



ANNUAL DRINKING
WATER QUALITY
REPORT
2022



City of San Diego's Tap Water Supply Meets All State and Federal Health Standards in 2022

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 2022, 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 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.



Message from the Public Utilities Director

You may not give much thought to the water that you use every day, or the process it takes for you to receive that water. But in fact, there's a lot involved in bringing water to our customers.

Today, we import about 90% of our water, which then goes through a rigorous water quality treatment process. Once that is complete, a complex system of pumps, valves and pipelines delivers the water to you. This entire process is overseen by a dedicated team of men and women to make sure your water quality meets all state and federal standards and regulations.

It is the job of all of us to make sure we use our water efficiently and not waste this precious resource.

I encourage you to read through this Drinking Water Quality Report to learn more about the water we use daily and how to use it wisely.

Thank you,

Juan Guerreiro
Director of Public Utilities
City of San Diego



CONTACT

Public Utilities Emergency Hotline	619-515-3525
General and Billing Information	619-515-3500
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
Stormwater Pollution Prevention	619-235-1000
Report Water Waste	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/cityofsaniego

Nextdoor

nextdoor.com/city/san-diego--ca



twitter.com/CityofSanDiego

YouTube

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 stormwater 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 stormwater 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 stormwater 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.

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.

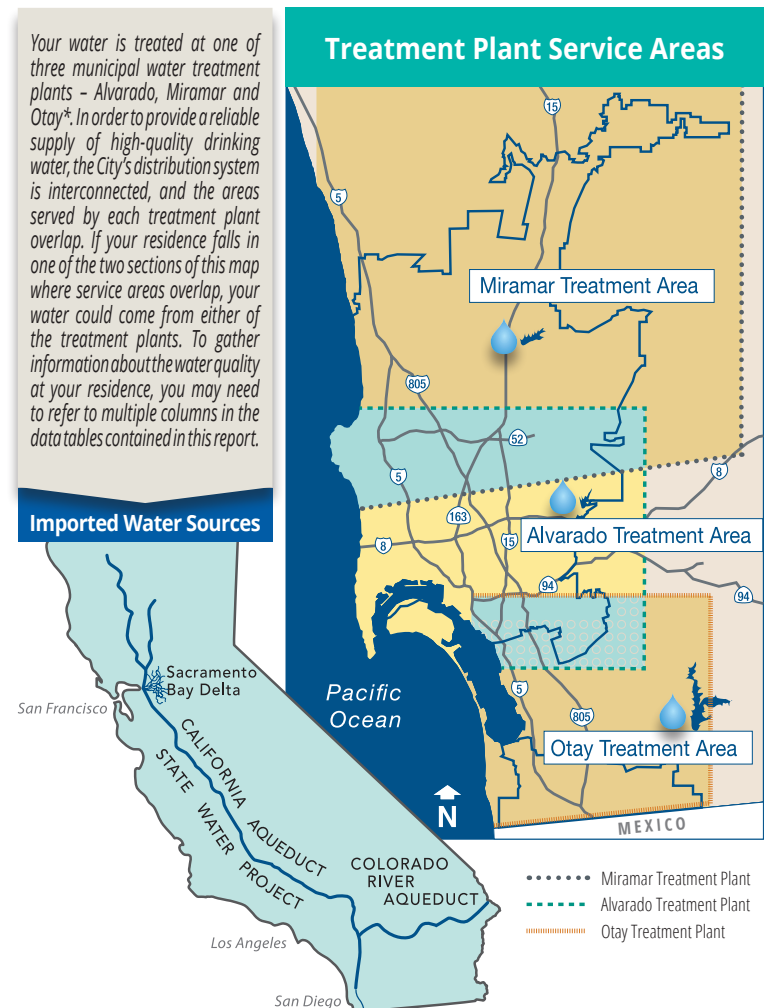
Imported Water Supply and the Impact on Water Quality

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 below).

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 the source water and adjusts its treatment process to ensure that the water is always healthy and safe.



*A small portion is treated water supplied by Metropolitan Water District’s Skinner Water Treatment Plant and the San Diego County Water Authority’s Twin Oaks and Carlsbad Desalination water treatment plants.

Is Your Bill Unusually High?

