



City of San Diego's Tap Water Supply Meets All State and Federal Health Standards in 2020

The City of San Diego is committed to providing you with a clean, safe and stable water supply. It's the priority of every employee of the City's Public Utilities Department. Those efforts matter. Based on the water quality monitoring data collected in 2020, the City's tap water met all state and federal drinking water health standards, which are the primary standards for treating and monitoring water. The U.S. Environmental Protection Agency (EPA) and the California Division of Drinking Water mandate all water agencies to produce an annual document educating customers about their drinking water quality for the previous year. This annual Drinking Water Quality Report details the origin of the City's water supply, what it contains and how it meets health standards.

A Message from the Director

Last year we celebrated the 60th anniversary of the City's Miramar Reservoir. It was an opportunity to reflect on our past, focus on our current operations and look forward to upcoming projects.

Not only is Miramar Reservoir an important part of our water supply system, but it has become a very popular recreational area for the public. And in the future, Miramar Reservoir will be a key part of the City's Pure Water system that will provide more than 40% of our drinking water by 2035.

Two major steps forward that were taken in 2020 to begin construction on the Pure Water system included:

- Construction bids were advertised for the North City Pure Water Facility, Morena Northern Alignment and Tunnels, Morena Pump Station and expansions of the North City Water Reclamation Plant and North City Pure Water Pipeline, and
- A U.S. EPA loan was refinanced that will save taxpayers \$293 million.

2020 was a difficult year for all of us, and 2021 has its challenges as well. But we are proud that we have been able to continue providing great water and wastewater service to the citizens of San Diego during this pandemic. We adapted in numerous ways by having many employees working from home, instituting new safety protocols at our facilities and in the field and providing more assistance to customers online.

In the coming years you'll see progress as we build the Pure Water system, continue to upgrade our infrastructure, adapt to better assist the public and improve our water supply to make San Diego a more sustainable city.

Sincerely,

Shauna Lorange
 Director of Public Utilities
 City of San Diego

CONTACT

Public Utilities Emergency Hotline.....	619-515-3525
General and Billing Information.....	619-515-3500
	customercare@sandiego.gov
Water Quality Lab	619-668-3232
	drinkingwaterquality@sandiego.gov
Capital Improvements Projects	619-533-4207
City Reservoirs Recreation	619-465-3474
Pure Water Program	619-533-6638
Storm Water Pollution Prevention.....	619-235-1000
Water Waste/Recycled Water	619-533-5271

VISIT

City of San Diego Public Utilities.....	sandiego.gov/public-utilities
San Diego County Water Authority.....	sdcwa.org
Metropolitan Water District	mwdh2o.com
California Division of Drinking Water	waterboards.ca.gov
U.S. EPA	water.epa.gov/drink
American Water Works Association.....	awwa.org
Be Water Wise	bewaterwise.com
Pure Water Program	purewatersd.org
Think Blue	thinkblue.org

ENGAGE

Get It Done App
sandiego.gov/get-it-done

facebook.com/CityofSanDiego

instagram.com/thecityofsandiego

<https://nextdoor.com/city/san-diego--ca/>

twitter.com/CityofSanDiego

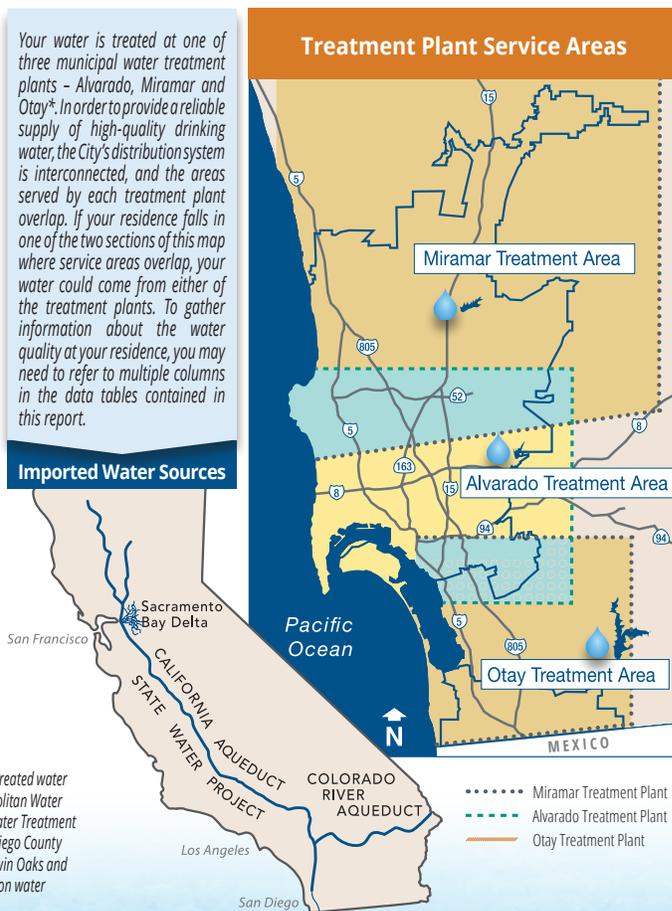
youtube.com/TheCityofSanDiego

Water Supply - What's in Your Water Before It's Treated?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural 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, oil and gas production, mining or farming.
- Pesticides and herbicides that may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff, agricultural application and septic systems.
- Radioactive contaminants, that can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health. 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.



Imported Water Supply and the Impact on Water Quality

The City of San Diego currently imports most of its water supply, the bulk of which is raw (untreated) water purchased from the San Diego County Water Authority. All raw water is treated before entering the City's drinking water distribution system. Less than 10% of the imported water purchased from the County Water Authority is a blend of treated water from the Metropolitan Water District's Skinner Water Treatment Plant, the County Water Authority's Twin Oaks Valley Water Treatment Plant and the Carlsbad Desalination Plant.

Most of the imported water from the County Water Authority is a blend from the Colorado River and State Water Project (see map to the left). Throughout the year, the ratio of water from each source changes. The constituents that make up the City's source water are influenced by the water source, climate, geology and the land activities that they flow through. The City continually monitors our source water and adjusts its treatment process to ensure that the water is always healthy and safe.

