City of Santa Cruz Water Department Water Quality Relative to Public Health Goals for Calendar Years 2016 through 2018
California Water System # CA4410010

Executive Summary

Section 116470. (b) of the California Health and Safety Code requires that on or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare and hold a brief written report presenting that information. Attachment 1 provides the relevant code language.

A triennial Public Health Goal (PHG) report is required to compare the City of Santa Cruz treated drinking water quality to the PHGs adopted by the California Environmental Protection Agency's (Cal-EPA) Office of Environmental Health Hazard Assessment. In the event that a California PHG does not exist for a particular contaminant, the law requires that the water quality data be compared to the United States Environmental Protection Agency (US-EPA) Maximum Contaminant Level Goals (MCLGs) for those contaminants.

It is important to note that in terms of the drinking water quality delivered to Santa Cruz customers, *neither PHGs nor MCLGs are enforceable standards but rather have been set as health goals and are not required to be met by any public water system.* PHGs and MCLGs are set much lower than the regulatory limits and reflect the level of a contaminant in water below which there would be no known effect on a person's health. In contrast, the Maximum Contaminant Levels (MCLs) are set by State and Federal regulators as the amount of contaminants allowable in water for the water to be determined to be safe to drink.

To prepare this report, all compliance and operational regulatory compliance monitoring data collected during 2016 through 2018 for the Santa Cruz Water Department (SCWD) was reviewed. None of the sampling results analyzed for this time period were found to have levels above the applicable PHGs and/or MCLGs, highlighting the high-quality treated drinking water produced by the SCWD. Attachment 2 is the

February 2019 California EPA Office of Environmental Health Hazard Assessment's Health Risk Information for Public Health Goal Exceedance Report. The Cal-EPA provides this information to determine whether any of the sampling results exceeded any of the PHGs or MCLGs covered in this document.

Background

This report is an opportunity to examine SCWD's water quality outside of the regulatory limits context by comparing laboratory results to the most conservative metrics for evaluating water quality as it relates to public health risk. For this reporting period, no contaminants were detected in the treated drinking water at concentrations above the PHGs or above the MCLGs. If an exceedance of PHGs were reported, this report would have included the category or type of risk to health that could be associated with each contaminant; the numerical public health risk associated with the PHG or MCLG for compounds with a carcinogenicity health risk; the best available technology that could be used to reduce the contaminant level; and an estimate of the cost to install that treatment if it is appropriate and feasible.

In the previous 2016 PHG report for calendar years 2013-2015, Arsenic and Hexavalent Chromium were detected above PHGs. The previously adopted Hexavalent Chromium MCL of 0.010 mg/L (ppm) in CA was withdrawn on September 11, 2017. Although this MCL was withdrawn, Hexavalent Chromium was again detected in the treated drinking water in 4 out of 7 samples during 2016, 2017 and 2018: three treated drinking water results were Non-Detect and below the PHG of 0.02 ug/L (ppb); and the other four detectable results ranged from 0.022-0.048 ug/L (ppb), which are very close to the PHG for Hexavalent Chromium.

A brief summary of previous PHG reports: no detections were recorded in the 2013 PHG report or 2010 PHG report; discussion of four contaminants (Arsenic, Copper, Tetrachloroethylene and Coliform bacteria) detected at levels above the PHGs in the 2007 PHG report; and a discussion of five contaminants (Aluminum, Arsenic, Copper, Lead and Tetrachloroethylene) in the 2004 PHG report.

What are PHGs and MCLGs?

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA), which is part of the Cal-EPA, and are based solely on public health risk considerations. A PHG is defined as the level of a chemical contaminant in drinking water that does not pose a significant risk to health. For cancer-causing chemicals, OEHHA scientists first compile all relevant scientific information available, which includes studies of the chemical's effects on laboratory animals and studies of humans who have been exposed to the chemical. The scientists use this data from these studies to perform a health risk assessment, in which they determine the levels of the contaminant in drinking water that could be associated with various adverse health

effects. When calculating a PHG, OEHHA uses all the information it has compiled to identify the level of the chemical in drinking water that would not cause significant adverse health effects in people who drink that water every day for 70 years. For cancer-causing chemicals, OEHHA typically establishes the PHG at the "one-in-one million" risk level. At that level, not more than one person in a population of one million people drinking the water daily for 70 years would be expected to develop cancer as a result of exposure to that chemical.

None of the practical risk-management factors that are considered by the US-EPA and the State Water Resources Control Board – Division of Drinking Water in setting drinking water standards (i.e. Maximum Contaminant Levels) are considered in setting these PHGs. Practical risk-management factors include considerations such as analytical detection limits and the availability, benefits, and costs of treatment technology.

Water Quality Data Considered

All compliance and operational treated water monitoring data collected between 2016 and 2018 were evaluated for this report. Data is derived from treated water sampling events at the point-of-entry to the distribution system (treated water leaving the water treatment plants) and water samples collected from within the distribution system. Annual compliance relative to primary drinking water standards of Maximum Contaminant Levels (MCLs) are summarized in the 2016, 2017 and 2018 Consumer Confidence Reports (CCR), which are made available electronically to all customers each June, following the reporting year. The most recent CCR for the year 2018 is included in Attachment 3 and is also available online at www.cityofsantacruz.com/ccr2018. MCLs are listed as maximum limits of contamination and serve as an upper acceptable reference to compare with the health goals of PHG values.

