SACRAMENTO SUBURBAN WATER DISTRICT

2022 PUBLIC HEALTH GOAL REPORT

JUNE 30, 2022

Background

Effective July 1, 1998, Section 116470(b) of the California Health and Safety Code (Attachment 1) requires all public water systems with more than 10,000 service connections to prepare a Public Health Goal (PHG) Report every three years by July 1st. This report satisfies Sacramento Suburban Water District's (SSWD) requirement for 2022. This PHG Report contains information concerning the health risks, treatment technologies, and estimated treatment costs associated with drinking water contaminants that have a primary drinking water standard and were detected at levels greater than their respective PHGs. PHGs are non-enforceable goals established by the California Environmental Protection Agency's (Cal-EPA) Office of Environmental Health Hazard Assessment (OEHHA). Section 116470(b) also requires public water systems to use a contaminant's Maximum Contaminant Level Goal (MCLG) established by the United States Environmental Protection Agency (USEPA) where OEHHA has not yet adopted a PHG.

The State Water Resources Control Board, Division of Drinking Water (DDW) adopts primary drinking water standards for contaminants that are mainly expressed as maximum contaminant levels (MCLs). MCLs are enforceable regulatory standards to which all public water systems in the State must adhere. Conversely, PHGs and MCLGs are non-enforceable health-based goals that do not consider the limits of detection and available treatment technologies. As such, many PHGs and MCLGs are set at levels that water systems cannot meet.

The purpose of the legislative requirement behind this report is to give public water system customers in California access to information about levels of contaminants below their enforceable (mandatory) MCLs. This information includes:

- The numerical public health risk associated with the MCL and PHG or MCLG
- The category or type of risk to health that could be associated with each constituent
- The best treatment technology available that could be used to reduce the concentration of a constituent
- An estimate for the cost of that treatment

This report is required in addition to the extensive public reporting of water quality information that public water systems are required to provide in the federally mandated Consumer Confidence Report (CCR). Hence, SSWD has also prepared the CCR, which covers more water quality data and in greater depth.

OEHHA and the USEPA have not yet established PHGs or MCLGs for some constituents that are routinely detected in public water systems. Those constituents will be addressed in future PHG Reports after MCLs and PHGs (or MCLGs) has been adopted.

As was the case with the 2019 PHG Report, the 2022 PHG Report addresses concerns to inquiries from SSWD's Board of Directors concerning the exclusion of specific contaminants from the 2016 PHG Report. Those contaminants and a brief discussion as to why they are not included again in the 2022 PHG Report are as follows.

- Hexavalent Chromium (Cr+6): Cr+6 was discussed in the 2016 PHG Report as having been detected in numerous wells throughout the system. Even though the 0.02 micrograms per liter µg/L or parts per billion (ppb) PHG remains unchanged, DDW rescinded the Maximum Contaminant Level (MCL) on September 11, 2017. As such, it did not meet one of the primary criteria for it to be included in the 2019 and 2022 PHG Reports.
- 1,2,3-Trichloropropane (1,2,3-TCP): DDW established the 0.005 ppb MCL for 1,2,3-TCP on December 14, 2017. The MCL is based in part, on the 0.0007 ppb PHG. Two wells (Well 58 and Well 31A) with reportable detections of 1,2,3-TCP were removed from service in 2018 before compliance monitoring was completed. As indicated previously, only wells used to support the system with water that exceeded the PHG of a regulated contaminant in 2019, 2020 and/or 2021 are discussed in the 2022 PHG Report.
- Manganese: Several wells throughout SSWD's system are known to produce low levels of manganese. As it accumulates in the system over time, sudden, significant changes in pressure may suspend the manganese and result in discolored water. Because the only MCL currently for manganese is based on a consumer acceptance level and not a health-based standard, there is no PHG for manganese.

PHGs, MCLGs, and DLRs

PHGs are based solely on public health risk considerations. They represent the level of a contaminant in drinking water below which there is no known or expected significant risk to health. None of the practical risk-management factors that are considered by DDW or USEPA in setting drinking water MCLs are considered in setting PHGs. These factors include: analytical detection capability, available treatment technologies, and benefits and costs of operating the treatment. MCLGs are the federal equivalent to PHGs, however, in cases where a contaminant is a known or suspected carcinogen, the MCLG is set to zero. PHGs and MCLGs are not enforceable and are not required to be met by public water systems. A constituent's Detection Limit for the Purposes of Reporting (DLR) is the designated minimum level at or above which any analytical result for drinking water must be reported to DDW. The Association of California Water Agencies PHG report guidance recommends considering results that are above their PHG or MCLG and less than their DLR to be zero. A list published by DDW of regulated constituents with the MCLs, DLRs and PHGs for Regulated Drinking Water Contaminants is included as Attachment 2.

Water Quality Data Considered

The previous PHG Report was prepared and submitted to SSWD's Board in 2019. It included water quality data from samples collected primarily in 2016, 2017, and 2018. The 2022 PHG Report includes water quality data from samples primarily collected during 2019, 2020, and 2021 at sources that were used to support the system. That data is also summarized in SSWD's 2019, 2020, and 2021 CCRs that are included as Attachment 3.

Guidelines Followed

This report has been prepared in accordance with the April 2022, Association of California Water Agencies (ACWA) guidance document titled, "Suggested Guidelines for Preparation of Required Reports on Public Health Goals (PHGs) to Satisfy Requirements of California Health and Safety Code Section 116470(b)." No other guidance was available from State regulatory agencies.

Best Available Treatment Technology and Cost Estimates

Both the USEPA and DDW adopt what are known as best available technologies (BAT) which are considered the best available treatment methods approved by the regulatory agencies for reducing specific contaminants to levels below their respective MCLs. Although costs can be estimated for such technologies, many PHGs and all MCLGs are set much lower than their MCLs. It is not always possible, nor feasible, to determine what treatment is needed to further reduce the concentration of a constituent to the PHG or MCLG levels. This is especially true for known or suspected carcinogens that do not have a PHG where the MCLG is zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible, because it is not possible to verify by analytical means that the concentration of a contaminant has been lowered to zero. In some cases, installing treatment to try to further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

Treatment cost estimates for constituents listed are derived from the "Cost Estimates for Treatment Technologies" (included as Attachment 4) that were included as part of the ACWA guidance. Where provided, treatment costs are calculated using the information in Attachment 4 and each source's production capacity with the well operating 12 hours per day, 365 days per year. The estimates for specific treatment technologies do not include other factors such as permitting and waste disposal. Furthermore, before any treatment system is approved by DDW, SSWD is required to conduct a California Environmental Quality Act (also known as CEQA) review to assess any potential environmental impacts that may be related to the project. The results of the CEQA review could add significant costs to mitigate potential concerns, or could preclude using a specific treatment technology altogether. Waste disposal costs associated with various treatment technologies vary widely. Some waste disposal costs are known and can be estimated as part of the routine operations and maintenance of the system. Others requiring direct discharge to the sanitary sewer or hauling of potentially hazardous waste would have to be determined on a case-by-case basis.

Constituents Detected That Exceed a PHG or MCLG

The following contaminants were detected in one or more of SSWD's active drinking water sources or distribution system at levels above the PHG or MCLG: arsenic, gross alpha particle activity, combined radium, uranium, and tetrachloroethylene. The contaminants, number of sources impacted, range of detections, associated health risks, treatment technologies and treatment costs are discussed below.

Arsenic

Chemical Name	Health Risk	MCL	PHG/ (MCLG)	DLR	Numerical Health Risk at MCL	Numerical Health Risk at PHG/(MCLG)
		(ppb)				
Arsenic	Increased risk of cancer	10	0.004	2	2.5×10^{-3}	1×10^{-6}

Arsenic (As) is a naturally occurring element in the earth's crust and is very widely distributed in the environment. In general, humans are exposed to microgram (µg) quantities of As (inorganic and organic) largely from food (25 to 50 µg per day) and to a lesser degree from drinking water and air. Arsenic is used in industry as a component in wood preservatives, pesticides, paints, dyes and semiconductors. In most areas, erosion of rocks and minerals is considered the primary source of As in groundwater. Environmental contamination may result from anthropogenic sources such as: urban runoff, treated wood, pesticides, fly ash from power plants, smelting and mining wastes.

The table above shows that the MCL for As is 10 ppb with a corresponding PHG of 0.004 ppb. OEHHA's April 2004, Fact Sheet titled: "Public Health Goal for Arsenic" summarizes the non-carcinogenic and carcinogenic health effects observed from studies involving drinking water with high levels of As. Studies cited have associated chronic intake of As in drinking water with the following non-carcinogenic health effects including: heart attack, stroke, diabetes mellitus, and hypertension. Other effects also include decreased production of erythrocytes and leukocytes, abnormal cardiac function, blood vessel damage, liver and/or kidney damage, and impaired nerve function in hands and feet (paresthesia). Characteristic skin abnormalities are also seen appearing as dark or light spots on the skin and small "corns" on the palms, soles, and trunk. Some of the corns may ultimately progress to skin cancer. Carcinogenic health effects involve an increased risk of cancer at internal sites, especially lung, urinary bladder, kidney, and liver. The health effects language in Appendix 64465-D of Title 22, California Code of Regulations states that: "Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer." As shown in the table above, the numerical health (cancer) risk for drinking water with As at the MCL is 2.5 in 1,000. The numerical health (cancer) risk for drinking water with As at the PHG is 1 in 1,000,000.

The levels of As detected are well below the regulatory standard. Because the DLR for As is 2 ppb, SSWD is unable to assess the presence of As below that level. As such, any As that may be present in sources at levels between the 0.004 ppb PHG and the 2 ppb DLR is unknown and not considered in this report. Water quality data from samples collected at sources used to support the system shows that As was detected in 13 North Service Area (NSA) wells and 17 South Service Area (SSA) wells. Levels of As detected in the NSA wells ranged from 2.0 to 2.5 ppb and from 2.0 to 4.3 ppb in the SSA wells.

The approved BAT for treating As includes the following treatment techniques:

1. Activated Alumina
2. Coagulation/Filtration
3. Electrodialysis
4. Ion Exchange
5. Lime Softening
6. Oxidation Filtration
7. Reverse Osmosis

Since the As levels in SSWD wells shows that As is already below the MCL, reverse osmosis (RO) would likely be required to effectively decrease the amount of As from each source. The cost estimates for RO range from $0.94 to $8.04 per 1,000 gallons of water treated. If RO treatment were considered for the 30 wells discussed above, the annualized capital and operation and maintenance (O&M) costs could range from approximately $7.7 million to $66 million per year. That would result in an assumed increased cost for each customer ranging from $164 to $1,401 per year.

Gross Alpha Particle Activity

Chemical Name	Health Risk	MCL	PHG/ (MCLG)	DLR	Numerical Health Risk at MCL	Numerical Health Risk at PHG/(MCLG)
		(picoCuries/liter)				
Gross Alpha Particle Activity	Increased risk of cancer	15	(Zero)	3	Up to 1×10^{-3}	(Zero)

Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Gross alpha particle activity (GA) is a measurement of the overall alpha radiation emitted when certain elements such as uranium and radium undergo radioactive decay. Alpha radiation exists in the air, soil and water. Naturally occurring alpha radiation in groundwater results mainly from the dissolution of minerals as the water seeps into the ground, and as water moves through aquifers. Detectable levels of GA above the DLR are used to determine when additional radionuclide speciation (monitoring) is required.

The table above shows that the MCL for GA is 15 pico Curies/liter (pCi/L). Because GA is associated with a group of radioactive elements rather than an individual contaminant, OEHHA determined it is not practical to establish a PHG for it. GA is known to cause cancer; therefore, USEPA established the MCLG at zero pCi/L. The actual cancer risk from radionuclides emitting alpha radiation in drinking water depends on the particular radionuclide present and the average consumption over a lifetime. Alpha radiation loses energy rapidly and doesn't pass through the skin therefore, it is not a health hazard outside of the body. Typical exposure routes for alpha radiation include: eating, drinking and inhaling alpha-emitting particles. General, non-carcinogenic health effects associated with ingesting elevated levels of alpha radiation include kidney damage, damage to cells and DNA, and damage to other vital organs. Specific cancers that may result from exposure to elevated levels of alpha radiation include: bone cancer and cancer of particular organs,

each of which are associated with specific alpha-radiation emitters. The health effects language in Appendix 64465-C of Title 22, California Code of Regulations states that: "Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer." As shown in the table above, the numerical health (cancer) risk for drinking water with the most radiotoxic alpha particle emitter at the MCL is: 1 in 1,000. The numerical health (cancer) risk for drinking water with GA at the MCLG is zero.

The levels of GA detected are below the regulatory standard. Because the DLR for GA is 3 pCi/L, SSWD is unable to assess the presence of GA below that level. As such, any GA that may be present in sources at levels between the zero pCi/L MCLG and the 3 pCi/L DLR is unknown and not considered in this report. Water quality data from samples collected at sources used to support the system shows that GA has been detected in two NSA wells and one SSA well. Levels of GA detected in the NSA wells ranged from 3.00 to 3.10 pCi/L and up to 5.70 pCi/L in the SSA well.

The BAT identified to treat GA is RO. The most effective method to reduce GA is to install RO treatment at select groundwater wells where results exceed the MCLG, and are detectable at levels above the DLR. Cost estimates for RO range from $0.94 to $8.04 per 1,000 gallons of water treated. If RO treatment were considered for the three wells discussed above, the annualized capital and O&M costs could range from approximately $965,000 to $8.3 million per year. That would result in an assumed increased cost for each customer ranging from $20 to $175 per year.

Combined Radium

Chemical Name	Health Risk	MCL	PHG/ (MCLG)	DLR	Numerical Health Risk at MCL	Numerical Health Risk at PHG/(MCLG)
		(picoCuries/liter)				
Radium	Increased risk of cancer	5	Ra226: 0.05 Ra228: 0.019	1	Ra226: 1×10^{-4} Ra228: 3×10^{-4}	1×10^{-6}

Radium (Ra) is one of several naturally occurring radioactive metals that emits alpha (as well as gamma and beta) radiation. Combined Ra is the sum of two different isotopes, Ra226 and Ra228. Ra is formed by the radioactive decay of uranium and thorium in the environment. All isotopes of Ra are radioactive with Ra226 and Ra228 being the most common. Radioactive decay of Ra produces radon gas. Ra occurs at trace levels in most rocks, soil, water, air, and plants and animals. Elevated levels of naturally occurring Ra in the environment are associated with specific types of igneous rocks and deposition of their weathered components. Anthropogenic sources are typically associated with uranium mining and improper handling or disposal radioactive waste. Ra has been used historically in medical treatments, medical devices and for illumination of aircraft gauges.

