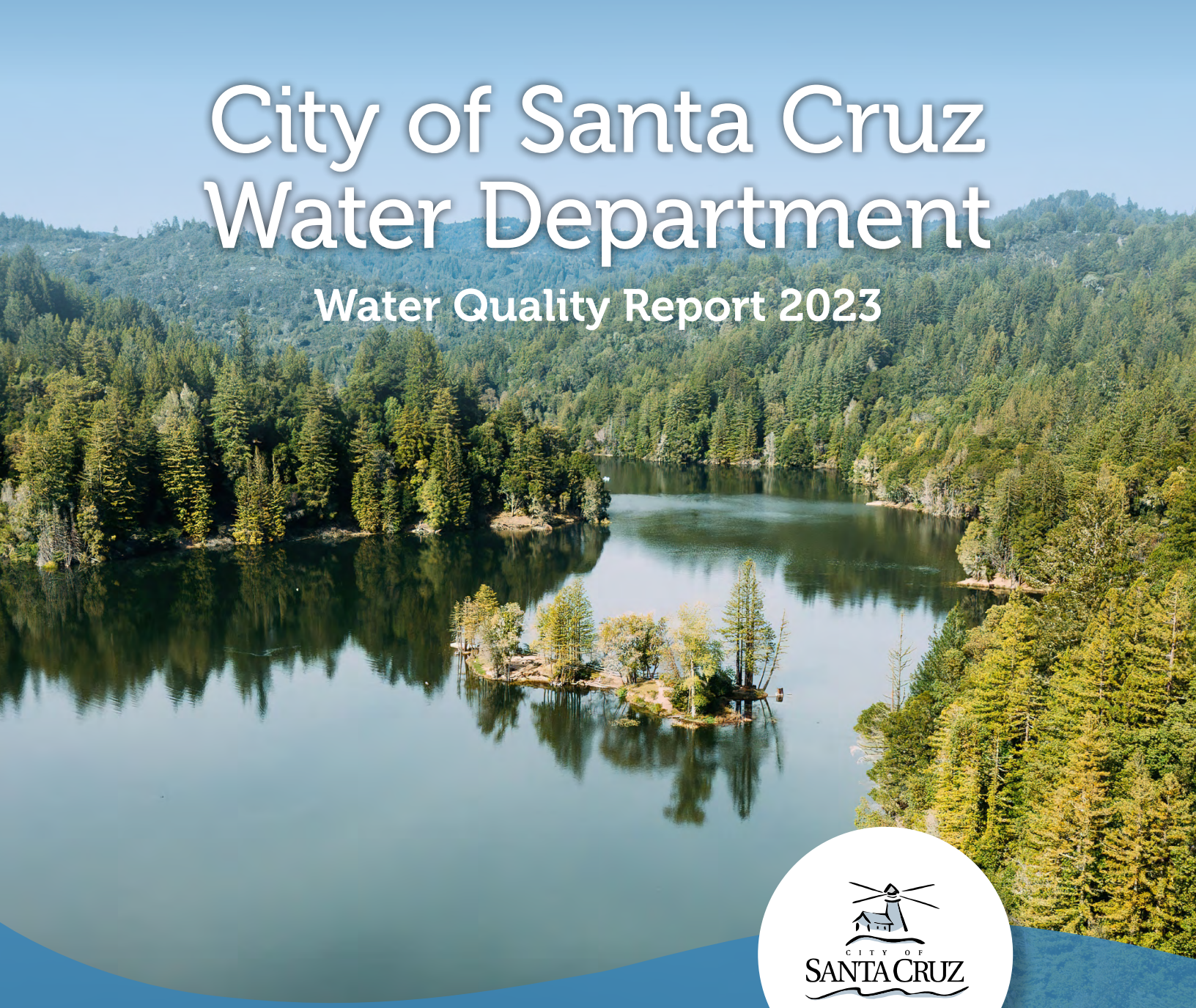
City of Santa Cruz Water Department

Water Quality Report 2023



CITY OF SANTA CRUZ
Water Department

What is This Report?