Guidelines Followed

The Association of California Water Agencies (ACWA) prepared guidelines for water utilities to use in preparing these PHG reports. The ACWA guidelines were used in the preparation of this report. Limited guidance was provided by State Water Resources Control Board staff.

Best Available Treatment Technology and Cost Estimates

Both the US-EPA and SWRCB adopt Best Available Technologies (BATs) that are the best-known methods for reducing contaminant levels below the MCL. Costs can usually be estimated for such treatment technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always feasible to determine what treatment is needed to further reduce a contaminant to or near the PHG or MCLG, many of which are set at zero. Estimating the costs to further reduce a contaminant to zero is difficult, if not impossible, because it is not always possible to verify by analytical measurement

that the contaminant level has actually been lowered to near zero. In some cases, installing treatment to try and further reduce very low levels of one contaminant may cause adverse effects on other aspects of water quality.

Since no contaminants have been detected above the PHGs or MCLGs, cost estimates for reducing the contaminant concentrations are not relevant to this year's report.

Contaminants Detected that Exceed a PHG or a MCLG

In 2016, 2017 and 2018; no contaminants were detected in the treated drinking water at levels above the PHGs or MCLGs.

May 30, 2019

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Hugh Dalton
Water Quality Manager

Date

Attachment No. 1

California Health and Safety Code

Public Health Goal Reporting Requirements

116470. (b) On or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare a brief written report in plain language that does all of the following:

(1) Identifies each contaminant detected in drinking water that exceeds the applicable public health goal.

(2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal for that contaminant.

(3) Identifies the category of risk to public health, including, but not limited to, carcinogenic, mutagenic, teratogenic, and acute toxicity, associated with exposure to the contaminant in drinking water, and includes a brief plainly worded description of these terms.

(4) Describes the best available technology, if any is then available on a commercial basis, to remove the contaminant or reduce the concentration of the contaminant. The public water system may, solely at its own discretion, briefly describe actions that have been taken on its own, or by other entities, to prevent the introduction of the contaminant into drinking water supplies.

(5) Estimates the aggregate cost and the cost per customer of utilizing the technology described in paragraph (4), if any, to reduce the concentration of that contaminant in drinking water to a level at or below the public health goal.

(6) Briefly describes what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant in public drinking water supplies and the basis for that decision.

(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.

(e) Enforcement of this section does not require the department to amend a public water system's operating permit.

(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

(g) This section is intended to provide an alternative form for the federally required consumer confidence report as authorized by 42 U.S.C. Section 300g-3(c).

Attachment No. 2

Health Risk Information for Public Health Goal Exceedance Reports
February 2019

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

Public Health Goals

Health Risk Information for Public Health Goal Exceedance Reports

February 2019

Pesticide and Environmental Toxicology Branch
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

Health Risk Information for Public Health Goal Exceedance Reports

Prepared by

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

February 2019

Under the Calderon-Sher Safe Drinking Water Act of 1996 (the Act), public water systems with more than 10,000 service connections are required to prepare a report every three years for contaminants that exceed their respective Public Health Goals (PHGs).[1] This document contains health risk information on regulated drinking water contaminants to assist public water systems in preparing these reports. A PHG is the concentration of a contaminant in drinking water that poses no significant health risk if consumed for a lifetime. PHGs are developed and published by the Office of Environmental Health Hazard Assessment (OEHHA) using current risk assessment principles, practices and methods.[2]

The water system's report is required to identify the health risk category (e.g., carcinogenicity or neurotoxicity) associated with exposure to each regulated contaminant in drinking water and to include a brief, plainly worded description of these risks. The report is also required to disclose the numerical public health risk, if available, associated with the California Maximum Contaminant Level (MCL) and with the PHG for each contaminant. This health risk information document is prepared by OEHHA every three years to assist the water systems in providing the required information in their reports.

Numerical health risks: Table 1 presents health risk categories and cancer risk values for chemical contaminants in drinking water that have PHGs.

The Act requires that OEHHA publish PHGs based on health risk assessments using the most current scientific methods. As defined in statute, PHGs for non-carcinogenic

[1] Health and Safety Code Section 116470(b)
[2] Health and Safety Code Section 116365

chemicals in drinking water are set at a concentration "at which no known or anticipated adverse health effects will occur, with an adequate margin of safety." For carcinogens, PHGs are set at a concentration that "does not pose any significant risk to health." PHGs provide one basis for revising MCLs, along with cost and technological feasibility. OEHHA has been publishing PHGs since 1997 and the entire list published to date is shown in Table 1.

