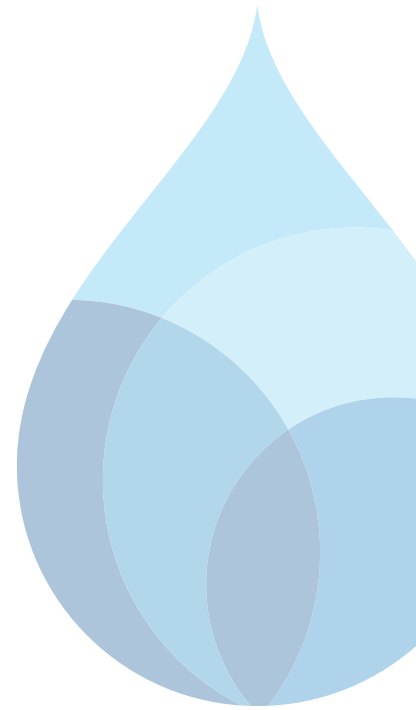
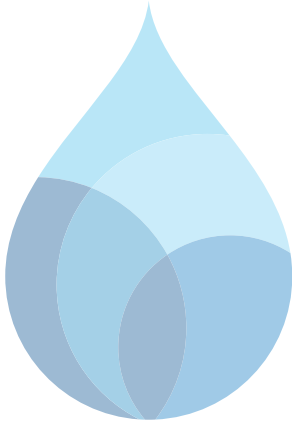




**AQUARION**  
Water Company

*Stewards of the Environment™*



# 2021 WATER QUALITY REPORT

**Water: it's too precious to waste**



*John Walsh  
Vice President, Operations  
Aquarion Water Company  
of Massachusetts*

Dear Aquarion Customer:

As the pandemic continued to affect everyone's lives throughout 2021, I am proud to say our dedicated employees remained committed to providing you and all of our customers with high-quality water, along with reliable, responsive and professional services.

We never let up on our rigorous, quality-control measures. During 2021, we conducted more than 6,000 tests of the water in our Massachusetts systems. Once again, all results met or exceeded state and federal water quality standards.

Our tests include checking our water sources for the presence of perfluoroalkyl and polyfluoroalkyl substances (PFAS). These chemicals have been linked to a variety of health risks; as such, the Massachusetts Department of Environmental Protection has set a limit for PFAS in drinking water. I am pleased to report that our tests show that our water supplies in your system have PFAS levels well below this limit. You can find PFAS sampling results for your system, along with more information about PFAS, in this report and at [aquarionwater.com/pfas](http://aquarionwater.com/pfas).

I'll close with sincere thanks to all our customers for everything you do to conserve water. The mandatory irrigation schedules that we implement each summer help us withstand the impact of droughts and ensure that our water systems are in compliance with state regulations. For more ways to save this precious resource, please look elsewhere in this report and at [aquarionwater.com/conserv](http://aquarionwater.com/conserv).

With Appreciation,

John Walsh

### In This Report

**3-4**  
Water Quality Table

**5-6**  
Your Health Is  
Our Priority

**7-8**  
Lead In Drinking  
Water: The Facts

**9**  
Water Protection  
Information You  
Should Know

**10**  
PFAS Sampling  
Results

**11**  
Water Conservation

**12**  
How to reach us

# WATER QUALITY TABLE

North Plymouth System PWS ID#: MA4239045

Substance (Units of Measure)	Highest Allowed by Law		Compliance	Test Date	Detected Level	
	MCLG	MCL			Average	Range
<b>INORGANIC COMPOUNDS</b>						
Copper (ppm)	1.3	AL = 1.3	YES	2019	3*	
Lead (ppb)	0	AL = 15	YES	2019	14**	
Perchlorate (ppb)	NA	2	YES	2017	0.17	0.15 - 0.19
<b>MICROBIALS</b>						
Total Coliform	0 positive samples per month	1 positive sample per month	YES^^	2021	0	0 - 3
<b>RADIOLOGICALS</b>						
Radium 226 & 228 (pCi/L)	0	5	YES	2017, 2021	0.8	0.49 - 1.19
<b>INORGANIC COMPOUNDS</b>						
Chloride (ppm)	NA	SMCL = 250	NA	2018	37.8	26.0 - 49.5
Manganese (ppb)	HA = 300	SMCL = 50	NA	2020	1.3	ND < 2 - 26
Sodium (ppm)	NA	ORSG = 20	NA	2020	19.5	13.3 - 25.7

Your water has been tested for more than 100 compounds that are important to public health. Only 8 of these were detected, 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 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.