The annual Water Quality Report, formerly known as the Consumer Confidence Report, reflects the hard work and investment by the City of Santa Cruz Water Department (SCWD) to provide high-quality drinking water to its customers. SCWD water meets all U.S. Environmental Protection Agency (USEPA) and California State Water Resources Control Board, Division of Drinking Water (State Board) drinking water health standards.

Included in this report are details about where SCWD water comes from, what it contains, and how it is treated and tested to ensure customers receive high quality drinking water. SCWD is committed to providing customers with accurate information about their drinking water quality.

Espanol • Este Anual Informe de Calidad del Agua está disponible en español en **www.cityofsantacruz.com/water-quality-report**. También puede llamar al (831) 420-5220 o 212 Locust Street, Suite D; Santa Cruz, CA 95060 para obtener ayuda en españnol.

Santa Cruz Water Department Snapshot 2023

Serving the community safe and reliable water that meets or surpasses rigorous State and Federal drinking water standards is SCWD's highest priority. Providing high quality drinking water year-round requires a large team of dedicated water industry professionals who work together to take on responsibilities such as treating raw source water, maintaining water infrastructure (i.e., pumps, water mains, and tanks), operating and monitoring the complex distribution system, sampling and analyzing water samples, carefully managing watershed lands and upgrading facilities.

25,429 Service Connections

95,939 Population Served

20 Square Miles of Service Area

41,329 Water Tests Per Year

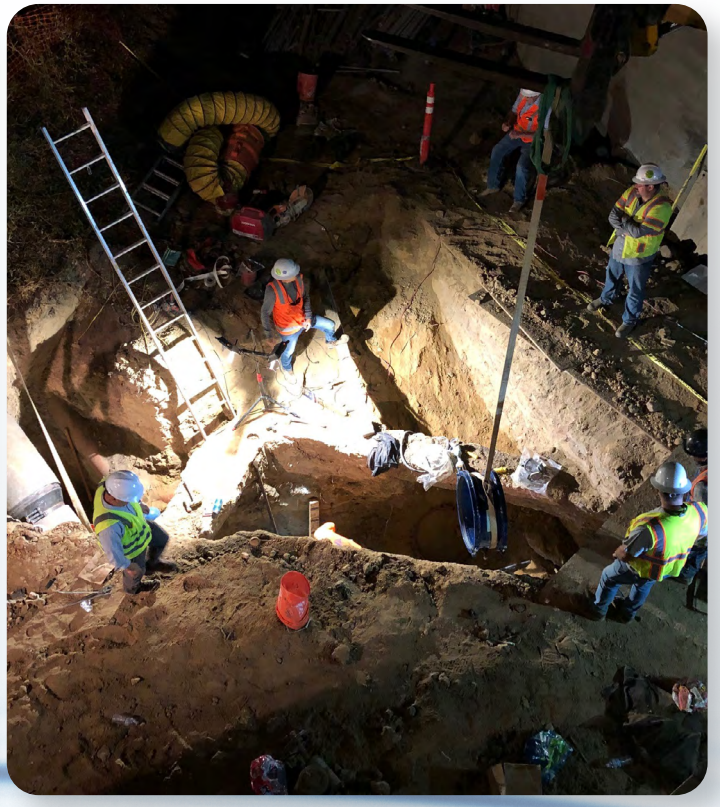
2,451 Million Gallons Served to Customers

15 Distribution System Storage Tanks

20.9 Million Gallons of Water Storage Capacity

31 Miles of Raw Water Mains

263 Miles of Treated Water Mains



Where Does Our Water Come From?

SCWD's drinking water supply consists of surface water and groundwater that are well protected and carefully managed. SCWD depends on raw water from four locales: the San Lorenzo River (SLR), Loch Lomond Reservoir, North Coast sources and the Beltz Groundwater Wells, located mid-county near Live Oak. All of SCWD's water sources are locally derived and dependent on annual rainfall and runoff. In 2023, 94% of water served to SCWD's customers was produced at the Graham Hill Water Treatment Plant (GHWTP), while the remaining 6% was produced by the Beltz Water Treatment Plant.

Where Does Our Water Come From?