The table above shows that the MCL for (combined) Ra (Ra226 and Ra228) is 5 pCi/L. At specific concentrations, the toxicological effects of each isotope differ. Therefore, the

PHGs for Ra226 (at 0.05 pCi/L) and Ra228 (at 0.019 pCi/L) differ as well. OEHHA's March 2006, "Public Health Goals for Chemicals in Drinking Water; Radium-226 and -228" summarizes the health effects observed from studies involving drinking water with high levels of Ra. Non-carcinogenic effects include: mutagenic effects, benign bone growths, growth retardation in children, tooth breakage, kidney and liver disease and cataracts. Bone sarcomas and head sarcomas are the two main types of cancer associated with exposure to high levels of Ra. The health effects language in Appendix 64465-C of Title 22, California Code of Regulations states that: "Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer." As shown in the table above, the numerical health (cancer) risks for drinking water with Ra226 and Ra228 at the MCL is 1 in 10,000 and 3 in 10,000, respectively. The numerical health (cancer) risk for drinking water with Ra226 and Ra228 at their respective PHGs is 1 in 1,000,000.

The levels of Ra detected are below the regulatory standard. Because the DLR for Ra is 1 pCi/L, SSWD is unable to assess the presence of Ra below that level. As such, any Ra that may be present in sources at levels between the 0.05 pCi/L PHG and 1 pCi/L DLR for Ra226, and 0.019 pCi/L PHG and 1 pCi/L DLR for Ra228 is unknown and not considered in this report. Water quality data from samples collected at sources used to support the system shows that Ra has been detected in one NSA well and four SSA wells. Levels of Ra detected in the NSA well ranged from 2.72 to 3.34 pCi/L and from 1.30 to 2.11 pCi/L in the SSA wells.

The approved BATs for treating Ra include the following treatment techniques:

1. Ion Exchange
2. Reverse Osmosis
3. Lime Softening

The most effective method to reduce Ra is to install RO treatment at select groundwater wells where results exceed the PHGs for Ra226 and Ra228, and are detectable at levels above the DLR. Cost estimates for RO range from $0.94 to $8.04 per 1,000 gallons of water treated. If RO treatment were considered for the five wells discussed above, the annualized capital and O&M costs could range from approximately $1.7 million to $14.5 million per year. That would result in an assumed increased cost for each customer ranging from $36 to $307 per year.

Uranium

Chemical Name	Health Risk	MCL	PHG/ (MCLG)	DLR	Numerical Health Risk at MCL	Numerical Health Risk at PHG/(MCLG)
		(picoCuries/liter)				
Uranium	Increased risk of cancer	20	0.43	1	5×10^{-5}	1×10^{-6}

Uranium (U) is one of several naturally occurring radioactive metals that emit alpha (and beta) radiation. U has three (U234, U235 and U238) primary naturally occurring isotopes.

All three isotopes of U are radioactive with U238 (approximately 99%) being the most common. Radioactive decay of U produces Ra, which in turn decays to radon gas. U occurs at trace levels in most rocks, soil, water, plants and animals. U is weakly radioactive and therefore, contributes to low levels of radioactivity in the environment. Elevated levels of U found in the environment are typically associated with U mining and the techniques used to remove it. Concentrations of U may also occur in the environment as a result of improper handling or disposal practices. U is enriched before it is used for power generation in nuclear reactors or for use in weapons. Before the radioactive properties of U were known, it was used as a yellow coloring for pottery and glassware.

The table above shows that the MCL for U is 20 pCi/L with a corresponding PHG of 0.43 pCi/L. Unlike Ra, the individual isotopes of U do not have their own specific PHG. OEHHA's August 2001, "Public Health Goals for Chemicals in Drinking Water: Uranium" summarizes the health effects observed from studies involving human exposure to high levels of U. Non-carcinogenic effects include kidney and liver disease. Lung cancer is the main type of cancer associated with exposure to high levels of U. USEPA has classified U as a "Class A" carcinogen, even though there is no direct evidence that it is carcinogenic in humans. The health effects discussed above appear to be associated with the emission of ionizing radiation from radioactive daughter products. The health effects language in Appendix 64465-C of Title 22, California Code of Regulations states that: "Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer." As shown in the table above, the numerical health (cancer) risk for drinking water with U at the MCL is 5 in 100,000. The numerical health (cancer) risk for drinking water with U at the PHG is 1 in 1,000,000.

The levels of U detected are below the regulatory standard. Because the DLR for U is 1 pCi/L, SSWD is unable to assess the presence of U below that level. As such, any U that may be present in sources at levels between the 0.43 pCi/L PHG and the 1 pCi/L DLR is unknown and not considered in this report. Water quality data from samples collected at sources used to support the system shows that U has been detected in two NSA wells and three SSA wells. Levels of U in the NSA wells ranged from 1.08 to 4.97 pCi/L and from 2.2 to 4.8 pCi/L in the SSA wells.

The approved BATs for treating U include the following treatment techniques:

1. Ion Exchange
2. Reverse Osmosis
3. Lime Softening
4. Coagulation/Filtration

The most effective method to reduce U and the other radionuclides discussed previously is to install RO treatment at select groundwater wells where results exceed the PHG and are detectable at levels above the DLR. Cost estimates for RO range from $0.94 to $8.04 per 1,000 gallons of water treated. If RO treatment were considered for the five wells discussed above, the annualized capital and O&M costs could range from approximately $1.9 million to $15.9 million per year. That would result in an assumed increased cost for each customer ranging from $39 to $337 per year.

Tetrachloroethylene (PCE)

Chemical Name	Health Risk	MCL	PHG/ (MCLG)	DLR	Numerical Health Risk at MCL	Numerical Health Risk at PHG/(MCLG)
		(ppb)				
PCE	Increased risk of cancer	5	0.06	0.5	8×10^{-5}	1×10^{-6}

Tetrachloroethylene, also known as perchloroethylene or PCE, is primarily used as a chemical intermediate for the production of chlorofluorocarbons and as a solvent used in cleaning operations (metal cleaning, vapor degreasing, and dry cleaning). PCE has also been used in electric transformers as an insulating fluid and cooling gas. In addition, numerous household products contain some level of PCE. The high volatility of PCE results in a high potential for release into the environment during use. As a result of its widespread use and inadequate handling and disposal practices, PCE has become a common environmental contaminant.

The table above shows that the MCL for PCE is 5 ppb with a corresponding PHG of 0.06 ppb. OEHHA's August 2001, "Public Health Goal for Tetrachloroethylene in Drinking Water" summarizes the health effects observed from studies involving human exposure to high levels of PCE. Non-carcinogenic health effects include: kidney disease, developmental and reproductive toxicity, neurotoxicity and genetic mutations. Carcinogenic health effects include: kidney, liver, cervix, lymphatic system cancers. Due to the low levels typically involved, exposures to PCE in drinking water are not expected to result in any acute health effects. Exposure from drinking water can be in the form of household airborne exposures from showering, flushing of toilets, and other contact with water. PCE is readily absorbed through the lungs and gastrointestinal tract, and to a lesser extent, it can be absorbed through the skin. The health effects language in Appendix 64465-E of Title 22, California Code of Regulations states that: "Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer." As shown in the table above, the numerical health (cancer) risk for drinking water with PCE at the MCL is 8 in 100,000. The numerical health (cancer) risk for drinking water with PCE at the PHG is 1 in 1,000,000.

The levels of PCE detected are below the regulatory standard. Because the DLR for PCE is 0.5 ppb, SSWD is unable to assess the presence of PCE below that level. As such, any PCE that may be present in sources at levels between the 0.06 ppb PHG and the 0.5 ppb DLR is unknown and not considered in this report. Water quality data from samples collected at sources used to support the system shows that PCE has been detected in six NSA wells and one SSA well. Levels of PCE detected in the NSA wells ranged from 0.57 to 3.5 ppb and up to 0.65 ppb in the SSA well.

The approved BATs for treating PCE include the following treatment techniques:

1. Granular Activated Carbon (GAC)
2. Packed Tower Aeration

If GAC were selected as the BAT to reduce PCE in the seven SSWD wells discussed above, the cost could range from $ 0.32 to $2.71 per 1,000 gallons of water treated. The annualized capital and O&M costs could range from approximately $835,000 to $7.1 million per year. That would result in an assumed increased cost for each customer ranging from $18 to $150 per year.

RECOMMENDATIONS FOR FURTHER ACTION

The quality of SSWD's drinking water meets state and federal drinking water standards set to protect public health. Additional costly treatment processes would be required to reduce the levels of arsenic, gross alpha particle activity combined radium, uranium, and tetrachloroethylene to levels below their respective PHGs or MCLGs. The effectiveness of the treatment processes to provide any significant reductions in constituent levels is uncertain. The health protection benefits of these hypothetical reductions are not at all clear and may not be quantifiable. Any funds that may be available for the additional treatment processes might provide greater public health protection benefits if spent on other water system operations, surveillance, and monitoring programs. Therefore, no further action is recommended.

ACRONYMS USED

ACWA……Association of California Water Agencies
AL.....Action Level
As…… ..Arsenic
BAT .....Best Available Technology
Cal-EPA .....California Environmental Protection Agency
CCR…… ..Consumer Confidence Report
CEQA……. California Environmental Quality Act
DDW.....State Water Resources Control Board, Division of Drinking Water (formerly known as the California Department of Public Health, Drinking Water Program)
DLR .....Detection Limit for the Purposes of Reporting
GAC .....Granular Activated Charcoal
GA…… .Gross Alpha particle activity
IX…… .....Ion Exchange
MCL.....Maximum Contaminant Level
MCLG.....Maximum Contaminant Level Goal
NSA.....North Service Area
OEHHA .....Office of Environmental Health Hazard Assessment
ppb .....parts per billion, or equivalent to micrograms per liter
PCE.....Tetrachloroethylene, also known as perchloroethylene
pCi/L.....picoCuries per liter

PHG .....Public Health Goal
Ra…… ..Radium
RO…… .Reverse Osmosis
SSA.....South Service Area
U……Uranium
USEPA.....United States Environmental Protection Agency

ATTACHMENTS

1. Excerpt from California Health and Safety Code Section 116470(b)
2. MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants
3. 2019, 2020, and 2021 Consumer Confidence Reports
4. ACWA Cost Estimates for Treatment Technologies

ATTACHMENT 1

Excerpt from California Health and Safety Code Section 116470(b)

California Health and Safety Code 116470 (b)

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.

ATTACHMENT 2

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: S e p t e m b e r 1 4 , 2021

This table includes:

California's maximum contaminant levels (MCLs)

Detection limits for purposes of reporting (DLRs)

Public health goals (PHGs) from the Office of Environmental Health Hazard Assessment (OEHHA)

Also, the PHG for NDMA (which is not yet regulated) is included at the bottom of this table.

Regulated Contaminant	MCL	DLR	PHG	Date of PHG
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.001	2016
Arsenic	0.010	0.002	0.000004	2004
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003
Barium	1	0.1	2	2003
Beryllium	0.004	0.001	0.001	2003
Cadmium	0.005	0.001	0.00004	2006
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999
Chromium, Hexavalent - 0.01-mg/L MCL & 0.001-mg/L DLR repealed September 2017	--	--	0.00002	2011
Cyanide	0.15	0.1	0.15	1997
Fluoride	2	0.1	1	1997
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*
Nickel	0.1	0.01	0.012	2001
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018
Nitrite (as N)	1 as N	0.4	1 as N	2018
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018
Perchlorate	0.006	0.004	0.001	2015
Selenium	0.05	0.005	0.03	2010
Thallium	0.002	0.001	0.0001	1999 (rev2004)
Copper and Lead, 22 CCR §64672.3				
Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule				
Copper	1.3	0.05	0.3	2008

Lead	0.015	0.005	0.0002	2009
Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity				
[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]				
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a
Radium-226	--	1	0.05	2006
Radium-228	--	1	0.019	2006
Radium-226 + Radium-228	5	--	--	--
Strontium-90	8	2	0.35	2006
Tritium	20,000	1,000	400	2006
Uranium	20	1	0.43	2001
Chemicals with MCLs in 22 CCR §64444—Organic Chemicals				
(a) Volatile Organic Chemicals (VOCs)				
Benzene	0.001	0.0005	0.00015	2001
Carbon tetrachloride	0.0005	0.0005	0.0001	2000
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000
1,2-Dichloropropane	0.005	0.0005	0.0005	1999
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)
Ethylbenzene	0.3	0.0005	0.3	1997
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999
Monochlorobenzene	0.07	0.0005	0.07	2014
Styrene	0.1	0.0005	0.0005	2010
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001
Toluene	0.15	0.0005	0.15	1999
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	2006
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014

1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)
Vinyl chloride	0.0005	0.0005	0.00005	2000
Xylenes	1.75	0.0005	1.8	1997
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)				
Alachlor	0.002	0.001	0.004	1997
Atrazine	0.001	0.0005	0.00015	1999
Bentazon	0.018	0.002	0.2	1999 (rev2009)
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010
Carbofuran	0.018	0.005	0.0007	2016
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)
Dalapon	0.2	0.01	0.79	1997 (rev2009)
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.000003	2020
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997
Dinoseb	0.007	0.002	0.014	1997 (rev2010)
Diquat	0.02	0.004	0.006	2016
Endothal	0.1	0.045	0.094	2014
Endrin	0.002	0.0001	0.0003	2016
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003
Glyphosate	0.7	0.025	0.9	2007
Heptachlor	0.00001	0.00001	0.000008	1999
Heptachlor epoxide	0.00001	0.00001	0.000006	1999
Hexachlorobenzene	0.001	0.0005	0.00003	2003
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)
Methoxychlor	0.03	0.01	0.00009	2010
Molinate	0.02	0.002	0.001	2008
Oxamyl	0.05	0.02	0.026	2009
Pentachlorophenol	0.001	0.0002	0.0003	2009
Picloram	0.5	0.001	0.166	2016
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007
Simazine	0.004	0.001	0.004	2001
Thiobencarb	0.07	0.001	0.042	2016
Toxaphene	0.003	0.001	0.00003	2003
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009
2,3,7,8-TCDD (dioxin)	$3x10^{-8}$	$5x10^{-9}$	$5x10^{-11}$	2010
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014
Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				
Total Trihalomethanes	0.080	--	--	--
Bromodichloromethane	--	0.0010	0.00006	2020

Bromoform	--	0.0010	0.0005	2020
Chloroform	--	0.0010	0.0004	2020
Dibromochloromethane	--	0.0010	0.0001	2020
Haloacetic Acids (five) (HAA5)	0.060	--	--	--
Monochloroacetic Acid	--	0.0020	--	--
Dichloroacetic Adic	--	0.0010	--	--
Trichloroacetic Acid	--	0.0010	--	--
Monobromoacetic Acid	--	0.0010	--	--
Dibromoacetic Acid	--	0.0010	--	--
Bromate	0.010	0.0050**	0.0001	2009
Chlorite	1.0	0.020	0.05	2009
Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.				
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006
*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG.				
**The DLR for Bromate is 0.0010 mg/L for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0.				

