



2023 WATER QUALITY REPORT

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Este informe contiene información importante sobre su agua potable. Pida a alguien que lo traduzca para usted, o hable con alguien que lo entienda.

Letter from the Vice President



John Walsh
Vice President, Operations
Aquarion Water Company
of Massachusetts

Dear Aquarion Customer:

I am pleased to share that in 2023 Aquarion Water Company continued its commitment in delivering high-quality water to our valued customers. Over 7,600 tests conducted across our water systems confirmed that our water consistently meets or surpasses both state and federal water quality standards.

We continue to invest in our wellfields, treatment facilities, pump stations, and distribution piping to ensure the reliable delivery of high-quality water. To keep customer rates affordable, Aquarion has sought

state funding for several projects, and for those projects related to perfluoroalkyl and polyfluoroalkyl substances (PFAS), we are also pursuing settlements with the companies that manufactured these chemicals.

As part of the Lead and Copper Rule Revisions (LCRR), we are also developing an inventory of Aquarion-owned and customer-owned service lines to identify lead service lines in our service area. This inventory marks the initial phase of our efforts to eliminate any lead service lines in our water systems.

Lastly, thank you for your ongoing commitment to water conservation. Given the unpredictable shifts in precipitation, last year's abnormally wet weather could well be replaced by drier weather this year. For some helpful conservation tips, please check out page 8 in this report or visit www.aquarionwater.com/conserve.

With Appreciation,



John Walsh



Questions About Your Water Quality Report?

Customers who have questions about water quality should call us at **800-832-2373**. Customers also may email us at waterquality@aquarionwater.com, or visit www.aquarionwater.com.

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For discolored water, service problems or after-hours emergencies, or to participate in a public meeting, call **800-732-9678**.

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Massachusetts Department of Environmental Protection:
[www.mass.gov/info-details/
public-drinking-water-system-operations](http://www.mass.gov/info-details/public-drinking-water-system-operations)

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U.S. Environmental Protection Agency's Safe Drinking Water Hotline: **800-426-4791** or www.epa.gov/safewater

Water Quality Table

Your water has been tested for more than 100 compounds that are important to public health. This table only reports detected compounds, all of which were below the amounts allowed by state and federal law. Most of these compounds are either naturally occurring or introduced as treatment to improve water quality. Monitoring frequency varies from daily to once every nine years per U.S. Environmental Protection Agency (EPA) regulation, depending on the parameter. Our testing encompasses the full range of regulated inorganic, organic and radiological compounds and microbiological and physical parameters. Results shown here are for detected compounds only.

SUBSTANCE (Units of Measure)	LIKELY SOURCE	MCLG	MCL	COMPLIANCE	TEST DATE	AVERAGE	RANGE
INORGANIC COMPOUNDS							
Barium (ppm)	Erosion of natural deposits	2	2	YES	2021	0.072	0.007 - 0.196
Copper (ppm)	Corrosion of household plumbing systems	1.3	AL = 1.3	YES	2022	0.40*	
Fluoride (ppm)	Water additive that promotes strong teeth; erosion of natural deposits	4.0	4.0	YES	2023	0.74	0.67 - 0.78
Lead (ppb)	Corrosion of household plumbing systems	0	AL = 15	YES	2022	ND < 1**	
Nitrate (ppm)	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10	10	YES	2023	1.327	ND < 0.026 - 3.770
PFAS6# (ppt)	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams	NA	20	YES	2023	3^	ND < 2 - 6
DISINFECTANT							
Chlorine (ppm)	Water additive used to control microbes	MRDLG = 4	MRDL = 4	YES	2023	0.82	0.50 - 1.24
RADIOLOGICALS							
Alpha Emitters (pCi/L)	Erosion of natural deposits	0	15	YES	2019	2.9	ND < 2.8 - 2.9
ORGANIC COMPOUNDS							
Haloacetic Acids 5 (ppb)	By-product of drinking water chlorination	NA	60	YES	2023	5	5
Total Trihalomethanes (ppb)		NA	80	YES	2023	38	38