San Lorenzo River and Tait Wells

SLR water is diverted at two locations: Tait Street Diversion and Felton Diversion.

The Tait Street Diversion, located in the City of Santa Cruz west of the GHWTP, diverts water from the SLR and the Tait Wells. Water produced by the Tait Wells is delivered to the SLR intake sump at the Coast Pump Station and then pumped to the common transmission pipeline that also conveys the SLR and North Coast water to the GHWTP.

The Felton Diversion, five miles upstream from the Tait Street Diversion, pumps water from the SLR to Loch Lomond Reservoir for additional reservoir storage when flows are available. Under the current water rights diversion permit for the Felton Diversion, water diverted at Felton cannot be sent directly to the GHWTP. Ultimately, this water is directed back to the GHWTP for use/treatment by way of the Newell Creek pipeline.

Loch Lomond Reservoir

Loch Lomond Reservoir was constructed in 1960 and is located on Newell Creek, approximately 10 miles northeast of the City of Santa Cruz. The reservoir's maximum storage capacity is approximately 8,776 acre-feet (2.8 billion gallons). Water is conveyed from Loch Lomond to the GHWTP through the Newell Creek Pipeline. Loch Lomond primarily receives local watershed runoff but can also receive water diverted from the SLR at the Felton Diversion, as allowed under the current water rights.

North Coast

The North Coast water supply consists of two coastal streams and one spring located six to eight miles northwest of the City of Santa Cruz. Water from Liddell Spring, Laguna Creek and Majors Creek is transported through the Coast Pipeline to the Coast Pump Station, where it is then conveyed to the GHWTP. The use of some of these sources by SCWD dates back to 1890.

Live Oak Beltz Groundwater Wells

The Beltz Groundwater system consists of four groundwater wells and two small groundwater treatment plants (Beltz Treatment Plant and Beltz 12 Treatment Plant) located in the southeast portion of the City's service area. Three of these wells draw directly from the Purisima Aquifer, while one well draws from both the Purisima and Santa Margarita Aquifers.

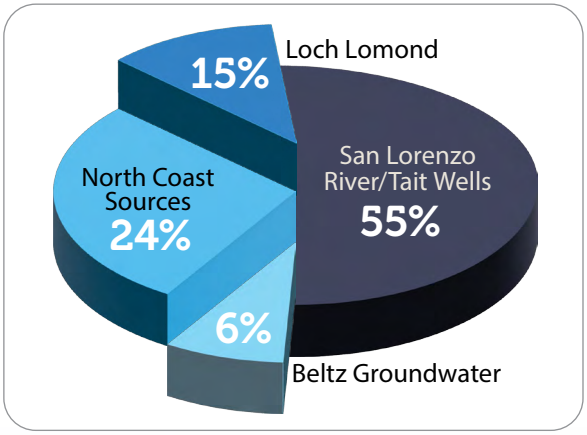
Generally, the groundwater treatment plants are used during the late spring, summer and early fall seasons to supply customers in the southeast service area when surface water flows have diminished. The Beltz Treatment Plant was in use from January to March and May through August. The Beltz 12 Treatment Plant was not used in 2023.

Interconnection with Soquel Creek Water District

To supplement water supply during the months of February, May, and August, SCWD received 11.2 million gallons (MG) of water from Soquel Creek Water District through an intertie connection located near 41st Ave. **Soquel Creek Water District's 2023 Water Quality Report is available here**.

2023 System Supply

During 2023, the SLR and Tait Wells contributed 55% of the total source water supply, while the North Coast Sources contributed 24%, Loch Lomond contributed 15% and the Beltz groundwater wells contributed 6%.