THERE ARE THREE MAIN REASONS WHY THIS CAN OCCUR

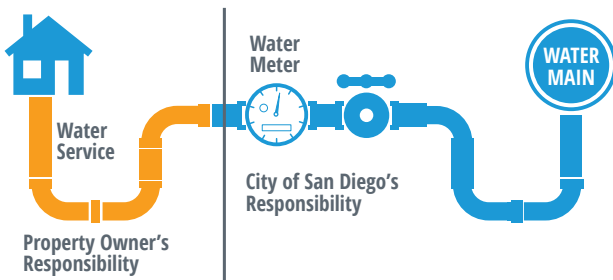
1. You Have A Leak On Your Property

This happens quite often and even a seemingly small leak can cause a huge increase in your bill. It might be a running toilet or a problem with your irrigation system.

To check for a non-irrigation system leak you will need to find your water meter (see image below). It is generally located near the curb in front of your home or place of business in a direct line with the main outside faucet. It is housed in a concrete box usually marked "water." Carefully remove the lid by using a tool such as a large screwdriver. Insert the tool into one of the holes and pry the lid off. Check the area around the meter to make sure there are no harmful insects or other animals.

Then, turn all water-using appliances off so that no water is being used anywhere on the property. Check the position of the meter dial and wait. If after 15 minutes the dials haven't moved, congratulations! You have a water-tight property. If the dials have moved, start checking hose connections, faucets and toilets for water leaks. If you have everything turned off and are sure the toilets and connections aren't leaking, yet the dials are still turning, you may have a hidden leak in an underground pipe. If this is the case, you may need to call a plumber for assistance.

How to Locate Your Water Meter



*Your water meter could be located in an alley or in a canyon.

*The water meter box and its lid are maintained by the City unless it's a private water service.

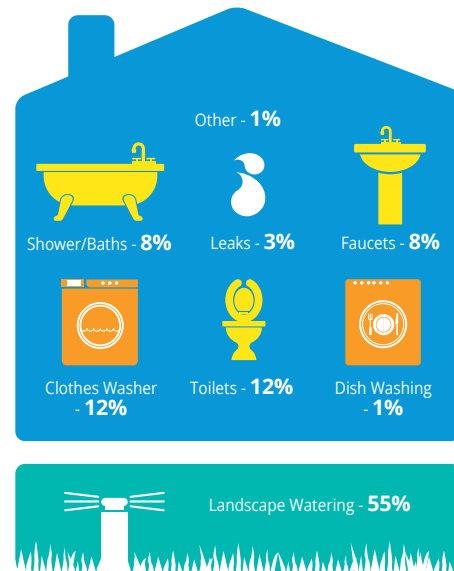
2. You Used More Water Than Usual

This is the most common reason for a higher than normal bill. Perhaps you refilled a swimming pool, or put in some new landscaping which required watering. Maybe a family member moved back home.

3. An Error Occurred When Reading Your Meter

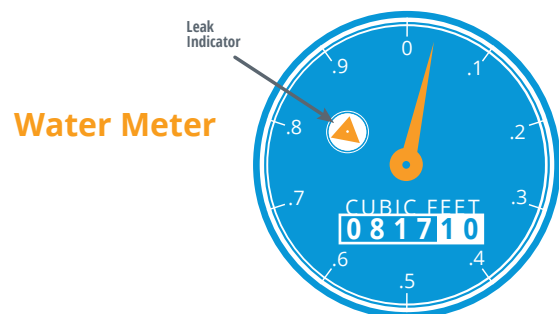
While the Public Utilities Department has a high meter reading accuracy rate, errors can occur. If you don't have a leak and you haven't used more water lately, it could be that your most recent meter read was incorrect.

Typical Water Use In A Single-Family Home



Here's What To Do:

- Read your water meter. In the picture of the water meter register shown below, note the figures shown under the words CUBIC FEET. In this example the meter shows 81,710. Because charges are based on units of 100 cubic feet, we ignore the last two numbers (the ones in the white background below). So, the reading in this case is 817.
- Compare the read that is displaying on your water meter right now to the read on your last bill. If the meter read printed on your last bill is higher than the read that is currently displaying on your meter, then likely there has been an error when the read was obtained by the Public Utilities Department for your billing statement.



If you believe your water meter was misread, please visit [sandiego.gov/water-meter-read](https://www.sandiego.gov/water-meter-read) for directions on how to obtain a new read for your meter. Alternatively, you can call our Customer Support Division at 619-515-3500.

Highlights of 2022

FEBRUARY

Beginning Feb. 27, the City no longer requires property owners to file a Water Conservation Certificate when selling their property, simplifying plumbing requirements for property owners while ensuring consistency with state legislation.