Table 2 presents health risk information for contaminants that do not have PHGs but have state or federal regulatory standards. The Act requires that, for chemical contaminants with California MCLs that do not yet have PHGs, water utilities use the federal Maximum Contaminant Level Goal (MCLG) for the purpose of complying with the requirement of public notification. MCLGs, like PHGs, are strictly health based and include a margin of safety. One difference, however, is that the MCLGs for carcinogens are set at zero because the US Environmental Protection Agency (US EPA) assumes there is no absolutely safe level of exposure to such chemicals. PHGs, on the other hand, are set at a level considered to pose no *significant* risk of cancer; this is usually no more than a one-in-one-million excess cancer risk (1×10^{-6}) level for a lifetime of exposure. In Table 2, the cancer risks shown are based on the US EPA's evaluations.

For more information on health risks: The adverse health effects for each chemical with a PHG are summarized in a PHG technical support document. These documents are available on the OEHHA website (http://www.oehha.ca.gov). Also, technical fact sheets on most of the chemicals having federal MCLs can be found at http://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Alachlor	carcinogenicity (causes cancer)	0.004	NA[5,6]	0.002	NA
Aluminum	neurotoxicity and immunotoxicity (harms the nervous and immune systems)	0.6	NA	1	NA
Antimony	digestive system toxicity (causes vomiting)	0.02	NA	0.006	NA
Arsenic	carcinogenicity (causes cancer)	0.000004 (4×10^{-6})	1×10^{-6} (one per million)	0.01	2.5×10^{-3} (2.5 per thousand)
Asbestos	carcinogenicity (causes cancer)	7 MFL[7] (fibers >10 microns in length)	1×10^{-6}	7 MFL (fibers >10 microns in length)	1×10^{-6} (one per million)
Atrazine	carcinogenicity (causes cancer)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)

[1] Based on the OEHHA PHG technical support document unless otherwise specified. The categories are the hazard traits defined by OEHHA for California's Toxics Information Clearinghouse (online at: http://oehha.ca.gov/multimedia/green/pdf/GC_Regtext011912.pdf).
[2] mg/L = milligrams per liter of water or parts per million (ppm)
[3] Cancer Risk = Upper bound estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] MCL = maximum contaminant level.
[5] NA = not applicable. Cancer risk cannot be calculated.
[6] The PHG for alachlor is based on a threshold model of carcinogenesis and is set at a level that is believed to be without any significant cancer risk to individuals exposed to the chemical over a lifetime.
[7] MFL = million fibers per liter of water.

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Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Barium	cardiovascular toxicity (causes high blood pressure)	2	NA	1	NA
Bentazon	hepatotoxicity and digestive system toxicity (harms the liver, intestine, and causes body weight effects[8])	0.2	NA	0.018	NA
Benzene	carcinogenicity (causes leukemia)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)
Benzo[a]pyrene	carcinogenicity (causes cancer)	0.000007 (7×10^{-6})	1×10^{-6}	0.0002	3×10^{-5} (three per hundred thousand)
Beryllium	digestive system toxicity (harms the stomach or intestine)	0.001	NA	0.004	NA
Bromate	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.01	1×10^{-4} (one per ten thousand)
Cadmium	nephrotoxicity (harms the kidney)	0.00004	NA	0.005	NA
Carbofuran	reproductive toxicity (harms the testis)	0.0007	NA	0.018	NA

[8] Body weight effects are an indicator of general toxicity in animal studies.

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Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Carbon tetrachloride	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.0005	5×10^{-6} (five per million)
Chlordane	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.0001	3×10^{-6} (three per million)
Chlorite	hematotoxicity (causes anemia) neurotoxicity (causes neurobehavioral effects)	0.05	NA	1	NA
Chromium, hexavalent	carcinogenicity (causes cancer)	0.00002	1×10^{-6}	none	NA
Copper	digestive system toxicity (causes nausea, vomiting, diarrhea)	0.3	NA	1.3 (AL[9])	NA
Cyanide	neurotoxicity (damages nerves) endocrine toxicity (affects the thyroid)	0.15	NA	0.15	NA
Dalapon	nephrotoxicity (harms the kidney)	0.79	NA	0.2	NA
Di(2-ethylhexyl) adipate (DEHA)	developmental toxicity (disrupts development)	0.2	NA	0.4	NA
Diethylhexyl-phthalate (DEHP)	carcinogenicity (causes cancer)	0.012	1×10^{-6}	0.004	3×10^{-7} (three per ten million)

[9] AL = action level. The action levels for copper and lead refer to a concentration measured at the tap. Much of the copper and lead in drinking water is derived from household plumbing (The Lead and Copper Rule, Title 22, California Code of Regulations [CCR] section 64672.3).

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,2-Dibromo-3-chloropropane (DBCP)	carcinogenicity (causes cancer)	0.0000017 (1.7×10^{-6})	1×10^{-6}	0.0002	1×10^{-4} (one per ten thousand)
1,2-Dichloro-benzene (*o*-DCB)	hepatotoxicity (harms the liver)	0.6	NA	0.6	NA
1,4-Dichloro-benzene (*p*-DCB)	carcinogenicity (causes cancer)	0.006	1×10^{-6}	0.005	8×10^{-7} (eight per ten million)
1,1-Dichloro-ethane (1,1-DCA)	carcinogenicity (causes cancer)	0.003	1×10^{-6}	0.005	2×10^{-6} (two per million)
1,2-Dichloro-ethane (1,2-DCA)	carcinogenicity (causes cancer)	0.0004	1×10^{-6}	0.0005	1×10^{-6} (one per million)
1,1-Dichloro-ethylene (1,1-DCE)	hepatotoxicity (harms the liver)	0.01	NA	0.006	NA
1,2-Dichloro-ethylene, cis	nephrotoxicity (harms the kidney)	0.013	NA	0.006	NA
1,2-Dichloro-ethylene, trans	immunotoxicity (harms the immune system)	0.05	NA	0.01	NA
Dichloromethane (methylene chloride)	carcinogenicity (causes cancer)	0.004	1×10^{-6}	0.005	1×10^{-6} (one per million)

