

PFAS IN GROUNDWATER: STATE-BY-STATE REGULATIONS

Oct 24, 2023

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interim recommendations to address groundwater contaminated with PFOA and PFOS, but that guidance was subsequently [rescinded](#).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.

STATE REGULATIONS

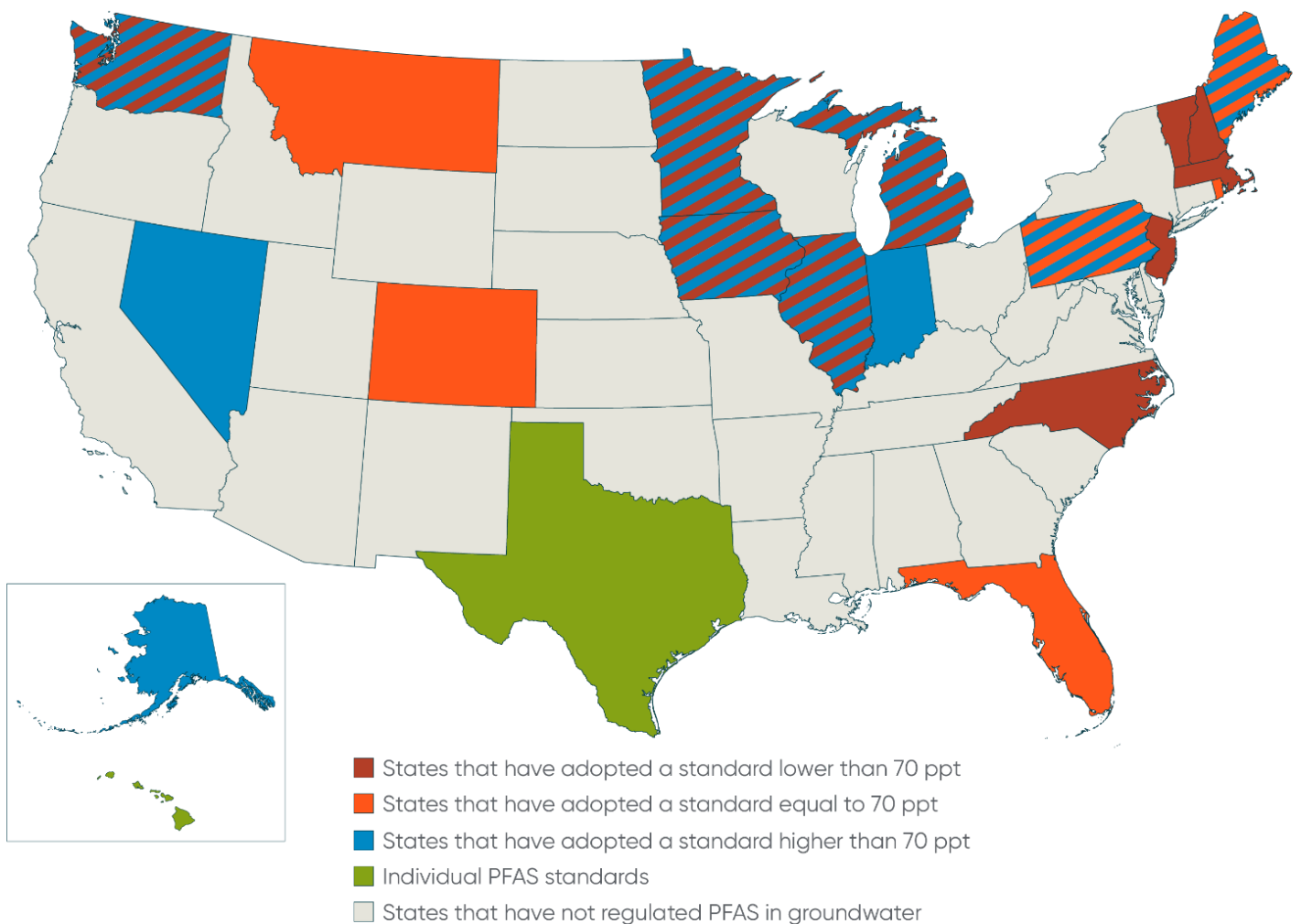
The snapshot provided below is current as of **October 17, 2023** but it is important to note that this is a developing regulatory space. Some states, such as [Florida](#) and [Rhode Island](#), have proposed groundwater regulations, or have indicated that they will revise groundwater regulations, for 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 below-listed jurisdictions. 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.

