2022 PUBLIC HEALTH GOALS REPORT

PREPARED FOR:

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES
SACRAMENTO, CALIFORNIA

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BACKGROUND

The California Health and Safety Code (Section 116470(b)) requires that public water systems with 10,000 or more service connections prepare a special report every three years if water quality measurements exceed a Public Health Goal (PHG). Attachment 1 includes Section 116470(b)).

The report must be completed by July 1 of the year in which it is due and new reports are required every three years. The City of Sacramento Department of Utilities has prepared PHG reports since 1998, and the current report was completed by July 1, 2022, as required.

The PHG report must present information on (1) contaminants that have been detected above a PHG, (2) health risk information for the detected contaminants, (3) an estimate of the cost to install Best Available Technology to reduce the level of a given contaminant, and (4) what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant(s) and the basis for that decision.

The State Water Resources Control Board Division of Drinking Water (DDW) sets Maximum Contaminant Levels (MCLs) as close as feasible to the PHG taking treatment costs and available analytical and treatment technology into consideration. MCLs are enforceable limits that water purveyors must meet to protect public health. Attachment 2 includes a list of current MCLs and PHGs in California.

The California Office of Environmental Health Hazard Assessment (OEHHA) is required to determine and publish the "numerical public health risk" associated with PHGs and MCLs. This PHG report uses the most recent health risk information published by OEHHA. Attachment 3 presents the OEHHA health risk information used for this report (OEHHA, "Health Risk Information for PHG Exceedance Reports," February 2022).

This report identifies each contaminant that exceeded its PHG during the 2019 through 2021 period, describes the public health risk at both the PHG and the MCL, identifies the Best Available Technology (BAT) for treatment, and presents the estimated costs to install BAT to reduce levels of the contaminant.

In accordance with the California Health and Safety Code, only constituents that are regulated in drinking water, either with an MCL or Treatment Technique requirement, and for which either a PHG or Maximum Contaminant Level Goal (MCLG) has been set are to be included in the report. There are some regulated constituents that are routinely monitored and detected by water systems at levels below the drinking water standard for which no PHG or MCLG have yet been adopted. One example is disinfection byproducts, including trihalomethanes and haloacetic acids. These constituents will be addressed in a future report if PHGs are adopted by OEHHA.

WHAT ARE PUBLIC HEALTH GOALS?

PHGs are non-enforceable goals established by OEHHA. PHGs are developed using available toxicological data in scientific literature. A PHG is the level below which OEHHA has determined that a drinking water contaminant does not pose a significant health risk. None of the practical risk-management factors that are considered by the US Environmental Protection Agency (USEPA) or DDW in setting enforceable drinking water standards are considered in setting the PHGs. Such factors include analytical detection capability, treatment technology availability, and benefits and costs. If a constituent does not have a PHG public water systems are to use Maximum Contaminant Level Goals (MCLGs), developed by the USEPA, for the preparation of this report. Like PHGs, MCLGs are the level of contaminant in drinking water at which the USEPA believes there are no known or expected risks to health, with a margin of safety. USEPA sets the MCL as close as feasible to the MCLG, taking costs and technology into consideration.

WHAT IS BEST AVAILABLE TECHNOLOGY (BAT)?

State law requires that at the same time DDW adopts a primary drinking water standard (i.e., health based) they identify BAT for the specific constituent being regulated. BATs are the best-known treatment methods to reduce contaminant levels to the MCL. To be considered BAT, the treatment must be proven effective under full-scale field applications.

WHAT ARE DETECTION LIMITS FOR PURPOSES OF REPORTING (DLRS)?

In addition, when DDW establishes a drinking water regulation, the Agency evaluates available analytical methods and sets a DLR for the constituent. DLRs are the lowest concentration of the constituent reliably measurable for reporting to determine compliance. A constituent is considered by DDW to be “detected” when measured concentrations are above the DLR.

WHAT WATER QUALITY DATA WAS REVIEWED TO PREPARE THIS REPORT?

The 2022 PHG report was prepared based upon a review of water quality data for the years 2019 through 2021. Water quality data was collected and reviewed for both surface water treatment plants (Sacramento River Water Treatment Plant and the E.A. Fairbairn Water Treatment Plant) and the City’s wells.

WHAT GUIDELINES WERE FOLLOWED IN PREPARING THIS REPORT?

The Association of California Water Agencies (ACWA) prepares guidelines for water utilities to use in producing their PHG reports. The most recent ACWA guidelines (ACWA, “2022 PHG Guidance”) was used to prepare this report. No guidance materials are available from DDW regarding preparation of PHG reports. OEHHA publishes a document with health risk information for regulated constituents.

WHAT CONSTITUENTS WERE DETECTED ABOVE A PHG (OR MCLG)?