ATTACHMENT 3

2019, 2020, and 2021 Consumer Confidence Reports

2019 Consumer Confidence Report

SACRAMENTO SUBURBAN WATER DISTRICT

Sacramento Suburban Water District (SSWD) is pleased to present this detailed report on 2019 water quality. Results of samples collected during 2017, 2018, and 2019, as well as other water quality information, were used to prepare this report. As always, providing a high quality, reliable supply of water and superior customer service at the lowest responsible water rate are SSWD's top priorities.

Sources of Water

SSWD has two service areas, North and South. The North Service Area (NSA) is supplied with water from local groundwater wells and, when available, with surface water treated by the San Juan Water District (SJWD). The South Service Area (SSA) is supplied with water from local groundwater wells and, when available, with treated surface water from the City of Sacramento. As indicated in the graphic, "SSWD Service Area," SSWD supplemented both the NSA and SSA water supplies with surface water in 2019.

Water pumped from the wells is chlorinated per State Water Resources Control Board, Division of Drinking Water (DDW) requirements to protect you from potential microbiological contaminants. All facilities are operated by state-certified operators. To ensure that your water meets state and federal regulations, SSWD conducts routine water quality testing at the wells and in the distribution system.

Overview of Drinking Water

The United States Environmental Protection Agency (USEPA) and DDW require the educational language below to be included in all public water system's Consumer Confidence Reports. For a complete list of detected contaminants and their potential sources, please see the tables in the section titled, "2019 Summary of Detected Constituents."

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.

In order to ensure that tap water is safe to drink, the USEPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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. Additional information on bottled water is available on the California Department of Public Health website (**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 minor 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 USEPA's Safe Drinking Water Hotline (1.800.426.4791).

Important Information About...

Nitrate: Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Nitrate (as nitrogen) in drinking water at levels above 10 milligrams per liter (mg/L)is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; with symptoms including shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Nitrate levels in water supplied by SSWD are below 10 mg/L. Nitrate monitoring is performed at each source at least annually, and, in many cases, quarterly. If there is an indication the nitrate level in a well may reach the 10 mg/L regulatory threshold, it is immediately removed from service.

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily originates from materials and components associated with service lines and home plumbing. SSWD 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 or at: **www.epa.gov/lead**.

As noted above, due to the variety of materials used in some customer's plumbing systems (including home water treatment units) lead results may vary. If you are concerned about the potential impact the internal plumbing system in your home or business may have on lead levels in your drinking water, SSWD can refer you to a laboratory that you can utilize to test your water.

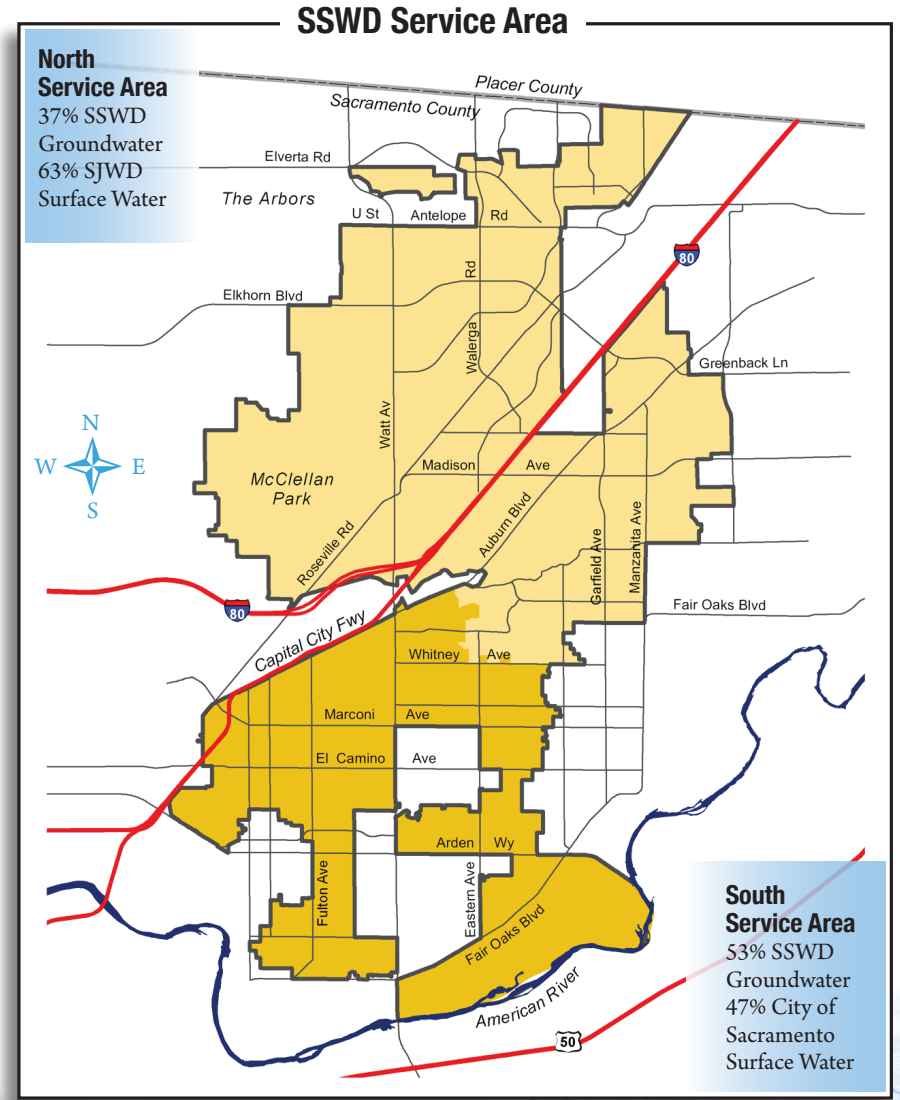
Source Water Assessments

An assessment of SSWD's groundwater wells was completed in December 2002. The results of the assessment indicated that wells in both the NSA and SSA are considered most vulnerable to: dry cleaners, gas stations, leaking underground storage tanks, petroleum transmission pipelines, sewer collection systems, contamination caused by illegal activities or dumping, and general urban commercial activities such as automobile repair facilities and photo processors. Both service areas are also vulnerable to industrial activities such as: electronic, plastic and metal manufacturing, petroleum storage facilities, and known groundwater contamination plumes. The NSA is also considered vulnerable to historic activities at the former McClellan Air Force Base. The SSA may also be vulnerable to recreational activities associated with the American River. A copy of the complete Source Water Assessment is available at SSWD's office.

SSA Water Fluoridation

SSWD supplements the natural levels of fluoride in the SSA water to levels within DDW's prescribed Fluoride Control Range (0.6 mg/L to 1.2 mg/L). Parents of children that reside in SSWD's SSA should let their children's pediatricians and dentists know that their drinking water is fluoridated. According to the USEPA/ Centers for Disease Control and Prevention (CDC), drinking water with the right amount of fluoride is a safe and effective way to help keep the surface of teeth strong and help prevent tooth decay. Community water fluoridation is supported by the American Dental Association, American Academy of Pediatrics, U.S. Public Health Service, and the World Health Organization.

SSWD Service Area



Information About Hard Water

A common concern for many customers is water hardness because it can cause scaling and other aesthetic issues. Water hardness is comprised of naturally-occurring minerals, particularly calcium and magnesium. Though hard water can be a nuisance, it is not known to cause adverse health effects, and thus is not regulated by DDW or USEPA. Effects of hard water may include: scale on plumbing fixtures and appliances; soap scum on shower walls, bathtubs, sinks and faucets; and reduced lathering of soaps, shampoos, and household cleaners. Additional information is available on the SSWD informational page: **www.sswd.org/departments/water-quality/hard-water**.

Lead Sampling in Schools

In early 2017, SSWD began drinking water lead monitoring at K-12 schools in accordance with DDW requirements. In January 2018, the California Health and Safety Code (Section 116277) expanded those requirements to include preschool and child day care facilities on public school property. SSWD has performed monitoring at 49 K-12 schools, preschools, and child day care facilities through the end of 2019. If you would like to know if monitoring was performed at your child's school or day care facility (and if so, the results), please visit DDW's "Lead Sampling of Drinking Water in California Schools" web page at: **https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html**, or contact your child's school.

Water Quality Testing

Please note! The drinking water SSWD supplies to customers has been tested for over 130 contaminants. In accordance with USEPA requirements, the table in the CCR includes only results for contaminants that were detected.

Contaminants That May Be Present in Source Water Include:

Microbial Contaminants such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants such as salts and metals, that can be naturally occurring or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants including synthetic and volatile organic chemicals, that are by-products 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.

Per- and Polyfluoroalkyl Substances (PFAS) and 1,2,3-Trichloropropane (1,2,3-TCP) are manmade contaminants that are becoming an increasing concern for public water systems. None of the sources sampled that were used to support the SSWD system in 2019 showed reportable detections of these contaminants.

2019 Summary of Detected Constituents

How to Use This Table

1. Find your service area along the top of the table. **2.** Compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

DETECTED PRIMARY DRINKING WATER CONSTITUENTS - Regulated to protect your health

CONSTITUENT	UNITS	MCL	PHG or (MCLG)	NORTH Service Area						SOUTH Service Area						VIOLATION	MAJOR SOURCES
				SSWD (groundwater)			San Juan Water District (surface water)			SSWD (groundwater)			City of Sacramento (surface water)				
				RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE		
Aluminium	PPM	1	0.6	0.06	ND	2019	ND	ND	2019	ND-0.15	ND	2017	ND	ND	2019	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic	PPB	10	0.004	ND-2.5	ND	2019	ND	ND	2019	ND-4.8	2.3	2017	ND	ND	2017-2019	No	Erosion of natural deposits
Barium	PPM	1	2	ND-0.2	ND	2019	ND	ND	2019	ND-0.13	ND	2017	ND	ND	2017-2019	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Control of Disinfection By-Product Precursors (TOC)(treated water){A}	PPM	TT = 2	NA	NR	NR	NR	0.81-1.67	1.13	2019	NR	NR	NR	1.9{B}		2019	No	Various natural and manmade sources
Fluoride	PPM	2	1	0.1-0.23	0.16	2019	ND	ND	2019	See Fluoride in Distribution System section below						No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium {C}	PPB	NA	0.02	NR	NR	NA	NR	NR	NA	NR	NR	NA	ND	ND	2016-2019	NA	Erosion of natural deposits; discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile and manufacturing facilities
Nitrate (as Nitrogen)	PPM	10	10	0.4-6.5	1.9	2019	ND	ND	2019	ND-7.4	2.3	2019	ND	ND	2019	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene (PCE)	PPB	5	0.06	ND-2.5	ND	2019	ND	ND	2019	ND	ND	2017-2019	ND	ND	2019	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Gross Alpha	pCi/L	15	(0)	ND-3.58	ND	2014-2019	ND	ND	2017	ND-3.86	ND	2014	ND	ND	2012	No	Erosion of natural deposits
Combined Radium (Ra226 + Ra228)	pCi/L	5	(0)	ND-3.34	ND	2014-2019	ND	ND	2017	ND-2.11	ND	2014	ND	ND	2012	No	Erosion of natural deposits
Uranium	pCi/L	20	0.43	ND-4.97	ND	2014-2019	NR	NR	NA	ND-3.2	ND	2014	NR	NR	NA	No	Erosion of natural deposits

CONSTITUENT	UNITS	MCL	PHG or (MCLG)	NORTH Service Area				SOUTH Service Area				VIOLATION	MAJOR SOURCES
				SSWD (groundwater)		San Juan Water District (surface water)		SSWD (groundwater)		City of Sacramento (surface water)			
				LEVEL FOUND	SAMPLE DATE	LEVEL FOUND	SAMPLE DATE	LEVEL FOUND	SAMPLE DATE	LEVEL FOUND	SAMPLE DATE		
Turbidity {A}	NTU	TT = 1 NTU	NA	NR	NA	0.041	2019	NR	NA	0.13	2019	No	Soil runoff
	% Samples	TT = 95% of Samples ≤0.3 NTU	NA	NR		100%		NR		100%			

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2019 Summary of Detected Constituents (continued)

How to Use This Table

1. Find your service area along the top of the table. **2.** Compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

DISTRIBUTION SYSTEM								
CONSTITUENT	UNITS	AL	PHG or (MCLG)	90TH PERCENTILE RESULT	NO. OF SAMPLES/ NO. EXCEEDING ACTION LEVEL	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Copper (at tap)	PPM	1.3	0.3	0.220	59/0	2019	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
CONSTITUENT	UNITS	MCL [MRDL]	PHG or [MRDLG]	RANGE	AVERAGE	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chlorine Residual	PPM	[4]	[4]	0.1-1.17	0.65	2019	No	Drinking water disinfectant added for treatment
Fluoride {D}	PPM	2	1	0.6-1.0 {E}	0.8 {E}	2019	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Trihalomethanes	PPB	80	NA	ND-63	Highest LRAA = 42 {F}	2019	No	By-product of drinking water disinfection
Haloacetic Acids	PPB	60	NA	ND-33	Highest LRAA = 25 {F}	2019	No	By-product of drinking water disinfection

DETECTED SECONDARY DRINKING WATER CONSTITUENTS - Regulated for aesthetic qualities															
			NORTH Service Area						SOUTH Service Area						
			SSWD (groundwater)			San Juan Water District (surface water)			SSWD (groundwater)			City of Sacramento (surface water)			
CONSTITUENT	UNITS	MCL	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	RANGE	AVERAGE	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminium	PPB	200	ND-59	ND	2019	ND	ND	2019	ND-150	ND	2017	ND	ND	2019	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloride	PPM	500	9.2-86	39.2	2019	1.8	1.8	2019	2.7-50	20.7	2017	ND	ND	2017-2019	No	Runoff/leaching from natural deposits
Color	CU	15	ND	ND	2019	ND	ND	2019	ND	ND	2017	ND-3	ND	2019	No	Naturally-occurring organic materials
Iron	PPB	300	ND	ND	2019	ND	ND	2019	ND-250	ND	2017-2019	ND	ND	2019	No	Leaching from natural deposits; industrial wastes
Manganese	PPB	50	ND-41	ND	2019	ND	ND	2019	ND-43	ND	2017-2019	ND	ND	2017-2019	No	Leaching from natural deposits
Odor	TON	3	ND-2	ND	2019	ND	ND	2019	ND-2	ND	2017	ND-2	ND	2019	No	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	210-680	392	2019	50-98	64.8	2019	160-530	338	2017	89-139	114	2017-2019	No	Substances that form ions when in water
Sulfate	PPM	500	2.8-33	10	2019	3.8	3.8	2019	2-30	9.5	2017	5.6-15	10	2017-2019	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	PPM	1000	170-450	277	2019	30	30	2019	130-350	236	2017	45-83	64	2017-2019	No	Runoff/leaching from natural deposits
Turbidity	NTU	5	ND-0.36	0.1	2019	See Primary Constituents table above			ND-0.66	ND	2017	See Primary Constituents table above			No	Soil runoff

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2019 Summary of Detected Constituents (continued)

