

PFAS IN GROUNDWATER: STATE-BY-STATE REGULATIONS

UPDATED: MAY 2024

May 09, 2024

SUMMARY

In the absence of federal cleanup standards for per- and polyfluoroalkyl substances (“PFAS”) in groundwater, several states have started the process of regulating PFAS in groundwater themselves. As a result, states have adopted a patchwork of regulations and guidance standards that present significant compliance challenges to impacted industries. This client alert explores the current landscape of state regulations regarding the advisory, notification, and cleanup levels for PFAS – typically perfluorooctane sulfonic acid (“PFOS”) and perfluorooctanoic acid (“PFOA”) – in groundwater.

FEDERAL REGULATIONS

In 2019, the United States Environmental Protection Agency (“EPA”) issued interim recommendations to address groundwater contaminated with PFOA and PFOS, but that guidance was subsequently [rescinded](#). Although EPA concluded that the interim recommendation “no longer reflects the best, currently available science,” the [fact sheet](#) discussing the 2019 interim recommendations is still a helpful resource to understand how EPA was evaluating the issue at that time.

On April 10, 2024, EPA issued its long-anticipated [National Primary Drinking Water Regulation](#) (“NPDWR”) establishing, among other things, [Maximum Contaminant Levels](#) (“MCLs”) for certain PFAS substances in drinking water. As discussed in [BCLP’s client alert](#), the final rule establishes the following MCLs and MCLGs for six PFAS substances:

PFOA

- **MCLs (enforceable)** - 4.0 ppt
- **MCLGs (non-enforceable)** - 0 (Zero)

PFOS

- **MCLs (enforceable)** - 4.0 ppt
- **MCLGs (non-enforceable)** - 0 (Zero)

PFHxS

- **MCLs (enforceable)** - 10 ppt
- **MCLGs (non-enforceable)** - 10 ppt

PFNA

- **MCLs (enforceable)** - 10 ppt
- **MCLGs (non-enforceable)** - 10 ppt

HFPO-DA (known as GenX Chemicals)

- **MCLs (enforceable)** - 10 ppt
- **MCLGs (non-enforceable)** - 10 ppt

Mixtures containing two or more of these four PFAS substances: PFHxS, PFNA, HFPO-DA, and PFBS

- **MCLs (enforceable)** - 1 (unitless), Hazard Index
- **MCLGs (non-enforceable)** - 1 (unitless), Hazard Index

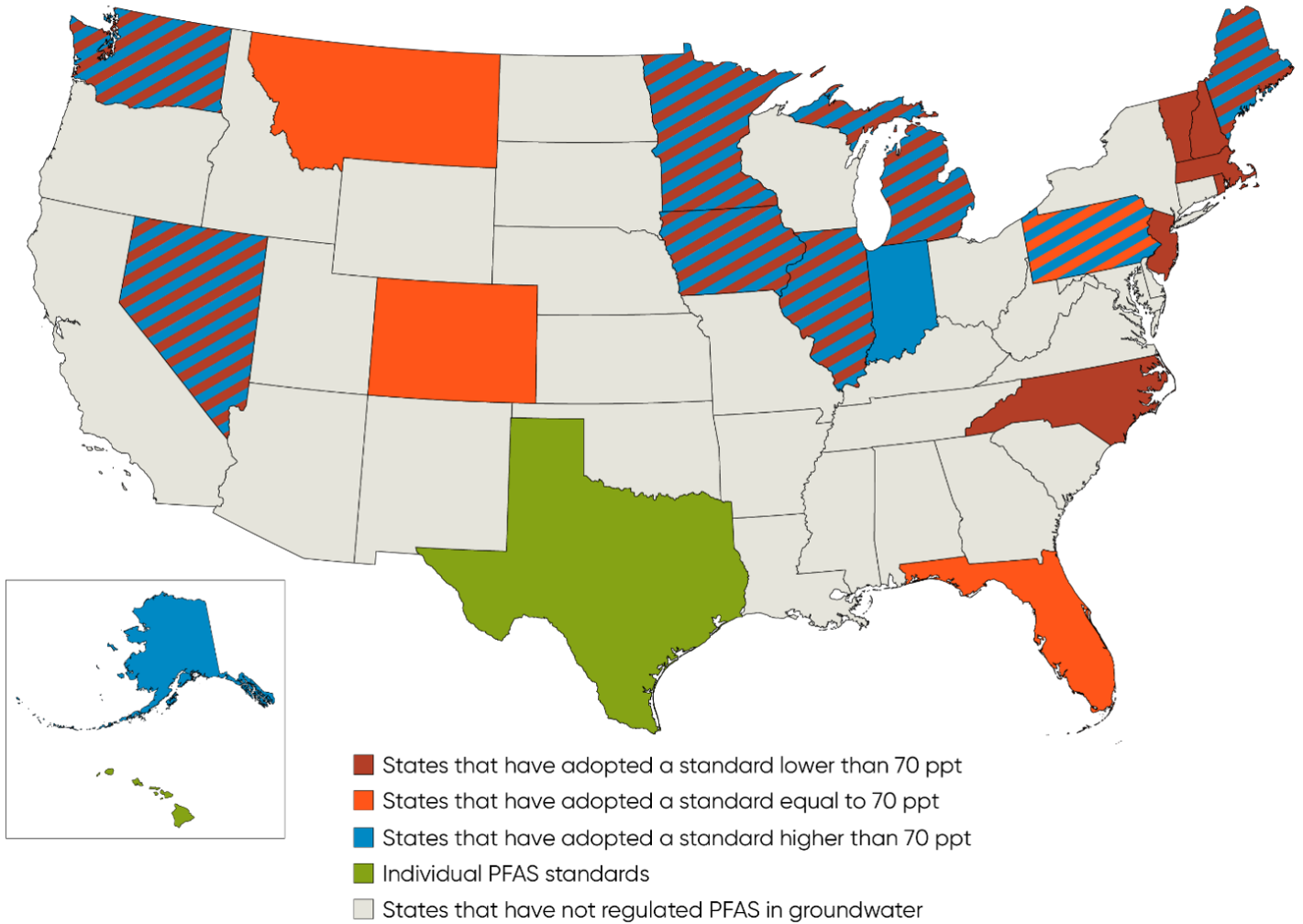
At this time, it is unclear how these Drinking Water limitations will impact groundwater standards or remediation efforts.

