equipment blanks]*, for a total annual cost of $36,450.
- In year four, one additional facility would enter its first year of monitoring, and four facilities would conduct quarterly sampling. The cost for the first-year facility would be $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank]*, and the combined cost for the four facilities conducting quarterly sampling would be $28,200 *[$1,650 cost per sampling event × four sampling events × four facilities plus $1,800 for equipment blanks]*, resulting in a total PFAS groundwater monitoring cost of $43,500.
- In year five, the final facility would enter its first year of monitoring, while the remaining five facilities would conduct quarterly sampling. The first-year facility would incur a cost of $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank]*, and the five facilities conducting quarterly sampling would incur a combined cost of $35,250 *[$1,650 cost per sampling event × four sampling events × five facilities plus $2,250 for equipment blanks]* resulting in a total annual cost of $50,550.

The highest cumulative cost for PFAS sampling of groundwater in any two-year period would be incurred in years four and five, for a total cost of $94,050 *[$43,500 total cost for PFAS sampling of groundwater in year four plus $50,550 total cost for PFAS sampling of groundwater in year five].* Table 3 summarizes annual costs for groundwater PFAS monitoring for POTWs discharging to groundwater.

Table 3. Annual cost of PFAS sampling of groundwater, assuming $1,650 per sampling event, and an equipment blank for each facility collected in each year at a cost of $450.

Year	Permit Renewals (P)	Monitoring events	Cost ($)
First year	P1 & P2	2x9 = 18	30,600
Second year	P3	9 plus 2x4=17	29,400
Third year	P4	9 plus 3x4=21	36,450
Fourth year	P5	9 plus 4x4=25	43,500
Fifth year	P6	9 plus 5x4=29	50,550

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

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Liquid effluent discharge sampling

Assuming two facilities will be up for permit renewal in year one, and one additional facility would be up for permit renewal for each subsequent year, PFAS liquid effluent discharge monitoring costs would increase as additional facilities are permitted. All facilities are assumed to conduct quarterly sampling only, resulting in four samples per facility per year at approximately $550 per facility per sampling event. The department assumes that each facility collects one equipment blank per year at a cost of $450.

- In year one, two facilities would each collect four samples, for a total annual cost of $5,300 *[$550 cost per sampling event × four sampling events × two facilities plus $900 for equipment blanks]*.
- In year two, three facilities would conduct quarterly sampling, resulting in a total cost of $7,950 *[$550 cost per sampling event × four sampling events × three facilities plus $1,350 for equipment blanks]*.
- In year three, four facilities would be monitored, with a total annual cost of $10,600 *[$550 cost per sampling event × four sampling events × four facilities plus $1,800 for equipment blanks]*.
- In year four, five facilities would conduct quarterly sampling, resulting in a total cost of $13,250 *[$850 cost per sampling event × four sampling events × five facilities plus $2,250 for equipment blanks]*.
- In year five, all six facilities would be subject to quarterly PFAS liquid effluent discharge monitoring, resulting in the highest annual cost of $15,900 *[$550 cost per sampling event × four sampling events × six facilities plus $2,700 for equipment blanks]*.

The highest cumulative cost for PFAS sampling of liquid discharge in any two-year period would be incurred in years four and five, for a total cost of $29,150 *[$13,250 total cost for PFAS sampling of liquid discharge in year four plus $15,900 total cost for PFAS sampling of liquid discharge in year five].* Table 4 summarizes annual costs for PFAS monitoring of liquid discharge for POTWs discharging to groundwater.

Table 4. Annual cost for PFAS sampling of municipal liquid effluent discharges, assuming $550 per sampling event and an equipment blank for each facility collected in each year at a cost of $450.

Year	Permit Renewals (P)	Monitoring events	Cost ($)
First year	P1 & P2	2x4=8	5,300
Second year	P3	3x4=12	7,950
Third year	P4	4x4=16	10,600
Fourth year	P5	5x4=20	13,250
Fifth year	P6	6x4=24	15,900

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

Source reduction measures

Currently, no substantial data exist on PFAS concentrations in POTW discharges to groundwater, making it difficult to determine what proportion of facilities may exceed proposed groundwater standards for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA. Based on effluent sampling data collected by the department, the department conservatively estimates that six facilities in total may require action, with two facilities in year one and one additional facility in each subsequent year.