How to Use This Table

1. Find your service area along the top of the table. **2.** Compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

DETECTED UCMR3 MONITORING CONSTITUENTS {G}

CONSTITUENT	UNITS	NORTH Service Area			SOUTH Service Area			PRIMARY SOURCES/USES
		RANGE	AVERAGE	SAMPLE DATE	RANGE	AVERAGE	SAMPLE DATE	
1,4-Dioxane	PPB	ND-0.11	ND	2014-2015	ND-0.17	ND	2014-2015	Cyclic aliphatic ether; used as a solvent or solvent stabilizer in the manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics, and shampoos
17-beta-Estradiol	PPB	ND-0.0008	ND	2014-2015	ND	ND	2014-2015	Estrogenic hormone naturally produced in the human body; used in pharmaceuticals
Chlorate	PPB	ND-2,500	287	2014-2015	ND-890	265	2014-2015	Decomposition of Sodium Hypochlorite; disinfection by-product
Chlorodifluoromethane	PPB	ND-15	1.3	2014-2015	ND	ND	2014-2015	Chlorofluorocarbon; occurs as a gas and used as a refrigerant, as a low-temperature solvent and in fluorocarbon resins, especially tetrafluoroethylene polymers
Chromium (total)	PPB	ND-6.2	3.5	2014-2015	ND-8.2	3.2	2014-2015	Naturally-occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Hexavalent Chromium (dissolved)	PPB	ND-6.5	3.9	2014-2015	ND-8.2	3.5	2014-2015	Naturally-occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Molybdenum	PPB	ND	ND	2014-2015	ND-2.8	ND	2014-2015	Naturally-occurring element found in ores and present in plants, animals, and bacteria; commonly used form is the chemical agent molybdenum trioxide
Strontium	PPB	120-710	299	2014-2015	26-460	288	2014-2015	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium	PPB	9.2-85	15.8	2014-2015	1.9-12	11.4	2014-2015	Naturally-occurring element; used as vanadium pentoxide which is a chemical intermediate and a catalyst

DETECTED UCMR4 MONITORING CONSTITUENTS {G}

CONSTITUENT	UNITS	NORTH Service Area			SOUTH Service Area			PRIMARY SOURCES/USES
		RANGE	AVERAGE	SAMPLE DATE	RANGE	AVERAGE	SAMPLE DATE	
Germanium	PPB	ND-0.43	ND	2018-2019	ND	ND	2018-2019	Naturally-occurring element; a byproduct of zinc ore processing; used in infrared optics, fiber-optic systems, electronics and solar applications
Manganese	PPB	ND-36	3.41	2018-2019	ND-26.2	1.96	2018-2019	Naturally-occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and waste water treatment chemical; essential nutrient

CONSTITUENT	UNITS	DISTRIBUTION SYSTEM			PRIMARY SOURCES/USES
		RANGE	HIGHEST LRAA	SAMPLE DATE	
HAA5	PPB	ND-34.6	25.6	2018-2019	Byproduct of drinking water disinfection
HAA6Br	PPB	ND-3.8	2.7	2018-2019	Byproduct of drinking water disinfection
HAA9	PPB	ND-36	27.3	2018-2019	Byproduct of drinking water disinfection

ADDITIONAL DRINKING WATER CONSTITUENTS {H}

CONSTITUENT	UNITS	NORTH Service Area						SOUTH Service Area						MAJOR SOURCES
		SSWD (groundwater)			San Juan Water District (surface water)			SSWD (groundwater)			City of Sacramento (surface water)			
		RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	RANGE	AVERAGE	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	
Alkalinity	PPM	83-180	116	2019	13	13	2019	66-190	121	2017	19-40	30	2017-2019	Leaching from natural deposits
Calcium	PPM	16-58	27	2019	3.3	3.3	2019	14-43	26	2017	8-14	11	2017-2019	Erosion of natural deposits
Hardness	grains/gallon	4.3-15.8	7.6	2019	0.7	0.7	2019	3.2-12.9	7.9	2017	1.6-3.0	2.3	2017-2019	Leaching from natural deposits; hardness is the sum of polyvalent cations present in the water, generally naturally-occurring magnesium and calcium
	PPM	74-270	131		12	12		55-220	135		27-52	40		
Magnesium	PPM	8.4-32	15.6	2019	1	1	2019	4.8-29	17.2	2017	1-4	3	2017-2019	Erosion of natural deposits
pH	NONE	7.3-7.8	7.65	2019	NR	NR	NA	7.3-8.1	7.72	2017	NR	NR	NA	Leaching from natural deposits; a measurement of hydrogen ion activity
Sodium	PPM	11-56	28.3	2019	1.6	1.6	2019	9.2-23	14.8	2017	2-5	3	2017-2019	Erosion of natural deposits

continued on next page

2019 Summary of Detected Constituents (continued)

Water Quality Definitions

Locational Running Annual Average (LRAA): The LRAA is a calculation used to determine compliance with a primary drinking water standard (or MCL) at a specific monitoring location.

Maximum Contaminant Level (MCL): 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.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

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. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

Public Health Goal (PHG): 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.

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

Total Organic Carbon (TOC): Organically-derived carbon that can be naturally occurring or result from human activities.

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

PPM (parts per million):	**PPB (parts per billion):**
3 drops in 42 gallons	1 drop in 14,000 gallons
1 second in 12 days	1 second in 32 years
1 inch in 16 miles	1 inch in 16,000 miles

DDW allows SSWD to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, is more than one year old.

SACRAMENTO SUBURBAN WATER DISTRICT

Key to Abbreviations

CU	Color Units
NA	Not Applicable
ND	Not Detected
NR	Not Reported
NTU	Nephelometric Turbidity Units (a measure of clarity)
pCi/L	Picocuries per liter (a measure of radiation)
PPM	Parts per million or milligrams per liter (mg/L)
PPB	Parts per billion or micrograms per liter (µg/L)
HAA	Haloacetic Acids
µS/cm	Microsiemens per centimeter
TON	Threshold Odor Number

Notes

{A} Only surface water sources must comply with PDWS for Control of Disinfection By-Product Precursors and Turbidity. Turbidity is a measure of the cloudiness of water. It is a good indicator of filtration process effectiveness for water systems that treat surface water.

{B} Source water TOC less than 2.0 mg/L used as alternative criteria to exempt from removal ratio requirements. Value given represents the maximum running annual average of any quarter during 2019.

{C} DDW rescinded the 10 ppb MCL for hexavalent chromium on September 11, 2017. Prior to that SSWD elected to satisfy compliance monitoring requirements via total chromium monitoring. For more information about hexavalent chromium please see: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.html.

{D} SSWD's fluoridation program provides the addition of fluoride to the SSA drinking water. Natural levels of fluoride in the SSA are adjusted to be within the DDW's Fluoride Control Range (0.6-1.2 mg/L).

{E} Fluoride range and average concentrations are representative of 2019 with the exception of the timeframe between September 3, 2019 and November 15, 2019 when fluoridation of the purchased surface water was temporarily suspended by the City of Sacramento. Additionally, the fluoride range excludes an anomolous concentration of 0.2 PPM observed on November 25, 2019.

{F} Calculation of the LRAA for the first three quarters of 2019 includes data from 2018.

{G} Unregulated contaminant monitoring helps USEPA and DDW to determine where certain contaminants occur and whether they need to be regulated. Both distribution system and source water are included in UCMR4.

{H} Constituents listed under "Additional Drinking Water Constituents" are of interest to some consumers, however, they have no regulatory thresholds.

A Note for Sensitive Populations

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

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Division 4	Kevin M. Thomas President
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3rd Monday of each month, 6:00 p.m.
3701 Marconi Ave., Suite 100
Sacramento, CA 95821

Visit Our Website at sswd.org

Need More Information?

For questions about this report, or to request additional copies:
Call David Armand at 916.679.2888

EPA Drinking Water Information:
www.epa.gov/your-drinking-water

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

本報告包含有關飲用水的非常重要的信息。 翻譯它或與熟悉它的人交談。

Этот отчет содержит очень важную информацию о вашей питьевой воде. Переведите это или поговорите с кем-то, кто это хорошо понимает.

Once again, your drinking water continues to meet state and federal drinking water standards.

Please Conserve Water!

365
Conserve Water Every Day

In an effort to help customers use water more efficiently, SSWD has assembled a variety of programs, ideas and references that are designed to reduce water use at home. If you are interested in learning more about SSWD's conservation programs and what you can do to use water more efficiently inside and outside your home, please visit our website at www.sswd.org/conservation-tips. You may also schedule a Water Wise House Call by calling SSWD's office at 916.972.7171. Please help us preserve tomorrow's water supply by conserving water today.

SACRAMENTO SUBURBAN WATER DISTRICT

SACRAMENTO SUBURBAN WATER DISTRICT

2020 Consumer Confidence Report

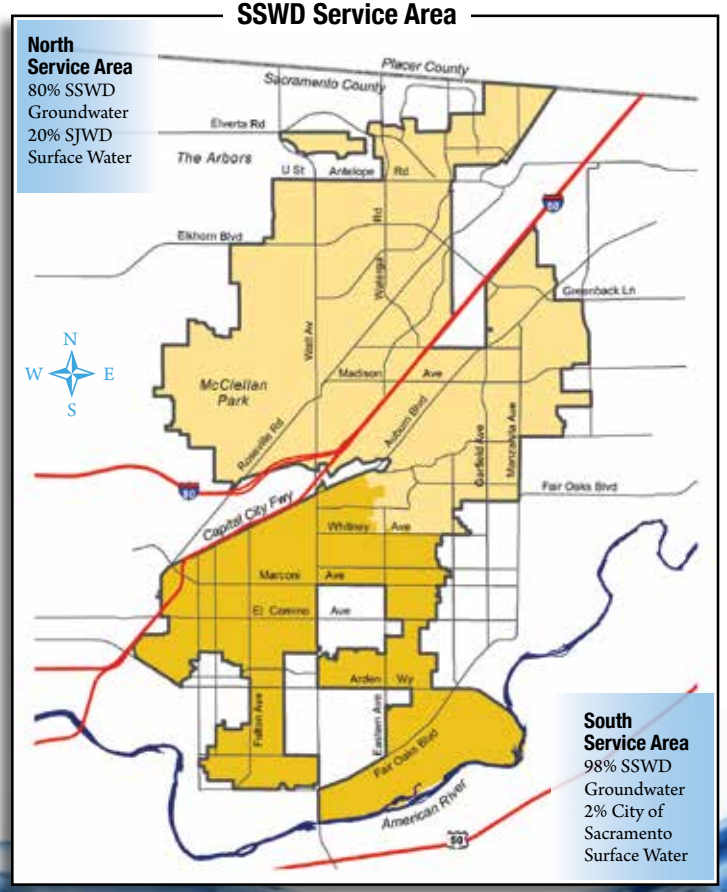
ABOUT YOUR DRINKING WATER

Sacramento Suburban Water District (SSWD) is pleased to present this Consumer Confidence Report (CCR) on 2020 water quality. Results of samples collected during 2018, 2019, and 2020, as well as other water quality information, were used to prepare this report. As always, providing a high quality, reliable supply of water and superior customer service at the lowest responsible water rate are SSWD's top priorities.

Sources of Water

SSWD has two service areas, North and South. The North Service Area (NSA) is supplied with water from local groundwater wells and, when available, with surface water treated by the San Juan Water District (SJWD). The South Service Area (SSA) is supplied with water from local groundwater wells and, when available, with treated surface water from the City of Sacramento. As indicated in the graphic, "SSWD Service Area," SSWD supplemented both the NSA and SSA water supplies with surface water in 2020.

Water pumped from the wells is chlorinated per State Water Resources Control Board, Division of Drinking Water (DDW) requirements to protect you from potential microbiological contaminants. All facilities are operated by state-certified operators. To ensure that your water meets state and federal regulations, SSWD conducts routine water quality testing at the wells and in the distribution system.



IMPORTANT INFORMATION ABOUT...

Nitrate: Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Nitrate (as nitrogen) in drinking water at levels above 10 milligrams per liter (mg/L)is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; with symptoms including shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Nitrate levels in water supplied by SSWD are below 10 mg/L. Nitrate monitoring is performed at each source at least annually, and, in many cases, quarterly. If there is an indication the nitrate level in a well may reach the 10 mg/L regulatory threshold, it is immediately removed from service.

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily originates from materials and

– continued on page 3

Overview of Drinking Water

The United States Environmental Protection Agency (USEPA) and DDW require the educational language below to be included in all public water system's Consumer Confidence Reports. For a complete list of detected contaminants and their potential sources, please see the tables in the sections titled, "2020 Summary of Detected Constituents."

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.

In order to ensure that tap water is safe to drink, the USEPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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. Additional information on bottled water is available on the California Department of Public Health web page (**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 minor 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 USEPA's Safe Drinking Water Hotline (1.800.426.4791).

Source Water Assessments

An assessment of SSWD's groundwater wells was completed in December 2002. The results of the assessment indicated that wells in both the NSA and SSA are considered most vulnerable to: dry cleaners, gas stations, leaking underground storage tanks, petroleum transmission pipelines, sewer collection systems, contamination caused by illegal activities or dumping, and general urban commercial activities such as automobile repair facilities and photo processors. Both service areas are also vulnerable to industrial activities such as: electronic, plastic and metal manufacturing, petroleum storage facilities, and known groundwater contamination plumes. The NSA is also considered vulnerable to historic activities at the former McClellan Air Force Base. The SSA may also be vulnerable to recreational activities associated with the American River. A copy of the complete Source Water Assessment is available at SSWD's office.

SSA Water Fluoridation

SSWD supplements the natural levels of fluoride in the SSA water to levels within DDW's prescribed Fluoride Control Range (0.6 mg/L to 1.2 mg/L). Parents of children that reside in SSWD's SSA should let their children's pediatricians and dentists know that their drinking water is fluoridated. According to the USEPA/ Centers for Disease Control and Prevention (CDC), drinking water with the right amount

of fluoride is a safe and effective way to help keep the surface of teeth strong and help prevent tooth decay. Community water fluoridation is supported by the American Dental Association, American Academy of Pediatrics, U.S. Public Health Service, and the World Health Organization.

Information About Hard Water

A common concern for many customers is water hardness because it can cause scaling and other aesthetic issues. Water hardness is comprised of naturally-occurring minerals, particularly calcium and magnesium. Though hard water can be a nuisance, it is not known to cause adverse health effects, and thus is not regulated by DDW or USEPA. Effects of hard water may include: scale on plumbing fixtures and appliances; soap scum on shower walls, bathtubs, sinks and faucets; and reduced lathering of soaps, shampoos, and household cleaners. Additional information is available on the SSWD's water quality web page: **www.sswd.org/departments/water-quality**.

Lead Sampling in Schools

In early 2017, SSWD began drinking water lead monitoring at K-12 schools in accordance with DDW requirements. In January 2018, the California Health and Safety Code (Section 116277) expanded those requirements to include preschool and child day care facilities on public school property. SSWD has performed monitoring at 49 K-12 schools, preschools, and child day care facilities through the end of 2019. If you would like to know if monitoring was performed at your child's school or day care facility (and if so, the results), please visit DDW's "Lead Sampling of Drinking Water in California Schools" web page at: **https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html**, or contact your child's school.

