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**ScottsdaleAZ.gov/Water**

**480-312-5650**

**Water Quality: 480-312-8732**



# 2023 Water Quality Report



# About This Report

At Scottsdale Water we strive every day to epitomize our vision of Water Sustainability through Stewardship, Innovation and People. We are dedicated to supplying you with safe, reliable drinking water at an affordable price with outstanding service. Our commitment to that goal is summarized in this annual report.

Water is a precious resource for our community, especially given the unprecedented drought we are experiencing. In addition to working to ensure your water is safe, we are also dedicated to ensuring a secure and sustainable water supply for today and the future.

Scottsdale Water has one of the most innovative and technologically advanced water recycling facilities in the nation and through innovative aquifer recharge programs and effective strategic planning and investment, Scottsdale was the first city in Arizona to meet safe yield – put more water in the aquifer than we take out – and has been doing so every year since 2006, nearly 20 years ahead of the state-mandated deadline. Even with our technology, we all need to do more to save, and Scottsdale Water has continued to challenge customers to voluntarily save 5% in 2023. Check out our website at [ScottsdaleAZ.gov/water/residential-water-use](https://ScottsdaleAZ.gov/water/residential-water-use). I encourage you to review this report and learn about the work and dedication that goes into providing you safe, reliable, and affordable drinking water each and every day.

**Brian K. Biesemeyer, PE** • Scottsdale Water Executive Director



## DEFINITIONS AND ABBREVIATIONS

**Contaminant** – Any physical, chemical, biological or radiological substance or matter in the water.

**Maximum Contaminant Level Goal (MCLG)** – 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.

**Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed by the EPA in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing scientific evidence that addition of a disinfectant is necessary for the control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of 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.

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.

**Action Level (AL)** – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water provider must follow.

**Part Per Million (ppm) / Part Per Billion (ppb)** – Equivalent to mg/L and µg/L respectively, describe the levels of detected substances.

**Picocuries Per Liter (pCi/L)** – A measure of the radioactivity in a liter of water.

**Non-detectable (ND)** – The substance was analyzed but not detected.

**Not Applicable (NA)** – A regulatory limit does not exist.

## A NOTE FROM THE EPA

To ensure the water from your tap is safe to drink, the Environmental Protection Agency issues regulations limiting the amount of certain impurities allowed in drinking water and the water treatment process. You can expect all drinking water, including bottled water (which is regulated by the Food and Drug Administration), to contain at least small amounts of some contaminants. It's important to know that the presence or detection of impurities does not necessarily indicate a health risk.

Scottsdale's drinking water sources include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and can pick up substances from human or animal activity. Possible contaminants may include:

- **Microbial contaminants** including viruses, bacteria and parasites, which may come from sewage treatment plants, septic systems, agricultural or livestock operations and wildlife.
- **Inorganic contaminants** such as minerals, salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- **Radiochemical contaminants**, which occur naturally or result from oil and gas production and mining activities.
- **Pesticides and herbicides** that may come from a variety of sources such as agriculture, stormwater runoff and residential uses.
- **Organic chemical contaminants** including synthetic and volatile organic compounds, which are byproducts of industrial processes and petroleum production, and also can come from gas stations, urban stormwater runoff and septic systems.

# Water Supply and Treatment

Prior to the 1980s, Scottsdale was 100 percent reliant on groundwater for our water supply. Today, 90 percent of our total water supply comes from renewable surface water sources and recycled water, helping us ensure a long-term water supply for future generations.

Depending on the time of year, the weather and customer demand, you may receive water from a single source or from a combination of sources.



## SURFACE WATER

Scottsdale's main surface water supply comes from the Colorado River. It is transported through the Central Arizona Project canal to the CAP Water Treatment Plant at the Scottsdale Water Campus.

The CAP Plant, which can treat up to 70 million gallons of water a day, is actually three distinct facilities. CAP I and II use a conventional water treatment process, which includes pretreatment, coagulation/flocculation, sedimentation, filtration and disinfection. Water at CAP III is treated with ultrafiltration membrane technology and disinfection. The CAP Plant uses granular activated carbon to improve taste and odor and treat for disinfection byproducts.

We also receive surface water from the Verde and Salt rivers watersheds, which is transported by the Salt River Project to the Chaparral Water Treatment Plant. The Chaparral WTP uses ultrafiltration membranes and granular activated carbon and has a treatment capacity of 27 million gallons a day.