STATE REGULATIONS

The snapshot provided below is current as of **May 6, 2024**, but it is important to note that this is a developing regulatory space. Some states, such as [Florida](#), have indicated that they will revise groundwater regulations for various PFAS substances that may take effect soon.

Businesses should consider whether they currently use or discharge any PFAS compounds which may reach groundwater and evaluate if any state regulations apply, particularly if they operate in any of the jurisdictions listed below. In addition, owners of property with legacy PFAS use, and prospective purchasers of commercial and industrial properties, should review the most current groundwater quality standards as part of the due diligence process.

PFAS Groundwater Regulations



The information is current as of May 6, 2024

STATES THAT HAVE ADOPTED A STANDARD LOWER THAN 70 PPT

ILLINOIS

CONCENTRATION LEVEL

2 ppt (stated by the Illinois Pollution Control Agency as 2 ng/L)

Type of Regulation

PFOA (Advisory)

Information

[Regulation and related information](#)

CONCENTRATION LEVEL

14 ppt (stated by the Illinois Pollution Control Agency as 14 ng/L)

Type of Regulation

PFOS (Advisory)

Information

[Regulation and related information](#)

CONCENTRATION LEVEL

21 ppt (stated by the Illinois Pollution Control Agency as 21 ng/L)

Type of Regulation

PFNA (Advisory)

Information

[Regulation and related information](#)

IOWA

CONCENTRATION LEVEL

4 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.00004 mg/L)

Type of Regulation

PFOA (Advisory)

Information

[Statewide Standards](#)

CONCENTRATION LEVEL

4 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.000004 mg/L)

Type of Regulation

PFOS (Advisory)

Information

[Statewide Standards](#)

CONCENTRATION LEVEL

10 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.00001 mg/L)

Type of Regulation

PFNA (Advisory)

Information

[Statewide Standards](#)

CONCENTRATION LEVEL

10 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.00001 mg/L)

Type of Regulation

PFHxS (Advisory)

Information

[Statewide Standards](#)

MAINE

CONCENTRATION LEVEL

20 ppt

Type of Regulation

6 PFAS Substances combined: PFOS + PFOA + PFHpA + PFNA + PFHxS and PFDA (Advisory)

Information

[Remedial Action Guidelines](#) (pgs. 35-36) and [related information](#)

CONCENTRATION LEVEL

40 ppt (stated by the Maine Department of Environmental Protection as 0.04 µg/L)