MARCH

The City announced that a 17-acre parcel in Mission Valley will be the future site for a Pure Water facility as part of the program's Phase 2. Also, pipeline installation for the North City Pure Water Facility began.

APRIL

Fitch Ratings and S&P Global Ratings both assigned 'AA' ratings to approximately \$158 million subordinate sewer revenue bonds, issued by the City's Public Facilities Financing Authority. In addition, S&P Global Ratings affirmed its 'AA+' long-term rating on the authority's senior sewer revenue refunding bonds. Fitch affirmed the rating on senior sewer revenue bonds at 'AA.' All bond proceeds will be used to finance sewer system capital improvement projects citywide.

MAY

The City celebrated the 100th anniversary of Barrett Reservoir, one of nine reservoirs that make up part of the City's vast water system.



Barrett Reservoir

OCTOBER

The last two of 10 major construction packages for Phase 1 of the City's Pure Water program began construction: Miramar Reservoir Pump Station and the Morena Pipelines Southern/Middle Alignment.



Join Our Team!

Have you considered a career in water and wastewater services? With approximately 1,900 positions and 187 classifications, the Public Utilities Department has a variety of job opportunities for people with diverse skills. Public Utilities provides water services for 1.4 million City customers and wastewater services for 2.2 million City customers and regional partners.

Available jobs have great healthcare benefits, flexible work times and retirement pension.



To learn more about how to join the Public Utilities team, visit sandiego.gov/public-utilities/hiring



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 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

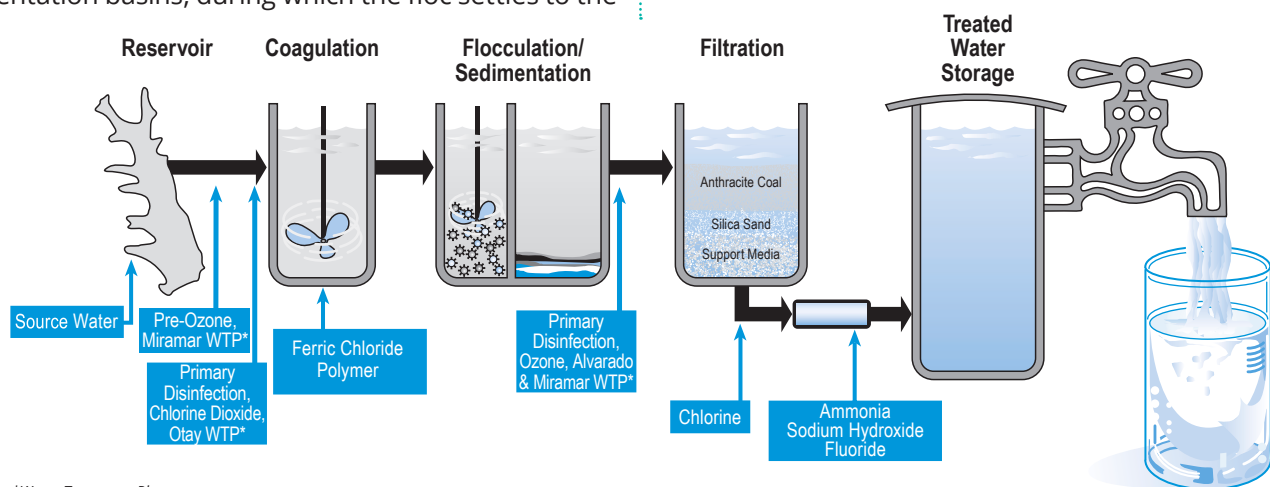
bottom and is removed. The clear water is collected from the top of the sedimentation basins.

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.



*Water Treatment Plant

NOTICE OF VIOLATIONS

The State Water Board has determined that the City has failed to implement a cross-connection control program in compliance with CCR, Title 17, Sections 7584 (c), and 7604. Specifically, there are 11,543 identified services needing backflow protection devices that have not been installed. To return to compliance, the City will work with customers and developers to ensure proper backflow protection devices are installed to City standards.

Converting Your Lawn is Now Easier Than Ever



Lawns are estimated to require 44 gallons of water per square foot per year! One of the most effective ways to reduce water use is to replace a lawn with drought-resistant plants and landscaping. Californians can get more money to do just that thanks to state legislation that exempts local rebates for turf replacement from state income tax. This ensures more money can be spent on transforming lawns into water-wise yards.