## SOURCE WATER ASSESSMENT PROGRAM

In 2004, Scottsdale worked with the Arizona Department of Environmental Quality to finalize an assessment on the wells and surface water sources we use to provide you with drinking water. This assessment looked at potential risks to our water sources, which include gas stations, landfills, dry cleaners, agricultural fields and wastewater treatment plants.

The assessment concluded that most of Scottsdale's groundwater wells have low to medium risk, with the exception of the wells linked to the North Indian Bend Wash Superfund Site. The water produced

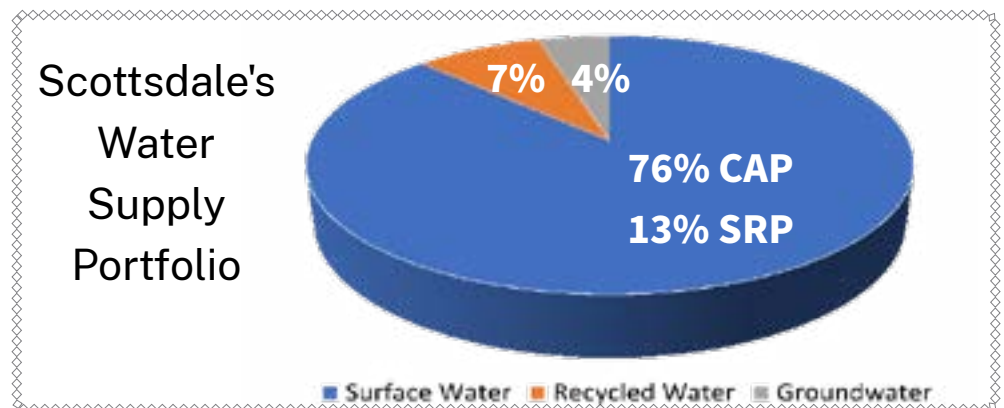
## GROUNDWATER

A small portion of Scottsdale's water supply also comes from aquifers deep below ground. The city has 21 active wells and operates several groundwater treatment facilities, including the Central Groundwater Treatment Facility and the North Indian Bend Wash Granular Activated Carbon Treatment Facility, which treat groundwater from the North Indian Bend Wash Superfund site. Both facilities were built by private companies that were deemed potentially responsible for contaminating the groundwater with Trichloroethylene. These companies pay operating and maintenance costs of the facilities. The groundwater is treated to levels that exceed federal and state drinking water standards, with regulatory oversight by the EPA, ADEQ and Maricopa County.

## RECYCLED WATER

The Advanced Water Treatment Plant at the Scottsdale Water Campus is one of the largest and most advanced water recycling facilities in the world. The plant treats water from Scottsdale businesses and homes to ultrapure standards that exceed federal drinking water regulations. That water is then used for turf irrigation and to replenish our local aquifers.

Since 1998, the state-of-the-art facility has enabled Scottsdale to recharge over 70 billion gallons of water into our area aquifers, safeguarding the city's long-term water supply while ensuring the exceptional water quality of our local aquifers.



by these wells has a high risk of contamination, but is treated to meet or surpass drinking water standards and monitored closely by the city, ADEQ and the EPA.

All surface water sources are considered high risk due to their exposure to open air. These risks are addressed by the EPA through its increased monitoring requirements for surface water sources. The complete assessment is available at [azdeq.gov/envirom/water/dw/swap.html](http://azdeq.gov/envirom/water/dw/swap.html) or by calling Scottsdale Water at 480-312-8732.

# Ensuring long-term water supplies

As of 2023, the Colorado River system is officially in a Tier 2a shortage – meaning less water for the state of Arizona through the Central Arizona Project (CAP). At this point, the city is still able to meet demand for residents and businesses, while preparing for even further cuts in coming years.

Scottsdale has proactively planned for long-term, sustainable water supplies and has secured a diverse and resilient water supply portfolio in order to prepare for worst-case scenarios on the Colorado River system. This reduces the community's vulnerability to the risks associated with supply reductions. Scottsdale's preparedness includes:

- Preparation through a Drought Management Plan that implements progressively more actionable processes as shortages intensify
- Diversifying the city's water portfolio so the city is not as susceptible to water variances with one source
- Investing in infrastructure and technology to include the newest Aquifer and Recovery Storage Wells. These allow for water storage when excess is available and support recovery of the city's large quantities of stored water (from the last two decades) in our aquifer.
- Increasing water recycling efforts and expanding the use of highly purified, recycled water
- Expanding conservation programs and customer outreach
- Embracing a holistic approach throughout city departments to implement further water savings

Scottsdale's water resources Master Plan also details a strategic long-term direction emphasizing the increased use of renewable and diverse water supplies.