Type of Regulation

PFOS (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

CONCENTRATION LEVEL

60 ppt (stated by the Maine Department of Environmental Protection as 0.06 µg/L)

Type of Regulation

PFOA (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

CONCENTRATION LEVEL

60 ppt (stated by the Maine Department of Environmental Protection as 0.06 µg/L)

Type of Regulation

HPFO-DA (Advisory)

Note: Maine has both residential and construction standards

Information

MASSACHUSETTS

CONCENTRATION LEVEL

20 ppt (stated in the regulation as .02 ppb)

Type of Regulation

6 PFAS Substances combined: PFOA, PFOS, PFHxS, PFNA, PFHpA, and PFDA (Clean Up)

Information

[Regulation](#) and [related information](#)

MICHIGAN

CONCENTRATION LEVEL

6 ppt

Type of Regulation

PFNA (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

8 ppt

Type of Regulation

PFOA (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

16 ppt

Type of Regulation

PFOS (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

51 ppt

Type of Regulation

PFHxS (Clean Up)

Information

[Regulation](#) and [related information](#)

MINNESOTA

CONCENTRATION LEVEL

15 ppt (stated by the Minnesota Department of Health as 0.015 ppb)

Type of Regulation

PFOS (Advisory)

Information

[Health Advisory Level](#) and [related information](#)

CONCENTRATION LEVEL

35 ppt

Type of Regulation

PFOA (Advisory)

Information

[Health Advisory Level](#) (see page 181) and [related information](#)

CONCENTRATION LEVEL

47 ppt

Type of Regulation

PFHxS (Advisory)

Information

[Health Advisory Level](#) (see page 180) and [Related Information](#)

NEW HAMPSHIRE

CONCENTRATION LEVEL

11 ppt

Type of Regulation

PFNA (Clean Up)

Information

[Regulation](#) and related information

CONCENTRATION LEVEL

12 ppt

Type of Regulation

PFOA (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

15 ppt

Type of Regulation

PFOS (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

18 ppt

Type of Regulation

PFHxS (Clean Up)

Information

[Regulation](#) and [related information](#)

NEW JERSEY

CONCENTRATION LEVEL

2 ppt (stated by the regulation as 0.002 µg/L)

Type of Regulation

Chloroperfluoropolyether carbonates^[1] (Clean Up)

Information

[Interim Specific Groundwater Quality Criterion](#) and [related information](#)

CONCENTRATION LEVEL

13 ppt

Type of Regulation

PFNA and PFOS (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

14 ppt

Type of Regulation

PFOA (Clean Up)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

20 ppt (stated in the regulation as .02 µg/L)

Type of Regulation

HFPO-DA or Gen X (Clean Up)

Information

[Interim Specific Ground Water Quality Criterion](#) and [related information](#)

NEVADA

CONCENTRATION LEVEL

66.7 ppt (stated in the regulation as 0.0667 µg/L)

Type of Regulation

PFSA (Advisory)

Information

[Basic Comparison Levels](#) and [related information](#)

NORTH CAROLINA

CONCENTRATION LEVEL

The practical quantification limit, or PQL, which is not specified by the North Carolina Department of Environmental Quality

Type of Regulation

PFOA (Clean Up)

Information

[EPA's Interim Health Advisory and related information](#)

RHODE ISLAND

CONCENTRATION LEVEL

20 ppt (stated in the regulation as 20 ng/L)

Type of Regulation

6 PFAS Substances combined: PFOS, PFOA, PFNA, PFDA, PFHxS, PFHpA (Notification)

Information

[Groundwater Quality Rules and related information](#)

VERMONT

CONCENTRATION LEVEL

20 ppt (stated in the regulation as .02 µg/L)

Type of Regulation

5 PFAS substances combined: PFHpA, PFHxS, PFNA, PFOS and PFOA (Notification)

Information

[Regulation and related information](#)

WASHINGTON

CONCENTRATION LEVEL

9 ppt (stated by the Washington Department of Ecology as 9 ng/L)

Type of Regulation

PFNA (Advisory)

Information

[Related information](#)

CONCENTRATION LEVEL

10 ppt (stated by the Washington Department of Ecology as 10 ng/L)

Type of Regulation

PFOA (Advisory)

Information

[Related information](#)

CONCENTRATION LEVEL

15 ppt (stated by the Washington Department of Ecology as 15 ng/L)

Type of Regulation

PFOS (Advisory)

Information

[Related information](#)

CONCENTRATION LEVEL

24 ppt (stated by the Washington Department of Ecology as 24 ng/L)