Aquifer Storage and Recovery Demonstration Project and Pilot Study at Beltz Wells

As part of SCWD's Water Supply Augmentation Strategy, SCWD began an Aquifer Storage and Recovery (ASR) Demonstration Project at Beltz Wells 8 and 12 in 2022 and a pilot study at Beltz Well 9 in 2023. Available winter and spring flows from the North Coast sources and the SLR were treated to potable standards at the GHWTP, conveyed through the water distribution system and injected into three existing production wells. After injection, the water was stored, recovered, tested to ensure it meets all drinking water standards, and directed to SCWD's distribution system. During 2023, SCWD injected a combined total of 24.5 MG into the Purisima and Santa Margarita Aquifers, which included 6.9 MG injected at Beltz Well 8, 13.5 MG injected at Beltz Well 12, and 4.1 MG at Beltz Well 9. SCWD will complete the Beltz 9 ASR Pilot Study in 2024 and is in the process of designing permanent ASR facilities at the Beltz Wells.

Contaminants That Can be Present

To ensure that tap water is safe to drink, the USEPA and the State Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also **establish limits for contaminants in bottled water** that provide the same protection for public health.

The sources of drinking water (both tap 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 activities.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses, parasites 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 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.

Source Water Assessment and Protection

Since 1996, water suppliers that rely on surface water have been required to conduct source water assessments of water sources, called Watershed Sanitary Surveys, to identify potential sources of contamination and determine how to treat those potential contaminants. Assessments include a delineation of the area around water sources and a review of activities with the potential to release contaminants within that area. Watershed Sanitary Surveys are required every five years. Several potentially contaminating activities exist in the area of SCWD water sources, including improperly functioning septic systems, commercial cannabis cultivation, urban runoff, roads (including timber harvest roads), mining and quarry activities, chemical spills, pesticides, herbicides, fire, and geologic hazards, including landslides after significant rains, among others. Also, a few legacy land disturbances including historic timber harvest roads and isolated industrial operations that resulted in contaminant plumes still have the potential to impact drinking water sources.

To provide high quality drinking water, SCWD works proactively with partners to reduce or eliminate potential contaminant sources and prioritizes the use of the best quality source waters during times when the drinking water system is most vulnerable (i.e., during storm runoff periods). This watershed protection effort also provides environmental benefits, such as support for steelhead trout and Coho salmon.

In 2023, the Watershed section of SCWD completed an **update to the Drinking Watershed Sanitary Survey of the San Lorenzo Valley and North Coast Watersheds.**

Review the source water report for Water Year 2021 (Oct. 1, 2020 – Sept. 30, 2021), which includes source water quality data post-CZU Lightning Complex Fire.

Drinking Water and Lead

Lead was not detected above the regulatory action level in SCWD's water supply. Exposure to lead, if present, can cause serious health effects, especially for pregnant women and young children. Lead in drinking water is primarily derived from materials and components associated with service lines and home plumbing. SCWD is responsible for providing high-quality drinking water but cannot control the variety of materials used in indoor plumbing components. When your water has been sitting for several hours in these pipes, 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 do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. If you are concerned about lead in your water, you may want to consider having your water tested. You may contact the SCWD's Water Quality Laboratory (WQL) to schedule a free lead test.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or on the **USEPA website**.

Lead in Schools

In 2017, the State Board directed all permitted water systems in California to provide lead monitoring assistance to all public K-12 schools. Between 2017-2019, SCWD assisted 24 schools within the Santa Cruz service area with lead testing per the free **Lead Testing Schools program**. You may contact your school or the SCWD's WQL for the results.

Lead and Copper

In 2021, tap water samples were collected from 32 Santa Cruz area homes and analyzed for lead and copper as required by the **Lead and Copper Rule (LCR)**. The results are provided in the Table of Detected Constituents on page 10 of this report. The next round of LCR monitoring will be conducted in the summer of 2024.

Testing and Monitoring Water Quality

To ensure water quality standards are met, drinking water samples are collected weekly throughout the service area and analyzed for a variety of chemical and microbiological constituents. Samples are tested by SCWD's WQL, a California Environmental Laboratory Accreditation Program certified drinking water laboratory, using the latest testing procedures and equipment. The WQL collects and analyzes over 100 distribution system and 15 raw source water quality samples per month to ensure that water delivered to its customers meets or exceeds Federal and State drinking water standards.