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Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
2,4-Dichloro-phenoxyacetic acid (2,4-D)	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.02	NA	0.07	NA
1,2-Dichloro-propane (propylene dichloride)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.005	1×10^{-5} (one per hundred thousand)
1,3-Dichloro-propene (Telone II®)	carcinogenicity (causes cancer)	0.0002	1×10^{-6}	0.0005	2×10^{-6} (two per million)
Dinoseb	reproductive toxicity (harms the uterus and testis)	0.014	NA	0.007	NA
Diquat	ocular toxicity (harms the eye) developmental toxicity (causes malformation)	0.006	NA	0.02	NA
Endothall	digestive system toxicity (harms the stomach or intestine)	0.094	NA	0.1	NA
Endrin	neurotoxicity (causes convulsions) hepatotoxicity (harms the liver)	0.0003	NA	0.002	NA
Ethylbenzene (phenylethane)	hepatotoxicity (harms the liver)	0.3	NA	0.3	NA
Ethylene dibromide (1,2-Dibromoethane)	carcinogenicity (causes cancer)	0.00001	1×10^{-6}	0.00005	5×10^{-6} (five per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Fluoride	musculoskeletal toxicity (causes tooth mottling)	1	NA	2	NA
Glyphosate	nephrotoxicity (harms the kidney)	0.9	NA	0.7	NA
Heptachlor	carcinogenicity (causes cancer)	0.000008 (8×10^{-6})	1×10^{-6}	0.00001	1×10^{-6} (one per million)
Heptachlor epoxide	carcinogenicity (causes cancer)	0.000006 (6×10^{-6})	1×10^{-6}	0.00001	2×10^{-6} (two per million)
Hexachloroben-zene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.001	3×10^{-5} (three per hundred thousand)
Hexachloro-cyclopentadiene (HCCPD)	digestive system toxicity (causes stomach lesions)	0.002	NA	0.05	NA
Lead	developmental neurotoxicity (causes neurobehavioral effects in children) cardiovascular toxicity (causes high blood pressure) carcinogenicity (causes cancer)	0.0002	$<1\times10^{-6}$ (PHG is not based on this effect)	0.015 (AL[8])	2×10^{-6} (two per million)
Lindane (γ-BHC)	carcinogenicity (causes cancer)	0.000032	1×10^{-6}	0.0002	6×10^{-6} (six per million)
Mercury (inorganic)	nephrotoxicity (harms the kidney)	0.0012	NA	0.002	NA

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Methoxychlor	endocrine toxicity (causes hormone effects)	0.00009	NA	0.03	NA
Methyl tertiary-butyl ether (MTBE)	carcinogenicity (causes cancer)	0.013	1×10^{-6}	0.013	1×10^{-6} (one per million)
Molinate	carcinogenicity (causes cancer)	0.001	1×10^{-6}	0.02	2×10^{-5} (two per hundred thousand)
Monochloro-benzene (chlorobenzene)	nephrotoxicity (harms the kidney)	0.07	NA	0.07	NA
Nickel	developmental toxicity (causes increased neonatal deaths)	0.012	NA	0.1	NA
Nitrate	hematotoxicity (causes methemoglobinemia)	45 as nitrate	NA	10 as nitrogen (=45 as nitrate)	NA
Nitrite	hematotoxicity (causes methemoglobinemia)	3 as nitrite	NA	1 as nitrogen (=3 as nitrite)	NA
Nitrate and Nitrite	hematotoxicity (causes methemoglobinemia)	10 as nitrogen[10]	NA	10 as nitrogen	NA

[10] The joint nitrate/nitrite PHG of 10 mg/L (10 ppm, expressed as nitrogen) does not replace the individual values, and the maximum contribution from nitrite should not exceed 1 mg/L nitrite-nitrogen.

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
N-nitroso-dimethyl-amine (NDMA)	carcinogenicity (causes cancer)	0.000003 (3×10^{-6})	1×10^{-6}	none	NA
Oxamyl	general toxicity (causes body weight effects)	0.026	NA	0.05	NA
Pentachloro-phenol (PCP)	carcinogenicity (causes cancer)	0.0003	1×10^{-6}	0.001	3×10^{-6} (three per million)
Perchlorate	endocrine toxicity (affects the thyroid) developmental toxicity (causes neurodevelop-mental deficits)	0.001	NA	0.006	NA
Picloram	hepatotoxicity (harms the liver)	0.166	NA	0.5	NA
Polychlorinated biphenyls (PCBs)	carcinogenicity (causes cancer)	0.00009	1×10^{-6}	0.0005	6×10^{-6} (six per million)
Radium-226	carcinogenicity (causes cancer)	0.05 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	1×10^{-4} (one per ten thousand)
Radium-228	carcinogenicity (causes cancer)	0.019 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	3×10^{-4} (three per ten thousand)
Selenium	integumentary toxicity (causes hair loss and nail damage)	0.03	NA	0.05	NA