Additionally, in November of 2022, a [Michigan court](#) suspended the use of that state's MCLs for seven PFAS compounds, finding that the agency had not adequately explained its analysis of the cost impacts of the proposed law in the regulatory impact statement. The court stayed the impact of the ruling until the court issues a final judgment, and on August 22, 2023, the [Michigan Court of Appeals](#) held that the Michigan agency establishing the MCLs did not adhere to the necessary administrative protocols. At this time, it is unclear whether this decision will be overturned or affirmed on appeal. These Michigan decisions highlight the tension between the regulatory intent and the resulting cost, and further litigation is expected as more states – and eventually the federal government - enact similar legislation. Additionally, these decisions emphasize that PFAS groundwater regulations are currently being evaluated (and potentially modified) shortly.

PFAS GROUNDWATER REGULATIONS



The information is current as of October 17, 2023

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

0.004 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.000000004 mg/L)

Type of Regulation

PFOA (Advisory)

Information

[Statewide Standards](#)

CONCENTRATION LEVEL

0.02 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.00000002 mg/L)

Type of Regulation

PFOS (Advisory)

Information

[Statewide Standards](#)

CONCENTRATION LEVEL

21 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.000021 mg/L)

Type of Regulation

PFNA (Advisory)

Information

[Statewide Standards](#)

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](#)

NORTH CAROLINA

CONCENTRATION LEVEL

0.004 ppt (stated by the North Carolina Department of Environmental Quality as a value below the practical quantification limit, or PQL)

Type of Regulation

PFOA (Advisory)

Information

[EPA's Interim Health Advisory 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 \(pgs. 8-12\)](#)

FLORIDA

CONCENTRATION LEVEL

70 ppt

Type of Regulation

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

Information

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

MAINE

CONCENTRATION LEVEL

70 ppt

Type of Regulation

PFOS + PFOA + PFHpA + PFNA + PFHxS < 70 ppt (Advisory)

Note: Maine has both residential and construction standards

Information

[Maximum Exposure Guideline \(pgs. 36 and 60\)](#) and [related information](#)

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](#)

RHODE ISLAND

CONCENTRATION LEVEL

70 ppt

Type of Regulation

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

Information

[Department of Environment Management Groundwater Quality Standard](#)

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

560,000 ppt (stated by the Illinois Pollution Control Agency as 560,000 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

140 ppt for protected groundwater sources (stated by the Iowa Department of Natural Resources as 0.00014 mg/L)

Type of Regulation

PFHxS (Advisory)

Information

[Statewide Standards](#)

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

400,000 ppt (stated in the regulation as 400 ppb)

Type of Regulation

PFBS (Advisory)

Note: Maine has both residential and construction standards

Information

[Maximum Exposure Guideline](#) (see pg. 60)

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

667 ppt (stated in the regulation as 0.667 µg/L)

Type of Regulation

PFOS and PFOA (Advisory)

Information

[Basic Comparison Levels and related information](#)

CONCENTRATION LEVEL

667,000 ppt (stated in the regulation as 667 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 PFTTrDA (.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

290 ppt, etc.

Type of Regulation

16 Different PFAS Substances (Clean Up)

Texas has 15 additional regulations, including the following: PFHxS, PFHxA, and PFPeA (93 ppt); PFNA, PFDS, PFUnA, PFOSA, PFTrDA, PFTeA, and PFDoA (290 ppt); PFDA (370 ppt); PFOS and PFHpA (560 ppt); PFBS (34,000 ppt); and PFBA (71,000 ppt). A reader-friendly summary of these limitations can be found at a [publication](#) from the Reese Air Force Base.