POTWs determined to be receiving influent from an identified PFAS source will be required to either install treatment to reduce PFAS in the facility's effluent discharge or require the contributing industrial source to

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implement pretreatment before discharging liquid waste to the POTW. For the purposes of this EIA, the department assumes that source reduction measures will be implemented, with the industrial contributor installing treatment, as this is the most cost-effective approach. This will likely necessitate that the industrial contributors to these facilities install appropriate treatment systems prior to discharging their liquid waste to the POTW. Because POTWs that discharge liquid waste are typically small and because the department can identify contributing industries to each POTW through significant industrial user codes, the department anticipates that for each POTW with elevated PFAS levels, there will generally be a single primary industrial contributor responsible for the high PFAS concentrations. Facilities found to be accepting influent from an identified PFAS source will likely require that PFAS source industry to install treatment before accepting the waste. The department assumes that wastewater effluent from each identified PFAS source industrial facility has an average flow rate of 20 gallons per minute, based on available data for potential industrial sources discharging to POTWs. At the assumed flow rate, granular activated carbon (GAC) treatment costs consist of a one-time installation cost of $70,000 for each newly impacted facility and an annual operation and maintenance costs of $379,852 per facility. The department's cost estimates are based on the rental of the GAC treatment equipment rather than permanent installation of treatment systems. The department anticipates that facilities will rent the equipment to minimize their initial capital costs while they work to identify legacy sources within the facility, given that many types of PFAS have been phased out and are no longer widely used by industries.

- In year one, the department anticipates two facilities to be impacted. Each facility would incur both the installation cost and annual operational costs, resulting in a total first-year cost of $899,704 [*per facility: $70,000 for one-time treatment system installation and $379,852 for annual operation of the installed treatment*].
- In year two, one additional facility would require treatment system installation, while the two facilities permitted in year one would continue to incur annual operational costs. The total treatment cost for year two would be $1,209,556 *[$379,852 operational costs × three facilities, plus $70,000 for treatment system installation of the facility permitted in year two].*
- In year three, a fourth facility would require installation, while the three facilities permitted in prior years would incur annual operational costs. The total treatment cost for year three would be $1,589,408 *[$379,852 operational costs × four facilities, plus $70,000 for treatment system installation of the facility permitted in year three].*
- In year four, a fifth facility would require installation, while the four facilities permitted in prior years would incur annual operational costs. The total treatment cost for year four would be $1,969,260 *[$379,852 operational costs × five facilities, plus $70,000 for treatment system installation of the facility permitted in year four].*
- In year five, a sixth facility would require installation, while the five facilities permitted in prior years would incur annual operational costs. The total treatment cost for year five would be $2,349,112 *[$379,852 operational costs × six facilities, plus $70,000 for treatment system installation of the facility permitted in year five].*

The highest cumulative cost for source reduction measures in any two-year period would be incurred in years four and five, for a total cost of $4,318,372 *[$1,969,260 total cost for treatment of liquid discharge in year four plus $2,349,112 total cost for treatment of liquid discharge in year five].* Table 5 summarizes treatment costs for POTWs discharging treated wastewater effluent to groundwater.

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Table 5. Annual cost for treating liquid discharges.

Year	Permit Renewals (P)	Installation cost ($)	Operational costs ($)	Total Cost ($)
First year	P1 & P2	140,000	759,704	899,704
Second year	P3	70,000	1,139,556	1,209,556
Third year	P4	70,000	1,519,408	1,589,408
Fourth year	P5	70,000	1,899,260	1,969,260
Fifth year	P6	70,000	2,279,112	2,349,112

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

The total economic impact for this category of facilities over a two-year period is $4,441,572 *[$94,050 for PFAS groundwater monitoring, plus $29,150 for PFAS monitoring of liquid discharges, plus $4,318,372 for source reduction measures]*.

2. Industrial Wastewater Treatment Facilities That Discharge Liquid Wastewater Through a Land Treatment/Application System

The department identified 86 industrial WWTFs that discharge liquid wastewater to groundwater. Should groundwater standards be promulgated for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA, these facilities will be required to conduct quarterly monitoring of liquid discharges, and groundwater monitoring prior to and during operations.

The department used data outlined in the Michigan Dept. of Environment, Great Lakes and Energy's (EGLE's) comprehensive study of industrial sources of PFOS in Michigan to identify potential sources of PFOS in Wisconsin. After reviewing EGLE's Standard Industrial Classification (SIC) codes for industries with elevated PFOS levels, the department cross-referenced those industry types with its database of industrial facilities holding individual or general WPDES permits. While the SIC codes specifically target PFOS, the department assumes these industries may also contribute other PFAS compounds, as manufacturers have likely shifted to alternative PFAS chemicals. Through this analysis, four facilities were identified as potentially being associated with PFAS-containing waste based on their SIC codes and expected waste characteristics.

The department assumes that approximately 20% of industrial WWTFs discharging to groundwater undergo permit renewal each year. Therefore, in the first year, one facility would become subject to the new monitoring requirements, followed by one additional facility in each subsequent year (one facility per year will cover all four facilities over a five-year period). The estimated cost per sample is $550 *[$450 for PFAS laboratory analysis and $100 for sample handling and logistics]*. As noted in the section addressing costs of POTWs that discharge liquid wastewater through a land treatment/application system, the department revised the estimated cost of blank samples in response to a comment stating that the cost should be increased from $300 to $450. Following additional consultation and review, the department now assumes an equipment blank cost of $450 per sample, and that one equipment blank would be collected annually at each impacted facility.