## FOOTNOTES AND DEFINITIONS

for water quality table on previous page

### < Less than

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

### 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.

### NA Not Applicable

### ND Not Detected

**ORSG Office of Research and Standards Guideline - State of Massachusetts**

**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)

**SMCL Secondary Maximum Contaminant Level**

\* 90th percentile value in copper monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for copper.

\*\* 90th percentile value in lead monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for lead.

^^ Highest number of samples detected was 3/month. Yearly average is 0/month.  
**Revised Total Coliform Rule Level 1 Assessment triggered in September 2021 due to the three positive samples. While no cause for the positive samples was confirmed, the most probable reason was sample contamination during the sample collection and inadequate tap flushing before sampling.**

**Level 1 Assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.**

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify any problems that were found during these assessments

### 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 United States EPA and 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.

**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.

## Understanding Your Water Quality Table

**Copper:** Corrosion of household plumbing systems.

**Lead:** Corrosion of household plumbing systems.

**Perchlorate:** Fireworks, munitions, flares, blasting agents; breakdown product of disinfection additive.

**Total Coliform:** Naturally present in the environment

**Radium 226 & 228:** Erosion of natural deposits.

**Chloride:** Naturally present in the environment.

**Manganese:** Erosion of natural deposits.

**Sodium:** Water treatment processes; use of road salt; naturally present in the environment.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791). Here is some additional information of interest about Aquarion's drinking water.

## Where does your water come from?

The water provided to our Plymouth customers comes from two groundwater supply wells. The water from each well is treated and then distributed to our customers through an extensive network of underground pipes. Plymouth System's water supplies are located in the northern and eastern portions of the water system and serve approximately 2,600 people.

## How is your water treated?

All water from the three wells is filtered naturally underground. The water then receives 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 Total Haloacetic Acids (THAA). 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.

## Source Water Assessment Report

The Massachusetts DEP's Source Water Assessment Program (SWAP) has evaluated each water source to identify potential contamination and states that the sources that supply drinking water to the Plymouth System have a high susceptibility to potential contamination. The SWAP report is available on the DEP website. Go to [www.mass.gov](http://www.mass.gov) and enter source water assessment report in the search bar.

## System Capacity Report

The MassDEP Drinking Water Program (DWP) conducted a survey of all community and non-transient non-community public water systems to help assess current challenges in maintaining adequate technical, financial, and managerial capacity. A public water system's capacity is determined by its ability to plan for, achieve, and maintain compliance with applicable federal and state drinking water standards now and in the foreseeable future (6 years). MassDEP/DWP evaluates systems for adequate, conditional, or inadequate capacity primarily during sanitary surveys.

Plymouth System Capacity Designation is Conditional. Conditional means the system is currently complying with the majority of the National Primary Drinking Water Standards and MassDEP drinking water



regulations. However, the system may have deficiencies that must be adequately addressed or have inadequate capacity, and the system owner has signed an Administrative Consent Order (ACO) or compliance plan to address or correct the deficiencies. Aquarion plans to review and upgrade chemical feed and control systems to improve overall capacity.

## 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

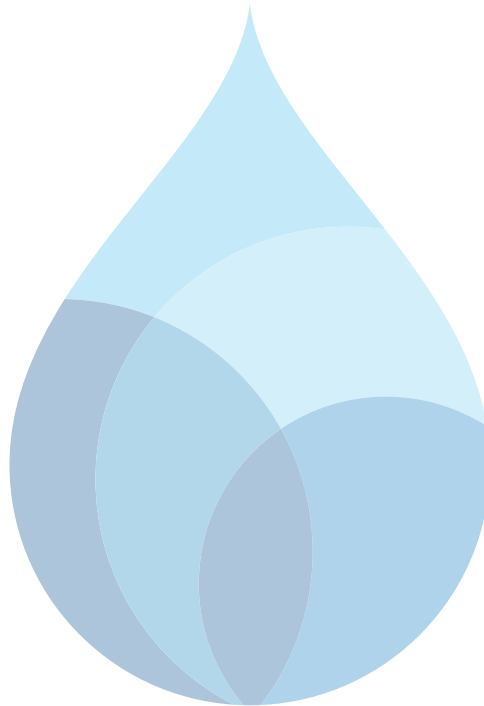
over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. Major sources of copper in drinking water include corrosion of household plumbing systems and erosion of natural deposits.