## HIGHLY PURIFIED, RECYCLED WATER

Long-term water sustainability takes planning, innovation, and resources. Since 2019, when Scottsdale was granted the first direct potable reuse (DPR) permit in Arizona, Scottsdale Water has been preparing for full-scale execution of the highly purified, recycled water by using this water for taste testing and beer making. Now, given the current water shortages on the Colorado River, Scottsdale Water is planning for full-scale DPR use as early as 2025.

By using state-of-the-art purification processes, water is treated to meet all state and federal drinking water standards. Advanced water filtration treatments like ozonation, membrane ultrafiltration, reverse osmosis, and ultraviolet photolysis create a final product that results in a safe, clean water that has been proven purer than bottled water.

This project will help to expand the city's water resources and create better water sustainability for the future as further water shortages are expected on the Colorado River system.

Learn more about this program by going to [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov) and search "DPR."

## WATER HARDNESS

As water makes its way to treatment plants or through aquifers, it picks up naturally occurring minerals that make the water "hard" and can also affect taste and other characteristics. Hardness is not a primary water quality standard and is not considered to be a health concern. Scottsdale is committed to providing you with the cleanest and safest drinking water possible, at an affordable price. We could implement additional treatment processes to address hardness, but this would not be cost effective, especially since the majority of residential water consumption is for outdoor use. There are varying levels of water hardness throughout Scottsdale as shown in the table to the right.

Approximate Hardness Levels		
Boundary	Hardness (Grains per Gallon)	Hardness (mg/L or ppm)
South of Indian School Road	13 - 20	214 - 343
Indian School Road to Chaparral Road	13 - 17	216 - 285
North of Chaparral Road	13 - 16	230 - 288

# 2023 Compliance Monitoring Results

Scottsdale performs tests for an assortment of contaminants at locations throughout the city. We test samples from eight entry points to the distribution system that represent the treated source water and at 150 locations throughout the distribution system to ensure the water entering your home or business remains safe and reliable.

We test for over 100 substances, but only the substances detected in the water are listed in this report. The results shown are from testing performed in 2022 unless otherwise noted.

A few substances are discussed in detail below. For more information about other substances or a complete list of all testing, please contact us at 480-312-8732 or visit the EPA's website, [epa.gov/dwstandardsregulations](https://www.epa.gov/dwstandardsregulations).



**Arsenic** is a naturally occurring mineral commonly found in water due to leaching from rocks and soil. The maximum contaminant level for arsenic allowed in drinking water is 10 ppb (parts per billion), based on a running annual average.

While your drinking water meets or surpasses EPA's standard for arsenic, it does contain low levels of arsenic. EPA is continually researching the health effects of low levels of arsenic, which has been known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. In 2022, the highest level of arsenic measured in Scottsdale's drinking water was 7.5 ppb.

**Nitrate** is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm (parts per million) is considered a health risk for infants younger than six months of age. (Nitrate levels above 10 ppm in drinking water can cause blue baby syndrome.) Nitrate levels in surface water supplies may rise quickly for short periods of time due to rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider. In 2022, the highest nitrate level detected in Scottsdale's drinking water was 6.2 ppm.

**Turbidity** is a measure of clarity in the water and is reported as Nephelometric Turbidity Units. Turbidity is caused by a variety of substances including sand, dirt and algae. Water is measured for turbidity to determine the effectiveness of the water treatment process. Scottsdale measures turbidity continuously at its surface water treatment plants.

**Microbiological Testing** is performed monthly at over 150 sites within the distribution system for Total Coliform and E. coli bacteria in order to verify the integrity of the distribution system as well as our water sources.

**Chlorine** is used as a disinfectant to ensure the treated water remains safe at all times. We continually monitor chlorine levels throughout the system to ensure that safe and adequate levels are maintained. Scottsdale's goal is to have a chlorine residual between 0.5 and 1.2 ppm in our drinking water system.

Byproducts of using chlorine as a disinfectant are trihalomethanes and haloacetic acids. These are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. To minimize the

formation of these disinfection byproducts, granular activated carbon is used during the water treatment process to reduce levels of organic matter and subsequently reduce DBP levels.

**Lead and copper** are typically found in drinking water because of materials and components found in service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Scottsdale is committed to providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your 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 (800-426-4791) or at [epa.gov/safewater/lead](https://www.epa.gov/safewater/lead).

The most recent testing for lead and copper was performed in 2020. Lead and copper levels reported in the table are from water faucets inside 57 Scottsdale homes that were built before the lead ban.