Contaminants That May Be Present in Source Water Include:

Microbial Contaminants such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants such as salts and metals, that can be naturally occurring or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants including synthetic and volatile organic chemicals, that are by-products 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.

Important Information About... *continued*

components associated with service lines and home plumbing. SSWD 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 or at: **www.epa.gov/lead**.

As noted above, due to the variety of materials used in some customer's plumbing systems (including water treatment units in the home), lead results may vary. If you are concerned about the potential impact the internal plumbing system in your home or business may have on lead levels in your drinking water, SSWD can refer you to a laboratory that you can utilize to test your water.

Water Quality Definitions

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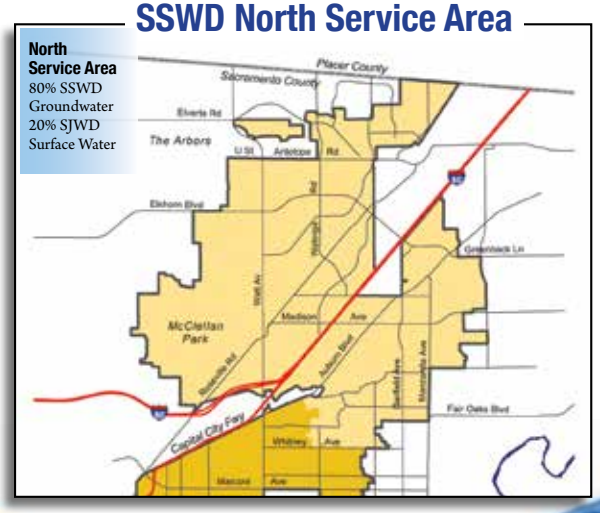
SSWD North Service Area



2020 Summary of Detected Constituents

North Service Area

About the Tables

The following tables contain detailed information about the water that is delivered to your home or business. The drinking water SSWD supplies to customers has been tested for over 130 contaminants. In accordance with USEPA requirements, the table in the CCR includes only results for contaminants that were detected. You can compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

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HAA	Haloacetic Acids
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TON	Threshold Odor Number

			SSWD (groundwater)			San Juan Water District (surface water)				
DETECTED PRIMARY DRINKING WATER CONSTITUENTS - Regulated to protect your health										
CONSTITUENT/UNITS	MCL	PHG or (MCLG)	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminium (PPM)	1	0.6	ND-0.06	ND	2019	ND	ND	2019	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (PPB)	10	0.004	ND-2.5	ND	2019	ND	ND	2019	No	Erosion of natural deposits
Barium (PPM)	1	2	ND-0.20	ND	2019-2020	ND	ND	2019	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Control of Disinfection By-Product Precursors (PPM) (TOC)(treated water) {A}	TT = 2	NA	NA	NA	NA	0.8-1.25	0.97	2020	No	Various natural and manmade sources
Fluoride (PPM)	2	1	0.08-0.23	0.16	2019	ND	ND	2019	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium (PPB) {C}	NA	0.02	NR	NR	NA	NR	NR	NA	NA	Erosion of natural deposits; discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile and manufacturing facilities
Nitrate (as Nitrogen) (PPM)	10	10	0.5-6.2	1.9	2020	ND	ND	2020	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (as Nitrogen) (PPM)	10	10	0.4-6.5	2.1	2019	ND	ND	2020	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene (PCE) (PPB)	5	0.06	ND-2.6	ND	2019-2020	ND	ND	2019	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Gross Alpha (pCi/L)	15	(0)	ND-3.58	ND	2014-2020	ND	ND	2017	No	Erosion of natural deposits
Combined Radium (Ra226 + Ra228) (pCi/L)	5	(0)	ND-3.34	ND	2014-2020	ND	ND	2017	No	Erosion of natural deposits
Uranium (pCi/L)	20	0.43	ND-4.97	ND	2014-2020	NR	NR	NA	No	Erosion of natural deposits
CONSTITUENT/UNITS	MCL	PHG or (MCLG)	LEVEL FOUND		SAMPLE DATE	LEVEL FOUND		SAMPLE DATE	VIOLATION	MAJOR SOURCES
Turbidity {A} (NTU)	TT = 1 NTU	NA	NA		NA	0.038		2020	No	Soil runoff
Turbidity {A} (% Samples)	TT = 95% of Samples ≤0.3 NTU	NA	NA		NA	100%		2020	No	Soil runoff
DISTRIBUTION SYSTEM										
CONSTITUENT/UNITS	AL	PHG or (MCLG)	90TH PERCENTILE RESULT		NO. OF SAMPLES/ NO. EXCEEDING ACTION LEVEL			SAMPLE DATE	VIOLATION	MAJOR SOURCES
Copper (at tap) (PPM)	1.3	0.3	0.220		59/0			2019	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
CONSTITUENT/UNITS	MCL[MRDL]	PHG or[MRDLG]	RANGE		AVERAGE			SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chlorine Residual (PPM)	[4]	[4]	0.05-1.45		0.69			2020	No	Drinking water disinfectant added for treatment
Trihalomethanes (PPB)	80	NA	ND-35		Highest LRAA = 41 {F}			2020	No	By-product of drinking water disinfection
Haloacetic Acids (PPB)	60	NA	ND-22		Highest LRAA = 24 {F}			2020	No	By-product of drinking water disinfection

NORTH SERVICE AREA

		SSWD (groundwater)			San Juan Water District (surface water)				
DETECTED SECONDARY DRINKING WATER CONSTITUENTS - Regulated for aesthetic qualities									
CONSTITUENT/UNITS	MCL	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminium (PPB)	200	ND-59	ND	2019	ND	ND	2018	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloride (PPM)	500	9.2-86	38	2019-2020	1.8	1.8	2019	No	Runoff/leaching from natural deposits
Copper (PPM)	1.3	ND-0.06	ND	2019	ND	ND	2019	No	Erosion of natural deposits; leaching from wood preservatives
Color (CU)	15	ND	ND	2019	ND	ND	2019	No	Naturally-occurring organic materials
Iron (PPB)	300	ND-290	ND	2019	ND	ND	2019	No	Leaching from natural deposits; industrial wastes
Manganese (PPB)	50	ND-41	ND	2019-2020	ND	ND	2019	No	Leaching from natural deposits
Odor (TON)	3	ND-2	ND	2019	ND	ND	2019	No	Naturally-occurring organic materials
Specific Conductance (µS/cm)	1600	210-680	393	2019-2020	53-88	72.5	2020	No	Substances that form ions when in water
Sulfate (PPM)	500	2.8-33	10	2019	3.8	3.8	2019	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (PPM)	1000	170-450	279	2019-2020	30	30	2019	No	Runoff/leaching from natural deposits
Turbidity (NTU)	5	ND-0.7	0.1	2019	See Primary Constituents on page 5			No	Soil runoff

DETECTED UCMR4 MONITORING CONSTITUENTS {G}				
CONSTITUENT/UNITS	RANGE	AVG.	SAMPLE DATE	PRIMARY SOURCES/USES
Germanium (PPB)	ND-0.4	ND	2018-2019	Naturally-occurring element; a byproduct of zinc ore processing; used in infrared optics, fiber-optic systems, electronics and solar applications
Manganese (PPB)	ND-36	3.4	2018-2019	Naturally-occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and waste water treatment chemical; essential nutrient

	DISTRIBUTION SYSTEM			
CONSTITUENT/UNITS	RANGE	HIGHEST LRAA	SAMPLE DATE	PRIMARY SOURCES/USES
HAA5 (PPB)	ND-35	27	2018-2019	Byproduct of drinking water disinfection
HAA6Br (PPB)	ND-3.8	2	2018-2019	Byproduct of drinking water disinfection
HAA9 (PPB)	ND-36	29	2018-2019	Byproduct of drinking water disinfection

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PPM (parts per million):
3 drops in 42 gallons
1 second in 12 days
1 inch in 16 miles

PPB (parts per billion):
1 drop in 14,000 gallons
1 second in 32 years
1 inch in 16,000 miles

ADDITIONAL DRINKING WATER CONSTITUENTS {H}		SSWD (groundwater)			San Juan Water District (surface water)			
CONSTITUENT/UNITS		RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	MAJOR SOURCES
Alkalinity (total, as CaCO3) (PPM)		75-180	115	2019	NR	NR	NA	Leaching from natural deposits
Alkalinity (bicarbonate, as CaCO3) (PPM)		69-210	138	2019-2020	13	13	2019	Leaching from natural deposits
Calcium (PPM)		16-58	27	2019	3.3	3.3	2019	Erosion of natural deposits
Hardness	(grains/gallon)	4.3-15.8	7.8	2019	0.7	0.7	2019	Leaching from natural deposits; hardness is the sum of polyvalent cations present in the water, generally naturally-occurring magnesium and calcium
	(PPM)	74-270	134		12	12		
Magnesium (PPM)		8.4-32	16	2019	1	1	2019	Erosion of natural deposits
pH (NONE)		7.3-7.8	7.6	2019	NR	NR	NA	Leaching from natural deposits; a measurement of hydrogen ion activity
Sodium (PPM)		11-56	26	2019-2020	1.6	1.6	2019	Erosion of natural deposits

Customer Service

If you have questions about your water bill or your water service, please call SSWD's Customer Service Team at 916.972.7171. They are available during regular business hours (Monday - Friday, 8:00 AM - 4:30 PM). If our customer service team cannot answer your question, they will put you in touch with another team member who can. You can also find information on our website (**sswd.org**) about starting and stopping your water service, the Board of Directors, water conservation, cross-connection control, engineering projects, field operations, water quality and much more!

Notes

{A} Only surface water sources must comply with the PDWS for Control of Disinfection By-Product Precursors and Turbidity. Turbidity is a measure of the cloudiness of water. It is a good indicator of filtration process effectiveness for water systems that treat surface water.

{B} City of Sacramento, SSA only: Source water TOC less than 2.0 mg/L used as alternative criteria to exempt from removal ratio requirements. Value given represents the maximum running annual average of any quarter during 2020.

{C} DDW rescinded the 10 ppb MCL for hexavalent chromium on September 11, 2017. Prior to that SSWD elected to satisfy compliance monitoring requirements via total chromium monitoring. For more information about hexavalent chromium please see: **https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.html**.

{D} SSA only: SSWD's fluoridation program provides the addition of fluoride to the SSA drinking water. Natural levels of fluoride in the SSA are adjusted to be within the DDW's Fluoride Control Range (0.6-1.2 mg/L).

{E} SSA only: The range and average concentrations of fluoride in the SSA are based on distribution system monitoring in 2020 with the exception of the timeframe between March 20, 2020 and June 8, 2020 when fluoridation was temporarily suspended. Temporary suspension of fluoridation was one of SSWD's initial responses to the COVID-19 pandemic that was designed to minimize contact between staff while other operational changes were being implemented.

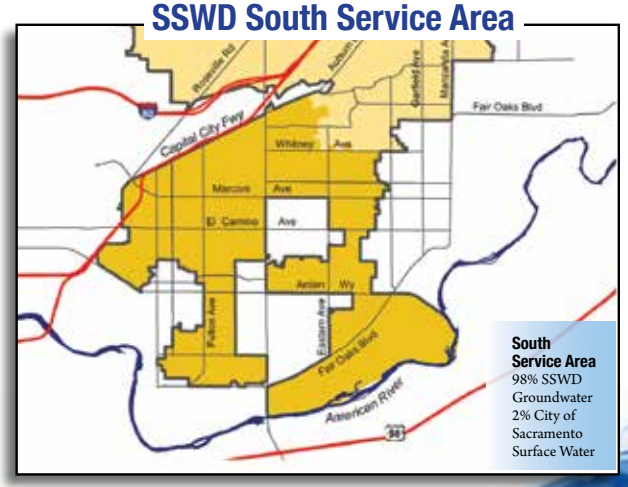
{F} Calculation of the LRAA for the first three quarters of 2020 includes data from 2019.

{G} Unregulated contaminant monitoring helps USEPA and DDW determine where certain contaminants occur and whether they need to be regulated. Both distribution system and source water are included in UCMR4.

{H} Constituents listed under "Additional Drinking Water Constituents" are of interest to some consumers, however, they have no regulatory thresholds.

DDW allows SSWD to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, is more than one year old.

SSWD South Service Area



2020 Summary of Detected Constituents

South Service Area

About the Tables

The following tables contain detailed information about the water that is delivered to your home or business. The drinking water SSWD supplies to customers has been tested for over 130 contaminants. In accordance with USEPA requirements, the table in the CCR includes only results for contaminants that were detected. You can compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

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CU	Color Units
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PPB	Parts per billion or micrograms per liter (µg/L)
HAA	Haloacetic Acids
µS/cm	Microsiemens per centimeter
TON	Threshold Odor Number

DETECTED PRIMARY DRINKING WATER CONSTITUENTS - Regulated to protect your health

			SSWD (groundwater)			City of Sacramento (surface water)				
CONSTITUENT/UNITS	MCL	PHG or (MCLG)	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminium (PPM)	1	0.6	ND-0.05	ND	2020	ND	ND	2020	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (PPB)	10	0.004	ND-4.3	2.2	2020	ND	ND	2020	No	Erosion of natural deposits
Barium (PPM)	1	2	ND-0.14	ND	2020	ND	ND	2020	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Control of Disinfection By-Product Precursors (PPM) (TOC)(treated water) {A}	TT = 2	NA	NA	NA	NA	1.4 {B}		2020	No	Various natural and manmade sources
Fluoride (PPM)	2	1	See Fluoride in Distribution System section below						No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium (PPB) {C}	NA	0.02	NR	NR	NA	ND	ND	2020	NA	Erosion of natural deposits; discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile and manufacturing facilities
Nitrate (as Nitrogen) (PPM)	10	10	ND-7.6	2.0	2020	ND	ND	2020	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (as Nitrogen) (PPM)	10	10	ND-6.7	2.0	2020	ND	ND	2020	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene (PCE) (PPB)	5	0.06	ND	ND	2020	ND	ND	2020	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Gross Alpha (pCi/L)	15	(0)	ND-6.80	ND	2014-2020	ND	ND	2012-2020	No	Erosion of natural deposits
Combined Radium (Ra226 + Ra228) (pCi/L)	5	(0)	ND-2.11	ND	2014-2020	ND	ND	2012	No	Erosion of natural deposits
Uranium (pCi/L)	20	0.43	ND-3.2	ND	2014-2020	NR	NR	NA	No	Erosion of natural deposits
CONSTITUENT/UNITS	MCL	PHG or (MCLG)	LEVEL FOUND		SAMPLE DATE	LEVEL FOUND		SAMPLE DATE	VIOLATION	MAJOR SOURCES
Turbidity (NTU) {A}	TT = 1 NTU	NA	NA		NA	0.08		2020	No	Soil runoff
Turbidity (% Samples) {A}	TT = 95% of Samples ≤0.3 NTU	NA	NA			100%				