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Groundwater sampling

According to s. NR 214.21, Wis. Adm. Code, PFAS groundwater sampling may be required but the frequency of sampling is not specified. Assuming the same sample frequency as for POTWs discharging to groundwater, groundwater sampling at these facilities will occur every six to seven weeks until eight samples have been collected, after which sampling will occur quarterly. This results in a total of nine sampling events in the first year and four sampling events in the second year for each facility. Assuming that monitoring wells are already installed, and that each facility has three wells, the cost of PFAS sampling would be $1,650 per facility per sampling event *[$550 for PFAS sampling × three wells]*.

- In year one, one facility would enter its first year of monitoring and collect nine samples. At a cost of $1,650 per facility per sampling event, and a cost of $450 for equipment blank, the resulting total PFAS groundwater monitoring cost would be $15,300 for year one *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank]*.
- In year two, one additional facility would enter its first year of monitoring and collect nine samples, while the facility permitted in year one would transition to quarterly sampling. The first-year facility would incur a cost of $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank],* and the existing facility would incur a cost of $7,050 *[$1,650 cost per sampling event × four sampling events × one facility plus $450 for equipment blank]* resulting in a total cost of $22,350 for year two.
- In year three, one new facility would enter its first year of monitoring, while two facilities would conduct quarterly sampling. The first-year facility would incur a cost of $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank],* and the two facilities conducting quarterly sampling would incur a combined cost of $14,100 *[$1,650 cost per sampling event × four sampling events × two facilities plus $900 for equipment blanks]*, for a total annual cost of $29,400.
- In year four, one additional facility would enter its first year of monitoring, and three facilities would conduct quarterly sampling. The cost for the first-year facility would be $15,300 *[$1,650 cost per sampling event × nine sampling events plus $450 for equipment blank],* and the combined cost for the three facilities conducting quarterly sampling would be $21,150 *[$1,650 cost per sampling event × four sampling events × three facilities plus $1,350 for equipment blanks]*, resulting in a total PFAS groundwater monitoring cost of $36,450.
- In year five, all four facilities would conduct quarterly sampling for a total cost of $28,200 *[$1,650 cost per sampling event × four sampling events × four facilities plus $1,800 for equipment blanks]*.

The highest cumulative cost for PFAS sampling of groundwater in any two-year period would be incurred in years three and four, for a total cost of $65,850 *[$29,400 total cost for PFAS sampling of groundwater in year three plus $36,450 total cost for PFAS sampling of groundwater in year four].* Table 6 summarizes annual costs for groundwater PFAS monitoring for industrial wastewater facilities discharging to groundwater.

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Table 6. Annual cost of PFAS sampling of groundwater, assuming $1,650 per sampling event and an equipment blank for each facility collected in each year at a cost of $450.

Year	Permit Renewals (P)	Monitoring events	Cost ($)
First year	P1	9	15,300
Second year	P2	9 plus 4=13	22,350
Third year	P3	9 plus 2x4=17	29,400
Fourth year	P4	9 plus 3x4=21	36,450
Fifth year	--	4x4=16	28,200

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

Liquid effluent discharge sampling

Assuming one facility is permitted in year one and one additional facility is permitted in each subsequent year, PFAS liquid effluent discharge monitoring costs would increase as additional facilities will be up for permit renewal. All facilities are assumed to conduct quarterly sampling only, resulting in four samples per facility per year at approximately $550 per facility per sampling event *[$450 for PFAS laboratory analysis and $100 for sample handling and logistics]*.

- In year one, one facility would collect four samples, for a total annual cost of $2,650 *[$550 cost per sampling event × four sampling events × one facility plus $450 for equipment blank]*.
- In year two, two facilities would conduct quarterly sampling, resulting in a total cost of $5,300 *[$550 cost per sampling event × four sampling events × two facilities plus $900 for equipment blanks]*.
- In year three, three facilities would be monitored, with a total annual cost of $7,950 *[$550 cost per sampling event × four sampling events × three facilities plus $1,350 for equipment blanks]*.
- In year four, all four facilities would conduct quarterly sampling, resulting in a total cost of $10,600 *[$550 cost per sampling event × four sampling events × four facilities plus $1,800 for equipment blanks]*.
- In year five, all four facilities would continue to be subject to quarterly PFAS liquid discharge monitoring, resulting in the highest annual cost of $10,600 *[$550 cost per sampling event × four sampling events × four facilities plus $1,800 for equipment blanks]*.