Table 1 presents the constituents that were detected by the City of Sacramento Department of Utilities above a PHG or an MCLG during 2019 through 2021.

Table 1: Constituents Detected Above PHG or MCLG (2019-2021)

Constituent	PHG (MCLG)	MCL
Arsenic	0.004 µg/L	10 µg/L
Gross alpha	(0)	15 pCi/L
Radium-226	0.05 pCi/L	5 pCi/L*
Radium-228	0.019 pCi/L	
Tetrachloroethylene (PCE)	0.06 µg/L	5 µg/L

µg/L = micrograms per liter (equivalent to parts per billion, ppb)
pCi/L = picoCuries per liter
*5 pCi/L is the MCL for combined radium-226/radium-228

INORGANIC CHEMICALS

The following section of the PHG report presents a discussion of inorganic chemicals detected above their PHG.

Arsenic. The PHG for arsenic is 0.004 µg/L. The federal and state MCL for arsenic is 10 µg/L (the federal MCLG is 0 µg/L). The DLR for arsenic is 2 µg/L and at the present time there are no laboratory methods available that can reliably measure arsenic as low as the PHG. The health risk category associated with arsenic is carcinogenicity. At the PHG, the theoretical cancer risk is 1×10^{-6}. This means the 70-year lifetime cancer risk for drinking water at the PHG is 1 excess case of cancer per million people exposed. At the federal MCL of 10 µg/L, the theoretical cancer risk is 2.5×10^{-3}. This means the 70-year lifetime cancer risk for drinking water at the MCL is 2.5 excess cases per 1,000 people exposed.

The California DDW has identified the following treatment technologies as Best Available Technology for reducing arsenic levels in drinking water to levels closer to the PHG of 0.004 µg/L.

- Activated alumina
- Coagulation/filtration
- Ion Exchange
- Lime softening
- Reverse Osmosis
- Electrodialysis
- Oxidation/filtration

From the above list of Best Available Technology, the cost evaluation was conducted using ion exchange, given that ion exchange is also best available technology for radium-226/228 (also included in this PHG report). It is noted that while ion exchange is Best Available Technology for arsenic and radium, the type of resin typically used for arsenic treatment is strong base anion (SBA) resin and that for radium is strong acid cation (SAC) resin. Like ion exchange, reverse osmosis and lime softening have also been identified as Best Available Technology for both constituents (arsenic and radium 226/228). While many factors (both technical and financial) go into the use of a given technology, ion exchange would be a more cost-effective approach than either reverse osmosis or lime softening. Specifically, reverse osmosis was not selected for this analysis, due to higher capital and operating costs, the amount of water that would be lost as a concentrated brine solution as well as the elevated energy consumption. Lime softening was not selected for this analysis as it can require large amounts of land and would likely need additional labor to operate and maintain.

All samples that exceeded the arsenic PHG during 2019 through 2021 were in groundwater wells. Table 2 presents the 22 wells where detections exceeded the arsenic PHG during 2019 through 2021. The water quality data presented in Table 2 indicates arsenic levels at an average of 3.2 µg/L (with a range of 2.2 µg/L to 4.6 µg/L). All results were below the MCL of 10 µg/L.

The total estimated capital cost to provide SBA ion-exchange treatment for all of the wells presented in Table 2, excluding Well 123 which has been permanently removed from service, at their respective maximum well water production during 2019 through 2021, is $59,219,885 (the total annual O&M costs are estimated to be $6,266,204/year)[1]. Ion-exchange treatment produces a concentrated waste brine that the City of Sacramento would need to dispose. The estimated costs assume that the waste brine is discharged to the sewer. Capital and O&M costs were estimated with the goal of achieving the arsenic 0.004 µg/L PHG. There is no information available, however, to indicate that ion exchange treatment could in fact reduce arsenic concentrations to such a low level. In addition, the DLR as determined by DDW is 2 µg/L and, as stated previously, there is no analytical method available that can reliably measure arsenic in drinking water down to 0.004 µg/L.

[1]Attachment 4 presents a description of the models and methodology used to estimate capital and O&M costs presented in this PHG Report.