All residents participating in the lead and copper program are notified of their home's results. If the lead concentration in a home's water exceeds 15 ppb, the home is retested and the homeowner is contacted for follow-up guidance on ways to lessen the risk of exposure to lead from drinking water.

To further protect our customer's from lead in drinking water, Scottsdale uses caution when changing to a new water source or changing an existing treatment process. Additional monitoring is performed to ensure the water is not corrosive to home plumbing.

## Additional Monitoring

**Cryptosporidium** is a pathogen found in surface water throughout the United States and can be spread through other methods besides drinking water. Ingestion may cause a gastrointestinal illness. During periodic monitoring conducted in 2017, Cryptosporidium was not detected in our source waters. If present, this organism is removed during treatment through the use of multimedia filtration.

# Results for Regulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	System Average	Highest Running Annual Average <sup>1</sup>	Likely Source in Drinking Water
Arsenic	ppb	10	0	1	7.5	4.0	7.5	Leaching of natural deposits
Barium	ppb	2,000	2,000	25.5	109	67	105	Leaching of natural deposits
Chromium	ppb	100	100	ND	18.1	5.5	15.0	Leaching of natural deposits
Fluoride	ppm	4	4	0.3	0.5	0.4	0.5	Leaching of natural deposits
Nickel	ppb	N/A	N/A	ND	1.6	0.2	1.6	Leaching of natural deposits
Nitrate	ppm	10	10	ND	6.2	1.8	5.3	Leaching of natural deposits and septic systems; Runoff from fertilizer use
Selenium	ppb	50	50	1	4.1	2	4.1	Leaching of natural deposits; Discharge from petroleum refineries and mining
Alpha Emitters <sup>2</sup>	pCi/L	15	0	ND	2.6	0.8	N/A	Leaching of natural deposits
Uranium	ppb	30	0	1.7	6	3.7	N/A	Leaching of natural deposits
Radium, Combined <sup>2</sup>	pCi/L	5	0	ND	ND	ND	N/A	Leaching of natural deposits
Total Organic Carbon	ppm	TT	N/A	0.9	1.8	1.4	N/A	Naturally present in the environment

Substance	Unit	MCL	TT Requirement	Highest Measurement	Treatment Technique Comparison	Likely Source in Drinking Water
Turbidity	NTU	1	95% less than 0.3 NTU	0.11	100% less than 0.3 NTU	Soil runoff

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Total Coliform	%	5 (monthly)	0	0	2.8	0.3	Naturally present in the environment
Chlorine	ppm	4 (MRDL)	4 (MRDLG)	0	2.1	0.68	Water additive used to control microbial growth
Total Trihalomethanes (TTHMs)	ppb	80	N/A	19.0	74.7	67.9	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	3.8	13.4	13.4	Byproduct of drinking water disinfection

Substance	Unit	AL	MCLG	90 <sup>th</sup> Percentile Value	# of Homes Greater than AL	Levels in Treated Water	System Average Levels in Treated Water	Likely Source in Drinking Water
Lead <sup>4</sup>	ppb	15	0	4.2	1 out of 57	ND - 1.7	0	Corrosion of household plumbing
Copper <sup>4</sup>	ppb	1,300	N/A	243	0 out of 57	ND - 13.7	4	Corrosion of household plumbing

1. Highest average at a single sample location
2. Includes 2017, 2020 & 2022 Sampling Data
3. Reported value is the highest locational running annual average (LRAA) calculated on a quarterly basis.
4. Lead and Copper Standard: 90% of homes tested must have lead and copper levels below the alert level (AL).

## Attention Immuno-Compromised Citizens:

If you are a person with a compromised immune system (i.e. undergoing chemotherapy, have had an organ transplant or have HIV/AIDS or other immune system disorders) you may be particularly at risk of infections and more vulnerable to contaminants in drinking water. Some elderly persons and

infants may also have increased risk. You are encouraged to seek advice about drinking water from your health care provider. More information including ways to lessen the risk of infection from microbial contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

# Results for Unregulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected
Alkalinity	ppm	NA	NA	106	250
Aluminum	ppm	NA	NA	ND	0.14
Calcium	ppm	NA	NA	31	76
Chloride	ppm	NA	NA	36	281
Iron	ppm	NA	NA	ND	0.06
Magnesium	ppm	NA	NA	21	60
Manganese	ppm	NA	NA	ND	0.0013
pH	Std. Unit	NA	NA	7.3	8.4
Sodium	ppm	NA	NA	41	160
Sulfate	ppm	NA	NA	ND	219
Temperature	°C	NA	NA	14	30
	°F	NA	NA	57	86
Total Dissolved Solids	ppm	NA	NA	332	800
Zinc	ppm	NA	NA	ND	0.018



## RESULTS FOR UNREGULATED CONTAMINANT MONITORING RULE

In an ongoing effort to improve the safety of drinking water, the Unregulated Contaminant Monitoring Rule (UCMR), part of the Safe Drinking Water Act, requires the EPA and water systems to assess the occurrence of unregulated contaminants in drinking water across the country. A new list of contaminants is issued about every five years and can contain up to 30 contaminants. The EPA uses this occurrence data along with health effects studies to determine if additional regulations are needed to protect public health.