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Silvex (2,4,5-TP)	hepatotoxicity (harms the liver)	0.003	NA	0.05	NA
Simazine	general toxicity (causes body weight effects)	0.004	NA	0.004	NA
Strontium-90	carcinogenicity (causes cancer)	0.35 pCi/L	1×10^{-6}	8 pCi/L	2×10^{-5} (two per hundred thousand)
Styrene (vinylbenzene)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.1	2×10^{-4} (two per ten thousand)
1,1,2,2-Tetrachloro-ethane	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.001	1×10^{-5} (one per hundred thousand)
2,3,7,8-Tetra-chlorodibenzo-*p*-dioxin (TCDD, or dioxin)	carcinogenicity (causes cancer)	5×10^{-11}	1×10^{-6}	3×10^{-8}	6×10^{-4} (six per ten thousand)
Tetrachloro-ethylene (perchloro-ethylene, or PCE)	carcinogenicity (causes cancer)	0.00006	1×10^{-6}	0.005	8×10^{-5} (eight per hundred thousand)
Thallium	integumentary toxicity (causes hair loss)	0.0001	NA	0.002	NA

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Thiobencarb	general toxicity (causes body weight effects) hematotoxicity (affects red blood cells)	0.042	NA	0.07	NA
Toluene (methylbenzene)	hepatotoxicity (harms the liver) endocrine toxicity (harms the thymus)	0.15	NA	0.15	NA
Toxaphene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.003	1×10^{-4} (one per ten thousand)
1,2,4-Trichloro-benzene	endocrine toxicity (harms adrenal glands)	0.005	NA	0.005	NA
1,1,1-Trichloro-ethane	neurotoxicity (harms the nervous system), reproductive toxicity (causes fewer offspring) hepatotoxicity (harms the liver) hematotoxicity (causes blood effects)	1	NA	0.2	NA
1,1,2-Trichloro-ethane	carcinogenicity (causes cancer)	0.0003	$1x10^{-6}$	0.005	2×10^{-5} (two per hundred thousand)
Trichloro-ethylene (TCE)	carcinogenicity (causes cancer)	0.0017	1×10^{-6}	0.005	3×10^{-6} (three per million)

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Trichlorofluoro-methane (Freon 11)	accelerated mortality (increase in early death)	1.3	NA	0.15	NA
1,2,3-Trichloro-propane (1,2,3-TCP)	carcinogenicity (causes cancer)	0.0000007 (7×10^{-7})	$1x10^{-6}$	0.000005 (5×10^{-6})	7×10^{-6} (seven per million)
1,1,2-Trichloro-1,2,2-trifluoro-ethane (Freon 113)	hepatotoxicity (harms the liver)	4	NA	1.2	NA
Tritium	carcinogenicity (causes cancer)	400 pCi/L	$1x10^{-6}$	20,000 pCi/L	$5x10^{-5}$ (five per hundred thousand)
Uranium	carcinogenicity (causes cancer)	0.43 pCi/L	1×10^{-6}	20 pCi/L	5×10^{-5} (five per hundred thousand)
Vinyl chloride	carcinogenicity (causes cancer)	0.00005	1×10^{-6}	0.0005	1×10^{-5} (one per hundred thousand)
Xylene	neurotoxicity (affects the senses, mood, and motor control)	1.8 (single isomer or sum of isomers)	NA	1.75 (single isomer or sum of isomers)	NA

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Disinfection byproducts (DBPs)					
Chloramines	acute toxicity (causes irritation) digestive system toxicity (harms the stomach) hematotoxicity (causes anemia)	4[5,6]	NA[7]	none	NA
Chlorine	acute toxicity (causes irritation) digestive system toxicity (harms the stomach)	4[5,6]	NA	none	NA
Chlorine dioxide	hematotoxicity (causes anemia) neurotoxicity (harms the nervous system)	0.8[5,6]	NA	none	NA
Disinfection byproducts: haloacetic acids (HAA5)					
Monochloroacetic acid (MCA)	general toxicity (causes body and organ weight changes[8])	0.07	NA	none	NA
Dichloroacetic acid (DCA)	carcinogenicity (causes cancer)	0	0	none	NA

[1] Health risk category based on the US EPA MCLG document or California MCL document unless otherwise specified.
[2] MCLG = maximum contaminant level goal established by US EPA.
[3] Cancer Risk = Upper estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] California MCL = maximum contaminant level established by California.
[5] Maximum Residual Disinfectant Level Goal, or MRDLG.
[6] The federal Maximum Residual Disinfectant Level (MRDL), or highest level of disinfectant allowed in drinking water, is the same value for this chemical.
[7] NA = not available.
[8] Body weight effects are an indicator of general toxicity in animal studies.