The City offers a \$1.25 per square foot rebate for all lawns that are converted. The Metropolitan Water District of Southern California may have additional funding up to an additional \$3 per square foot. Your full amount will be determined after submitting an application. For more information, visit: wastenowater.org

Sign Up for a Free Water Survey

Looking for new ways to save water in your home or business? Water surveys can help you identify water-saving opportunities and evaluate your irrigation system.

Free residential and commercial survey programs are available to property owners and tenants located within the Public Utilities Department's service area.

To schedule a survey or find more information, please use the QR code below.



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 and 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 EPA 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 2022, 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 2022. 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

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

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 2020.

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.

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.

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.

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.

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.

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.

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.

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

ABBREVIATIONS

A: absent

CA SMCL: California Secondary Maximum Contaminant Level

CU: color units

DLR: detection limit for reporting

gr/Gal: grains per gallon

MDL: City of San Diego Water Quality Laboratory Method Detection Limit – the lowest quantifiable concentration of a measured parameter detectable by the laboratory.

mL: milliliter

n/a: not applicable

ND: not detected (less than DLR, where applicable)

NTU: nephelometric turbidity units

OU: odor units

pCi/L: picocuries per liter (a measure of radiation)

pH: potential of hydrogen. pH is a measure of how acidic or basic water is. The range goes from 0 – 14, with 7 being neutral. pHs of less than 7 indicate acidity, whereas pHs greater than 7 are basic.

ppb: parts per billion or micrograms per liter ($\mu\text{g/L}$) – [1 ppb = 0.001 ppm]

ppm: parts per million or milligrams per liter (mg/L) – [1 ppm = 1,000 ppb]

$\mu\text{S/cm}$: micro-siemens/centimeter

< less than

> greater than

ENVIRONMENTAL MONITORING AND TECHNICAL SERVICES CONSUMER CONFIDENCE REPORT DATA - 2022

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	0.06	ND - 0.2	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic	ppb	10	0.004	2	ND	ND - ND	ND	ND - 3	ND	ND - ND	ND	ND - 2	Erosion of natural deposits, glass and electronics production waste
Barium	ppm	1	2	0.1	ND	ND - 0.1	0.1	0.1 - 0.1	ND	ND - 0.1	ND	ND - ND	Erosion of natural deposits; discharges of oil drilling wastes
Fluoride (naturally occurring)	ppm	2	1	0.1	0.3	0.3 - 0.4	0.3	0.2 - 0.4	0.3	0.2 - 0.4	0.5	0.2 - 0.9	Erosion of natural deposits
Fluoride (treatment-related)*	ppm	2	1	0.1	0.6	0.3 - 0.7	0.6	0.3 - 0.8	0.6	0.4 - 0.8	0.7	ND - 0.8	Erosion of natural deposits; water additive that promotes strong teeth
Nitrate (as N)	ppm	10	10	0.4	ND	ND - ND	ND	ND - ND	ND	ND - ND	ND	ND - 0.4	Erosion of natural deposits; runoff and leaching from fertilizer use
Perchlorate	ppb	6	1	2.0	ND	ND - ND	ND	ND - 2.8	ND	ND - ND	ND	ND - ND	Naturally occurring in arid regions; industrial waste discharge

* Note: Optimal Fluoride Level as established by U.S. Department 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 six 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 2022, the City of San Diego's source waters contained naturally-occurring fluoride between 0.2 and 0.9 ppm. State regulations require water producers to supplement this naturally-occurring fluoride to an optimum dose of 0.7 ppm. In 2022 treated water had fluoride concentrations ranging from ND to 0.8 ppm, with average values of 0.6 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	Single Sample	3	Single Sample	3	Single Sample	ND	ND - 4	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	50*	(0)	4	7	Single Sample	5	Single Sample	5	Single Sample	4	ND - 8	Decay of natural and manmade deposits
Radium 228	pCi/L	----	0.019	1	ND	Single Sample	ND	Single Sample	ND	Single Sample	ND	ND - 1	Erosion of natural deposits
Uranium	pCi/L	20	0.43	1	3	Single Sample	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.
^ Alvarado Beta and Radium 228 data from 2021. Miramar and Otay Alpha and Beta data from 2020; 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	% Positive	5% Positive	0	n/a	0.1%	0 - 0.3%	Naturally present in the environment
<i>E. Coli</i> (State Revised Total Coliform Rule)	Number	0	0	n/a	0	0	Human and animal fecal waste

* Based on Monthly Percentages of Positive Total Coliform samples for a system collecting at least 40 samples per month.