The highest cumulative cost for PFAS sampling of liquid discharge in any two-year period would be incurred in years four and five, for a total cost of $21,200 *[$10,600 total cost for PFAS sampling of liquid discharge in year four plus $10,600 total cost for PFAS sampling of liquid discharge in year five].* Table 7 summarizes annual costs for PFAS monitoring of liquid effluent discharges for industrial wastewater facilities discharging to groundwater.

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Table 7. Annual cost of PFAS sampling of liquid discharges, assuming $550 per sampling event, and an equipment blank for each facility collected in each year at a cost of $450.

Year	Permit Renewals (P)	Monitoring events	Cost ($)
First year	P1	4	2,650
Second year	P2	2x4=8	5,300
Third year	P3	3x4=12	7,950
Fourth year	P4	4x4=16	10,600
Fifth year	--	4x4=16	10,600

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

Treatment of liquid effluent discharge

Currently, no substantial data exist on PFAS concentrations in industrial liquid discharges to groundwater, making it difficult to determine what proportion of facilities may exceed proposed groundwater standards for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA. Hence, the department conservatively assumes that the four facilities subject to monitoring would also be required to treat their liquid waste to reduce PFAS levels prior to discharging to groundwater. Assuming a flow rate of 20 gallons per minute, the department estimates that renting a granular activated carbon system for PFAS treatment would include a one-time installation cost of $70,000 and an annual operation and maintenance cost of $379,852.

- In year one, the department anticipates one facility to be impacted and incur both the installation cost and annual operational costs, resulting in a total first-year cost of $449,852 *[$70,000 for one-time treatment system installation and $379,852 for annual operation of the installed treatment*].
- In year two, one additional facility would require treatment system installation, while the facility permitted in year one would continue to incur annual operational costs. The total treatment cost for year two would be $829,704 *[$379,852 operational costs × two facilities, plus $70,000 for treatment system installation of the facility permitted in year two].*
- In year three, a third facility would require installation, while the two facilities permitted in prior years would incur annual operational costs. The total treatment cost for year three would be $1,209,556 *[$379,852 operational costs × three facilities, plus $70,000 for treatment system installation of the facility permitted in year three].*
- In year four, a fourth facility would require installation, while the three facilities permitted in prior years would incur annual operational costs. The total treatment cost for year four would be $1,589,408 *[$379,852 operational costs × four facilities, plus $70,000 for treatment system installation of the facility permitted in year four].*
- In year five, all four facilities permitted in prior years would incur annual operational costs. The total treatment cost for year five would be $1,519,408 *[$379,852 operational costs × four facilities].*

The highest cumulative cost for treatment of liquid discharge in any two-year period would be incurred in years four and five, for a total cost of $3,108,816 *[$1,589,408 total cost for treatment of liquid discharge in year four plus $1,519,408 total cost for treatment of liquid discharge in year five].* Table 8 summarizes treatment costs for industrial wastewater treatment facilities discharging to groundwater.

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Table 8. Annual cost for treating liquid discharges.

Year	Permit Renewals (P)	Installation cost ($)	Operational costs ($)	Total Cost ($)
First year	P1	70,000	379,852	449,852
Second year	P2	70,000	759,704	829,704
Third year	P3	70,000	1,139,556	1,209,556
Fourth year	P4	70,000	1,519,408	1,589,408
Fifth year	--	--	1,519,408	1,519,408

Note: P1 refers to the permit renewal of facility one; P2 refers to the permit renewal of facility two, etc.

The total economic impact for this category of facilities over a two-year period is $3,195,866 *[$65,850 for PFAS groundwater monitoring, plus $21,200 PFAS monitoring of liquid discharges, plus $3,108,816 for treatment of liquid discharges]*.

WPDES-Permitted Discharges for Biosolids and Industrial Sludge

The department regulates the discharge of industrial and municipal/domestic wastewater by-product solids, biosolids, and sludges through land treatment/disposal systems under chs. NR 204 and NR 214, Wis. Adm. Code. Land treatment/disposal systems include both systems located on "dedicated sites," such as absorption/seepage pond systems, and systems where waste is land applied/land spread on multiple agricultural fields for beneficial use as a fertilizer or soil conditioner. Because wastes are discharged on a relatively continuous basis, groundwater monitoring systems are often installed at land treatment/disposal systems located on dedicated sites. Wastes that are land spread are generally applied on a rotational basis to multiple agricultural fields, with different fields being used in different years. Because waste is not applied to a single field on a continuous basis, groundwater monitoring systems are not installed at land spreading sites.