DISTRIBUTION SYSTEM

CONSTITUENT/UNITS	AL	PHG or (MCLG)	90TH PERCENTILE RESULT	NO. OF SAMPLES/ NO. EXCEEDING ACTION LEVEL	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Copper (at tap) (PPM)	1.3	0.3	0.220	59/0	2019	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
CONSTITUENT/UNITS	MCL[MRDL]	PHG or[MRDLG]	RANGE	AVERAGE	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chlorine Residual (PPM)	[4]	[4]	0.05-1.45	0.69	2020	No	Drinking water disinfectant added for treatment
Fluoride (PPM) {D}	2	1	0.5-1.0 {E}	0.8 {E}	2020	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Trihalomethanes (PPB)	80	NA	ND-35	Highest LRAA = 41 {F}	2020	No	By-product of drinking water disinfection
Haloacetic Acids (PPB)	60	NA	ND-22	Highest LRAA = 24 {F}	2020	No	By-product of drinking water disinfection

SOUTH SERVICE AREA

		SSWD (groundwater)			City of Sacramento (surface water)				
DETECTED SECONDARY DRINKING WATER CONSTITUENTS - Regulated for aesthetic qualities									
CONSTITUENT/UNITS	MCL	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminium (PPB)	200	ND-54	ND	2020	ND	ND	2020	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloride (PPM)	500	3.3-66	22	2020	5.3	5.3	2020	No	Runoff/leaching from natural deposits
Copper (PPM)	1.3	ND-0.10	ND	2020	ND	ND	2020	No	Erosion of natural deposits; leaching from wood preservatives
Color (CU)	15	ND	ND	2020	ND-5	ND	2020	No	Naturally-occurring organic materials
Iron (PPB)	300	ND	ND	2020	ND	ND	2020	No	Leaching from natural deposits; industrial wastes
Manganese (PPB)	50	ND-41	ND	2020	ND	ND	2020	No	Leaching from natural deposits
Odor (TON)	3	ND	ND	2020	ND-2	ND	2020	No	Naturally-occurring organic materials
Specific Conductance (µS/cm)	1600	160-510	312	2020	89	89	2020	No	Substances that form ions when in water
Sulfate (PPM)	500	1.4-29	7.8	2020	8.5	8.5	2020	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (PPM)	1000	130-340	226	2020	64	64	2020	No	Runoff/leaching from natural deposits
Turbidity (NTU)	5	ND-0.8	0.2	2020	See Primary Constituents on page 9			No	Soil runoff

DETECTED UCMR4 MONITORING CONSTITUENTS {G}				
CONSTITUENT/UNITS	RANGE	AVG.	SAMPLE DATE	PRIMARY SOURCES/USES
Germanium (PPB)	ND	ND	2018-2020	Naturally-occurring element; a byproduct of zinc ore processing; used in infrared optics, fiber-optic systems, electronics and solar applications
Manganese (PPB)	ND-26	1.8	2018-2020	Naturally-occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and waste water treatment chemical; essential nutrient

	DISTRIBUTION SYSTEM			
CONSTITUENT/UNITS	RANGE	HIGHEST LRAA	SAMPLE DATE	PRIMARY SOURCES/USES
HAA5 (PPB)	ND-35	27	2018-2019	Byproduct of drinking water disinfection
HAA6Br (PPB)	ND-3.8	2	2018-2019	Byproduct of drinking water disinfection
HAA9 (PPB)	ND-36	29	2018-2019	Byproduct of drinking water disinfection

Water Main Flushing

SSWD flushes water mains to remove sediments or other contaminants that can accumulate in pipes over time and lead to taste and odor problems. Flushing dead-end lines also improves disinfectant residual levels. In addition to protecting water quality, flushing helps reduce corrosive conditions associated with biofilm growth that has a potential to lead to pipeline leaks.

PPM (parts per million):
3 drops in 42 gallons
1 second in 12 days
1 inch in 16 miles

PPB (parts per billion):
1 drop in 14,000 gallons
1 second in 32 years
1 inch in 16,000 miles

ADDITIONAL DRINKING WATER CONSTITUENTS {H}		SSWD (groundwater)			City of Sacramento (surface water)			
CONSTITUENT/UNITS		RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	MAJOR SOURCES
Alkalinity (total, as CaCO3) (PPM)		67-190	113	2020	26	26	2020	Leaching from natural deposits
Alkalinity (bicarbonate, as CaCO3) (PPM)		81-230	136	2020	NR	NR	NA	Leaching from natural deposits
Calcium (PPM)		14-44	25	2020	11.2	11.2	2020	Erosion of natural deposits
Hardness	(grains/gallon)	3.3-13.5	7.4	2020	2.2	2.2	2020	Leaching from natural deposits; hardness is the sum of polyvalent cations present in the water, generally naturally-occurring magnesium and calcium
	(PPM)	56-230	126		37	37		
Magnesium (PPM)		5.2-29	16	2020	2.2	2.2	2020	Erosion of natural deposits
pH (NONE)		7.6-8.0	7.8	2020	8.4	8.4	2020	Leaching from natural deposits; a measurement of hydrogen ion activity
Sodium (PPM)		7.8-27	14	2020	2.6	2.6	2020	Erosion of natural deposits

Field Operations

SSWD's Field Operations Team monitors the water system 24 hours a day, 7 days a week to help ensure that customers receive a continuos supply of safe, clean drinking water. If you have additional questions concerning water quality, you can visit SSWD's web page (**www.sswd.org/departments/water-quality**), call us (916.972.7171), or email us at **feedback@sswd.org**.

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Conserve Water Every Day

Please Conserve Water!

In an effort to help customers use water more efficiently, SSWD has assembled a variety of programs, ideas and references that are designed to reduce water use at home. If you are interested in learning more about SSWD's conservation programs and what you can do to use water more efficiently inside and outside your home, please visit our web page at **www.sswd.org/conservation-tips**. You may also schedule a Water Wise House Call by calling SSWD's office at 916.972.7171. Please help us preserve tomorrow's water supply by conserving water today.

SACRAMENTO SUBURBAN WATER DISTRICT

3701 Marconi Avenue,
Suite 100
Sacramento, CA 95821

Once Again Your Drinking Water Continues to Meet State and Federal Drinking Water Standards

Need More Information?

For questions about this report, or to request additional copies:
Call David Armand at 916.679.2888

EPA Drinking Water Information:
www.epa.gov/your-drinking-water

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

本報告包含有關飲用水的非常重要的信息。翻譯它或與熟悉它的人交談。

Этот отчет содержит очень важную информацию о вашей питьевой воде. Переведите это или поговорите с кем-то, кто это хорошо понимает.

Monthly Board Meetings

3rd Monday of each month, 6:00 p.m.
3701 Marconi Ave., Suite 100
Sacramento, CA 95821

Visit Our Website at sswd.org

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SACRAMENTO SUBURBAN WATER DISTRICT

2021 Consumer Confidence Report

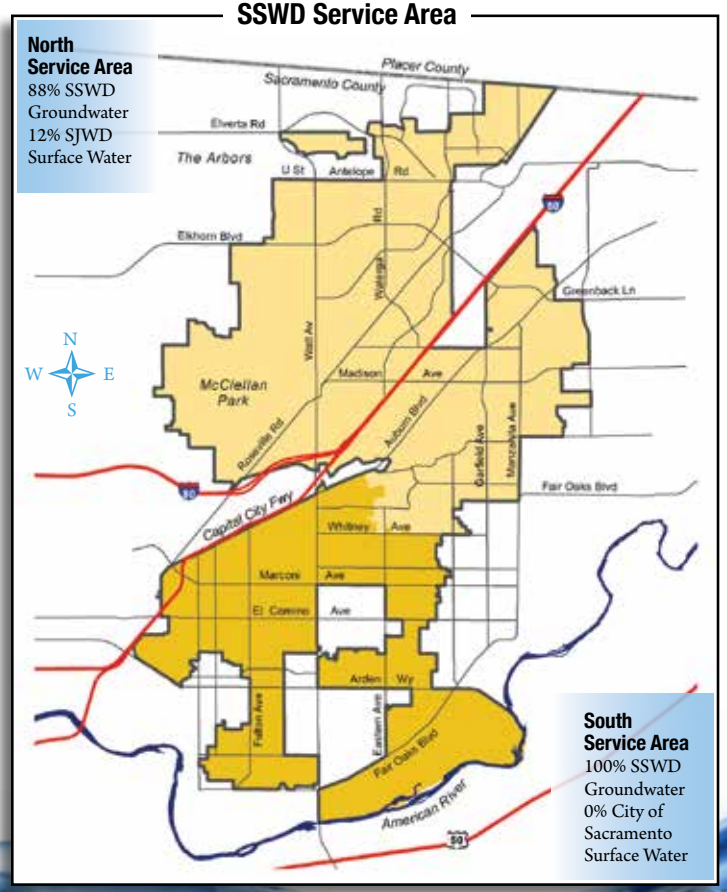
ABOUT YOUR DRINKING WATER

Sacramento Suburban Water District (SSWD) is pleased to present this Consumer Confidence Report (CCR) on 2021 water quality. Results of samples collected during 2019, 2020, and 2021, as well as other water quality information, were used to prepare this report. As always, providing a high quality, reliable supply of water and superior customer service at the lowest responsible water rate are SSWD's top priorities.

Sources of Water

SSWD has two service areas, North and South. The North Service Area (NSA) is supplied with water from local groundwater wells and, when available, with surface water treated by the San Juan Water District (SJWD). The South Service Area (SSA) is supplied with water from local groundwater wells and, when available, with treated surface water from the City of Sacramento. As indicated in the graphic, "SSWD Service Area," only the NSA water supply was supplemented with surface water in 2021.

Water pumped from the wells is chlorinated per State Water Resources Control Board, Division of Drinking Water (DDW) requirements to protect you from potential microbiological contaminants. All facilities are operated by state-certified operators. To ensure that your water meets state and federal regulations, SSWD conducts routine water quality testing at the wells and in the distribution system.



IMPORTANT INFORMATION ABOUT...

Nitrate: Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. Nitrate (as nitrogen) in drinking water at levels above 10 milligrams per liter (mg/L) is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; with symptoms including shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Nitrate levels in water supplied by SSWD are below 10 mg/L. Nitrate monitoring is performed at each source at least annually, and, in many cases, quarterly. If there is an indication the nitrate level in a well may reach the 10 mg/L regulatory threshold, it is immediately removed from service.

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily originates from materials and

– continued on page 3

Overview of Drinking Water

The United States Environmental Protection Agency (USEPA) and DDW require the educational language below to be included in all public water system's Consumer Confidence Reports. For a complete list of detected contaminants and their potential sources, please see the tables in the sections titled, "2021 Summary of Detected Constituents."

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.

In order to ensure that tap water is safe to drink, the USEPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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. Additional information on bottled water is available on the California Department of Public Health web page (**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 minor 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 USEPA's Safe Drinking Water Hotline (1.800.426.4791).

Source Water Assessments

Source water assessments for the majority of SSWD's groundwater wells were completed in 2002. Additional source water assessments have been completed for those sources constructed since 2002. The results of the assessments indicate that wells in both the NSA and SSA are considered most vulnerable to: dry cleaners, gas stations, leaking underground storage tanks, petroleum transmission pipelines, sewer collection systems, contamination caused by illegal activities or dumping, and general urban commercial activities such as automobile repair facilities and photo processors. Both service areas are also vulnerable to industrial activities such as: electronic, plastic and metal manufacturing, petroleum storage facilities, and known groundwater contamination plumes. The NSA is also considered vulnerable to historic activities at the former McClellan Air Force Base. The SSA may also be vulnerable to recreational activities associated with the American River. Source water assessments are available for review at SSWD's office.

SSA Water Fluoridation

SSWD supplements the natural levels of fluoride in the SSA water to levels within DDW's prescribed Fluoride Control Range (0.6 mg/L to 1.2 mg/L). Parents of children that reside in SSWD's SSA should let their children's pediatricians and dentists know that their drinking water is fluoridated. According to the USEPA/ Centers for Disease Control and Prevention (CDC), drinking water with the right amount

of fluoride is a safe and effective way to help keep the surface of teeth strong and help prevent tooth decay. Community water fluoridation is supported by the American Dental Association, American Academy of Pediatrics, U.S. Public Health Service, and the World Health Organization.

Information About Hard Water

A common concern for many customers is water hardness because it can cause scaling and other aesthetic issues. Water hardness is comprised of naturally-occurring minerals, particularly calcium and magnesium. Though hard water can be a nuisance, it is not known to cause adverse health effects, and thus is not regulated by DDW or USEPA. Effects of hard water may include: scale on plumbing fixtures and appliances; soap scum on shower walls, bathtubs, sinks and faucets; and reduced lathering of soaps, shampoos, and household cleaners. Additional information is available on the SSWD's water quality web page: **www.sswd.org/departments/water-quality**.

Lead Sampling in Schools

In early 2017, SSWD began drinking water lead monitoring at K-12 schools in accordance with DDW requirements. In January 2018, the California Health and Safety Code (Section 116277) expanded those requirements to include preschool and child day care facilities on public school property. SSWD has performed monitoring at 49 K-12 schools, preschools, and child day care facilities through the end of 2019. If you would like to know if monitoring was performed at your child's school or day care facility (and if so, the results), please visit DDW's "Lead Sampling of Drinking Water in California Schools" web page at: **https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html**, or contact your child's school.

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 by-products 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.

Important Information About... *continued*

components associated with service lines and home plumbing. SSWD is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has not been moving 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 or at: **www.epa.gov/lead**.

As noted above, due to the variety of materials used in some customer's plumbing systems (including water treatment units in the home), lead results may vary. If you are concerned about the potential impact the internal plumbing system in your home or business may have on lead levels in your drinking water, SSWD can refer you to a laboratory that you can utilize to test your water.

Water Quality Definitions

Locational Running Annual Average (LRAA): The LRAA is a calculation used to determine compliance with a primary drinking water standard (or MCL) at a specific monitoring location.

Maximum Contaminant Level (MCL): 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.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

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. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Notification Level: The non-regulatory, health-based advisory level for a contaminant in drinking water for which an MCL has not been established.

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

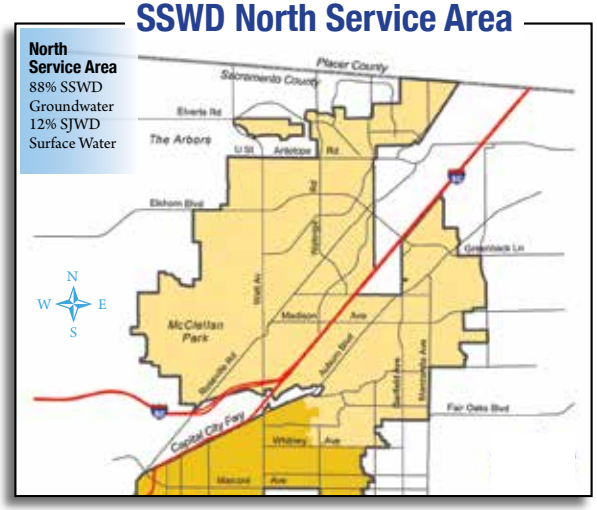
Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

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

Response Level: The non-regulatory, health-based level of a contaminant in drinking water at which DDW recommends taking a source out of service.