News on Rate Increases



You will soon receive information in the mail with details about proposed rate increases for water and wastewater services.

For the first time in 10 years, the City of San Diego is planning to increase wastewater rates, by 5%, starting in January 2022. In addition, the City is proposing to pass through regional water cost increases to its customers.

For more information, visit

www.sandiego.gov/rate-increases

HIGHLIGHTS OF 2020

The City's Public Utilities Department achieved a number of important milestones last year that included increasing efficiency, improving services and planning for the future.

City Takes Major Strides Forward with Pure Water Program

Important milestones were achieved in 2020 for the advancement of the City's Pure Water Program. Pure Water is the City's phased, multi-year program that will provide more than 40% of San Diego's water supply locally by the end of 2035. The Pure Water Program will use proven water purification technology to clean recycled water to produce safe, high-quality drinking water. The Program offers a cost-effective investment for San Diego's water needs and will provide a reliable, sustainable water supply. Below are some of the major highlights from 2020:

- Starting in August, the City began seeking construction bids for the North City Pure Water Facility as the first of several bids for the Pure Water Program, which is expected to deliver more than 400 new jobs aiding in the regional economic recovery effort.
- The City refinanced a loan with the U.S. EPA in September that will save an estimated \$293 million for taxpayers. The Water Infrastructure Finance and Innovation Act (WIFIA) loan from the EPA is providing funding for up to \$614 million of the costs of the Pure Water Program's Phase I projects. Up to about 97% of the Pure Water project costs are expected to be funded with WIFIA loan, State Revolving Fund loans and grant proceeds.



- The Ocean Pollution Reduction Act II (OPRA II), passed the House of Representatives in November 2020 by an overwhelming vote of 395-4, but the Senate did not take action on the bill before the end of the two-year legislative session. Congressman Scott Peters re-introduced the bipartisan legislation this Congress in January 2021, and the House Transportation & Infrastructure Committee approved it on March 24. OPRA II will be considered by the full House and then will move to the Senate for consideration. Under OPRA II, the City of San Diego must demonstrate that its Pure Water Program can produce 83 million gallons a day of water by 2036. With associated water recycling and conservation efforts, this would reduce treated wastewater flows to the ocean from the Point Loma Wastewater Treatment Plant by over 50%. This reduction in outflow and waste will be continuously monitored and subject to ongoing research efforts by academic, city, state and national entities. This bill ensures that San Diego has long-term certainty for its water supply.

More important steps for the Pure Water Program are anticipated for 2021. More information about the program is available from the City at www.purewatersd.org.

Number of Water Main Breaks Down for Fourth Year in a Row in City of San Diego

For the fourth year in a row, the number of water main breaks decreased in the City of San Diego. There were 33 water main breaks reported in 2020, the lowest total in more than 15 years and far fewer than the peak of 131 breaks in 2010. The City credits the continued downward trend to increased maintenance efforts and a multi-year program to replace old pipelines.

The City's continuing program to replace old cast iron water mains has played a major part in the decrease in breaks. Some cast iron pipes had been in service for more than 100 years. Since 2013, the City has replaced approximately 180 miles of water pipelines across the city. The remaining 55 miles of cast iron water mains are scheduled to be replaced by 2025. The City now uses water mains made of durable polyvinyl chloride (PVC).



City of San Diego Marks Major Milestone with Miramar Reservoir's 60th Anniversary and Vital Role for Region's Future



In 2020, the City commemorated the 60th anniversary of Miramar Reservoir while planning for the facility's important role in the City's future water needs. For the past six decades, Miramar Reservoir has served millions of San Diegans as part of the City's water system and as a popular recreational area. Now the City plans to use the reservoir as part of its Pure Water Program system.

Miramar was the last of the City's nine reservoirs to be created. Its construction was completed in 1960 as part of the second San Diego Aqueduct. Imported water is pumped from the aqueduct to the reservoir before it is treated by the adjacent Miramar Water Treatment Plant and delivered to customers.

When the Pure Water Program comes online, Miramar Reservoir will switch from holding imported water to holding purified water that is received through a pipeline from the planned North City Pure Water Facility. The water will then go through a second treatment process at the Miramar Water Treatment Plant before being distributed to homes and businesses.

Since the mid-1960s, the reservoir has been a popular recreational destination. An estimated 100,000 people visit Miramar each year to enjoy jogging, biking, fishing, boating, picnicking and other activities. More information about Miramar and other City reservoirs is available at www.sandiego.gov/reservoirs-lakes.



City of San Diego Participated in Statewide Program to Monitor Wastewater for Virus That Causes COVID-19

The City of San Diego participated in a statewide program to monitor its untreated wastewater for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19. Public Utilities Department staff collected samples to be analyzed for SARS-CoV-2 in untreated wastewater at the Point Loma Wastewater Treatment Plant once a week in December 2020. Following this test run, staff collected samples to be analyzed for SARS-CoV-2 three times a week from January through June 2021. All data was reported to the state within 24 hours of receiving results.

The California Department of Public Health and the State Water Resources Control Board initiated the Wastewater-based Epidemiology Program in coordination with the Centers for Disease Control and Prevention and are participating in the National Wastewater Surveillance System (NWSS), a collaborative effort among states to monitor wastewater. The NWSS will then inform the incidence, spread and control or epidemiology of COVID-19 to improve public health decision making. The City's Public Utilities Department was one of five large agencies in California that was already voluntarily participating in a State Water Resources Control Board sponsored research project with the Water Research Foundation titled "Measure Pathogens in Wastewater" (DPR-2) to generate bi-monthly SARS-CoV-2 data in untreated wastewater.

The City's participation in DPR-2 is not only important for advancing pathogen monitoring for direct potable reuse projects, but the data can also potentially improve the state's ability to respond to the current pandemic and plan for future outbreaks.

In addition, the City participated in multiple studies of its wastewater related to COVID-19, including those with San Diego State University, University of Arizona and the Southern California Coastal Water Research Project.



The City's collection, treatment and disposal of wastewater are carefully monitored and meet all regulations ensuring the health and safety of our employees, community members and the environment.

While SARS-CoV-2's presence and viability in wastewater is still being examined by the scientific community, the wastewater treatment environment has been shown to be very effective in removing many other viruses and bacteria that are commonly found in the City's wastewater systems.