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Trichloroacetic acid (TCA)	hepatotoxicity (harms the liver)	0.02	NA	none	NA
Monobromoacetic acid (MBA)	NA	none	NA	none	NA
Dibromoacetic acid (DBA)	NA	none	NA	none	NA
Total haloacetic acids (sum of MCA, DCA, TCA, MBA, and DBA)	general toxicity, hepatotoxicity and carcinogenicity (causes body and organ weight changes, harms the liver and causes cancer)	none	NA	0.06	NA
Disinfection byproducts: trihalomethanes (THMs)					
Bromodichloro-methane (BDCM)	carcinogenicity (causes cancer)	0	0	none	NA
Bromoform	carcinogenicity (causes cancer)	0	0	none	NA
Chloroform	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.07	NA	none	NA
Dibromo-chloromethane (DBCM)	hepatotoxicity, nephrotoxicity, and neurotoxicity (harms the liver, kidney, and nervous system)	0.06	NA	none	NA

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Total trihalomethanes (sum of BDCM, bromoform, chloroform and DBCM)	carcinogenicity (causes cancer), hepatotoxicity, nephrotoxicity, and neurotoxicity (harms the liver, kidney, and nervous system)	none	NA	0.08	NA
Radionuclides					
Gross alpha particles[9]	carcinogenicity (causes cancer)	0 (^{210}Po included)	0	15 pCi/L[10] (includes ^{226}Ra but not radon and uranium)	up to $1x10^{-3}$ (for ^{210}Po, the most potent alpha emitter
Beta particles and photon emitters[9]	carcinogenicity (causes cancer)	0 (^{210}Pb included)	0	50 pCi/L (judged equiv. to 4 mrem/yr)	up to $2x10^{-3}$ (for ^{210}Pb, the most potent beta-emitter)

[9] MCLs for gross alpha and beta particles are screening standards for a group of radionuclides. Corresponding PHGs were not developed for gross alpha and beta particles. See the OEHHA memoranda discussing the cancer risks at these MCLs at http://www.oehha.ca.gov/water/reports/grossab.html.

[10] pCi/L = picocuries per liter of water.

Attachment No. 3

2018 Annual Consumer Confidence Report

CITY OF SANTA CRUZ WATER DEPARTMENT
CONSUMER CONFIDENCE REPORT
2018

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

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。

WHAT IS THIS REPORT?

This annual Consumer Confidence Report provides a summary of the water quality tested in 2018 and has been prepared to inform the City of Santa Cruz Water customers about their drinking water quality. Included in this report are details about where your water comes from, what it contains, and how it compares to Federal and State drinking water standards. The City of Santa Cruz vigilantly safeguards its water supplies and provides thorough treatment to ensure that our customers receive high quality drinking water. We are committed to providing our customers with accurate information about their drinking water quality. **In 2018, as in years past, your tap water met all U.S. Environmental Protection Agency and State of California drinking water health standards.**

WHERE DOES OUR WATER COME FROM?

To provide water for our service area, the City of Santa Cruz depends on water supplies from four locales: the North Coast sources, San Lorenzo River, Loch Lomond Reservoir and the Live Oak Wells. Except for groundwater from the Live Oak Wells, all other water sources are from surface water diversions or groundwater under the direct influence of surface water, which are dependent on annual rainfall and runoff.

The North Coast sources consist of surface water diversions from three coastal streams and one natural spring. Due to the excellent water quality and the lowest production cost, these North Coast sources are used to the greatest extent. These source waters are conveyed to the City's Graham Hill Water Treatment Plant for treatment. The use of these sources by the City dates back to 1890.

San Lorenzo River flows are diverted to the Graham Hill Water Treatment Plant for treatment. Three wells (groundwater under the direct influence of surface water) located next to the San Lorenzo River and hydraulically connected, are included in the City's water right. Additionally, the City can divert water from the San Lorenzo River in Felton to store in Loch Lomond Reservoir. This water is used to supplement storage in the reservoir during dry years, when natural water inflow from Newell Creek is low.

Loch Lomond Reservoir, constructed in 1960, provides surface water storage on Newell Creek. Water from the reservoir is treated at the Graham Hill Water Treatment Plant. Additionally, the reservoir and surrounding watershed are used for public recreation purposes, including fishing, boating, hiking, and picnicking.

The Live Oak well system consists of four groundwater wells and two small groundwater treatment plants 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. During the late spring, summer and early fall seasons, when surface water flows may be inadequate to meet the daily customer water demand, this supplemental groundwater supply is pumped from the four Live Oak Wells and treated on site at two groundwater treatment plants and distributed to customers in the southeast service area.

IS OUR WATER VULNERABLE TO CONTAMINATION?