Monitoring is performed at every location where source water enters the distribution system and some contaminants are also measured at points within the distribution system, where the water is consumed. The table below shows results of the most recent testing conducted in 2020.

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Manganese	ppb	N/A	N/A	0.0	3.3	0.61	Leaching of natural deposits
Germanium	ppb	N/A	N/A	0	0.44	0.024	Leaching of natural deposits
Total Organic Carbon <sup>1</sup>	ppm	N/A	N/A	3.2	5.1	4.1	Decaying natural organic matter
Bromide <sup>1</sup>	ppm	N/A	N/A	0.057	0.12	0.08	Natural and industrial sources
HAA5 <sup>2</sup>	ppb	N/A	N/A	5.3	13	9.5	Byproduct of drinking water disinfection
HAA6Br <sup>2</sup>	ppb	N/A	N/A	8.8	17.0	13.7	Byproduct of drinking water disinfection
HAA9 <sup>2</sup>	ppb	N/A	N/A	11	26	20.0	Byproduct of drinking water disinfection

1. Halo Acetic Acid Indicator measured in source water

2. Halo Acetic Acid (HAA) Group

## ADDITIONAL WATER INFORMATION RESOURCES

U.S. EPA's Safe Drinking Water Hotline  
800-426-4791, [epa.gov/safewater](http://epa.gov/safewater)

Arizona Department of Environmental Quality  
602-771-2300, [azdeq.gov/environ/water/dw](http://azdeq.gov/environ/water/dw)

Maricopa County Environmental Services Department  
602-506-6666, [maricopa.gov/EnvSvc/WaterWaste](http://maricopa.gov/EnvSvc/WaterWaste)

Water-related topics may be discussed at City Council meetings or other public forums and we welcome your attendance. Meeting notices and City Council agendas are posted on the city's website at [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov), search "Council Agendas."

Este informe contiene información muy importante sobre su agua potable. Si desea una copia de este informe en español o tiene alguna pregunta sobre el, por favor llame a 480-312-8711.

# Outreach and Education

## FREE CONSERVATION RESOURCES

In order to assist the community on sustainability best practices, Scottsdale Water offers a multitude of conservation programs customers can take advantage of to become more water efficient. Customers can start water savings actions today through:

**Outdoor Water Efficiency Checks** – customers can request a free irrigation specialist to walk the customer's property, teach homeowners how to check for leaks, and show residents how to properly irrigate their landscape.

**Rebates** – Scottsdale has a robust list of rebates for installing WaterSense labeled products. Customers are also encouraged to take advantage of the grass removal rebate. This rebate is one of the most rewarding and gives customers maximum water savings on a continual basis.

**WaterSmart** – this new online portal puts water management in the hands of customers. Through user friendly graphics, customers can see weekly, daily, or even hourly water use which helps to catch leaks and see where and when water is being used.

To take advantage of these programs, go to [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov) and search "water" or email [WaterConservation@ScottsdaleAZ.gov](mailto:WaterConservation@ScottsdaleAZ.gov).



Scottsdale Water also offers a range of free publications to help you conserve water in and around your home. To view the publications online or request a printed copy, visit us at [ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water) or call 480-312-5650.

## CITIZEN ACADEMY

Are you curious about how Scottsdale gets its water? Do you want to know more in depth about water as a hole? Scottsdale offers a Water Citizen Academy to residents. This free program offers an inside look at Scottsdale's water utility - one of the most advanced municipal water systems in the country! The multi-week course explains all facets of Scottsdale Water's planning and policies and takes you inside its state-of-the-art facilities and daily operations.



For more information, visit [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov) and search "Water Academy."

## WATER TRAILER AT LOCAL EVENTS

Scottsdale Water is proud to offer free water at city events to educate the community on the safety and reliability of its water. This program also informs citizens and visitors on best water conservation practices and how to be better stewards of this precious resource.



[ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water)

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