For more information about City efforts regarding COVID-19, please visit www.sandiego.gov/coronavirus.



How Do We Make Water Drinkable?

WATER TREATMENT

The City's Public Utilities Department provides high-quality drinking water by utilizing proven technology, modern facilities and state-certified operators. Water is treated using several processes, with each process providing additional water quality improvements. Using several treatment processes provides multiple barriers for added levels of safety. Our treatment plants employ a combination of time-tested conventional water treatment processes and innovative disinfection strategies. Both Alvarado and Miramar water treatment plants use ozone for primary disinfection, while the Otay Water Treatment Plant uses chlorine dioxide. Conventional water treatment consists of coagulation, flocculation, sedimentation and sand/multimedia filtration. This cost-effective, proven method of treatment is used throughout the modern world.



STAGES OF OUR WATER TREATMENT

Watershed protection: Protecting the watersheds prevents contamination of our water supply and is the most cost-effective process in water treatment. Extensive measures are taken to prevent contamination of our local and imported water. If you see "No Swimming" or "No Dumping" signs posted near water supplies, this is for the protection of your drinking water. The latest Watershed Sanitary Survey, which contains information on the City's watersheds, including water quality and vulnerabilities, is available at: sandiego.gov/public-utilities/water-quality/watersheds/sanitary-survey.

Coagulation: This is the chemical process of rapidly mixing coagulants into the water entering the water treatment plant. Many of the particles in the source water have negative charges, causing them to repel each other, much like two magnets when the negative ends are put together. Coagulation changes these negative charges to neutral.

Flocculation: Coagulated water is slowly mixed causing the neutral particles to collide. When the collisions occur, the particles clump together forming floc. As the floc is formed, particles in the water are trapped within the floc. The floc now looks like snowflakes suspended in the water.

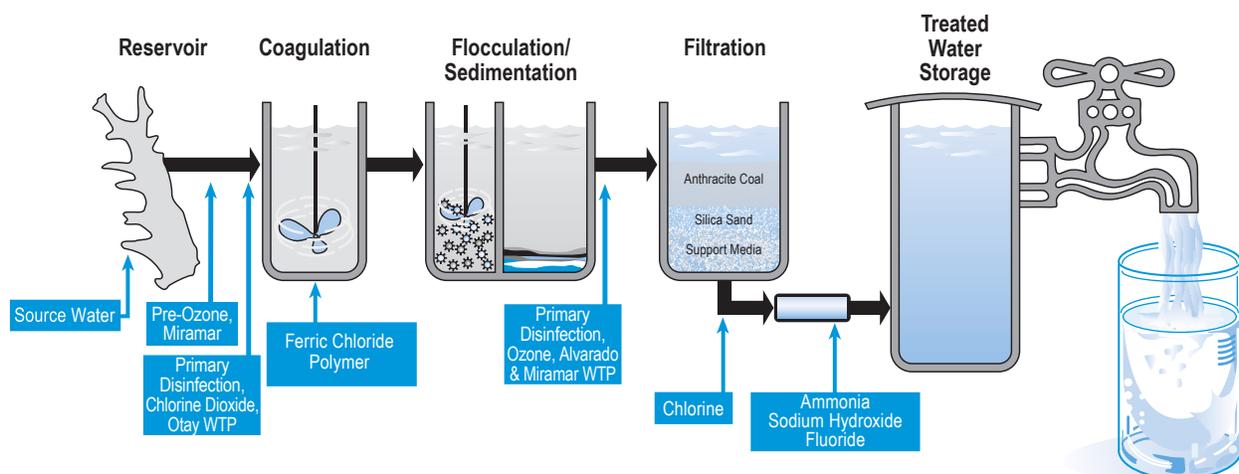
Sedimentation: The floc particles are heavier than water. Mixing is stopped and the water slowly flows through the sedimentation basins, during which the floc settles to the bottom and is removed. The clear water is collected from the top of the sedimentation basins.

Disinfection, Primary: Drinking water is further treated to remove or inactivate viruses, bacteria and other pathogenic organisms. Disinfection is accomplished in a variety of methods. The Alvarado and Miramar water treatment plants use ozone as the primary disinfectant. The Otay Water Treatment Plant uses chlorine dioxide as the primary disinfectant. These are advanced disinfection processes and have the advantage of providing higher quality water with better taste.

Filtration: Water is passed through deep filtration beds to produce water that is crystal clear. Extremely small particles are removed during this process. San Diego's water treatment plants produce water with turbidity (cloudiness) significantly better than drinking water standards, indicating a highly effective treatment process and resulting in high-quality drinking water.

Disinfection, Secondary: Chloramines are created by adding chlorine and ammonia to the water. Chloramines help prevent microbial contamination from occurring in the water distribution system.

Corrosion Control: The corrosivity of the water is controlled by adjusting the pH.



NOTICE OF VIOLATIONS

Under state law, the City of San Diego is required to collect at least 85 bacteriological water samples per week under the City's Bacteriological Sample Siting Plan. On April 29, 2020, and May 5, 2020, the City of San Diego discovered that two laboratory technicians had falsified data by collecting multiple samples from single sample sites. Using GPS data collected from City vehicles, it was discovered that a total of 139 routine bacteriological samples were not collected during the months of December 2019 and April 2020 as scheduled in the City's Bacteriological Sample Siting Plan. A complete incident report was submitted by the City to the state Department of Drinking Water on June 4, 2020. The State Water Board assessed an administrative penalty of \$15,000 for the falsification of data.

A CHANGE FOR THE BETTER...



BEGINS WITH YOU.

Did you know that San Diego's storm water system is separate from its water or wastewater system? Many people think that when water flows into a storm drain it is treated, but the storm drain system and the sewer system are not connected. Everything that enters storm drains flows untreated directly into our creeks, rivers, bays, beaches and ultimately the ocean.

That's why Think Blue, the City of San Diego's storm water outreach and education program, wants you to know that you have the power to keep trash, debris, sediments, metals, pesticides and other pollutants out of our storm drains and waterways by taking a few easy steps.