Since 1996, water suppliers who rely on surface water have been required to conduct assessments (called Watershed Sanitary Surveys) of their water sources to identify potential sources of contamination and their respective treatment plants' ability to treat those pollution sources. Assessments include a delineation of the area around water sources and a review of activities with the potential to release contaminants within the delineated area. A number of potentially contaminating activities exist in the area of the Santa Cruz water sources, including commercial cannabis cultivation, wastewater and urban runoff, confined animal facilities, unauthorized activity, roads (including timber harvest roads), mining/quarry activities, geologic hazards and fires including landslides after significant rains, chemical spills, pesticides and herbicides, among others. Also, a number of legacy land disturbances including historic timber harvest roads and isolated industrial operations that resulted in contaminant plumes which still have the potential to impact drinking water sources. To provide the highest quality drinking water possible, the City works proactively with a number of partners to reduce or eliminate potential contaminant sources and prioritizes the use of the highest quality source water during times when the drinking water system is most vulnerable (i.e. during storm runoff periods). This watershed protection effort also provides benefits to other "beneficial users" of the watersheds like steelhead trout and coho salmon. In 2018, the Watershed section of the City Water Department completed an update to the 2013 Drinking Watershed Sanitary Survey of the San Lorenzo Valley and North Coast Watersheds, which can be viewed at www.cityofsantacruz.com/SanitarySurvey2018

WHY ARE THERE CONTAMINANTS IN DRINKING WATER?

In order to ensure that tap water is safe to drink, U.S. EPA and the State Water Resources Control 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 https://www.cdph.ca.gov/Programs/CEH/DFDCS/Pages/FDBPrograms/FoodSafetyProgram/Water.aspx

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 U. S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 activity. 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 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.

The State Water Resources Control Board, Division of Drinking Water allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/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).

Cryptosporidium is a microbial pathogen (parasite) found in surface water throughout the United States. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Monitoring done in 2015-2017 indicates the presence of these organisms in our raw source waters. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. **However, immune-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immune-compromised individuals to consult with their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.** https://www.cdc.gov/parasites/water.html

INORGANIC CONTAMINANTS WITH ACTION LEVELS

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, young children and infants. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Santa Cruz Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in household plumbing components. **When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap water 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 wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead . In 2018, tap water samples were collected from 34 Santa Cruz area homes after their water sat unused overnight for 6 hours or more, then analyzed for lead and copper as required by the Lead and Copper Rule https://www.epa.gov/dwreginfo/lead-and-copper-rule . The City of Santa Cruz has a three year waiver for required Lead and Copper Rule monitoring frequency, the next study will be in 2021. **Eight K-12 schools within the Santa Cruz Water service area were tested for lead in 2018 with the remainder of schools to be tested in 2019.**

WATER QUALITY DATA TABLE

The Table of Detected Contaminants lists drinking water contaminants that were detected during the 2018 calendar year. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk.

To interpret the tables, you will need the following definitions:

MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

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.

N/A: Not Applicable

PDWS: Primary Drinking Water Standard: MCLs 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).

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

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

SDWS: Secondary Drinking Water Standards: MCLs for contaminants that may adversely affect the taste, odor or appearance of drinking water. These are aesthetic considerations that are not considered as health concerns.

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

WATER QUALITY TABLE OF DETECTED CONTAMINANTS

Contaminants Regulated by Primary Drinking Water Standards

Contaminants (units)	PHG MCLG	PDWS MCL	Treated Water Average[2]	Source Water Range[1]		Sample Date	Violation	Typical Source of Contamination
				Low	High			
Aluminum (ppm)	0.6	1	0.02	< 0.02	0.03	2018	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (ppb)	0.004	10	< 1.0	< 1.0	3.6	2018	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Fluoride (ppm)	1	2.0	0.2	< 0.1	0.6	2018	No	Erosion of natural deposits; discharge from fertilizer and aluminum factories
Gross Alpha particle activity (pCi/L)	0	15	< 3.00	< 3.00	< 3.00	2017	No	Erosion of natural deposits
Nitrate as Nitrogen (ppm)	10	10	0.26	< 0.02	0.64	2018	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits

Additional Contaminants Regulated by Primary Drinking Water Standards

Contaminants (units)	PHG MCLG	PDWS MCL	Treated Water Average[2]	Treated Water Range[2]		Sample Date	Violation	Typical Source of Contamination
				Low	High			
Turbidity (NTU)	TT	Maximum 1 and 95% < 0.3	0.08	0.04	2.6	2018	No	Soil runoff

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Microbiological Contaminants

Contaminants	PHG MCLG	PDWS MCL	Treated Water[2]	Source Water[1]	Sample Date	Violation	Typical Source of Contamination
Total Coliform Bacteria	0	less than 5% positive	0 positive		2018	No	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.
E. Coli	0	0	0 positive		2018	No	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.

Contaminants Regulated by MRDL

Contaminants (units)	PHG	PDWS MRDL	Treated Water Average[2]	Treated Water Range[2]		Sample Date	Violation	Typical Source of Contamination
				Low	High			
Chlorine (ppm)	4	4	0.90	0.02	1.57	2018	No	Drinking water disinfectant added for treatment

Disinfection Byproduct Contaminants under Stage 2 DBP Rule

Contaminants (units)	PHG MCLG	MCL	Treated Water[2]	Treated Water Range[2] Low	Treated Water Range[2] High	Sample Date	Violation	Typical Source of Contamination
TTHM [Total Trihalomethanes] (ppb)	N/A	80 (LRAA)	59 (LRAA)	8	61	2018	No	By-product of drinking water disinfection
HAA5 [Haloacetic Acids (five)] (ppb)	N/A	60 (LRAA)	45 (LRAA)	< 2	48	2018	No	By-product of drinking water disinfection