Industrial and municipal/domestic waste may contain PFAS. Recognizing this possibility, the department has, since October 1, 2022, included PFOA/PFOS monitoring of discharges to surface water in WPDES permits (in accordance with the requirements of Subchapter VIII of ch. NR 106, Wis. Adm. Code). 2025 Wisconsin Act 201 added s. 283.82(4)(b), Stats., which requires the department to issue a general permit that requires PFAS monitoring (including those addressed in this rulemaking) for sludge and allows for modifications based on sampling results. Because the department already uses existing authority to require monitoring and sampling of biosolids and industrial sludges containing PFAS, monitoring costs associated with such facilities are excluded from this EIA.

2025 Wisconsin Act 201 also added s. 283.82(4)(a), Stats., which requires the department to include limitations or conditions related to PFAS in all permits for the land application of sewage sludge. As a result, actions associated with PFAS-related limitations on the land application of biosolids will occur independently of the enactment of PFAS groundwater standards, and no additional costs are expected to be associated with these activities.

Landfills

The department requires landfills to follow groundwater sampling and reporting requirements in ch. NR 507, Wis. Adm. Code, including for the parameters, and at the frequencies, in Appendices I–IV. These appendices do not currently require PFAS sampling. However, under s. NR 507.15, Wis. Adm. Code, the department may require PFAS monitoring on a case-by-case basis depending on the waste characteristics. To date, the department has requested PFAS sampling at three papermill sludge landfills due to evidence suggesting possible PFAS presence or groundwater impacts. PFAS

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sampling may also be warranted at other papermill or municipal solid waste landfills where groundwater results show exceedances of other ch. NR 140 Enforcement Standards. Some landfill owners are voluntarily sampling for PFAS in groundwater or leachate. If the department becomes aware of data showing PFAS impacts, it may require further sampling, investigation, and remediation.

The department currently has the authority to require PFAS sampling at landfills when there is evidence of a potential PFAS release. Once NR 140 groundwater standards for PFAS are finalized, the department may exercise its authority to require PFAS sampling at more landfills. The initial focus would likely be on landfills with existing exceedances of other substances under ch. NR 140, Wis. Adm. Code, or papermill sludge landfills that may have accepted PFAS-contaminated waste. For municipal solid waste (MSW) landfills, the department would likely focus on those landfills with reported Enforcement Standard exceedances of volatile organic compounds (VOCs). VOCs exceedances may indicate potential landfill leachate impacts and can be associated with PFAS because both may originate from similar waste streams or landfill releases. In general, these landfills are either closed or are closed units at large active landfills.

There are approximately 169 landfills in Wisconsin that are either a papermill sludge landfill or that have a reported. NR 140 Enforcement Standard exceedance of one or more VOCs since 2016. Some of these are already in investigation or remediation, and others have only singular or sporadic exceedances that were not confirmed in subsequent sampling. Of those 169, there are approximately 138 landfills with more than four reported VOC Enforcement Standard exceedances since 2016. Assuming the department requires each of the 138 landfills to collect at least two samples for PFAS in each of their groundwater monitoring wells in one year, and assuming each site has 10 monitoring wells, the PFAS monitoring cost would be $1,242,000 *[$450 sample cost × 10 wells × two times per year × 138 landfills]*. Landfills follow the sampling procedures contained in the *Groundwater Sampling Desk Reference*, PUBL-DG-037-96, which recommends collecting one equipment blank for every 10 or fewer samples collected. Therefore, one equipment blank would be collected at each site during each sampling event. The total cost of equipment blanks for all 138 landfills would be $124,200 *[$450 equipment blank cost × two times per year × 138 landfills].* Sampling mobilization costs are not included because those costs would already be incurred as part of each landfill's routine detection-monitoring sampling. The department estimates the total cost for monitoring in year one to be $1,366,200 *[$1,242,000 for PFAS monitoring plus $124,200 for equipment blanks].*

The department estimates that after initial PFAS sampling, about 10% of the 138 landfills evaluated—roughly 14 sites—may need additional investigation in the second year. These landfills would conduct further sampling of on-site wells to determine whether significant PFAS discharges are present and if remedial action is needed. To assess the extent of PFAS impacts, additional monitoring wells or piezometers would likely need to be installed around these sites. The department assumes that five additional monitoring wells would need to be installed at each site, and that the cost per well would be around $10,000. Hence, the cost associated with installing new wells would be $700,000 *[$10,000 x five wells x 14 sites]*. Sampling at these five wells, plus the 10 already at the site, will occur in year two. The year two PFAS monitoring cost would be $189,000 *[$450 sample cost × 15 wells × two times per year × 14 landfill*s*]*. Since more than 10 samples will be collected at each site, two equipment blanks (at a cost of $450 each, and $900 total) would be required at each site for each sampling event. The equipment blanks costs would therefore be $25,200 *[$900 equipment blanks × two times per year × 14 landfills].* Sampling mobilization costs are not included because those costs would already be incurred as part of each landfill's routine detection-monitoring sampling. The department estimates the total cost for monitoring in year two to be $914,200*[$700,000 for well installation, plus $189,000 for PFAS monitoring, plus $25,200 for field blanks]*.