In 2023, the WQL processed more than 41,000 drinking water tests in the raw source waters, treatment plants and City's distribution system. This is in addition to the extensive treatment process control monitoring performed by certified Water Treatment Operators and online instruments. Test results from the distribution system are provided in the Table of Detected Constituents on page 10 of this report. Some of the data in this report, though representative, are more than one year old. SCWD holds a State Board monitoring waiver for some contstituents that were not detected after repeated monitoring and therefore their monitoring frequencies are less than annual.

Laboratory analysis was also performed for many constituents beyond what is listed in the tables; only those constituents detected in the tap water are shown. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk.

Unregulated Emerging Constituents

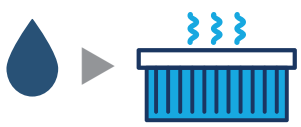
In addition to performing routine monitoring of source water, treatment plant finished water, and the distribution system to comply with State and Federal regulations, SCWD also voluntarily performs monitoring for unregulated emerging constituents with State notification levels (NLs) such as chlorate, per- and polyfluoroalkyl substances (PFAS), and vanadium. All unregulated constituents collected from treatment plant finished water were below their respective NLs and results are provided in the Table of Detected Constituents on page 11 of this report.

More information on drinking water NLs can be found on the **State Board website**.

How Constituents are Measured

Constituents are measured and reported in extremely small quantities such as parts per million, parts per billion, and in some cases, parts per trillion. These comparisons help explain the measurements:

Milligrams per liter (mg/L) or parts per Million (ppm)



One drop in a hot tub

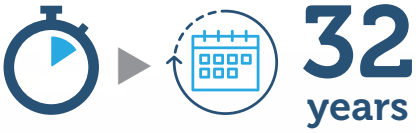
OR

One second in 11.5 days

Micrograms per liter (ug/L) or parts per Billion (ppb)

One drop in an Olympic-size swimming pool

OR



One second in nearly 32 years

Nanograms per liter (ng/L) or parts per Trillion (ppt)

One drop in a 6-acre lake or 1 drop in 20 Olympic-size swimming pools

OR

One second in nearly 32,000 years

Abbreviations and Data Table Units

CU: Color Unit is a measure of color

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

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

NTU: Nephelometric Turbidity Units

µg/L: micrograms per liter or parts per billion (ppb)

µmhos/cm: a measure of electrical conductivity

SU: Standard Units is a measure of pH

TON: Threshold Odor Number

Key Water Quality Terms

Some of the terms, abbreviations and symbols are unique to the water industry and might not be familiar to all customers. Terms used in the table are explained below:

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

LRAA: Locational Running Annual Average: The locational quarterly average of the most recent 12 months of data.

MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water which is delivered to the customer. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible.

MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

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

MRDLG: Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not Applicable

ND: Constituent Not Detected

NL: Notification Level: Health-based advisory levels established by the State Board for chemicals in drinking water that lack MCLs. When chemicals are found at concentrations greater than their notification levels, certain requirements and recommendations apply.

PDWS: Primary Drinking Water Standard: MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PHG: Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA).

SDWS: Secondary Drinking Water Standards: Non-mandatory water quality standards.

SMCL: Secondary Maximum Contaminant Level: Secondary MCLs are set for contaminants that may adversely affect the taste, odor or appearance of drinking water. These aesthetic guidelines are not considered as health concerns.

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

Santa Cruz Water Department Water System
Water Quality Data for 2023

This table lists all of the drinking water constituents detected between January 1 and December 31. SCWD water quality met or surpassed all State and Federal criteria for public health protection.

Table of Detected Constituents

PRIMARY DRINKING WATER STANDARDS – *Public Health Related Standards*

INORGANIC CHEMICALS

Constituents (units)	Sample Date	MCL	PHG	Average (Range: Low-High)		Violation	Major Source In Drinking Water
				Graham Hill Water Treatment Plant	Beltz Treatment Plant		
Aluminum (mg/L)	2023	1	0.6	0.02 (ND – 0.04)	ND	No	Erosion of natural deposits; residue from some surface water treatment
Arsenic (µg/L)	2023	10	0.004	0.09 (ND –0.96)	0.33 (ND – 0.51)	No	Erosion of natural deposits; runoff from orchards; glass and electronics
Barium (mg/L)	2023	1	2	0.03 (0.02 – 0.04)	0.03 (0.03 – 0.03)	No	Erosion of natural deposits/rocks
Fluoride (mg/L)	2023	2.0	1	0.12 (0.09 – 0.16)	0.06 (ND – 0.10)	No	Erosion of natural deposits; water additive that promotes strong teeth
Nitrate as N-Nitrogen (mg/L)	2023	10	10	0.29 (0.15 – 0.52)	ND	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage

