



Groundwater Quality Standards PFAS Rulemaking Status and IMACs Update

December 2024 Secretaries' Science Advisory Board Meeting

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Rulemaking Authority

- The Environmental Management Commission (EMC) has the statutory authority to adopt groundwater standards under 15A NCAC 02L .0202.
 - Meeting materials for both current and prior meetings can be accessed on the EMC website at: <https://www.deq.nc.gov/about/divisions/water-resources/water-resources-commissions/environmental-management-commission>
- Rulemaking must follow the requirements and procedures in Chapter 150B (Administrative Procedure Act) of the NC General Statutes



Proposed Groundwater Standards for PFAS

Compound	Reference	Toxicity Benchmarks and Values Available ⁺	Proposed 02L Standard (ng/L)
1 PFOS	2023 EPA Toxicity Assessment [^]	RfD, CSF, MCL	0.7*
2 PFOA	2023 EPA Toxicity Assessment [^]	RfD, CSF , MCL	0.001*
3 HFPO-DA (GenX)	2021 EPA Human Health Toxicity Assessment [^]	RfD, MCL	10

[^]Used as basis for EPA's PFAS National Primary Drinking Water Regulation

⁺RfD: reference dose; CSF: cancer slope factor; MCL: Maximum Contaminant Level in drinking water

*The proposed standards for PFOA and PFOS are below the EPA reported practical quantitation limit (PQL)



Current Rulemaking Status and Anticipated Schedule

Action / Responsibility	Date
Stakeholder Meetings	January and February 2024
GWWMC/EMC Information Item Presentations	May and July 2022; July and November 2023; and January, March, and May 2024
GWWMC – Decision to revise RIA to include only PFOA, PFOS, and GenX and return to GWWMC	July 10, 2024
GWWMC – Decision to Approve Rule Text and RIA to go to EMC	September 12, 2024
EMC – Decision to Approve Rule and RIA for Public Comment	September 13, 2024
Public Comment Period and Hearings	November 1, 2024 – December 31, 2024
EMC – Decision to Approve Hearing Officer’s Report and final RIA, Adopt Rule	May 2025
RRC – Approval of Rule	June 2025
Proposed effective date, if approved	July 2025

Public Hearings and Comment Period

Public Hearings:

November 21, 2024

Time: 6:00 p.m.

Location: Charlotte, NC

December 2, 2024

Time: 6:00 p.m.

Location: Wilmington, NC

December 3, 2024

Time: 6:00 p.m.

Location: Raleigh, NC

Public Comment Period:

Public comments will be accepted until **December 31, 2024.**



Interim Maximum Allowable Concentrations

- When a groundwater standard has not been established under the rule for a substance, that substance is not permitted in concentrations above the practical quantitation limit (PQL)
- Any person may request the DWR Director to modify the above requirement by establishing an Interim Maximum Allowable Concentration (IMAC)
- Any person may also request the DWR Director update or remove an existing IMAC



Guidelines for IMAC Establishment

- The requestor must submit relevant toxicological and epidemiological data, study results, and calculations necessary to establish an IMAC in accordance with Paragraphs (d) and (e) in 02L .0202.
- DWR evaluates the request and reviews the information to calculate the health-based protective level(s) for the chemical of concern
- DWR provides public notice and opportunity for comment at least 30 days prior to final action



Comparison of Groundwater Standards and IMACs

	Groundwater Standards	IMACs
Time-frame	Permanent	Temporary
Regulatory Framework	15 NCAC 02L .0202	15 NCAC 02L .0202
Scientific Review Process	DPH/DWM secondary review	DPH/DWM secondary review
Public Comment	Yes	Yes (opportunity for comment)
Public Hearing	Yes	No
Fiscal Analysis	Yes	No
Public Notification of Value	Yes (NC Register and Rule)	Yes (Public notice and emailed to interested parties)
Legally Enforceable	Yes	Yes
Approval Process	Environmental Management Commission	Division of Water Resources Director

IMAC Request

- DWR received a request to develop IMACs in groundwater for eight per- and polyfluoroalkyl substances (PFAS) on July 22, 2024, along with supporting data and documents.
- DWR public noticed the Director's intent to establish these eight IMACs on September 4, 2024.
 - No revisions to the proposed IMAC values included in the public notice were recommended as a result of the public comments received
- The IMACs for eight PFAS were established by the DWR Director on October 15, 2024.



IMACs Established for Groundwaters effective October 15, 2024

	Substance	Acronym	Concentration (ng/L)
1	Perfluorooctane sulfonic acid	PFOS	0.7
2	Perfluorooctanoic acid	PFOA	0.001
3	Hexafluoropropylene oxide dimer acid	HFPO-DA (GenX)	10
4	Perfluorobutane sulfonic acid	PFBS	2,000
5	Perfluorononanoic acid	PFNA	10
6	Perfluorohexane sulfonic acid	PFHxS	10
7	Perfluorobutanoic acid	PFBA	7,000
8	Perfluorohexanoic acid	PFHxA	4,000

Additional Information for the Development of the PFAS IMACs

Substance		Reference	Critical Health Effects	Toxicity Benchmarks and Values Available [^]
1	PFOS	2023 EPA Toxicity Assessment ⁺	Developmental and Cardiovascular effects	RfD , CSF, MCL
2	PFOA	2023 EPA Toxicity Assessment ⁺	Renal cell carcinomas	RfD, CSF , MCL
3	HFPO-DA (GenX)	2021 EPA Human Health Toxicity Assessment ⁺	Liver effects	RfD, MCL
4	PFBS	2021 EPA Human Health Toxicity Assessment ⁺	Thyroid effects	RfD
5	PFNA	2021 ATSDR* Minimal Risk Level ⁺	Developmental effects	RfD, MCL
6	PFHxS	2021 ATSDR* Minimal Risk Level ⁺	Thyroid effects	RfD , MCL
7	PFBA	2022 EPA IRIS Assessment	Liver and Thyroid effects	RfD
8	PFHxA	2023 EPA IRIS Assessment	Developmental effects	RfD

⁺Used as basis for EPA's PFAS National Primary Drinking Water Regulation

*ATSDR= Agency for Toxic Substances and Disease Registry

[^]RfD: reference dose; CSF: cancer slope factor; MCL: Maximum Contaminant Level in drinking water

Next Steps for the PFAS IMACs

- Within 12 months of establishing an IMAC, the DWR Director shall make a recommendation to the EMC whether:
 - A new groundwater standard in place of the IMAC should be established
 - The IMAC should expire
- After the DWR Director's recommendation, the EMC shall decide whether to initiate rulemaking
 - If the EMC initiates rulemaking, then the IMAC remains in effect until the standard is adopted or the EMC declines to adopt a new standard
 - If the EMC declines to initiate rulemaking, the IMAC expires

Thank you!

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DWR, Classifications and Standards Branch:

<https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards>