How You Can Help

-  **Sweep Up Around Your Yard:** Sweep up dirt, debris and yard waste and dispose of them properly. Yard waste has the potential to carry hazardous landscaping chemicals such as pesticides and fertilizers into the storm drain system and generate large amounts of bacteria if left to decompose in gutters, drains and local waterways.
-  **Eliminate Over-Irrigation:** Prevent water from leaving your property so it won't carry pollutants into our storm drains during dry weather. Sweep hard surfaces instead of hosing them off with water, adjust and maintain sprinklers so they don't spray onto your driveway or sidewalk and fix leaks promptly.
-  **When It Rains:** During the rainy season, redirect rain gutter downspouts to landscaped areas where the water can be absorbed and replenish groundwater or connect your downspout to a rain barrel to store the water for later use.
-  **From Your Car:** Your car can be a source of automotive pollutants such as motor oil. It's important to check your car regularly for fluid leaks.

Our Storm Water System

-  **From Curb to Ocean:** The City of San Diego oversees the operation and maintenance of 48,000 storm drain structures, 1,148 miles of pipe and 15 pump stations designed to control flooding by moving rain water away from the public and property to transport it to local waterways.
-  **Aging Infrastructure:** Maintenance of our storm water system is partially funded by a small storm water fee included in your water bill and supplemented by other City funds. It's estimated that almost \$900 million are needed in the next five years to fully fund the repairs and improvements required for the maintenance of this infrastructure and protect the quality of our waterways.
-  **Vital to San Diego:** A fully functional and operational modern storm water system is important to the environmental and economic health of San Diego and is essential to our quality of life.

Think Blue appreciates everything you do to help protect our local waterways. Visit ThinkBlue.org for more information on how you can prevent pollution in our waterways.

To report storm water pollution in San Diego, call the Think Blue Hotline at 619-235-1000 or report it using the Get It Done App or on your desktop at SanDiego.gov/getitdone.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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/Centers for Disease Control (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 (1-800-426-4791).

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. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at 1-800-426-4791. For detailed information on drinking water regulations, visit the California Division of Drinking Water (DDW) website at waterboards.ca.gov/drinking_water.



CRYPTOSPORIDIUM AND GIARDIA

Cryptosporidium and *Giardia* are microbial contaminants that are naturally present in the environment and found in surface water throughout the United States. Disinfection and filtration are highly effective in removing these contaminants; however, the disinfection and filtration methods cannot guarantee 100% removal. During calendar year 2020, the water supply to each of the City’s water treatment plants was monitored for *Cryptosporidium* and *Giardia*, and neither was detected.

HOW TO READ THE TABLES

The tables on the following pages list parameters that DDW requires the City to monitor, which may be associated with primary (health), secondary (aesthetic) or no established standards. These tables summarize monitoring from January through December 2020. The tables list all parameters that were detected at or above DDW’s Detection Limit for Purposes of Reporting (DLR). The map on page 2 of this report can be used to determine the treatment plant or plants that supply water to your residence. Less than 10% of San Diego’s total water use comes from purchased treated water, which is a blend of water treated at the Metropolitan Water District’s Skinner Water Treatment Plant, the San Diego County Water Authority’s Twin Oaks Valley Water Treatment Plant, and the Carlsbad Desalination Plant.

DEFINITION OF TERMS	ABBREVIATIONS
<p>Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.</p> <p>Location-based Running Annual Average (LRAA): The average of the most recent four quarters of monitoring performed at a distinct location in the distribution system. Location-based Running Annual Averages are calculated quarterly using 12 months of data and may include values obtained in 2018.</p> <p>Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary Maximum Contaminant Levels are set as close to the Public Health Goals or Maximum Contaminant Level Goals as is economically and technologically feasible. Secondary Maximum Contaminant Levels are set to protect the odor, taste and appearance of drinking water.</p> <p>Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected health risk. Maximum Contaminant Level Goals are set by the U.S. Environmental Protection Agency.</p> <p>Maximum Residual Disinfectant Level (MRDL): 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.</p> <p>Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. Maximum Residual Disinfectant Level Goals do not reflect the benefits of the use of disinfectants to control microbial contaminants.</p> <p>Notification Level (NL): Health-based advisory levels established by the Division of Drinking Water for chemicals in drinking water that lack Maximum Contaminant Levels. When chemicals are found at concentrations greater than their notification levels, certain requirements and recommendations apply.</p> <p>Public Health Goal (PHG): The level of a contaminant in drinking water that does not pose a significant risk to health. Public Health Goals are not regulatory standards.</p> <p>Primary Drinking Water Standard (PDWS): Maximum Contaminant Levels, Maximum Residual Disinfection Levels and treatment techniques for contaminants that affect health, along with their monitoring and reporting requirements.</p> <p>Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.</p>	<p>A: absent</p> <p>CA SMCL: California Secondary Maximum Contaminant Level</p> <p>CU: color units</p> <p>DLR: detection limit for reporting</p> <p>gr/Gal: grains per gallon</p> <p>MDL: City of San Diego Water Quality Laboratory Method Detection Limit – the lowest quantifiable concentration of a measured parameter detectable by the laboratory.</p> <p>mL: milliliter</p> <p>n/a: not applicable</p> <p>ND: not detected (less than DLR, where applicable)</p> <p>NTU: nephelometric turbidity units</p> <p>OU: odor units</p> <p>pCi/L: picocuries per liter (a measure of radiation)</p> <p>ppb: parts per billion or micrograms per liter (µg/L) – [1 ppb = 0.001 ppm]</p> <p>ppm: parts per million or milligrams per liter (mg/L) – [1 ppm = 1,000 ppb]</p> <p>µS/CM: micro-siemens/centimeter</p> <p>< less than</p> <p>> greater than</p>

ENVIRONMENTAL MONITORING AND TECHNICAL SERVICES CONSUMER CONFIDENCE REPORT DATA - 2020

PRIMARY STANDARDS (MANDATORY HEALTH RELATED STANDARDS)