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SUBSTANCE (Units of Measure)	LIKELY SOURCE	SMCL	TEST DATE	AVERAGE	RANGE	HEALTH AND/OR AESTHETIC EFFECTS
SECONDARY CONTAMINANTS MONITORING RESULTS						
Chloride (ppm)	Naturally present in the environment	250	2023	92	52 - 121	May produce a salty taste
Iron (ppb)	Natural and industrial sources; aging and corroding distribution systems and household pipes	300	2023	130 ⁺	ND < 0.3 - 330	Use of water containing iron at concentrations above the secondary MCL may result in aesthetic issues including the staining of laundry and plumbing fixtures and water with an unpleasant metallic taste and rusty odor.
Manganese (ppm)	Erosion of natural deposits	50	2023	90 ^s	ND < 0.3 - 1000	EPA has established a lifetime HA of 300 ppb and an acute HA of 1000 ppb. Use of water containing manganese at concentrations above the secondary MCL may result in aesthetic issues including the staining of laundry and plumbing fixtures and water with an unpleasant bitter metallic taste, odor, and/or black-brown color.
pH	Runoff and leaching from natural deposits; seawater influence	6.5 - 8.5	2023	7.3	7.1 - 8.4	Low pH may produce a bitter metallic taste; corrosion High pH may produce a slippery feel; soda taste; deposits
Sulfate (ppm)	Runoff and leaching from natural deposits; industrial wastes	250	2023	2.6	ND < 1.8 - 7.9	May produce a salty taste
Zinc (ppm)	Corrosion of household plumbing systems; erosion of natural deposits	5	2023	0.01	ND < 0.002 - 0.01	May produce a metallic taste

FOOTNOTES

- ◆ 90th percentile value in copper monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for copper. Highest 90th percentile value shown.
- ◆◆ 90th percentile value in lead monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for lead. Highest 90th percentile value shown.
- § Manganese levels in Well #1 ranged from 580 to 1000 ppb. This well ran intermittently throughout the year and contributed 1% of the total water delivered to the Oxford System. Manganese levels in Well #2 ranged from 110 to 290 ppb. This well also ran intermittently throughout the year and contributed 20% of the total water delivered to the

Oxford System. Water from Well #1 and Well #2 is blended with water from Well #3, which had manganese levels ranging from none detected (< 0.3 ppb) to 10 ppb. Well #3 produced 79% of the total water delivered in the Oxford System. Levels of manganese found in the distribution system ranged from none detected (< 0.3 ppb) to 110 ppb and averaged 20 ppb.

Compliance is based on the sum of six per- and polyfluoroalkyl substances (PFAS6). The six substances are perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorodecanoic acid (PFDA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and perfluoroheptanoic acid (PFHpA).

- ▲ Average is the highest quarterly average of all sample sites. Values in the range are individual measurements.
- + Iron levels in Well #1 ranged from 100 to 240 ppb. This well ran intermittently throughout the year and contributed 1% of the total water delivered to the Oxford System. Iron levels in Well #2 ranged from 160 to 240 ppb. This well also ran intermittently throughout the year and contributed 20% of the total water delivered to the Oxford System. Water from Well #1 and Well #2 is blended with water from Well #3, which had nondetectable (< 3 ppb) levels of iron. Well #3 produced 79% of the total water delivered in the Oxford System. Levels of iron found in the distribution system ranged from none detected (< 3 ppb) to 330 ppb and averaged 130 ppb.

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Health Effects

Manganese: Manganese is a naturally occurring mineral found in rocks, soil, ground water and surface water. It is necessary for proper nutrition and is part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. The EPA and the Massachusetts Department of Environmental Protection (MassDEP) have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ppb (parts per billion or micrograms per liter). In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for this mineral. Drinking water may naturally have manganese and, when concentrations are greater than 50 ppb, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ppb and, over the short term, it recommends that people limit their

consumption of water with levels over 1,000 ppb, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ppb, nor should formula for infants be made with that water for more than a total of 10 days throughout the year.

PFAS: Some people who drink water containing PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.

Sodium: Sodium-sensitive individuals such as those experiencing hypertension, kidney failure, or congestive heart failure, who drink water containing sodium should be aware of levels where exposures are being carefully controlled.