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The department anticipates PFAS groundwater monitoring cost at identified landfills to be $2,280,400 over the two-year period.

Active and closed landfills generally dispose of leachate by sending it to a POTW. Since landfill leachate can contain PFAS, it has the potential to introduce PFAS into the biosolids at the POTWs. Most POTWs in the state apply their treated biosolids to land. The department is required to impose limitations or conditions for PFAS in permits for the land application of sewage sludges under s. 283.82(4), Stats. POTWs may undertake source reduction activities or alternative disposal options to comply with chapter 283, Stats., regardless of whether NR 140 groundwater standards for PFAS are established. Accordingly, the department assumes that no additional costs associated with management of landfill leachate will be incurred a result of the promulgation of groundwater standards for these six PFAS.

Specific Businesses and Business Sectors (Private Businesses)

The department anticipates the following specific businesses will be impacted: facilities that discharge industrial liquid waste through an absorption/seepage pond land treatment system; businesses that contribute wastewater to POTWs whose liquid waste is discharged to groundwater; and privately owned landfills that may be subject to groundwater monitoring because of their potential for PFAS contamination.

Impacts on Public Utility Ratepayers

The department does not anticipate this rule to significantly impact public utility ratepayers.

Impacts on Local Governmental Units

The department assumes that municipal-owned utilities will incur some cost that is primarily related to POTWs and publicly owned landfills, and classifies these as costs to local government.

Fiscal Impact and Impact on State Economy

The department does not anticipate that this rule will impact the state's economy adversely. Additional costs to the department in terms of staff time would be absorbed in the agency's current budget and the additional positions included in 2025 Wisconsin Act 201. In addition, 2025 Wisconsin Act 200 provides funding for several activities aimed at addressing PFAS contamination in the state, which may further support implementation efforts. The department also recognizes that there is a substantial benefit derived from preventing and remediating PFAS contamination, including benefits to human health, safety, and wellbeing, economic productivity (avoided costs), and ecosystem integrity.

15. Benefits of Implementing the Rule and Alternative(s) to Implementing the Rule

Benefits of Implementing the Rule
The benefits of establishing new and revised groundwater quality standards in ch. NR 140, Wis. Adm. Code, include:

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1. Providing human health protection, as the standards protect groundwater from substances that pose a hazard to human health. For instance, the substance may increase the risk of illness, disease, or death or may increase the risk or severity of a long-term disease.
2. Allowing state regulatory agencies to establish rules that define specific design and management criteria to reduce concentrations of a substance in groundwater, if concentrations are found to exceed established groundwater standards.
3. Providing clarity and consistency to regulated entities on how to address these compounds if they are detected at sites or facilities.
4. Providing standards for bottled water providers.
5. Allowing homeowners to apply for grants under the well compensation program where samples indicate the water in a private well exceeds established standards in ch. NR 140, Wis. Adm. Code, for these PFAS.

As noted in multiple comments received, reducing the occurrence of PFAS by establishing groundwater standards can help prevent a wide range of human health impacts, particularly for individuals exposed to PFAS through contaminated drinking water. Multiple studies indicated that the six PFAS included in this rulemaking – PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA – may cause adverse health effects, including: liver damage, development and metabolic endocrine disruption, immune suppression, thyroid hormone disruption, reproductive and developmental effects, increased cholesterol, altered lipid metabolism, and kidney damage. The EPA classifies PFOA, PFOS, and HFPO-DA as likely carcinogenic to humans. Additionally, several studies suggest that all six PFAS included in this rulemaking may contribute to cancer risk. All of these substances are also associated with mutagenic effects (potential to alter or damage DNA), teratogenic effects (potential to cause birth defects or abnormalities in a developing fetus) and interactive effects (enhanced toxicity due to the combined exposure to multiple PFAS). These human health impacts are described in detail in the DHS scientific support documents, available at DHS's website: https://www.dhs.wisconsin.gov/water/gws.htm

Some comments received during the solicitation of comments on the draft EIA noted that the estimated health-related cost savings associated with the establishment of groundwater standards in Wisconsin ranged from approximately $18 million to $1.13 billion annually. While the department acknowledges the quantifiable benefits of implementing the rule as required under s. 227.137(3)(c). Stats., these estimated benefits cannot be used to offset the compliance and implementation costs associated with the proposed rule, as calculated under s. 227.137(b), Stats.

Alternative(s) to Implementing the Rule
Chapter 160, Stats., mandates the department to propose rules establishing new groundwater quality standards based on recommendations developed by the DHS. No alternatives are included in Chapter 160, Stats.