CHEMICAL PARAMETERS	UNITS	MCL	PHG	DLR	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER		MAJOR SOURCES IN DRINKING WATER
					ALVARADO		MIRAMAR		OTAY		AVERAGE	RANGE	
					AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE			
Aluminum	ppm	1	0.6	0.05	ND	ND - ND	ND	ND - ND	ND	ND - ND	ND	ND - 0.2	Erosion of natural deposits; residue from some surface water treatment processes
Barium	ppm	1	2	0.1	ND	ND - ND	ND	ND - 0.1	ND	ND - ND	ND	ND - ND	Erosion of natural deposits; discharges of oil drilling wastes
Fluoride (naturally occurring)	ppm	2.0	1	0.1	0.3	0.2 - 0.4	0.2	0.1 - 0.4	0.3	0.2 - 0.5	0.4	0.1 - 1.0	Erosion of natural deposits
Fluoride (treatment-related)*	ppm	2.0	1	0.1	0.5	0.4 - 0.7	0.4	0.1 - 0.7	0.5	0.4 - 0.6	0.7	0.5 - 0.9	Water additive that promotes strong teeth; erosion of natural deposits
Nitrate (as N)	ppm	10	10	0.4	ND	ND - ND	ND	ND - ND	ND	ND - 0.4	ND	ND - 0.4	Runoff and leaching from fertilizer use; erosion of natural deposits
Selenium	ppb	50	30	5	ND	ND - ND	ND	ND - ND	ND	ND - ND	ND	ND - 6	Erosion of natural deposits; refineries, mines, and chemical waste discharge

* Note: Optimal Fluoride Level as established by US Dept. of Health and Human Services and the State Water Resources Control Board is 0.7 ppm.

Primary standards (MCLs) are developed for the purpose of protecting the public from possible health risks associated with long-term exposure to contaminants. In this table there are five primary standards listed, which means that of the many primary standards set by DDW and the EPA, only these were detected at or above the DLR in San Diego's drinking water. These results are significantly below their respective MCLs. In general, no health hazard is expected to exist when contaminant levels are below a Primary MCL. A list of the parameters which were analyzed for, but not detected, in San Diego's drinking water is posted at sandiego.gov/public-utilities/water-quality/water-quality-reports.

California state law requires water agencies with more than 10,000 water service connections to supplement naturally-occurring fluoride in their drinking water. Our water system complies with this requirement to help prevent dental cavities in consumers. In 2020, the City of San Diego's source waters contained naturally-occurring fluoride between 0.1 and 1.0 ppm. State regulations require water producers to supplement this naturally-occurring fluoride to an optimum dose of 0.7 ppm. In 2020 treated water had fluoride concentrations ranging from 0.1 to 0.9 ppm, with average values of 0.4 to 0.7 ppm. Information about fluoridation, oral health, and current issues is available at cdc.gov/fluoridation/index.html.

RADIOACTIVE PARAMETERS	UNITS	MCL	PHG (MCLG)	DLR	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER		MAJOR SOURCES IN DRINKING WATER
					ALVARADO [^]		MIRAMAR [^]		OTAY [^]		AVERAGE	RANGE	
					AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE			
Gross Alpha Particle Activity	pCi/L	15	(0)	3	ND	ND - 5	3	Single Sample	3	Single Sample	ND	ND - 3	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	50*	(0)	4	ND	ND - 6	5	Single Sample	5	Single Sample	ND	ND - 5	Decay of natural and man-made deposits
Radium 228	pCi/L	----	0.019	1	ND	ND - ND	ND	Single Sample	ND	Single Sample	ND	ND - 1	Erosion of natural deposits
Uranium	pCi/L	20	0.43	1	2	2 - 2	1	Single Sample	ND	Single Sample	1	ND - 2	Erosion of natural deposits

* The State Water Resources Control Board considers 50 pCi/L to be the level of concern for beta particles.

[^] Data from 2020. Miramar and Otay Uranium and Radium 228 data from 2017.

As water travels over the surface of the land or in underground aquifers, it dissolves naturally-occurring minerals and, in some cases, radioactive material. Radioactive materials can be naturally-occurring or a result of oil and gas mining activities. The results in the table above are presented in units of picocuries per

liter (pCi/L), a standard measurement that represents an amount of radiation per liter of water. San Diego's drinking water is substantially lower than the MCL for all radioactive parameters.

MICROBIOLOGICAL	UNITS	MCL	MCLG	DLR	CITY OF SAN DIEGO DISTRIBUTION SYSTEM		MAJOR SOURCES IN DRINKING WATER
					AVERAGE*	RANGE*	
Total Coliform Bacteria State Total Coliform Rule	% Positive	5% Positive	0	n/a	0.2%	0 - 0.74%	Naturally present in the environment

*Based on Monthly Percentages of Positive Total Coliform samples

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether your drinking water meets health standards. During December 2019 through April 2020, 139 of the 2,706 required distribution system sample sites were not monitored for total coliform and E. coli for reasons outside of our control. Therefore, we cannot be sure of the quality of the drinking water in the associated pressure zones during the weeks these sites were not monitored. However, we have since taken the required samples and put in place policies and tools to safeguard against similar occurrences in the future. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful bacteria may be present in the water supply.

coliform samples from the distribution system, an average of 130 per week. The test also examines the presence of E. coli, which is a subgroup of total coliform. The MCL for total coliform is the presence of coliform in 5% or more of the samples analyzed in one month, meaning that if 100 samples are collected in March and five contain total coliform, a violation of the MCL has occurred. The regulations are written as a percentage of monthly samples because multiple variables can cause a positive result, including localized contamination at the tap. In 2020, the City did not exceed the monthly MCL for total coliform. In fact, this has never occurred in the City's system since this rule was established in 1989. The maximum value recorded in 2020 was 0.74 percent of monthly samples. When any sample tests positive for total coliform, three additional samples associated with that site are collected and the cause of the positive result is investigated.

DDW regulations require the City to test a minimum of 85 samples per week throughout our distribution system for total coliform bacteria, and to report the results, including the percentage of total coliform positive samples in a given month. To meet this requirement, in 2020 the City of San Diego collected and analyzed 6,784 total

Total Coliform Rule testing also examines the presence of E. coli, which is a subgroup of Total Coliform. All samples obtained from our distribution system in 2020 were absent of E. coli.