Other Monitored Substances

Source Water Assessment Report

The MassDEP Source Water Assessment Program (SWAP), has evaluated each water source to identify potential contamination, states that the sources that supply drinking water to the Oxford System have a high susceptibility to potential contamination. The SWAP report is available on the DEP website. Go to www.mass.gov and enter source water assessment report in the search bar.



Monitoring Unregulated Contaminants

Unregulated contaminants are elements that currently have no health standards for drinking water and are not reported in the regulated contaminants table on page 3. Nickel is an unregulated contaminant that is monitored at the same time as the required monitoring for inorganic compounds.

Substance (Units of Measure)	Detected Level				Source of Contaminant
	OSRG	Test Date	Average	Range	
Unregulated Contaminants					
Methyl tertiary butyl ether [MTBE] (ppb)	70	2022	1.33	ND < 0.5 - 1.33	Fuel additive; leaks and spills from gasoline storage tanks
Nickel (ppb)	100	2021	3	1 - 6	Discharge from domestic wastewater, landfills, and mining and smelting operations
Perfluorobutanesulfonic Acid [PFBS] (ppt)	NA	2023	ND < 2	ND < 2 - 2.5	Manmade chemical; used as a replacement for perfluorooctane sulfonic acid (PFOS); used in the manufacture of paints, cleaning agents, and water- and stain-repellent products and coatings, including carpeting, carpet cleaners, floor wax and food packaging.
Perfluorohexanoic Acid [PFHxA] (ppt)	NA	2023	ND < 2	ND < 2 - 3.4	Manmade chemical; breakdown product of stain- and grease-proof coatings on food packaging and household products
Sodium (ppm)	20	2023	54	23.8 - 76.9	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents

Other Monitored Substances

UCMR5 Rule Monitoring Results

As required by EPA, our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a public health protection standard. For additional information about the unregulated contaminants included in this table, please contact our Water Quality Department at [800-832-2373](tel:800-832-2373) or visit EPA's UCMR website at epa.gov/dwucmr.

Substance (Units of Measure)	Detected Level				Source of Contaminant
	OSRG	Test Date	Average	Range	
Unregulated Contaminants					
Perfluorohexanoic Acid [PFHxA] (ppt)	NA	2023	ND < 2	ND < 2 - 3.3	Manmade chemical; breakdown product of stain- and grease-proof coatings on food packaging and household products

Your Health Is Our Priority

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. To ensure tap water is safe to drink, the EPA and MassDEP prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food & Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) Regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline, [800-426-4791](tel:800-426-4791).

Where Does Your Water Come From?

The water provided to our Oxford customers comes from three groundwater supply wells. The water from each well is treated and then distributed to our customers through an extensive network of more than 40.6 miles of piping and three water storage tanks. Oxford's water supply system is located within the French River Watershed and serves approximately

6,850 people. The average amount of water delivered during 2023 was 593,700 gallons per day.

How Is Your Water Treated?

All water from the three wells is filtered naturally underground. The water then receives chemical treatment for disinfection, fluoridation to prevent tooth decay/cavities, and pH adjustment for corrosion control.

Cryptosporidium

The EPA requires public water systems that use surface water sources to monitor for Cryptosporidium. This is a microbial pathogen found in lakes and rivers throughout the U.S. that can cause gastrointestinal illness if consumed. Aquarion continues to monitor its surface water sources and has not detected Cryptosporidium.

Disinfection By-Products

Disinfection by-products (DBPs) are chemicals formed during the disinfection process, when naturally occurring organic matter reacts with chlorine, which is added to water to eliminate bacteria and other microorganisms. Currently there are limits on two types of DBPs known as Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA). Some people who drink water containing DBPs that

exceed these limits over many years may experience problems with their livers, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

The state has implemented new DBP regulations that change how compliance with the standards is determined. The intent is to increase protection against the potential health risks associated with DBPs. Aquarion Water Company continues to evaluate its systems to ensure compliance with DBP regulations.

Copper

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level* over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. Major sources of copper in drinking water include corrosion of household plumbing systems and erosion of natural deposits.