Table 2: Wells Where Arsenic Was Detected Above the PHG (2019-2021)

Well Number	Arsenic Concentration (µg/L)			Maximum Water Production (gpm)	SBA Ion-Exchange Treatment Cost	
	2019	2020	2021		Capital	Annual O&M
91		4.1	4.1	450	$2,445,774	$284,295
93	4.2	3.7	3.7	478	$2,284,785	$277,356
94	2.6		2.9	796	$3,072,761	$300,818
107	3.4	3.9	3.9	942	$3,082,821	$307,521
112		2.3		556	$2,376,517	$281,920
120		2.4	2.4	950	$3,295,343	$316,976
122		2.5	2.5	650	$2,577,540	$295,031
123*		4.2		541	--	--
124		2.9		550	$2,544,702	$290,025
126	3	2.7	2.7	731	$3,880,057	$328,461
129	2.4	2.7	2.7	698	$2,408,957	$289,509
131	2.4	2.4	2.4	514	$2,407,804	$287,736
133	3.7	4.6	4.6	1,200	$3,075,571	$305,137
134	2.6			716	$1,638,715	$263,708
137	2.5	3	3	677	$3,180,348	$312,015
138	2.2	2.8	2.8	891	$3,071,460	$298,817
139	3.3	3.6	3.6	675	$3,078,680	$301,156
143		2.7	2.7	730	$2,580,074	$298,777
153A	3.5	4.4	4.4	1,017	$2,405,852	$284,735
155	2.3	2.6	2.6	752	$3,216,556	$319,196
156	3.7	4.4		802	$3,296,803	$309,998
158	2.7	3.5	3.5	864	$3,298,767	$313,016

gpm = gallons per minute, O&M = operation and maintenance costs, *Well 123 has been permanently taken out of service and will not be included in cost estimates.

RADIONUCLIDES

During 2019 to 2021, two naturally occurring radionuclides were detected in groundwater wells: radium-226/228 and gross alpha. The following sections present an evaluation of the health risks and treatment costs for reducing the levels of these two constituents.

Radium-226/228. Radium-226/228 is a naturally occurring radionuclide. Radium can be present as several isotopes that have different radioactive properties. The most common isotopes in groundwater are radium-226 and radium-228. The PHG for radium-226 is 0.05 pCi/L (picoCuries per liter)[2] and the DLR is 1 pCi/L. The PHG for radium-228 is 0.019 pCi/L and the DLR is 1 pCi/L. The MCL for combined radium-226/228 is 5 pCi/L. The health risk category associated with radium-226 is carcinogenicity. At the PHG, the theoretical cancer risk is 1×10^{-6}. This means the 70-year lifetime theoretical cancer risk for drinking water at the PHG is 1 excess case of cancer per million people exposed. At the MCL of 5 pCi/L, the numerical cancer risk for radium-226, assuming all radium is present as radium-226, is 1×10^{-4}, whereas that for radium-228 is 3×10^{-4}. This means the 70-year lifetime theoretical cancer risk for drinking water at the MCL is between 1 and 3 excess cases per 10,000 people exposed.

The State Water Resources Control Board DDW has identified the following treatment technologies as Best Available Technology for reducing radium-226/228 levels in drinking water.

- Ion exchange
- Reverse Osmosis
- Lime softening

From the above list of best available treatment technology, the cost evaluation was conducted using ion exchange, given that ion exchange is also Best Available Technology for arsenic (also included in this PHG report). However, as previously described, while ion-exchange is Best Available Technology for arsenic and radium, the type of ion-exchange resin typically used for arsenic treatment is SBA resin and that for radium is SAC resin.

During 2019 through 2021, radium-226/228 was detected above the PHG, but below the MCL of 5 pCi/L in Wells 107 and 155. Table 3 presents the detected radium-226/228 values of 1.1 pCi/L in Well 155 and 1.91 and 2.26 pCi/L in Well 107. The total estimated capital cost to provide SAC ion-exchange treatment at the two wells presented in Table 3 is estimated at $3,346,300 (and the total annual O&M costs are estimated to be $522,990/year). Ion-exchange treatment produces a concentrated waste brine that the City of Sacramento would need to dispose. The estimated costs assume that the waste brine is discharged to the sewer.

Table 3: Wells Where Radium-226/228 Was Detected Above the PHG (2019-2021)

Well Number	Radium-226/228 Concentration (pCi/L)			Maximum Water Production (gpm)	SAC Ion-Exchange Treatment Cost	
	2019	2020	2021		Capital	Annual O&M
107			1.91/2.26	942	$2,384,989	$292,710
155			1.1	752	$961,314	$230,280

gpm = gallons per minute; O&M = operation and maintenance costs

Gross Alpha. OEHHA has not established a PHG for gross alpha activity because the results are used as a screening tool for naturally occurring radionuclides (i.e., gross alpha does not represent a specific constituent). The federal MCLG for gross alpha is 0 pCi/L due to the classification of gross alpha

[2] A pCi/L is the unit typically used to describe the concentration of radioactivity in drinking water.

radioactivity as carcinogenic. The cancer health risk at 0 pCi/L is zero. The MCL for gross alpha activity is 15 pCi/L and the DLR is 3 pCi/L. Gross alpha measurements can indicate the presence of a number of alpha emitting radionuclides, such as radium. OEHHA indicates that depending upon which isotopes are present, the numerical cancer health risk at the MCL of 15 pCi/L could be 1×10^{-3}. That means for a 70-year lifetime exposure at the MCL, there could be a theoretical risk of one excess case of cancer per 1,000 people exposed.