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

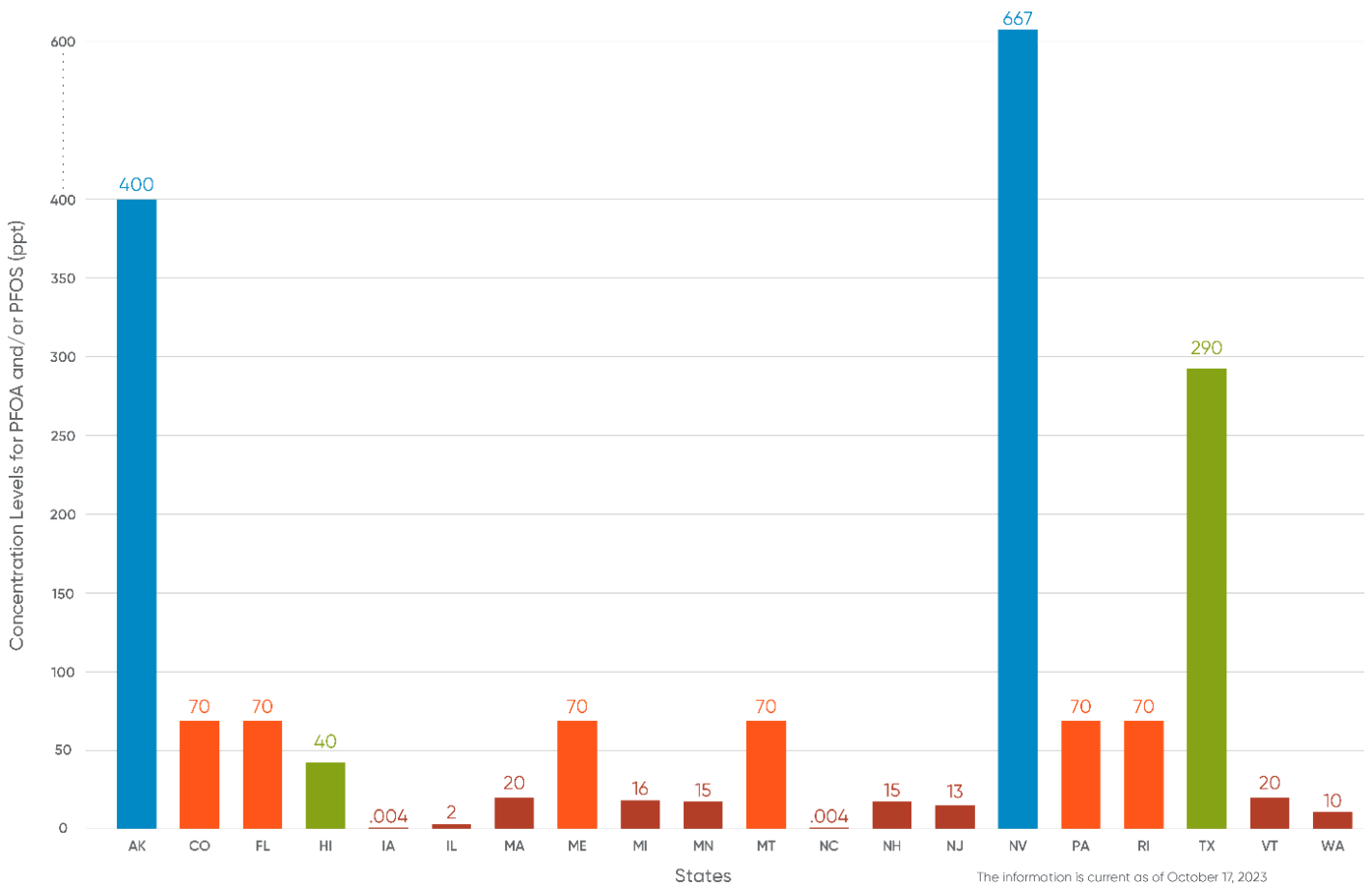
These levels are not binding limits, but they can serve as the basis for regulatory action, and are a useful tool for due diligence and risk assessment.

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 0.004 ppt (Iowa; PFOA only) and the most lenient concentration is 667,000 ppt (Nevada; PFBS 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, John Kindschuh, Emma Cormier, or any other member of our PFAS team at Bryan Cave Leighton Paisner LLP.

RELATED PRACTICE AREAS

- PFAS Team
- Environment

MEET THE TEAM



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