TURBIDITY	UNITS	MCL	PHG	CITY OF SAN DIEGO TREATMENT PLANTS			PURCHASED TREATED WATER	MAJOR SOURCES IN DRINKING WATER
				ALVARADO	MIRAMAR	OTAY		
Turbidity	NTU	TT = 1 NTU	n/a	Max Level Found = 0.20	Max Level Found = 0.10	Max Level Found = 0.08	Max Level Found = 0.09	Soil runoff
		TT = 95% of samples ≤ 0.3 NTU	n/a	100% of samples ≤ 0.3	100% of samples ≤ 0.3	100% of samples ≤ 0.3	100% of samples ≤ 0.3	

Turbidity is a measure of the cloudiness of the water and is regulated as a Treatment Technique (TT) – an indicator of the effectiveness of our treatment. The City's three water treatment plants (WTPs) monitor turbidity every 15 minutes to ensure consistent, high-quality drinking water production for our customers. TT performance goals established by DDW state that all samples should have turbidity less than 1 NTU, and 95% of the samples should have turbidity less than 0.3 NTU. All three of our treatment plants had 100% of turbidity values less than 0.3 NTU; the maximum values measured in 2020 were 0.20 NTU for Alvarado WTP, 0.10 NTU for Miramar WTP and 0.08 for Otay WTP. These consistent and very low turbidity results have led

to our treatment plants receiving performance awards. For example:

- The Otay WTP has been awarded the Director's Award from the American Water Works Association (AWWA) Partnership for Safe Water (PSW) Program for thirteen consecutive years.
- The Miramar WTP has received the Director's Award for nine years and the President's Award for eight consecutive years.
- Our award-winning Alvarado Treatment Plant participates in the PSW program, meeting all turbidity standards.

CONTINUED: PRIMARY STANDARDS (MANDATORY HEALTH RELATED STANDARDS)

LEAD AND COPPER STUDY	UNITS	ACTION LEVEL	PHG	DLR	SAMPLES TAKEN FROM CUSTOMER TAPS				Number of Schools Sampled for Lead	MAJOR SOURCES IN DRINKING WATER
					90th PERCENTILE CONCENTRATION	SAMPLING SITES	NUMBER EXCEEDING AL	VIOLATION		
Copper	ppm	1.3	0.3	0.05	0.4	54	0	NO	281*	Internal corrosion of household plumbing systems
Lead	ppb	15	0.2	5	ND	54	0	NO		Internal corrosion of household plumbing systems

Note: Lead and Copper Rule Monitoring mandated every three years. Most recent monitoring conducted in 2020.

In addition to the EPA Lead and Copper study and schools sampling, the City of San Diego analyzed 72 samples from our three drinking water treatment plants in 2020. All results were below the DLR.

* Represents total number of schools sampled in 2017, 2018, and 2019.

Lead and copper are at Non Detectable levels in the water produced at San Diego's water treatment plants, but can enter drinking water through plumbing materials used in homes or businesses. Exposure to lead and copper may cause health problems ranging from stomach distress to brain damage. In 1991, the EPA published the Lead and Copper Rule (LCR) which, along with corrosion control and other treatment practices, requires monitoring of lead and copper at customer taps. The purpose of the LCR residential sampling is to assess the potential of lead and copper to leach into drinking water from the plumbing installed between the water meter and the tap in homes and businesses. If lead concentrations at customer taps exceed an Action Level (AL) of 15 ppb or copper concentrations exceed an AL of 1.3 ppm in more than 10% of taps sampled, we are required to inform the public and undertake a number of additional actions to ensure comprehensive corrosion control.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of San Diego is responsible for 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 two 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 at 1-800-426-4791 or at <https://www.epa.gov/lead>.

Lead and Copper Rule monitoring must be conducted every three years. In 2020 54 customers provided samples from their taps to the City of San Diego for lead and copper analysis. None of the residences had a copper or lead result above the AL. Because less than 10% of our results were above the AL for both lead and copper, our water is considered non-corrosive, and no additional actions are required. Our next system-wide study will be conducted in the summer of 2023.

In 2017, DDW issued a Permit Amendment requiring water utilities to sample for lead in the drinking water of any school requesting testing. Additionally, Assembly Bill 746 was signed into law in October 2017, requiring California water providers to conduct lead testing at public K-12 schools within their service area to determine if lead is present in the school's private plumbing or water fixtures. The table lists the total number of schools the Public Utilities Department has tested under these programs. To obtain testing results from individual schools, please contact the school directly or visit the district website.

DETECTED DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUAL AND DISINFECTION BY-PRODUCT PRECURSORS

	UNITS	MCL	PHG	DLR	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER		MAJOR SOURCES IN DRINKING WATER
					ALVARADO		MIRAMAR		OTAY		AVERAGE	RANGE	
					AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE			
Bromate*	ppb	10	0.1	5.0/1.0***	ND	ND - 9.7	ND	ND - ND	n/a	n/a	2.7	ND - 7.4	Byproduct of drinking water disinfection
Chlorate	ppb	NL=800 PPB		20	n/a	n/a	n/a	n/a	173	95.1 - 334	145	34 - 290	Byproduct of drinking water disinfection
Chlorite**	ppm	1.0	0.05	0.020	n/a	n/a	n/a	n/a	0.35	0.17 - 0.62	n/a	n/a	Byproduct of drinking water disinfection
Total Organic Carbon (TOC)	ppm	TT	n/a	0.3	3.1	2.5 - 3.8	2.7	2.0 - 4.2	3.8	2.0 - 5.4	2.5****	1.9 - 2.6	Various natural and manmade sources; TOC is a precursor for the formation of disinfection byproducts

* Required for Alvarado, Miramar, and Purchased Treated Water; compliance is determined by the quarterly Running Annual Average (RAA)

** Required for Otay ***City of San Diego DLR= 5, Purchased Treated Water DLR = 1

****Highest Running Annual Average

	UNITS	MCL [MRDL]	PHG [MRDLG]	DLR (MDL)	CITY OF SAN DIEGO DISTRIBUTION SYSTEM			MAJOR SOURCES IN DRINKING WATER
					Average	Range	Violation	
Disinfectant Residual (Chloramines as Cl ₂)	ppm	[4.0] ^B	[4]	(0.1)	Distribution system average = 2.0	Range = ND - 3.8	---	Drinking water disinfectant added for treatment
Chlorite ^A	ppm	1.0	0.05	0.020	Distribution system average = 0.32	Range = 0.14 - 0.44	---	Byproduct of drinking water disinfection
Haloacetic Acids (HAA5)	ppb	60 ^C	n/a	---	Maximum LRAA = 14	Range = ND - 22	Violation - NO	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs)	ppb	80 ^C	n/a	---	Maximum LRAA = 46	Range = 8.8 - 65.6	Violation - NO	Byproduct of drinking water chlorination

^A Chlorite monitoring required only in the Southern section of the distribution system.