Type of Regulation

HFPO-DA or GenX (Advisory)

Information

[Related information](#)

CONCENTRATION LEVEL

65 ppt (stated by the Washington Department of Ecology as 65 ng/L)

Type of Regulation

PFHxS (Advisory)

Information

[Related information](#)

STATES THAT HAVE ADOPTED A STANDARD EQUAL TO 70 PPT

COLORADO

CONCENTRATION LEVEL

70 ppt

Type of Regulation

Site-specific Standard for PFOA and PFOS (Clean Up)

Information

[Site-Specific Groundwater Quality Standard \(pg. 12\)](#)

FLORIDA

CONCENTRATION LEVEL

70 ppt

Type of Regulation

Follow the EPA Health Advisory Level: PFOS and PFOA combined (Advisory)

Information

[PFAS Dynamic Plan \(pg. 9\)](#)

MONTANA

CONCENTRATION LEVEL

70 ppt

Type of Regulation

Follow the EPA Health Advisory Level: PFOS and PFOA combined (Potential Clean Up)

Information

[Numeric Water Quality Standard \(pg. 60\)](#) and [related information](#)

PENNSYLVANIA

CONCENTRATION LEVEL

70 ppt

Type of Regulation

Follow the EPA Health Advisory Level: PFOS and PFOA combined (Clean Up)

Information

[Medium Specific Concentration Cleanup Standards](#) and [related information](#)

STATES THAT HAVE ADOPTED A STANDARD HIGHER THAN 70 PPT

ALASKA

CONCENTRATION LEVEL

400 ppt (stated in the regulation as 0.4 µg/L)

Type of Regulation

PFOA and PFOS separately (Clean Up)

Information

[Regulation \(18 AAC 75\)](#) and [related information](#)

ILLINOIS

CONCENTRATION LEVEL

140 ppt (stated by the Illinois Pollution Control Agency as 140 ng/L)

Type of Regulation

PFHxS (Advisory)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

2,100 ppt (stated by the Illinois Pollution Control Agency as 2,100 ng/L)

Type of Regulation

PFBS (Advisory)

Information

[Regulation](#) and [related information](#)

CONCENTRATION LEVEL

3,500 ppt (stated by the Illinois Pollution Control Agency as 3,500 ng/L)

Type of Regulation

PFHxA (Advisory)

Information

[Regulation](#) and [related information](#)

INDIANA

CONCENTRATION LEVEL

400,000 ppt (stated in the regulation as 400 µg/L)

Type of Regulation

PFBS (Advisory)

Information

Screening Levels

IOWA

CONCENTRATION LEVEL

2,000 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.002 mg/L)

Type of Regulation

PFBS (Advisory)

Information

Statewide Standards

CONCENTRATION LEVEL

3,500 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.0035 mg/L)

Type of Regulation

PFHxA (Advisory)

Information

Statewide Standards

CONCENTRATION LEVEL

7,000 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.007 mg/L)

Type of Regulation

PFBA (Advisory)

Information

Statewide Standards

MAINE

CONCENTRATION LEVEL

590 ppt (stated by the Maine Department of Environmental Protection as 0.59 µg/L)

Type of Regulation

PFNA (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

CONCENTRATION LEVEL

6,000 ppt (stated by the Maine Department of Environmental Protection as 6 µg/L)

Type of Regulation

PFBS (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

CONCENTRATION LEVEL

9,900 ppt (stated by the Maine Department of Environmental Protection as 9.9 µg/L)

Type of Regulation

PFHxA (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

CONCENTRATION LEVEL

19,000 ppt (stated by the Maine Department of Environmental Protection as 19 µg/L)

Type of Regulation

PFBA (Advisory)

Note: Maine has both residential and construction standards

Information

[Remedial Action Guidelines](#) (pg. 65)

MICHIGAN

CONCENTRATION LEVEL

370 ppt

Type of Regulation

HFPO-DA (Clean Up)

Information

[Regulation](#) and related information

CONCENTRATION LEVEL

420 ppt

Type of Regulation

PFBS (Clean Up)

Information

[Regulation](#) and related information

CONCENTRATION LEVEL

400,000 ppt

Type of Regulation

PFHxA (Clean Up)

Information

[Regulation](#) and [related information](#)

MINNESOTA

CONCENTRATION LEVEL

2,000 ppt

Type of Regulation

PFBS (Advisory)