This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2021. These revisions add the requirements of the federal Revised Total Coliform Rule, effective since April 1, 2016, to the existing state Total Coliform Rule. The revised rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and *E. coli* bacteria). The U.S. EPA anticipates greater public health protection as the rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system. The state Revised Total Coliform Rule became effective July 1, 2021.

To meet this requirement, in 2022 the City of San Diego collected and analyzed 6955 total coliform samples from the distribution system, an average of 134 per week. The test also examines the presence of *E. coli*, which is a subgroup of total coliform. The MCL for *E. coli* is 0 positive samples and for total coliform is the presence of coliform in 5 percent 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 2022, the City did not exceed the monthly MCL for total coliform or *E. coli*. In fact, this has never occurred in the City's system since this rule was established in 1989. The maximum value recorded in 2022 was 0.3 percent of monthly samples. When any sample tests positive for total coliform or *E. coli*, 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.

TURBIDITY	UNITS	MCL	PHG	CITY OF SAN DIEGO TREATMENT PLANTS			PURCHASED TREATED WATER	MAJOR SOURCES IN DRINKING WATER
				ALVARADO	MIRAMAR	OTAY		
				Max Level Found = 0.11	Max Level Found = 0.09	Max Level Found = 0.09		
Turbidity	NTU	TT = 1 NTU 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	Soil runoff

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 2022 were 0.11 NTU for Alvarado WTP, 0.09 NTU for Miramar WTP and 0.09 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 fifteen consecutive years.
- The Miramar WTP has received the Director's Award for eleven years and the President's Award for ten 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 71 samples from our three drinking water treatment plants in 2022. 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 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 at 1-800-426-4791 or at <http://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. Homes with lead or copper plumbing installed may be eligible to participate in our 2023 study or in future studies. To have your home considered, please contact the Water Quality Hotline at 619-668-3232 or e-mail DrinkingWaterQuality@sandiego.gov.

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	50/1.0***	ND	ND-5.6	ND	ND - ND	n/a	n/a	2.1	ND-5.8	Byproduct of drinking water disinfection
Chlorate^	ppb	NL=800 PPB		20	n/a	n/a	n/a	n/a	183	86.6 - 302	206	75 - 440	Byproduct of drinking water disinfection
Chlorite**	ppm	1.0	0.05	0.020	n/a	n/a	n/a	n/a	0.22	0.05 - 0.46	n/a	n/a	Byproduct of drinking water disinfection
Total Organic Carbon (TOC)	ppm	TT	n/a	0.3	2.8	2.2 - 3.2	2.5	2.2 - 2.8	3.3	1.9 - 5.8	2.5****	1.3 - 3.3	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	
Disinfectant Residual (Chloramines as Cl ₂)	ppm	[4.0] ^a	[4]	(0.1)	Distribution system average = 2.2		Range = ND - 3.7	---	Drinking water disinfectant added for treatment
Chlorite ^a	ppm	1.0	0.05	0.020	Distribution system average = 0.2		Range = ND - 0.4	---	Byproduct of drinking water disinfection
Haloacetic Acids (HAA5)	ppb	60 ^c	n/a	---	Maximum LRAA = 8		Range = ND - 11	Violation - NO	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs)	ppb	80 ^c	n/a	---	Maximum LRAA = 31		Range = 7.1 - 42.4	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 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 2022 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 2022 the City analyzed 7590 samples for chloramines throughout the distribution system; the average residual was 2.2 ppm and the maximum was 3.7 ppm.