^B Compliance is determined by the distribution system average.

^C Total Trihalomethane and HAA5 compliance is based on quarterly Locational Running Annual Averages (LRAA)

Drinking water must be disinfected to ensure that any potentially harmful microbes are neutralized. There are a variety of disinfection strategies used throughout the United States. San Diego utilizes some of the more advanced disinfection technologies available. Our Alvarado and Miramar water treatment plants use ozone and chloramines for disinfection. Ozone produces fewer disinfection byproducts than chlorine or chloramines alone and is considered a superior disinfection method. However, all disinfectant strategies have the potential to create a byproduct. When ozone is used, bromate is monitored as a disinfection byproduct. The City's Otay WTP uses chlorine dioxide and chloramines for disinfection. When chlorine dioxide is used, chlorite is monitored as a disinfection byproduct in the plant effluent and distribution system. All 2020 results for bromate and chlorite are below the MCLs. Total Organic Carbon (TOC) has no health effects. It is monitored and reported here because it provides an assessment of potential disinfection byproduct formation.

As drinking water travels from the City's WTPs through the distribution system to homes and businesses, a disinfectant residual must be maintained in order to prevent growth of potentially harmful microbes.

In San Diego, chloramines are used for this purpose. The City performs frequent and comprehensive monitoring to ensure that disinfectant levels remain in the proper range throughout our large and complex distribution system. The Maximum Residual Disinfectant Level (MRDL) is 4.0 ppm. In 2020 the City analyzed 7751 samples for chloramines throughout the distribution system; the average residual was 2.0 ppm and the maximum was 3.8 ppm.

Another category of disinfection byproducts that the EPA and DDW regulate are Total Trihalomethanes (THMs) and Haloacetic Acids (HAA5). Compliance with EPA's Stage 2 Disinfection Byproduct (DBP) rule is based on the running annual average at each location monitored in the distribution system. The MCL for THMs is an LRAA of 80 ppb, and the MCL for HAA5 is an LRAA of 60 ppb. The City has had no violations of the EPA Stage 1 and Stage 2 DBP MCLs since the program was formalized in 2002. In 2020, our highest LRAA for TTHM was 46 ppb, and individual measurements ranged from 8.8 to 65.6 ppb. For HAA5, our highest LRAA was 14 ppb, and individual measurements ranged from ND to 22 ppb.

SECONDARY STANDARDS (AESTHETICS STANDARDS)

	UNITS	CA SMCL	DLR (MDL)	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER		MAJOR SOURCES IN DRINKING WATER
				ALVARADO		MIRAMAR		OTAY		AVERAGE	RANGE	
				AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE			
Aluminum	ppb	200	50	ND	ND - ND	ND	ND - ND	ND	ND - ND	ND	ND - 200	Erosion of natural deposits; residue from some surface water treatment processes
Chloride	ppm	500	(0.5)	99.5	88.0 - 108	93.9	80.5 - 103	139	103 - 180	79.2	54.0 - 100	Runoff/leaching from natural deposits; seawater influence
Color	CU	15	(1)	ND	ND - 2	ND	ND - 1	1	ND - 3	ND	ND - 2	Naturally - occurring organic materials
Odor - Threshold	OU	3	1	ND	ND - 1	ND	ND - ND	1	1 - 1	ND	ND - 2	Naturally - occurring organic materials
Specific Conductance	µS/cm	1,600	n/a	831	769 - 859	777	563 - 923	923	845 - 1040	647	292 - 956	Substances that form ions when in water; seawater influence
Sulfate	ppm	500	0.5	155	123 - 176	144	72.8 - 202	135	89.5 - 187	92.0	12.0 - 208	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	ppm	1000	(10)	515	468 - 553	477	352 - 564	556	506 - 620	345	140 - 588	Runoff/leaching from natural deposits

Secondary standards (Secondary MCLs) are set to protect the odor, taste, and appearance of drinking water. If present at or above the Secondary MCL, these parameters may cause the water to appear cloudy or colored, or to have a different or unusual taste or odor. These parameters are not considered to present

a risk to human health at or above Secondary MCL levels. All measurements of Secondary Standards were at or below the Secondary MCL in 2020.

OTHER PARAMETERS THAT MAY BE OF INTEREST

	UNITS	MCL	PHG	MDL	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER	
					ALVARADO		MIRAMAR		OTAY		AVERAGE	RANGE
					AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE		
Sodium	ppm	n/a	n/a	20	87.6	75.9 - 93.2	81.8	62.5 - 90.3	105	95.0 - 128	68.4	45.4 - 98.0
Total Hardness	ppm	n/a	n/a	10	236	203 - 255	218	127 - 277	235	175 - 293	145	41.7 - 273
Total Hardness	gr/Gal	n/a	n/a	0.6	13.8	11.9 - 14.9	12.7	7.42 - 16.2	13.7	10.2 - 17.1	8.47	2.44 - 15.9
Alkalinity - Total as CaCO ₃	ppm	n/a	n/a	20	126	112 - 150	112	83.2 - 139	125	110 - 144	91.5	46.0 - 121
pH	pH	n/a	n/a	n/a	8.06	6.84 - 8.46	8.20	7.59 - 8.61	8.18	7.46 - 8.74	8.14	7.40 - 8.80

Water quality parameters that may be of interest to our consumers, but do not have MCLs or PHGs and are not considered to present a risk to human health, are included in the table above. Although sodium and hardness do not have MCLs, they are of interest to many consumers who are concerned about sodium intake and may believe that the hardness of the water could affect their health. Therefore, monitoring and

reporting are required by DDW. Sodium refers to the salt present in the water and is generally naturally occurring. Hardness is the sum of positively-charged mineral ions present in the water, essentially the sum of magnesium and calcium. These minerals are usually naturally occurring. Alkalinity and pH are included here because they have proven to be of interest to our customers.