\*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. EPA/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).



### Lead in Drinking Water: The Facts

The federal Environmental Protection Agency (EPA) and Massachusetts Department of Public Health have established extensive regulations for water utilities to follow with regard to lead — and for very good reason. If present in drinking water, lead can cause numerous harmful effects on a person's health. The EPA has determined there is no safe level of lead.

Aquarion monitors for lead in the water we provide, by testing stagnant tap water samples from high-risk homes (such as homes built before 1950). We follow regulations mandated by the Safe Drinking Water Act, in which the EPA established a limit: 15 parts per billion (or micrograms per liter) in no more than 10 percent of tap water samples. Meeting this limit indicates that the water is minimally corrosive to lead.

If tests reveal that more than 10 percent of tested homes exceed the limit, then the EPA mandates a series of actions we would have to take. These include water treatment, notifying customers about the issue and removing lead service lines. The Aquarion system that supplies your water complies with the lead limit. Even so, some homes may have elevated lead levels due to lead materials in the plumbing or service line.

### 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 a lead service line

A service line is the pipe that connects a customer's premises to Aquarion's water main in the street. The customer owns the portion of the service line closest to the premises, while Aquarion owns the portion closest to the street. In some older structures built before 1950, these lines may have been made of lead.

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. Therefore, if your house was built prior to 1950, 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 for advice on replacing it. This will help reduce your potential exposure to lead in drinking water.



### Other precautions you can take

Health issues from lead exposure cannot be cured, but they can be prevented, especially in drinking water. The best methods for reducing your exposure to lead include removing lead service lines and lead in your home's plumbing, and reducing the amount of time your water sits stagnant in contact with lead materials in the service lines and faucets.

- 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 several minutes. This will bring in fresh water from our water main, which contains no lead. (To conserve water, catch the flushed tap water in buckets or pots to use for cleaning or to water plants.)

(Continued from page 7)

- Always use cold water for drinking, cooking and preparing baby formula. Never cook with or drink water from the hot water tap. Never use water from the hot water tap to make baby formula.
- Periodically remove and clean the faucet screens/aerators. While doing so, run the tap to eliminate debris.
- Check your service line where it enters your building and determine if it is made of lead. If it is, replace it.
- Identify and replace old plumbing fixtures that contain lead. Brass faucets, fittings and valves may leach lead into drinking water — especially those purchased before 2014.

Homeowners who want to determine whether there is lead in their water should have a laboratory test it. There is a list of certified testing laboratories on the state Department of

Environmental Protection website: [mass.gov/orgs/massachusetts-department-of-environmental-protection](https://mass.gov/orgs/massachusetts-department-of-environmental-protection).

For more information, our website has a section dedicated entirely to lead in drinking water; visit [www.aquarionwater.com/learningaboutlead](http://www.aquarionwater.com/learningaboutlead).

If you have questions, call our Water Quality Department at 800-832-2373. You also can email us at [waterquality@aquarionwater.com](mailto:waterquality@aquarionwater.com).

## The EPA advises:

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](http://epa.gov/safewater/lead).





## Protecting water at the source

Even small quantities of pollutants may be enough to contaminate a drinking water supply. Examples of pollutants that may wash into surface water or seep into ground water include:

- Microbial contaminants from septic systems, agriculture and livestock operations, and wildlife;
- Inorganic contaminants such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, or farming;
- Pesticides and herbicides from sources such as agriculture, urban storm water runoff, and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes; and
- Radioactive contaminants that can be naturally occurring.

## How Aquarion protects your drinking water

Aquarion Water Company's commitment to providing the highest quality water is evidenced by our regular inspection of homes, businesses, farms and

other sites that could pollute water supplies. We also review new land development projects for impact on water quality. In total, we conduct more than 6,000 water quality tests annually. We use the best water treatment and filtration technology and continue to invest in our water systems' infrastructure to improve your water security and quality.