Information

[Health Advisory Level](#) (see pg. 180) and [related information](#)

CONCENTRATION LEVEL

7,000 ppt

Type of Regulation

PFBA (Advisory)

Information

[Health Advisory Level](#) (see pg. 180) and [related information](#)

NEVADA

CONCENTRATION LEVEL

100 ppt (stated in the regulation as 0.1 µg/L)

Type of Regulation

PFOA (Advisory)

Information

[Basic Comparison Levels and related information](#)

CONCENTRATION LEVEL

10,000 ppt (stated in the regulation as 10 µg/L)

Type of Regulation

PFBS (Advisory)

Information

[Basic Comparison Levels and related information](#)

PENNSYLVANIA

CONCENTRATION LEVEL

10,000 ppt (stated in the regulation as 10 µg/L)

Type of Regulation

PFBS Residential Property (Clean Up)

Information

[Medium-Specific Concentration Standards and related information](#)

CONCENTRATION LEVEL

29,000 ppt (stated in the regulation as 29 µg/L)

Type of Regulation

PFBS Non-residential Property (Clean Up)

Information

[Medium-Specific Concentration Standards and related information](#)

WASHINGTON

CONCENTRATION LEVEL

345 ppt (stated by the Washington Department of Ecology as 345 ng/L)

Type of Regulation

PFBS (Advisory)

Information

[Related information](#)

INDIVIDUAL PFAS STANDARDS

HAWAII

CONCENTRATION LEVEL

40 ppt, etc.

Type of Regulation

PFOA and PFOS; 17 other PFAS substances (Advisory) including the following: PFNA and PFDA (.004 µg/L); PFUnDA (.01 µg/L); PFDoDA and PFTrDA (.013 µg/L); PFHxS (.019 µg/L); PFHpS and PFDS (.02 µg/L); PFOSA (.024 µg/L); PFTeDA (.13 µg/L); HFPO-DA (.16 µg/L); PFHpA (0.4 µg/L); PFBS (.6 µg/L); 6:2 FTS (.78 µg/L); PFPeA (.8 µg/L); PFHxA (4.0 µg/L); and PFBA (7.6 µg/L).

Information

[Environmental Action Levels](#) (see pg. 48)

TEXAS

CONCENTRATION LEVEL

29 ppt, etc. (stated by the Texas Commission of Environmental Quality as 0.029 mg/L)

Type of Regulation

16 Different PFAS Substances (Clean Up)

Texas has 16 regulations, including the following: PFHxS (9.3 ppt); PFOA, PFNA, PFDS, PFUnDA, PFOSA, PFTrDA, PFTeA, and PFDoA (29 ppt); PFDA (37 ppt); PFOS and PFHpA (56 ppt); PFHxA and PFPeA (12,000 ppt); PFBA (24,000 ppt); and PFBS (34,000 ppt).

Information

[Protective Concentration Levels](#) (see May 2023 Tier 1 PCL Tables)

RELATED INFORMATION

STATES WITH NO PFAS GROUNDWATER REGULATIONS*

*at date of publication

- Alabama
- Arizona
- Arkansas
- California
- Connecticut
- Delaware
- Georgia
- Idaho
- Kansas
- Kentucky
- Louisiana
- Maryland
- Mississippi
- Missouri
- Nebraska
- New Mexico
- New York

- North Dakota
- Ohio
- Oklahoma
- Oregon
- South Carolina
- South Dakota
- Tennessee
- Utah
- Virginia
- West Virginia
- Wisconsin
- Wyoming

KEY

NOTIFICATION

A corporate representative must inform the appropriate state official that the groundwater is above the stated limit.