Total Organic Carbon (TOC): Organically-derived carbon that can be naturally-occurring or result from human activities.

SSWD North Service Area



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

2021 Summary of Detected Constituents

North Service Area

About the Tables

The following tables contain detailed information about the water that is delivered to your home or business. The drinking water SSWD supplies to customers has been tested for over 130 contaminants. In accordance with USEPA requirements, the table in the CCR only includes results for contaminants that were detected. You can compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

Key to Abbreviations

NA	Not Applicable
ND	Not Detected
NR	Not Reported
NTU	Nephelometric Turbidity Units (a measure of clarity)
pCi/L	Picocuries per liter (a measure of radiation)
PPM	Parts per million or milligrams per liter (mg/L)
PPB	Parts per billion or micrograms per liter (µg/L)
HAA	Haloacetic Acids
µS/cm	Microsiemens per centimeter
TON	Threshold Odor Number

				SSWD (groundwater)			San Juan Water District (surface water)				
DETECTED PRIMARY DRINKING WATER CONSTITUENTS - Regulated to protect your health											
CONSTITUENT/UNITS		MCL	PHG or (MCLG)	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Arsenic (PPB)		10	0.004	ND-2.5	ND	2019, 2021	ND	ND	2019	No	Erosion of natural deposits
Barium (PPM)		1	2	ND-0.20	ND	2019, 2021	ND	ND	2019	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Control of Disinfection By-Product Precursors (PPM) (TOC) (treated water) {A}		TT = 2	NA	NA	NA	NA	0.81-2.21	1.12	2021	No	Various natural and manmade sources
Fluoride (PPM)		2	1	0.08-0.26	0.17	2019, 2021	ND	ND	2019	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium (PPB) {B}		NA	0.02	NR	NR	NA	NR	NR	NA	NA	Erosion of natural deposits; discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile and manufacturing facilities
Nitrate (as Nitrogen) (PPM)		10	10	ND-6.1	1.7	2021	ND	ND	2021	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (as Nitrogen) (PPM)		10	10	ND-6.5	2.0	2019, 2021	ND	ND	2021	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene (PCE) (PPB)		5	0.06	ND-3.5	ND	2019, 2021	ND	ND	2019	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Gross Alpha (pCi/L)		15	(0)	ND-3.1	ND	2014-2021	ND	ND	2017	No	Erosion of natural deposits
Combined Radium (Ra226 + Ra228) (pCi/L)		5	(0)	ND-3.34	ND	2014-2021	ND	ND	2017	No	Erosion of natural deposits
Uranium (pCi/L)		20	0.43	ND-4.97	ND	2014-2021	NR	NR	NA	No	Erosion of natural deposits
CONSTITUENT/UNITS		MCL	PHG or (MCLG)	LEVEL FOUND		SAMPLE DATE	LEVEL FOUND		SAMPLE DATE	VIOLATION	MAJOR SOURCES
Turbidity {A}	NTU	TT = 1 NTU	NA	NA		NA	0.048		2021	No	Soil runoff
	% Samples	TT = 95% of Samples ≤0.3 NTU	NA	NA			100%				
DISTRIBUTION SYSTEM											
CONSTITUENT/UNITS		AL	PHG or (MCLG)	90TH PERCENTILE RESULT		NO. OF SAMPLES/ NO. EXCEEDING ACTION LEVEL			SAMPLE DATE	VIOLATION	MAJOR SOURCES
Copper (at tap) (PPM)		1.3	0.3	0.220		59/0			2019	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
CONSTITUENT/UNITS		MCL [MCLG]	PHG or (MRDLG)	HIGHEST MONTHLY PERCENTAGE OF POSITIVE SAMPLES					SAMPLE DATE	VIOLATION	MAJOR SOURCES
Total Coliform (% Positive Samples)		> 5% of Monthly Samples are Positive	NA	0.81%					2021	No	Naturally present in the environment

NORTH SERVICE AREA

	SSWD (groundwater)	San Juan Water District (surface water)

DISTRIBUTION SYSTEM - continued							
CONSTITUENT/UNITS	MCL[MRDL]	PHG or [MRDLG]	RANGE	AVERAGE	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chlorine Residual (PPM)	[4]	[4]	0.14-1.52	0.7	2021	No	Drinking water disinfectant added for treatment
Trihalomethanes (PPB)	80	NA	ND-30	Highest LRAA = 22 {D}	2021	No	By-product of drinking water disinfection
Haloacetic Acids (PPB)	60	NA	ND-19	Highest LRAA = 14 {D}	2021	No	By-product of drinking water disinfection

DETECTED SECONDARY DRINKING WATER CONSTITUENTS - Regulated for aesthetic qualities									
CONSTITUENT/UNITS	MCL	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chloride (PPM)	500	9.2-110	41	2019, 2021	1.8	1.8	2019	No	Runoff/leaching from natural deposits
Copper (PPM)	1.3	ND-0.06	ND	2019, 2021	ND	ND	2019	No	Erosion of natural deposits; leaching from wood preservatives
Iron (PPB)	300	ND-290	ND	2019, 2021	ND	ND	2019	No	Leaching from natural deposits; industrial wastes
Manganese (PPB)	50	ND-41	ND	2019-2021	ND	ND	2019	No	Leaching from natural deposits
Odor (TON)	3	ND-2	ND	2019, 2021	ND	ND	2019	No	Naturally-occurring organic materials
Specific Conductance (µS/cm)	1600	210-680	401	2019, 2021	68-110	82.2	2021	No	Substances that form ions when in water
Sulfate (PPM)	500	2.8-33	10	2019, 2021	3.8	3.8	2019	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (PPM)	1000	170-450	283	2019, 2021	30	30	2019	No	Runoff/leaching from natural deposits
Turbidity (NTU)	5	ND-0.9	0.2	2019, 2021	See Primary Constituents table above			No	Soil runoff

PPM (parts per million):
3 drops in 42 gallons
1 second in 12 days
1 inch in 16 miles

PPB (parts per billion):
1 drop in 14,000 gallons
1 second in 32 years
1 inch in 16,000 miles

Customer Service

If you have questions about your water bill or your water service, please call SSWD's Customer Service Team at 916.972.7171. They are available during regular business hours (Monday - Friday, 8:00 AM - 4:30 PM). If our customer service team cannot answer your question, they will put you in touch with another team member who can. You can also find information on our website (sswd.org) about starting and stopping your water service, the Board of Directors, water conservation, cross-connection control, engineering projects, field operations, water quality and much more!

	SSWD (groundwater)	San Juan Water District (surface water)

DETECTED UCMR4 MONITORING CONSTITUENTS {E}				
CONSTITUENT/UNITS	RANGE	AVG.	SAMPLE DATE	PRIMARY SOURCES/USES
Germanium (PPB)	ND-0.4	ND	2018-2019	Naturally-occurring element; a byproduct of zinc ore processing; used in infrared optics, fiber-optic systems, electronics and solar applications
Manganese (PPB)	ND-36	3.4	2018-2019	Naturally-occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and waste water treatment chemical; essential nutrient

	DISTRIBUTION SYSTEM			
CONSTITUENT/UNITS	RANGE	HIGHEST LRAA	SAMPLE DATE	PRIMARY SOURCES/USES
HAA5 (PPB)	ND-35	27	2018-2019	Byproduct of drinking water disinfection
HAA6Br (PPB)	ND-3.8	2	2018-2019	Byproduct of drinking water disinfection
HAA9 (PPB)	ND-36	29	2018-2019	Byproduct of drinking water disinfection

ADDITIONAL DRINKING WATER CONSTITUENTS {F}								
CONSTITUENT/UNITS		RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	MAJOR SOURCES
Alkalinity (total, as CaCO3) (PPM)		83-180	117	2019, 2021	NR	NR	NA	Leaching from natural deposits
Alkalinity (bicarbonate, as CaCO3) (PPM)		100-210	142	2019, 2021	12-23	18	2021	
Calcium (PPM)		16-58	27	2019, 2021	4.5-8.3	6	2021	Erosion of natural deposits
Hardness	(grains/gallon)	4.3-15.8	7.7	2019, 2021	0.7	0.7	2019	Leaching from natural deposits; hardness is the sum of polyvalent cations present in the water, generally naturally-occurring magnesium and calcium
	(PPM)	74-270	132		12	12		
Magnesium (PPM)		8.4-32	16	2019, 2021	1	1	2019	Erosion of natural deposits
pH (none)		7.3-7.8	7.6	2019, 2021	NR	NR	NA	Leaching from natural deposits; a measurement of hydrogen ion activity
Sodium (PPM)		11-60	30	2019, 2021	1.6	1.6	2019	Erosion of natural deposits

PER- & POLYFLUOROALKYL SUBSTANCES (PFAS) {G}										
CONSTITUENT/UNITS	NOTIFICATION LEVEL	RESPONSE LEVEL	RANGE	AVG.	SAMPLE DATE	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Perfluorohexanesulfonic acid (PFHxS) (PPT)	NA	NA	ND-9.3	ND	2020-2021	NR	NR	NA	No	Chemicals used in grease and stain resistant coatings for consumer products and firefighting foams.
Perfluorooctanoic acid (PFOA) (PPT)	5.1	10	ND-6.5	ND	2020-2021	NR	NR	NA	No	Chemicals used in grease and stain resistant coatings for consumer products and firefighting foams

A Note for Sensitive Populations

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

Notes

{A} NSA only: Only surface water sources must comply with PDWS for Control of Disinfection By-Product Precursors and Turbidity. Turbidity is a measure of the cloudiness of water. It is a good indicator of filtration process effectiveness for water systems that treat surface water.

{B} DDW rescinded the 10 ppb MCL for hexavalent chromium on September 11, 2017. Prior to that SSWD elected to satisfy compliance monitoring requirements via total chromium monitoring. For more information about hexavalent chromium please see: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.html.

{C} SSA only: SSWD's fluoridation program provides the addition of fluoride to the SSA drinking water. Natural levels of fluoride in the SSA are adjusted to be within the DDW's Fluoride Control Range (0.6-1.2 mg/L).

{D} Calculation of the LRAA for the first three quarters of 2021 includes data from 2020.

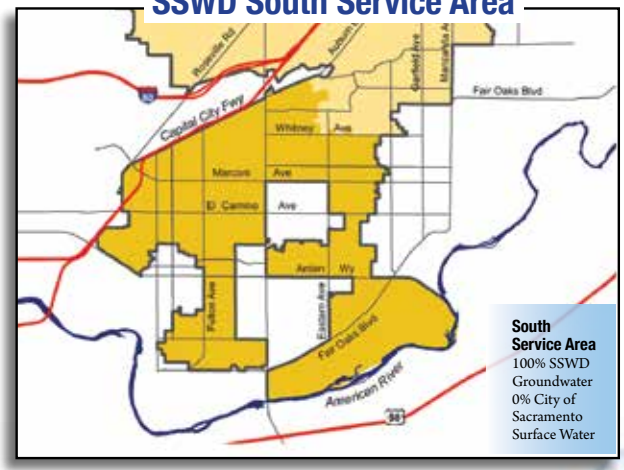
{E} Unregulated contaminant monitoring helps USEPA and DDW determine where certain contaminants occur and whether they need to be regulated. Both distribution system and source water are included in UCMR4.

{F} Constituents listed under "Additional Drinking Water Constituents" are of interest to some consumers, however, they have no regulatory thresholds.

{G} A total of 37 wells have been included in SSWD's PFAS monitoring orders from DDW. Reportable results are from those wells used as sources of supply in 2021. NSA only: One well has a compliance result (6.5 ppt) above the Notification Level for PFOA. The presence of PFHxS has also been confirmed at the same well. That well has not been used as a source of supply since the confirmed detections.

DDW allows SSWD to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, is more than one year old.

SSWD South Service Area



2021 Summary of Detected Constituents

South Service Area

About the Tables

The following tables contain detailed information about the water that is delivered to your home or business. The drinking water SSWD supplies to customers has been tested for over 130 contaminants. In accordance with USEPA requirements, the table in the CCR includes only results for contaminants that were detected. You can compare levels from your system's water to the state and federal standards (Maximum Contaminant Level [MCL]), if applicable.

Key to Abbreviations

NA	Not Applicable
ND	Not Detected
NR	Not Reported
NTU	Nephelometric Turbidity Units (a measure of clarity)
pCi/L	Picocuries per liter (a measure of radiation)
PPM	Parts per million or milligrams per liter (mg/L)
PPB	Parts per billion or micrograms per liter (µg/L)
HAA	Haloacetic Acids
µS/cm	Microsiemens per centimeter
TON	Threshold Odor Number

	SSWD (groundwater)

DETECTED PRIMARY DRINKING WATER CONSTITUENTS - Regulated to protect your health

CONSTITUENT/UNITS	MCL	PHG or (MCLG)	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminum (PPM)	1	0.6	ND-0.05	ND	2020-2021	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (PPB)	10	0.004	ND-4.3	2.1	2020-2021	No	Erosion of natural deposits
Barium (PPM)	1	2	ND-0.14	ND	2020-2021	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride (PPM)	2	1	See Fluoride in Distribution System section			No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium (PPB) {B}	NA	0.02	NR	NR	NA	NA	Erosion of natural deposits; discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile and manufacturing facilities
Nitrate (as Nitrogen) (PPM)	10	10	ND-6.7	1.9	2021	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (as Nitrogen) (PPM)	10	10	ND-6.7	2.1	2020-2021	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Tetrachloroethylene (PCE) (PPB)	5	0.06	ND-0.65	ND	2020-2021	No	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Trichloroethylene (TCE) (PPB)	5	1.7	ND-0.5	ND	2020-2021	No	Discharge from metal degreasing sites and other factories
Gross Alpha (pCi/L)	15	(0)	ND-5.7	ND	2014-2021	No	Erosion of natural deposits
Combined Radium (Ra226 + Ra228) (pCi/L)	5	(0)	ND-2.11	ND	2014-2021	No	Erosion of natural deposits
Uranium (pCi/L)	20	0.43	ND-4.8	ND	2014-2021	No	Erosion of natural deposits

DISTRIBUTION SYSTEM

CONSTITUENT/UNITS	AL	PHG or (MCLG)	90TH PERCENTILE RESULT	NO. OF SAMPLES/ NO. EXCEEDING ACTION LEVEL	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Copper (at tap) (PPM)	1.3	0.3	0.220	59/0	2019	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

CONSTITUENT/UNITS	MCL [MCLG]	PHG or (MRDLG)	HIGHEST MONTHLY PERCENTAGE OF POSITIVE SAMPLES	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Total Coliform (% Positive Samples)	> 5% of Monthly Samples are Positive	NA	0.81%	2021	No	Naturally present in the environment

Water Main Flushing

SSWD flushes water mains to remove sediments or other contaminants that can accumulate in pipes over time and lead to taste and odor problems. Flushing dead-end lines also improves disinfectant residual levels. In addition to protecting water quality, flushing helps reduce corrosive conditions associated with biofilm growth that has a potential to lead to pipeline leaks.