16. Long Range Implications of Implementing the Rule

Establishing groundwater quality standards for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA will help protect human health by reducing PFAS concentrations in groundwater. Most Wisconsin residents rely on groundwater as a source of drinking water, making this protection particularly important. The adoption of groundwater standards for the six PFAS, will allow regulatory programs to prioritize measures to prevent and reduce PFAS releases to the environment. While some actions are already underway under the department's existing authority and would occur regardless of the establishment of the standards, other actions would be triggered by the adoption of the standards, and still others would require separate rulemaking. Over time, these actions are expected to limit PFAS sources and result in declining PFAS concentrations in groundwater. These benefits are especially important for individuals who rely on private wells for drinking water, which are not otherwise regulated.

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17. Compare With Approaches Being Used by Federal Government

The EPA establishes health-based drinking water MCLs, cancer risk levels, and health advisories (HAs) that are used to assess the quality of groundwater drinking water supplies. Federal drinking water MCLs are established based on scientific risk assessments and, in some cases, economic and technological considerations. Cancer risk levels are established as the concentration of a chemical in drinking water that corresponds to a specific excess estimated lifetime cancer risk. Federal lifetime health advisories (LHAs) are developed based on an established health risk acceptable daily intake (ADI) level or reference dose (RfD). An ADI or RfD is the daily oral exposure to a chemical that is likely to be without an appreciable risk over a lifetime.

In April 2024, the EPA issued new federal drinking water MCL standards for PFOA, PFOS, PFHxS, PFNA, PFBS and HFPO-DA. EPA established legally enforceable individual MCLs for five PFAS in drinking water, PFOA, PFOS, PFHxS, PFNA, and HFPO-DA, and a Hazard Index MCL for PFAS mixtures containing at least two or more of: PFHxS, PFNA, HFPO-DA, and PFBS. This Hazard Index MCL was established to account for the combined and co-occurring levels of these PFAS in drinking water.

The individual MCLs for PFOA and PFOS are 4.0 ng/L. The individual MCLs for PFHxS, PFNA and HFPO-DA are 10 ng/L. The Hazard Index MCL standard was established to regulate mixtures of PFHxS, PFNA, PFBS and HFPO-DA. The measured concentration of these PFAS in drinking water divided by their respective Health-Based Water Concentration (HBWC) results in a hazard quotient (HQ) for each PFAS. The individual PFAS HQs are then summed to yield a mixture hazard index (HI). The MCL for a mixture of two or more of PFHxS, PFNA, PFBS and HFPO-DA, is an HI of 1.0 (unitless). The HBWCs are: 10 ng/L for PFHxS, 10 ng/L for PFNA, 2,000 ng/L for PFBS and 10 ng/L for HFPO-DA.

The proposed Enforcement Standards included in this rulemaking are based on the Wisconsin DHS recommendations and are consistent with the individual federal numbers for PFOA, PFOS, PFHxS, PFNA, and HFPO-DA, and PFBS. The proposed Enforcement Standards are also consistent with the state drinking water standards under Ch. NR 809, with the exception of PFBS, which is addressed through a hazard index approach for mixtures of PFHxS, PFNA, PFBS, and HFPO-DA. Table 3 lists the proposed Enforcement Standards based on the DHS recommendations and compares them to the EPA federal numbers and state drinking water standards.

Table 9. Proposed Enforcement Standards and comparison to EPA federal numbers and state drinking water standards

PFAS compound	Proposed Enforcement Standards (in ng/L or ppt)	EPA federal numbers (in ng/L or ppt)	State drinking water standards (in ng/L or ppt)
PFOA	4	4	4
PFOS	4	4	4
PFHxS	10	10	10
PFNA	10	10	10
PFBS	2,000	2,000	Hazard Index standard of 1 (unitless) for mixtures of PFHxS, PFNA, PFBS and HFPO-DA.
HFPO-DA	10	10	10

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On May 18, 2026, EPA announced proposed regulatory actions to rescind the MCLs for PFHxS, PFNA, and HFPO-DA (GenX chemicals), as well as the Hazard Index standard applicable to mixtures containing PFHxS, PFNA, HFPO-DA, and PFBS, citing concerns that portions of the prior rulemaking did not comply with procedural requirements under the Safe Drinking Water Act. However, as of the date of this revised EIA the federal law remains unchanged and federal law requires compliance with all six PFAS MCLs.

18. Compare With Approaches Being Used by Neighboring States (Illinois, Iowa, Michigan and Minnesota)

Minnesota, Michigan, Illinois, and Iowa use groundwater protection values/levels/standards in their regulation of practices and activities that might impact the quality of groundwater. Minnesota, Michigan, and Illinois have promulgated individual state groundwater protection standards. Iowa uses established federal standards (federal drinking water MCLs, LHAs and established cancer risk levels) as its state groundwater protection standards.