DETECTED UNREGULATED PARAMETERS

	UNITS	NOTIFICATION LEVEL	DLR (PHG)	CITY OF SAN DIEGO TREATMENT PLANTS						PURCHASED TREATED WATER	
				ALVARADO		MIRAMAR		OTAY		AVERAGE	RANGE
				AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE		
Boron	ppm	1	0.1	0.1	0.1 - 0.1	0.1	0.1 - 0.1	0.2	0.2 - 0.2	0.3	0.1 - 0.8
N-Nitrosodimethylamine (NDMA)	ppt	10	(3)	n/a	n/a	n/a	n/a	n/a	n/a	2	ND - 4.2
Chromium, hexavalent (CrVI)	ppb	----	(0.02)*	0.06	Single Sample	0.05	Single Sample	0.03	Single Sample	ND	ND - ND

* The DLR of 1 ppb and the MCL of 10 ppb for Chromium VI were repealed in 2017. The value listed here is the PHG for Chromium VI.

UCMR4 STUDY

UCMR4 PARAMETERS ¹	UNITS	UCMR4 MRL (MDL)	CITY OF SAN DIEGO TREATMENT PLANTS						CITY OF SAN DIEGO DISTRIBUTION SYSTEM	
			ALVARADO		MIRAMAR		OTAY		MAX LRAA	RANGE
			AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE		
Bromide*	ppm	(0.02)	0.10	0.05 - 0.16	0.06	0.04 - 0.11	0.20	0.04 - 0.35	n/a	n/a
Manganese	ppb	0.4	2.2	ND - 8.2	0.9	0.6 - 1.2	0.2	ND - 0.7	n/a	n/a
Total Organic Carbon (TOC)*	ppm	(1)	3.2	2.7 - 3.7	2.7	2.6 - 2.9	4.9	2.6 - 7.0	n/a	n/a
HAA9**	ppb	n/a	n/a	n/a	n/a	n/a	n/a	n/a	26	4.1 - 40

¹ UCMR4 samples were collected in 2018

* As measured in untreated plant influent

** HAA9 is the sum of bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, and trichloroacetic acid.

The parameters listed in the Detected Unregulated Parameters section are not regulated by DDW or the EPA, and monitoring is not required. Unregulated contaminant monitoring helps U.S. EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated. Boron and N-Nitrosodimethylamine (NDMA) have been issued Notification Levels (NL) by DDW. If detected above the NL, customers must be notified of the presence of these parameters. The results presented here are significantly lower than the NL. Hexavalent Chromium (CrVI) was issued an MCL of 10 ppb and a DLR of 1 ppb by DDW in 2014. However, these were withdrawn in 2017. The values presented here are approximately 100 times less than 10 ppb.

As part of the 1996 Safe Drinking Water Act (SDWA) amendments, every five years EPA selects from the Contaminant Candidate List (CCL) up to 30 unregulated contaminants to be monitored by public water systems as part of the

Unregulated Contaminant Monitoring Rule (UCMR) program. The CCL is a list of contaminants that are not regulated but are known or anticipated to occur in public water systems, and may warrant future regulation under the Safe Drinking Water Act. The results of UCMR studies provide a basis for future regulatory actions to protect public health. The City of San Diego conducted UCMR4 sampling in 2018.

San Diego's drinking water was tested by an EPA-approved contract laboratory in 2018 for 30 UCMR4 unregulated contaminants. This included 10 different cyanotoxins, none of which were detected. Twenty additional chemicals were monitored, including metals, pesticides, and alcohols. Of these 32 parameters, two were detected - manganese and HAA9. Additionally, two indicators of water quality were monitored in untreated water - bromide and Total Organic Carbon (TOC).



Quality | Value | Reliability | Customer Service

The City of
SAN DIEGO

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

Spanish

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

Arabic

”هذا التقرير يحتوي على معلومات مهمة تتعلق بمياه الشفة (أو الشرب).
ترجم التقرير، أو تكلم مع شخص يستطيع أن يفهم التقرير.“

Chinese (Traditional)

此份有關你的食水報告，內有重要資料和訊息，請找
他人為你翻譯及解釋清楚。

Chinese (Simplified)

此份有关你的食水报告，内有重要资料和信息，请找
他人为你翻译及解释清楚。

Farsi

امل اطلاعات مهمی راجع به آب آشامیدنی است. اگر نمی‌توانید این اطلاعات را به زبان انگلیسی
این اطلاعات به

بخوانید لطفاً از کسی که می‌تواند بیاری بگیریید تا مطالب را برای شما به فارسی ترجمه کند.

French

Cé rapport contient des information importantes concernant votre eau potable.
Veuillez traduire, ou parlez avec quelqu' un qui peut le comprendre.

Hmong

Daimntawv tshaj tawm no muaj lus tseemceeb txog koj cov dej haus.
Tshab txhais nws, los yog tham nrog tej tug neeg uas totaub txog nws.

Japanese

この情報は重要です。
翻訳を依頼してください。

Korean

이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시오.

Laotian

ລາຍງານນີ້ມີຂໍ້ມູນສຳຄັນກ່ຽວກັບນ້ຳປະປາຂອງທ່ານ. ຈົ່ງໃຫ້ຄົນອື່ນຮູ້ເປັນຄວາມໃຫ້ທ່ານ,
ຫລືໃຫ້ປຶກສາກັບຄົນໃດຄົນໜຶ່ງທີ່ຂ້າໃຈເລື້ອງ.

Russian

Этот отчет содержит важную информацию о вашей питьевой воды. Переведите
его или поговорите с тем, кто это понимает.

Swahili

Shauri hii niya kufahamisha uzuri wa maji ya kunyua.
Shauri nilazima egeuzwe kwa yoyote hajui Kiingereza.

Tagalog

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

Vietnamese

Chi tiết này thật quan trọng.
Xin nhờ người dịch cho quý vị.

Khmer

របាយការណ៍នេះមានព័ត៌មានសំខាន់
និងព័ត៌មានបរិភោគ ។ សូមបកប្រែ
ឬពិគ្រោះជាមួយអ្នកដែលចេះភាសា
របាយការណ៍នេះ ។