Another category of disinfection byproducts that the EPA and DDW regulate are Total Trihalomethanes (TTHMs) 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 TTHMs 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 2022, our highest LRAA for TTHM was 31 ppb, and individual measurements ranged from 7.1 to 42.4 ppb. For HAA5, our highest LRAA was 8 ppb, and individual measurements ranged from ND to 11 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	ppm	0.2	0.05	ND	ND - ND	ND	ND - ND	ND	ND - ND	0.06	ND - 0.2	Erosion of natural deposits; residue from some surface water treatment processes
Chloride	ppm	500	(0.5)	111	104 - 121	105	95.3 - 114	145	110 - 190	101	20.0 - 119	Runoff/leaching from natural deposits; seawater influence
Color	CU	15	(1)	ND	ND - 1	ND	ND - 1	ND	ND - 2	ND	ND - 2	Naturally - occurring organic materials
Odor - Threshold	OU	3	1	ND	ND - 1	ND	ND - ND	1	1 - 2	ND	ND - 1	Naturally - occurring organic materials
Specific Conductance	µS/cm	1,600	n/a	927	823 - 1000	920	758 - 1010	946	229 - 1100	789	345 - 1030	Substances that form ions when in water; seawater influence
Sulfate	ppm	500	0.5	195	174 - 211	208	160 - 222	194	158 - 267	150	13.0 - 229	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	ppm	1000	(10)	586	553 - 620	600	507 - 633	622	507 - 670	481	138 - 651	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 2022.

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	96.1	75.4 - 116	92.6	70.4 - 99.6	105	76.5 - 125	85.6	52.7 - 103
Total Hardness	ppm	n/a	n/a	10	256	207 - 275	266	221 - 283	260	216 - 277	198	41.9 - 282
Total Hardness	gr/Gal	n/a	n/a	0.6	15.0	12.1 - 16.1	15.5	12.9 - 16.5	15.2	12.6 - 16.2	11.6	2.45 - 16.5
Alkalinity - Total as CaCO ₃	ppm	n/a	n/a	20	126	114 - 134	125	107 - 133	121	96.1 - 130	105	46.0 - 130
pH	pH	n/a	n/a	n/a	8.06	7.50 - 8.35	8.17	7.26 - 8.61	8.03	7.49 - 8.70	8.34	8.0 - 8.71

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 - 0.2	0.2	0.1 - 0.2	0.3	0.1 - 0.9
N-Nitrosodimethylamine (NDMA)	ppt	10	(3)	n/a	n/a	n/a	n/a	n/a	n/a	2	ND - 4.4
Chromium, hexavalent (CrVI)	ppb	----	(0.02)*	0.06	Single Sample	0.05	Single Sample	0.06	Single Sample	0.04	ND - 0.22

* 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).



The City of
SAN DIEGO

This report contains important information about your drinking water. Please contact the City of San Diego Public Utilities Department at 619-515-3500 for assistance.

Farsi, Persian

تماس بگیرید این گزارش حاوی اطلاعات مهمی در مورد آب آشامیدنی شماست. برای دریافت اطلاعات بیشتر با ما City of San Diego Public Utilities Department, 619-515-3500.

French

Ce rapport contient des informations importantes concernant votre eau potable. Veuillez contacter City of San Diego Public Utilities Department à 619-515-3500 pour de plus amples informations en français.

Hmong

Tsab ntawv no muaj cov ntsiab lus tseem ceeb hais txog koj cov dej haus. Thov hu rau City of San Diego Public Utilities Department ntawm 619-515-3500 yog koj xav tau kev pab hais lus Hmoob.

Japanese

この報告書には上水道に関する重要な情報が記されております。ご質問等ございましたら、City of San Diego Public Utilities Department, 619-515-3500 まで日本語でご連絡下さい。

Korean

이 보고서는 당신의 식수에 관한 중요한 정보를 포함하고 있습니다. 한국어로 된 도움을 원하시면 City of San Diego Public Utilities Department, 619-515-3500 로 문의 하시기 바랍니다.

Mandarin (Simplified)

这份报告含有关于您的饮用水的重要讯息。请用以下地址和电话联系 City of San Diego Public Utilities Department 以获得中文的帮助: 619-515-3500.

Russian

Этот отчет содержит важную информацию о вашей питьевой воде. Пожалуйста, свяжитесь с City of San Diego Public Utilities Department по 619-515-3500 для получения помощи на русском языке.

Spanish

Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse City of San Diego Public Utilities Department a 619-515-3500 para asistirlo en español.

Tagalog

Ang pag-uulat na ito ay naglalaman ng mahalagang impormasyon tungkol sa inyong inuming tubig. Mangyaring makipag-ugnayan sa City of San Diego Public Utilities Department o tumawag sa 619-515-3500 para matulungan sa wikang Tagalog.

Vietnamese

Báo cáo này chứa thông tin quan trọng về nước uống của bạn. Xin vui lòng liên lạc City of San Diego Public Utilities Department tại 619-515-3500 để được trợ giúp bằng tiếng Việt.