Groundwater protection quality values/levels/standards are usually developed based on health risk assessments. States are often required to follow state-specific health risk assessment methodology when establishing groundwater protection quality standards. States may use state-specific health risk assessments, factors, and methodologies in calculating and developing their groundwater protection standards. This use of different health risk assessment factors and methodologies has led to the establishment of different state groundwater protection values/levels/standards for the same substance. The proposed Enforcement Standards in Wisconsin for PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA are the same as the groundwater protection thresholds in Illinois and in Iowa, with the exception of PFBS in Iowa, which is addressed through a hazard index approach for mixtures of PFHxS, PFNA, PFBS, and HFPO-DA. Compared to Michigan, the proposed Enforcement Standards in Wisconsin are more stringent for PFOA, PFOS, PFHxS, and HFPO-DA, and less stringent for PFNA and PFBS. Compared to Minnesota, the proposed Enforcement Standards in Wisconsin are more stringent for PFHxS, and less stringent for PFOA, PFOS and PFBS. Table 4 presents the groundwater protection thresholds for each of the six PFAS in Wisconsin and adjacent states, followed by state-specific details.

Table 4. Proposed WI Enforcement Standards and comparison to thresholds in adjacent states.

PFAS compound	**Wisconsin proposed Enforcement Standards (in ng/L or ppt)**	**Minnesota thresholds (in ng/L or ppt)**	**Michigan thresholds (in ng/L or ppt)**	**Illinois thresholds (in ng/L or ppt)**	**Iowa thresholds (in ng/L or ppt)**
PFOA	4	0.24	8	4	4
PFOS	4	2.3	16	4	4
PFHxS	10	47	51	10	10
PFNA	10	NA	6	10	10
PFBS	2,000	100	420	2,000	Hazard Index MCL standard of 1 (unitless) for mixtures of PFHxS, PFNA, PFBS and HFPO-DA.
HFPO-DA	10	NA	370	10	10

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Minnesota: The State of Minnesota has established state groundwater protection "Health Risk Limits" (HRLs) under Minnesota Statutes Section 103H.201. In 2025, the state of Minnesota established an HRL for PFOA at 0.24 ng/L and an HRL for PFOS at 2.3 ng/L. In 2023, Minnesota established an HRL for PFHxS at 47 ng/L and an HRL for PFBS at 100 ng/L.

Michigan: The State of Michigan has established state groundwater protection quality standards. Michigan "Drinking Water Criteria and Risk Based Screening Levels" (RBSLs) are Michigan state groundwater protection standards authorized in accordance with Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA). As established under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, and as amended [MCL 324.20120a(5)], Michigan state drinking water standards become the PFOA and PFOS generic cleanup criteria for groundwater used as drinking water. Michigan has established RBSLs for PFOA at 8 ng/L, for PFOS at 16 ng/L, for PFHxS at 51 ng/L, for PFNA at 6 ng/L, for PFBS at 420 ng/L and for HFPO-DA at 370 ng/L.

Illinois: Illinois groundwater quality standards are enforceable standards used for the beneficial use and protection of groundwater in the state. 35 Illinois Administrative Code (IAC) Part 690 establishes regulations for groundwater quality, including standards for the quality of groundwater. In April 2025, updates to 35 IAC Part 690 Groundwater Quality were published in the Illinois Register that included state groundwater quality standards for the six PFAS. Those Part 690 PFAS groundwater standards for "Class I Potable Resource" groundwater are: PFOA = 4 ng/L, PFOS = 4 ng/L, PFHxS = 10 ng/L, PFNA = 10 ng/L, for PFBS = 2,000 ng/L and for HFPO-DA = 10 ng/L.

Iowa: The State of Iowa has not established specific state groundwater protection standards. In accordance with Iowa Environmental Protection Regulations 567 IAC Chapter 133, Iowa uses established federal EPA lifetime health advisory levels, "negligible risk levels" (NRLs) for carcinogens (estimate of one additional cancer case per million people over a lifetime of exposure) and federal drinking water MCLs as "Action Levels" in their regulation of practices and activities that may adversely impact groundwater quality. Current federal MCLs for PFAS are: PFOA = 4.0 ng/L, PFOS = 4.0 ng/L, PFHxS = 10 ng/L, PFNA = 10 ng/L and HFPO-DA = 10 ng/L. A Hazard Index MCL standard of 1 (unitless) has been established to regulate mixtures of one or more of PFHxS, PFNA, PFBS and HFPO-DA. As stated above, EPA has proposed regulatory action to rescind the MCLs for PFHxS, PFNA, and HFPO-DA (GenX chemicals), as well as the Hazard Index standard applicable to mixtures containing PFHxS, PFNA, HFPO-DA, and PFBS. As of the date of this revised EIA, the federal law remains unchanged and still requires compliance with all six PFAS MCLs.

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