## You can help prevent water contamination

- Ensure that your septic system is working correctly.
- Use chemicals and pesticides wisely.
- Dispose of waste chemicals and used motor oil properly.
- Report illegal dumping, chemical spills, or other polluting activities to the MA DEP's

Emergency Response Section at (888-304-1133), Aquarion Water (508-865-3998), or your local police.

## Protecting your water at home:

### **Cross-Connection Control Program**

Our Cross-Connection Control Program helps ensure that your drinking water is protected from possible contamination.

A cross-connection, as defined by the Massachusetts Department of Environmental Protection (DEP), "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 backpressure or back-siphonage, to create a health hazard to the public water supply and the water system within the premises."

Aquarion's DEP-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 a backflow prevention 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.

## AQUARION'S SAMPLE RESULTS FOR PFAS

Aquarion Water Company sampled the Plymouth System in 2021 to test for PFAS compounds, out of an abundance of caution and concern.

On October 2, 2020, MassDEP published its PFAS public drinking water standard or Massachusetts Maximum Contaminant Level of 20 nanograms per liter or parts per trillion. This applies to applicable to water systems for six specific PFAS: perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid

(PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA).

This drinking water standard is set to protect against adverse health effects for all people consuming the water.

Our system's reported PFAS results are less than 20 ppt, as shown below.

If you are a sensitive consumer (pregnant women, nursing mothers, and infants), you can minimize your exposure by using bottled water that has been tested for PFAS for drinking, making infant formula and cooking foods that absorb water. Please consult your health practitioner if you have any health-related questions. For a consumer factsheet on PFAS see: [www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas](http://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas)



## PFAS SAMPLING RESULTS

### North Plymouth System

All results reported as parts per trillion (ppt)

#### OTHER PFAS TESTED

Sample Location	PFOA	PFOS	PFHpA	PFHxS	PFNA	PFDA	Total PFAS (6)	MASSDEP MCL	PFBS	PFHxA
North Plymouth Well 1, (POE)	2.10	ND	ND	ND	ND	ND	2.10	20	ND	ND

**POE:** Point of entry. Sample collected after treatment as water enters the distribution system, before the first customer.

## WATER CONSERVATION WORKS!

*Easy tips on what everyone can do*

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 more than 2 billion gallons of water across our systems over the last four 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.

Get rid of wasteful, “set ‘em and forget ‘em” clock timers. Water only when the ground feels dry. Use WaterSense-labeled spray sprinkler bodies.

### 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.

### Enjoy an edible landscape.

Replace turf with berry bushes or fruit trees – they use less water.

### Fill it up!

Wait until you have a full load before running your washing machine and dishwasher.

### Look at labels.

Washing machines and dishwashers certified by ENERGY STAR use far less water. WaterSense-labeled fixtures do the same.

### Jilt the jiggling.

Fix leaky toilets. Watch our step-by-step video at [www.aquarionwater.com](http://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.

### Turn off the taps.

While brushing your teeth, shaving or just groping for a towel, keep good, clean water from disappearing down the drain.

### Catch this idea.

While waiting for tap or shower water to warm up, capture the cooler water in a container for watering plants.

### Recycle cooking water.

Save water used for cooking pasta and vegetables — it's great for plants.

### Shorten shower times.

You will use less water– and reduce energy costs, too.

### Put scraps to work.

Compost vegetable scraps to nourish your garden, instead of using water to grind them up in your garbage disposal.

### Put a chill on waste.

Keep a pitcher of drinking water in the fridge so you don't have to run the tap until the water gets cold.

Conserving water quickly becomes second nature. For many more ways to ensure that your water supply stays healthy for decades to come, check out the tips at [aquarionwater.com/conserv](http://aquarionwater.com/conserv).



North Plymouth System PWS ID#: MA4239045

## 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](mailto:waterquality@aquarionwater.com)**, or visit **[www.aquarionwater.com](http://www.aquarionwater.com)**.

For other questions, or to report discolored water/service problems, or if you would like to participate in a public meeting, call **800-732-9678**.

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)**

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



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