DISINFECTION BY-PRODUCTS AND DISINFECTANT RESIDUAL (DBPs and disinfectant residual samples were collected from predetermined sample locations throughout the distribution system)

Constituents (units)	Sample Date	MCL or [MRDL]	PHG or [MRDLG]	Average (Range: Low-High)	Violation	Major Source In Drinking Water
Chlorine (mg/L)	2023	[4]	[4]	0.90 (0.07 – 1.71)	No	Drinking water disinfectant added for treatment
Total Trihalomethanes (TTHM) (µg/L)	2023	80 LRAA	NA	65 (8 – 94)	No	By-product of drinking water disinfection
Haloacetic Acids (five) (HAA5) (µg/L)	2023	60 LRAA	NA	39 (2 – 67)	No	By-product of drinking water disinfection

TURBIDITY (Turbidity samples were collected and analyzed continuously/every 15 minutes at the Graham Hill Water Treatment Plant)

Constituents (units)	Sample Date	TT	PHG or [MRDLG]	Results	Violation	Major Source In Drinking Water
Turbidity (NTU)	2023	1 NTU	NA	0.15 Highest Single Turbidity Result of 2023	No	Soil runoff. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
	2023	95% of samples ≤0.15 NTU	NA	100%		

LEAD AND COPPER (Lead and copper tap water samples were collected from 32 customers' homes throughout the community)

Constituents (units)	Sample Date	AL	PHG	Tap Water 90th Percentile	Number of Samples Exceeding AL	Exceeds AL	Major Source In Drinking Water
Copper (mg/L)	2021	1.3	0.3	0.3	0/32	No	Internal corrosion of household plumbing systems; leaching from wood preservatives
Lead (µg/L)	2021	15	0.2	<2	0/32	No	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

MICROBIOLOGICAL (Microbiological samples were collected from predetermined sample locations throughout the distribution system)

Constituents (units)	Sample Date	MCL	MCLG	Results	Violation	Major Source In Drinking Water
Total Coliform Bacteria	2023	<5% positive samples	0 positive	0	No	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria are present
E. coli	2023	0 positive	0 positive	0	No	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal fecal wastes

SECONDARY DRINKING WATER STANDARDS - *Aesthetic Standards*

Constituents (units)	Sample Date	SMCL	Average (Range: Low-High)		Violation	Major Source In Drinking Water
			Graham Hill Water Treatment Plant	Beltz Treatment Plant		
Chloride (mg/L)	2023	500	20 (17 – 26)	46 (33 – 55)	No	Runoff/leaching from natural deposits; seawater influence
Color (CU)	2023	15	1 (1 – 1)	1 (1 – 2)	No	Naturally-occurring organic materials
Iron (µg/L)	2023	300	ND	10 (ND – 40)	No	Leaching from natural deposits; industrial wastes
Manganese (µg/L)	2023	50	1.0 (ND – 8.1)	1.2 (ND – 4.8)	No	Leaching from natural deposits
Odor-Threshold (TON)	2023	3	1 (1-1)	1 (1-1)	No	Naturally occurring organic materials
Specific Conductance (µmhos/cm)	2023	1600	394 (290 – 450)	675 (540 – 720)	No	Substances that form ions when in water; seawater influence
Sulfate (mg/L)	2023	500	69 (54 – 110)	119 (99 – 130)	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (mg/L)	2023	1000	243 (200 – 270)	450 (360 – 510)	No	Runoff/leaching from natural deposits
Zinc (mg/L)	2023	5	ND	ND	No	Runoff/leaching from natural deposits