*The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Immuno-compromised persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and the Center for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline, [800-426-4791](tel:800-426-4791).

Lead in Drinking Water: The Facts

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. Aquarion Water Company is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. Fortunately, the Lead in Drinking Water Act, which took effect in January 2014, requires a significant reduction of the lead content in new plumbing components that contact drinking water. As a result, the lead content in new pipes, fittings, fixtures, and solder must be reduced from 8% to 0.25%.

Customers can minimize the potential for lead exposure when water has been sitting for several hours by running the tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at epa.gov/safewater/lead. Aquarion maintains a regular schedule for lead monitoring.

EPA and DPH have established extensive regulations for water utilities to follow regarding lead. If lead is present in drinking water, it can cause numerous harmful effects on a person's health. The EPA has determined there is no safe level of lead.

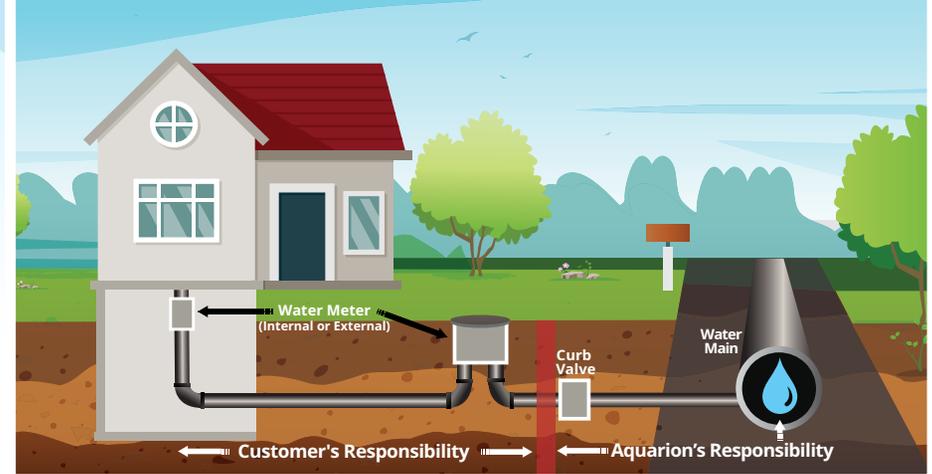
Health Effects

Lead is especially harmful for infants and young children, causing developmental delays, learning difficulties, irritability, loss of appetite, weight loss, sluggishness, fatigue, abdominal pain, vomiting, constipation and hearing loss.

Effects on adults may include high blood pressure, abdominal pain, constipation, joint pains, muscle pain, decline in mental functions such as abstract thinking and focus, numb or painful extremities, headache, memory loss, mood disorders, fertility issues in men, and miscarriage or premature birth in pregnant women.

What to do About Lead in a Service Line

A service line is the pipe that connects a customer's premises to Aquarion's water main in the street (see illustration above). Homes built before 1986 may have lead service lines (with a few exceptions, most were installed in



Customer and Aquarion responsibilities shown are representative for most customers.

homes built before 1930), and those built before 1986 may have lead solder and brass fittings (which may have a lead content).

A lead service line can be the primary source of lead in your drinking water, because there is a much greater surface area where lead contacts the water, compared to lead-soldered pipe joints and leaded brass fixtures. If your house or other structure was built prior to 1988, you should check the service line where it enters the wall of your basement to see if it is made of lead. If it is a lead line, contact Aquarion at [800-732-9678](tel:800-732-9678) for advice on replacing it.

This will help reduce your potential exposure to lead in drinking water.

Other Precautions You Can Take

There are other ways to reduce the risk of lead exposure from your water pipes:

- ✓ If you have not used any of your faucets for a number of hours (for example, overnight or while you are at work), run the water for 2 minutes. This will bring in fresh water from our water main, which contains no lead.
- ✓ Always use cold water for drinking, cooking and preparing baby formula.
- ✓ Periodically remove and clean the faucet screens/aerators. While doing so, run the tap to eliminate debris.