Inorganic Contaminants with Action Levels

Contaminants (units)	PHG	RAL	Tap Water 90th Percentile[3]	# of Samples Exceeding RAL[3]	Sample Date	Exceeds RAL	Typical Source of Contamination
Copper (ppm)	0.3	1.3	0.4	0/34	2018	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	0.2	15	< 2	0/34	2018	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

Contaminants with Secondary Drinking Water Standards (SDWS)

Contaminants (units)	SDWS MCL	Treated Water Average[2]	Treated Water Range[2] Low	Treated Water Range[2] High	Sample Date	Typical Source of Contamination
Iron (ppb)	300	<20	< 20	95	2018	Leaching from natural deposits; industrial wastes
Chloride (ppm)	500	26	20	55	2018	Runoff/leaching from natural deposits; seawater influence
Manganese (ppb)	50	2	< 2	12	2018	Leaching from natural deposits
Specific Conductance (µmhos/cm)	1600	470	405	760	2018	Substances that form ions when in water; seawater influence
Sulfate (ppm)	500	74	58	140	2018	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	1000	280	260	510	2018	Runoff/leaching from natural deposits

Other Monitoring Results

Other monitoring results are provided for consumer information.

Constituents (units)	Treated Water Average[2]	Treated Water Range[2] Low	Treated Water Range[2] High	Sample Date	Typical Source of Contamination
Hardness (ppm)	175	150	270	2018	A measure of the major cations, primarily calcium and magnesium
Sodium (ppm)	27	22	52	2018	Runoff/leaching from natural deposits; saltwater influence
Hexavalent Chromium (ppb) *	0.03	< 0.02	0.05	2018	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits.

*** There is currently no MCL for Hexavalent Chromium.** The previous MCL of 0.010 mg/L or 10 ug/L (ppb) was withdrawn on September 11, 2017. Some people who drink water containing hexavalent chromium in excess of 10 ug/L (ppb) over many years may have an increased risk of getting cancer.

Unregulated Contaminants – UCMR3

Contaminants (units)	Treated Water Average[2]	Treated Water Range[2] Low	Treated Water Range[2] High	Sample Dates
Chlorate (ppb)	180	73	320	2013/2014
Chromium-6 (ppb)	0.05	< 0.03	0.14	2013/2014
Molybdenum (ppb)	2.1	1.6	2.6	2013/2014
Strontium (ppb)	245	200	260	2013/2014
Vanadium (ppb)	0.3	< 0.2	0.7	2013/2014

[1]Untreated water from the raw sources [2]Treated water from treatment plants and/or water mains [3]Water from 34 customers' household taps

Unregulated contaminants are those for which U.S. EPA has not established drinking water standards. 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.

Data Table Units:
NTU: Nephelometric Turbidity Units
pCi/L: picocuries per liter (a measurement of radioactivity)
ppm: parts per million or milligrams per liter (mg/L)
ppb: parts per billion or micrograms per liter (µg/L)
µmhos/cm: a measure of electrical conductivity

We hope this Consumer Confidence Report is valuable to you. If you have any questions or comments about your drinking water, please contact one of the City of Santa Cruz staff listed below.

WATER ADMINISTRATION
Rosemary Menard, Water Director
212 Locust St, Suite A
Santa Cruz, CA 95060
Phone: (831) 420-5200
Fax: (831) 420-5201

WATER QUALITY LABORATORY
Hugh Dalton, Water Quality Manager
715 Graham Hill Road
Santa Cruz, CA 95060
Phone: (831) 420-5484
E-mail: WaterQuality@cityofsantacruz.com
CCR2018:
www.cityofsantacruz.com/ccr2018

WATER RESOURCES
Chris Berry, Watershed Compliance Manager
715 Graham Hill Road
Santa Cruz, CA 95060
Phone: (831) 420-5483
E-mail:
WaterResources@cityofsantacruz.com

You can also find other information on the Water Department and its activities and events on the City's website http://www.cityofsantacruz.com/government/city-departments/water **for information on Water Conservation, Loch Lomond Recreation Area, activities and projects of our Engineering Section, Water Commission and more. Meetings of the City Council and Water Commission provide excellent opportunities for you to get involved in issues related to drinking water. Their agendas are posted on the website listed above, at City Hall, or you can call the Water Department at (831) 420-5200 to find out more. We welcome your attendance and input.**

SANTA CRUZ CITY COUNCIL
809 Center Street, Room 10
Santa Cruz, CA 95060
Phone: (831) 420-5020
E-mail: CityCouncil@cityofsantacruz.com

SANTA CRUZ WATER COMMISSION
Contact the Water Commission through the Water Department at (831) 420-5200
Water Commission meetings are scheduled for the first Monday of each month at 7:00 pm.

Other sources of information:

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER
Monterey District Office
(831) 655-6939
http://www.waterboards.ca.gov/drinking_water/programs/index.shtml
http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/Lawbook.shtml

U.S. ENVIRONMENTAL PROTECTION AGENCY (U.S. EPA)
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
(202) 566-1729
http://water.epa.gov/drink/index.cfm