SOUTH SERVICE AREA

SSWD (groundwater)

DISTRIBUTION SYSTEM - continued							
CONSTITUENT/UNITS	MCL[MRDL]	PHG or [MRDLG]	RANGE	AVERAGE	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Chlorine Residual (PPM)	[4]	[4]	0.14-1.52	0.7	2021	No	Drinking water disinfectant added for treatment
Fluoride {C} (PPM)	2	1	0.6-1.1	0.8	2021	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Trihalomethanes (PPB)	80	NA	ND-30	Highest LRAA = 22 {D}	2021	No	By-product of drinking water disinfection
Haloacetic Acids (PPB)	60	NA	ND-19	Highest LRAA = 14 {D}	2021	No	By-product of drinking water disinfection

DETECTED SECONDARY DRINKING WATER CONSTITUENTS - Regulated for aesthetic qualities						
CONSTITUENT/UNITS	MCL	RANGE	AVG.	SAMPLE DATE	VIOLATION	MAJOR SOURCES
Aluminum (PPB)	200	ND-54	ND	2020-2021	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloride (PPM)	500	3.3-66	22	2020-2021	No	Runoff/leaching from natural deposits
Copper (PPM)	1.3	ND-0.10	ND	2020-2021	No	Erosion of natural deposits; leaching from wood preservatives
Manganese (PPB)	50	ND-30	ND	2020-2021	No	Leaching from natural deposits
Specific Conductance (µS/cm)	1600	160-510	319	2020-2021	No	Substances that form ions when in water
Sulfate (PPM)	500	1.4-29	8.3	2020-2021	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (PPM)	1000	130-340	229	2020-2021	No	Runoff/leaching from natural deposits
Turbidity (NTU)	5	ND-0.8	0.2	2020-2021	No	Soil runoff

PPM (parts per million):
3 drops in 42 gallons
1 second in 12 days
1 inch in 16 miles

PPB (parts per billion):
1 drop in 14,000 gallons
1 second in 32 years
1 inch in 16,000 miles

Field Operations

SSWD's Field Operations Team monitors the water system 24 hours a day, 7 days a week to help ensure that customers receive a continuos supply of safe, clean drinking water. If you have additional questions concerning water quality, you can visit SSWD's web page (**www.sswd.org/departments/water-quality**), call us (916.972.7171), or email us at **feedback@sswd.org**.

		SSWD (groundwater)			
DETECTED UCMR4 MONITORING CONSTITUENTS {E}					
CONSTITUENT/UNITS		RANGE	AVG.	SAMPLE DATE	PRIMARY SOURCES/USES
Manganese (PPB)		ND-26	1.8	2018-2020	Naturally-occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and waste water treatment chemical; essential nutrient
		DISTRIBUTION SYSTEM			
CONSTITUENT/UNITS		RANGE	HIGHEST LRAA	SAMPLE DATE	PRIMARY SOURCES/USES
HAA5 (PPB)		ND-35	27	2018-2019	Byproduct of drinking water disinfection
HAA6Br (PPB)		ND-3.8	2	2018-2019	Byproduct of drinking water disinfection
HAA9 (PPB)		ND-36	29	2018-2019	Byproduct of drinking water disinfection
ADDITIONAL DRINKING WATER CONSTITUENTS {F}					
CONSTITUENT/UNITS		RANGE	AVG.	SAMPLE DATE	MAJOR SOURCES
Alkalinity (total, as CaCO3) (PPM)		67-190	115	2020-2021	Leaching from natural deposits
Alkalinity (bicarbonate, as CaCO3) (PPM)		81-230	139	2020-2021	
Calcium (PPM)		14-44	25	2020-2021	Erosion of natural deposits
Hardness	(grains/gallon)	3.3-13.4	7.5	2020-2021	Leaching from natural deposits; hardness is the sum of polyvalent cations present in the water, generally naturally-occurring magnesium and calcium
	(PPM)	56-230	129		
Magnesium (PPM)		5.2-29	16	2020-2021	Erosion of natural deposits
pH (none)		7.6-8.0	7.8	2020-2021	Leaching from natural deposits; a measurement of hydrogen ion activity
Sodium (PPM)		7.8-27	14	2020-2021	Erosion of natural deposits

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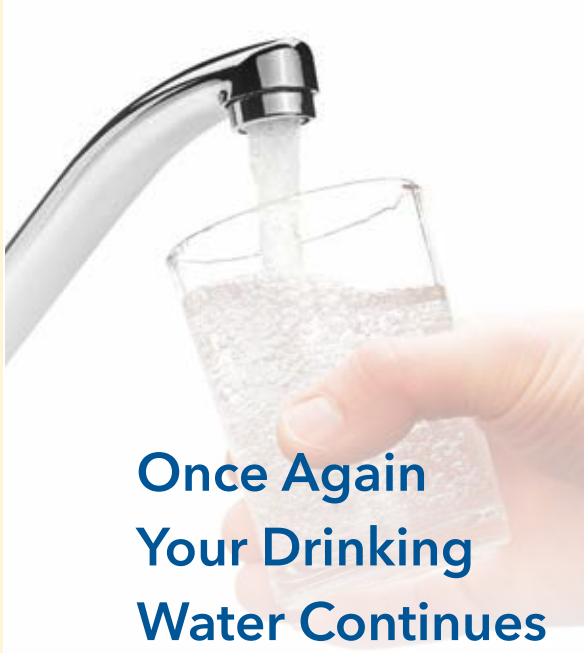
Conserve Water Every Day

Please Conserve Water!

In an effort to help customers use water more efficiently, SSWD has assembled a variety of programs, ideas and references that are designed to reduce water use at home. If you are interested in learning more about SSWD's conservation programs and what you can do to use water more efficiently inside and outside your home, please visit our web page at www.sswd.org/conservation-tips. You may also schedule a Water Wise House Call by calling SSWD's office at 916.972.7171. Please help us preserve tomorrow's water supply by conserving water today.

SACRAMENTO SUBURBAN WATER DISTRICT

3701 Marconi Avenue,
Suite 100
Sacramento, CA 95821



Once Again Your Drinking Water Continues to Meet State and Federal Drinking Water Standards

Need More Information?

For questions about this report, or to request additional copies:
Call David Armand at 916.679.2888

EPA Drinking Water Information:
www.epa.gov/your-drinking-water

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

本報告包含有關飲用水的非常重要的信息。翻譯它或與熟悉它的人交談。

Этот отчет содержит очень важную информацию о вашей питьевой воде. Переведите это или поговорите с кем-то, кто это хорошо понимает.

Monthly Board Meetings

3rd Monday of each month, 6:00 p.m.
3701 Marconi Ave., Suite 100
Sacramento, CA 95821

Visit Our Website at sswd.org

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ATTACHMENT 4

ACWA Cost Estimates for Treatment Technologies

Table 1
Reference: 2012 ACWA PHG Survey

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey Indexed to 2021* ($/1,000 gallons treated)
1	Ion Exchange	Coachella Valley WD, for GW, to reduce Arsenic concentrations. 2011 costs.	2.40
2	Ion Exchange	City of Riverside Public Utilities, for GW, for Perchlorate treatment.	1.16
3	Ion Exchange	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.88
4	Granular Activated Carbon	City of Riverside Public Utilities, GW sources, for TCE, DBCP (VOC, SOC) treatment.	0.58
5	Granular Activated Carbon	Carollo Engineers, anonymous utility, 2012 costs for treating SW source for TTHMs. Design souce water concentration: 0.135 mg/L. Design finished water concentration: 0.07 mg/L. Does not include concentrate disposal or land cost.	0.42
6	Granular Activated Carbon, Liquid Phase	LADWP, Liquid Phase GAC treatment at Tujunga Well field. Costs for treating 2 wells. Treament for 1,1 DCE (VOC). 2011-2012 costs.	1.78
7	Reverse Osmosis	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.94
8	Packed Tower Aeration	City of Monrovia, treatment to reduce TCE, PCE concentrations. 2011-12 costs.	0.52
9	Ozonation+ Chemical addition	SCVWD, STWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations. 2009-2012 costs.	0.11

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey Indexed to 2021* ($/1,000 gallons treated)
10	Ozonation+ Chemical addition	SCVWD, PWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations, 2009-2012 costs.	0.23
11	Coagulation/Filtration	Soquel WD, treatment to reduce manganese concentrations in GW. 2011 costs.	0.88
12	Coagulation/Filtration Optimization	San Diego WA, costs to reduce THM/Bromate, Turbidity concentrations, raw SW a blend of State Water Project water and Colorado River water, treated at Twin Oaks Valley WTP.	1.00
13	Blending (Well)	Rancho California WD, GW blending well, 1150 gpm, to reduce fluoride concentrations.	0.83
14	Blending (Wells)	Rancho California WD, GW blending wells, to reduce arsenic concentrations, 2012 costs.	0.68
15	Blending	Rancho California WD, using MWD water to blend with GW to reduce arsenic concentrations. 2012 costs.	0.81
16	Corrosion Inhibition	Atascadero Mutual WC, corrosion inhibitor addition to control aggressive water. 2011 costs.	0.10

*Costs were adjusted from date of original estimates to present, where appropriate, using the Engineering News Record (ENR) annual average Construction Cost Index of 12,1332021

Table 2
Reference: Other Agencies

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	**Estimated 2012 Unit Cost Indexed to 2021*** ($/1,000 gallons treated)
1	Reduction - Coagulation-Filtration	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	1.91 - 11.96
2	IX - Weak Base Anion Resin	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	1.96 – 8.19
3	IX	Golden State Water Co., IX w/disposable resin, 1 MGD, Perchlorate removal, built in 2010.	0.60
4	IX	Golden State Water Co., IX w/disposable resin, 1000 gpm, perchlorate removal (Proposed; O&M estimated).	1.31
5	IX	Golden State Water Co., IX with brine regeneration, 500 gpm for Selenium removal, built in 2007.	8.57
6	GFO/Adsorption	Golden State Water Co., Granular Ferric Oxide Resin, Arsenic removal, 600 gpm, 2 facilities, built in 2006.	2.24 - 2.39
7	RO	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. RO cost to reduce 800 ppm TDS, 150 ppm Nitrate (as NO3); approx. 7 mgd.	2.93
8	IX	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. IX cost to reduce 150 ppm Nitrate (as NO3); approx. 2.6 mgd.	1.63

9	Packed Tower Aeration	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. PTA-VOC air stripping, typical treated flow of approx. 1.6 mgd.	0.49
10	IX	Reference: West Valley WD Report, for Water Recycling Funding Program, for 2.88 mgd treatment facility. IX to remove Perchlorate, Perchlorate levels 6-10 ppb. 2008 costs.	0.68 - 0.97
11	Coagulation Filtration	Reference: West Valley WD, includes capital, O&M costs for 2.88 mgd treatment facility- Layne Christensen packaged coagulation Arsenic removal system. 2009-2012 costs.	0.45
12	FBR	Reference: West Valley WD/Envirogen design data for the O&M + actual capitol costs, 2.88 mgd fluidized bed reactor (FBR) treatment system, Perchlorate and Nitrate removal, followed by multimedia filtration & chlorination, 2012. NOTE: The capitol cost for the treatment facility for the first 2,000 gpm is $23 million annualized over 20 years with ability to expand to 4,000 gpm with minimal costs in the future. $17 million funded through state and federal grants with the remainder funded by WVWD and the City of Rialto.	2.02 – 2.13

* Costs were adjusted from date of original estimates to present, where appropriate, using the Engineering News Record (ENR) annual average Construction Cost Index of 12,133 for 2021. .

Table 3
Reference: Updated 2012 ACWA Cost of Treatment Table

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012 Unit Cost Indexed to 2021* ($/1,000 gallons treated)
1	Granular Activated Carbon	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	0.69 - 1.31
2	Granular Activated Carbon	Reference: Carollo Engineers, estimate for VOC treatment (PCE), 95% removal of PCE, Oct. 1994,1900 gpm design capacity	0.32
3	Granular Activated Carbon	Reference: Carollo Engineers, est. for a large No. Calif. surf. water treatment plant (90 mgd capacity) treating water from the State Water Project, to reduce THM precursors, ENR construction cost index = 6262 (San Francisco area) - 1992	1.51
4	Granular Activated Carbon	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility for VOC and SOC removal by GAC, 1990	0.59 - 0.86
5	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for "rented" GAC to remove VOCs (1,1-DCE), 1.5 mgd capacity facility, 1998	2.71
6	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for permanent GAC to remove VOCs (TCE), 2.16 mgd plant capacity, 1998	1.75
7	Reverse Osmosis	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	2.036 – 3.89
8	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	4.80
9	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	2.96
10	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	3.20

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012 Unit Cost Indexed to 2021* ($/1,000 gallons treated)
11	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	2.48
12	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 40% of design capacity, Oct. 1991	8.04
13	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 100% of design capacity, Oct. 1991	4.75
14	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 40% of design capacity, Oct. 1991	3.55
15	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 100% of design capacity, Oct. 1991	2.20
16	Reverse Osmosis	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility with RO to remove nitrate, 1990	2.22 - 3.89
17	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 1.4 mgd facility operating at 40% of design capacity, Oct. 1991	1.27
18	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 14.0 mgd facility operating at 40% of design capacity, Oct. 1991	0.68
19	Packed Tower Aeration	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by packed tower aeration, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.34
20	Packed Tower Aeration	Reference: Carollo Engineers, for PCE treatment by Ecolo-Flo Enviro-Tower air stripping, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.35
21	Packed Tower Aeration	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - packed tower aeration for VOC and radon removal, 1990	0.55 - 0.90

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012 Unit Cost Indexed to 2021* ($/1,000 gallons treated)
22	Advanced Oxidation Processes	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by UV Light, Ozone, Hydrogen Peroxide, O&M costs based on operation during 329 days/year at 10% downtime, 24 hr/day AOP operation, 1900 gpm capacity, Oct. 1994	0.67
23	Ozonation	Reference: Malcolm Pirnie estimate for CUWA, large surface water treatment plants using ozone to treat water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, *Cryptosporidium* inactivation requirements,1998	0.15 - 0.32
24	Ion Exchange	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - ion exchange to remove nitrate, 1990	0.73 - 0.97

* Costs were adjusted from date of original estimates to present, where appropriate, using the Engineering News Record (ENR) annual average Construction Cost Index of 12,133 for 2021.