ADVISORY

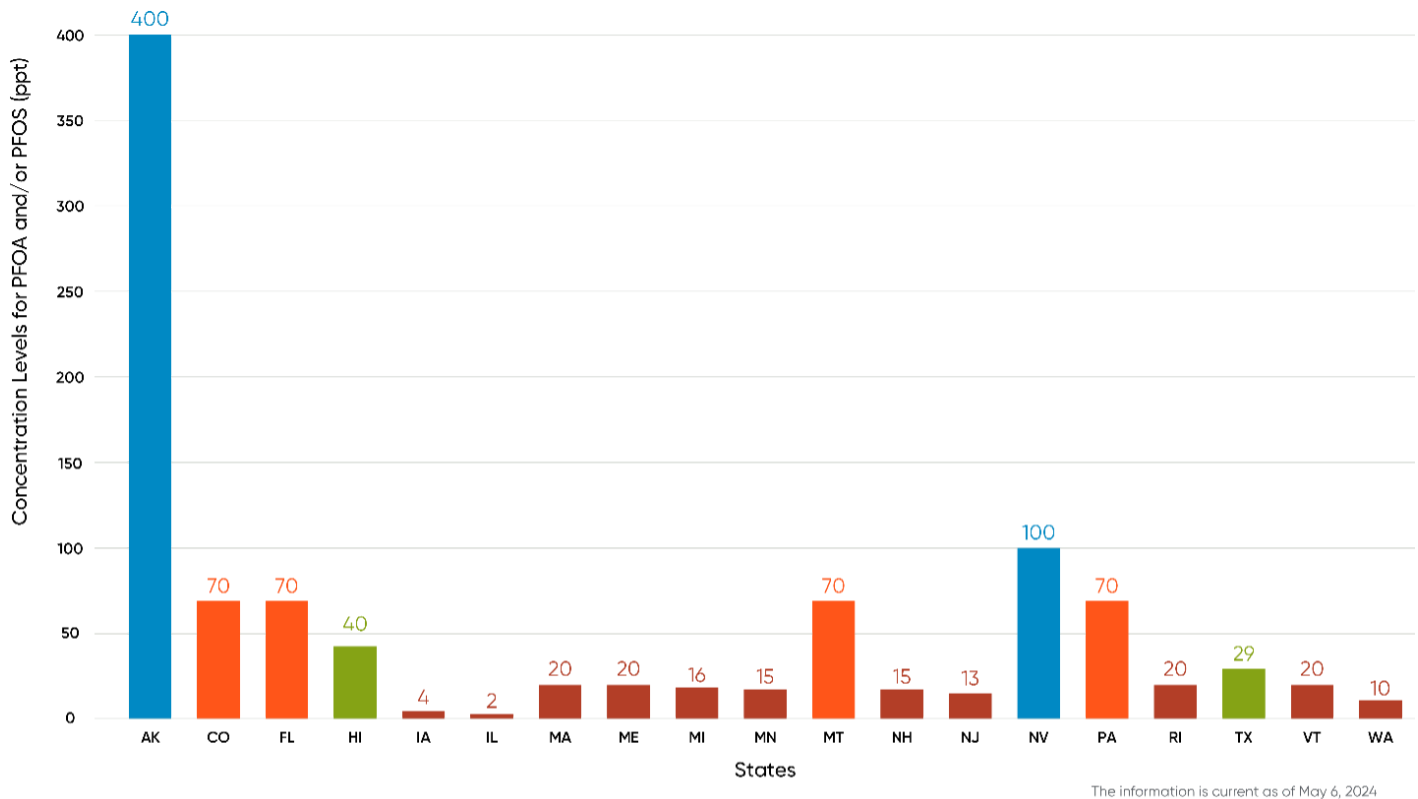
These levels are not binding limits, but they can serve as the basis for regulatory action, and are a useful tool for due diligence and risk assessment.

CLEAN UP

Investigation and remediation is usually required when concentration levels exceed the clean up threshold. This is usually expressed by groundwater quality standards that identify specific clean up criteria.

ADDITIONAL INFORMATION

Without federal PFAS standards for groundwater, states have enacted a wide range regulatory concentration levels. For example, for PFAS substances in groundwater, one of the most stringent concentration limits is 2 ppt (Illinois; PFOA only) and one of the most lenient concentration limits is 400,000 ppt (Michigan; PFHxA only). The following chart demonstrates that even for PFOA and PFOS, which have been more extensively studied and regulated than other PFAS compounds, there is still a wide discrepancy in the values that different states have adopted.



CONCLUSION

Businesses operating in the 21 states where groundwater regulations have already been enacted should consider whether they currently use or discharge any of the regulated PFAS compounds. In addition, owners of property with legacy PFAS use, and prospective purchasers of commercial and industrial properties in these jurisdictions will increasingly need to incorporate the groundwater quality standards as part of their due diligence processes.

For more information on PFAS chemicals, and the regulatory and litigation risks that they pose, please visit our [PFAS webpage](#). If you have a question about how to manage PFAS risk in any jurisdiction, contact Tom Lee, Bryan Keyt, Erin Brooks, John Kindschuh, or any other member of our PFAS team at BCLP.

RELATED PRACTICE AREAS

- PFAS Team

- Environment

MEET THE TEAM



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