Aquarion offers more detailed information on lead in drinking water and how to minimize exposure on our website at www.aquarionwater.com/learnaboutlead. You also can call the Safe Drinking Water Hotline at [800-426-4791](tel:800-426-4791) or go to www.epa.gov/safewater/lead.

Water Protection and Conservation

How Aquarion Protects Your Drinking Water

Aquarion Water Company is committed to providing the highest quality water to our customers. Toward that end, we conducted 7,609 water quality tests in 2023 across all our Massachusetts systems, and we regularly inspect businesses, farms, homes and other sites that could affect our water supply.

Here are some examples of pollutants that may wash into surface water or seep into groundwater:

- Microbial contaminants from septic systems
- Inorganic contaminants such as road salt or metals
- Pesticides and herbicides from residential uses
- Organic chemical contaminants, including synthetic and volatile organic chemicals



You Can Protect Water Too:

- Ensure that your septic system works correctly
- Use chemicals and pesticides sparingly
- Dispose of waste chemicals and used motor oil properly
- Report illegal dumping, chemical spills, or other polluting activities to the MassDEP Emergency Response Section at 888-304-1133; Aquarion Water, 508-865-3998; or your local police

Conservation

By reducing water consumption, Aquarion customers have made outstanding progress in ensuring that our area has enough water, no matter what the skies deliver. Many thanks to all the customers who cut back on outdoor sprinkler irrigation and other uses, helping to save approximately 5 billion gallons of water across our systems over the last six years. There's still more to do, though. Here are some easy tips on what everyone can do to conserve the supply of this irreplaceable resource:

Reduce excessive irrigation

Use a WaterSense labeled smart irrigation controller that adjust watering schedules based on weather conditions, soil moisture levels, and plant requirements.

Rely more on the sky

Put a rain barrel under a down-spout to capture rainwater for your garden.

Forget fertilizing

Many use salts that make your lawn less drought-resistant.



Apply mulch

Adding a layer of mulch around your plants helps retain moisture, reducing the need to water as often.

Remedy a leaky toilet

Watch our step-by-step video at www.aquarionwater.com about finding and fixing leaks. Better yet, upgrade to a new, WaterSense labeled model to save three or more gallons with every flush.

For more tips, visit www.aquarionwater.com/conserves.

Protecting your water at home

Our Cross-Connection Control Program helps ensure that your drinking water is protected from possible contamination. A cross-connection, as defined by the MassDEP, "is any actual or potential connection between a distribution pipe of potable water from a public water system and any waste pipe, sewer, drain, or other unapproved source that has the potential,

through back-pressure or back-siphonage, to create a health hazard to the public water supply and the water system within the premises."

Aquarion's MassDEP-certified cross-connection surveyors and testers routinely conduct surveys and test backflow prevention devices at our customers'

facilities for regulatory compliance. If they find unprotected cross-connections, they will require installation of backflow prevention devices to protect the water distribution system.

The best protection against cross-connection contamination is to eliminate the link. Garden hoses are a leading cause

of cross-connection contamination. At your home, you can protect your family and the distribution system from potential contaminants by installing a simple, inexpensive backflow device called a Hose-Bibb Vacuum Breaker (HBVB) that mounts directly to your spigot.

Glossary

These terms may appear in your report.

Definitions

< - Less than

> - Greater than

90th Percentile - Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.

AL - Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

gpg - Grains per gallon

HA - Health Advisory

MCL - Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs

as feasible using the best available treatment technology.

MCLG - Maximum Contaminant Level Goal:

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL - Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG - Maximum Residual Disinfectant Level Goal:

The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

NA - Not Applicable

ND - Not Detected

NTU - Nephelometric Turbidity Units, a measure of the presence of particles. Low turbidity is an indicator of high-quality water.

OSRG - Office of Research and Standards Guideline. This is the concentration of a chemical in drinking water at or below which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

pCi/L - picocuries per liter

ppb - parts per billion, or micrograms per liter (ug/L)

ppm - parts per million, or milligrams per liter (mg/L)

ppt - parts per trillion, or nanograms per liter (ng/L)

RAA - Running Annual Average. The average of four consecutive quarters of data.

SMCL - Secondary Maximum Contaminant Level

TT - Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Unregulated Contaminants - Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