UNREGULATED CONSTITUENTS OF INTEREST

Constituents (units)	Sample Date	Average (Range: Low-High)		Major Source In Drinking Water
		Graham Hill Water Treatment Plant	Beltz Treatment Plant	
Alkalinity, Total as $CaCO_3$ (mg/L)	2023	98 (50 – 124)	144 (112 – 156)	Alkalinity is the measure of water's capacity to resist acidic changes in pH
Calcium (mg/L)	2023	45 (28 – 56)	72 (71 – 73)	Naturally occuring mineral
Hardness, Total as $CaCO_3$ (mg/L)	2023	149 (100 – 196)	245 (192 - 268)	Hardness is the sum of naturally occurring cations present in the water, generally calcium and magnesium
Hexavalent Chromium (µg/L)	2023	0.18 (0.08 – 0.40)	ND	Naturally occurring in rocks, plants, soil, volcanic dust and animals
Magnesium (mg/L)	2023	7.8 (5.6 – 9.2)	18 (17 – 18)	Naturally occurring mineral
pH (SU)	2023	7.2 (7.1 – 7.6)	8.0 (7.9 – 8.2)	pH is the measure of how acidic or basic the water is
Potassium (mg/L)	2023	2.2 (2.1 - 2.5)	7.1 (7.1 – 7.2)	Naturally occurring mineral
Sodium (mg/L)	2023	18 (14 – 22)	44 (43 – 45)	Sodium refers to the salt present in the water from runoff/leaching from natural deposits and saltwater influence

UNREGULATED CONSTITUENTS WITH NOTIFICATION LEVELS

Constituents (units)	Sample Date	NL	Average (Range: Low-High)		Major Source In Drinking Water
			Graham Hill Water Treatment Plant	Beltz Treatment Plant	
Chlorate (µg/L)	2023	800	170	270	Degradation of hypochlorite solutions
Perfluorobutane sulfonic acid (PFBS) (ng/L)	2023	500	ND	ND	Food and industrial manufacturing facilities
Perfluorohexane sulfonic acid (PFHxS) (ng/L)	2023	3	ND	1.0 (ND- 2.2)	Food and industrial manufacturing facilities
Perfluorooctanoic acid (PFOA) (ng/L)	2023	5.1	ND	ND	Food and industrial manufacturing facilities
Perfluorooctane sulfonic acid (PFOS) (ng/L)	2023	6.5	0.29 (ND – 1.8)	ND	Food and industrial manufacturing facilities
Vanadium (mg/L)	2023	0.05	ND	ND	Weathering of rocks and soil erosion

UNREGULATED CHEMICALS REQUIRING MONITORING UNDER FEDERAL UCMR 4

Constituents (units)	Sample Date	Source Water Average	Source Water Range	
			Low	High
Bromide (µg/L)	2018/2019	53	42	64
Total Organic Carbon (mg/L)	2018/2019	2.6	1.7	4.1

Constituents (units)	Sample Date	Treated Water Average	Treated Water Range		Constituents
			Low	High	
Manganese (µg/L)	2018/2019	2.4	<0.4	11	
Brominated Haloacetic Acids 6 HAA6Br (µg/L)	2018/2019	17	11	26	Bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, dibromochloroacetic acid, monobromoacetic acid, and tribromoacetic acid
Haloacetic Acids 9 HAA9 (µg/L)	2018/2019	49	31	70	Bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, and trichloroacetic acid

Note: Average results may be below laboratory minimum reporting level.

Questions? Contact SCWD

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Learn more and get involved

Get additional information about SCWD including Water Conservation, Loch Lomond Recreation Area, engineering projects and more on **SCWD's website**. Learn more about water quality testing on the **Water Quality Laboratory Webpage**.

Customers are invited to attend City Council and **Water Commission meetings**. Water Commission meetings are held the first Monday of each month at 7 p.m. Visit the **SCWD website** or call (831) 420-5200 to find out more.

Additional information about drinking water safety and standards is available from the **State Board** and the **USEPA**.

Learn how **drinking water standards** are established.

CITY OF SANTA CRUZ
Water Department

Our Water, Our Future