During 2019 through 2021, three wells had a gross alpha detection above the MCLG. Table 4 presents the gross alpha range of 4.4 to 8 pCi/L (below the MCL of 15 pCi/L) for Wells 94, 114, and 123. DDW has identified reverse osmosis as the Best Available Technology for reducing gross alpha levels in drinking water. The cost evaluation was conducted using reverse osmosis given that no other technology has been identified as Best Available Technology. The total estimated capital cost for reverse osmosis treatment at Wells 94 and 114 would be $12,278,380 (the total annual O&M costs would be $1,248,670/year). Well 123 has been permanently removed from service and is not included in the cost estimates. A brief description of the estimated cost procedure for Wells 94 and 114 is presented in Attachment 4 of this document. Reverse osmosis treatment produces a concentrated waste that the City of Sacramento would need to dispose. The estimated costs assume that the reverse osmosis concentrate is discharged to the sewer and do not include the costs to replace the lost water.

Table 4: Wells Where Gross Alpha Was Detected Above the PHG (2019-2021)

Well Number	Gross Alpha Concentration (pCi/L)			Maximum Water Production (gpm)	Reverse Osmosis Treatment Cost	
	2019	2020	2021		Capital	Annual O&M
94			5.8	679	$7,093,962	$735,000
114		4.4		460	$5,184,417	$513,675
123*		8		541	--	--

gpm = gallons per minute; O&M = operation and maintenance costs
*Well 123 has been permanently removed from service and will not be included in cost estimates.

ORGANIC CHEMICAL

The following section of the PHG report presents a discussion of an organic chemical detected above its PHG.

Tetrachloroethylene (perchloroethylene, or PCE). The PHG for PCE is 0.06 µg/L. The federal and state MCL for PCE is 5 µg/L (the federal MCLG is 0 µg/L). The DLR for PCE is 0.5 µg/L and at the present time there are no laboratory methods available that can reliably measure PCE as low as the PHG. The health risk category associated with PCE is carcinogenicity. At the PHG, the theoretical cancer risk is 1×10^{-6}. This means the 70-year lifetime cancer risk for drinking water at the PHG is 1 excess case of cancer per million people exposed. At the federal MCL of 5 µg/L, the theoretical cancer risk is 8 × 10^{-5}. This means the 70-year lifetime cancer risk for drinking water at the federal MCL is 8 excess cases per 100,000 people exposed.

The State Water Resources Control Board DDW has identified the following treatment technologies as Best Available Technology for reducing PCE levels in drinking water to levels closer to the PHG of 0.06 μg/L.

- Granular Activated Carbon (GAC)
- Packed Tower Aeration

From the above list of Best Available Technology, the cost evaluation was conducted using GAC.

During 2019 through 2021, PCE was detected above the PHG at 1.1 μg/L and 2.4 μg/L in Well 112 (Table 5). The total estimated capital cost to provide GAC treatment at Well 112 is $946,120 (the total annual O&M costs are estimated to be $42,760/year). A brief description of the estimated cost procedure for Well 112 is presented in Attachment 4 of this document.

Table 5: Well Where Tetrachloroethylene (PCE) Was Detected Above the PHG (2019-2021)

Well Number	Tetrachloroethylene Concentration (μg/L)			Maximum Water Production (gpm)	GAC Treatment Cost	
	2019	2020[3]	2021		Capital	Annual O&M
112		1.1/2.4		556	$946,120	$42,760

gpm = gallons per minute; O&M = operation and maintenance costs

SUMMARY OF TOTAL COSTS AND POTENTIAL IMPACT ON CUSTOMER BILLS

As required, treatment costs were estimated for regulated constituents that were detected above the PHG but below the MCL. For arsenic and radium-226/228, ion exchange costs were evaluated for both constituents, given that ion-exchange is one of the Best Available Technologies for both constituents. The type of ion-exchange resin typically used for arsenic treatment is SBA resin and that for radium is SAC resin. Thus, for those wells containing water with arsenic and radium (Wells 107 and 155), a two-stage ion exchange treatment train was selected. The cost for the two-stage ion-exchange treatment was estimated by adding the individual costs of the SBA (for arsenic treatment) and SAC (for radium) ion-exchange treatment technologies. For gross alpha, costs were estimated using reverse osmosis. For PCE, costs were estimated using GAC. Table 6 presents the capital costs and annual O&M costs for each well evaluated in this PHG Report. In addition, Table 6 presents the annualized total cost for each well (this is the sum of the annualized capital cost plus the annual O&M costs). Based on the 2019 through 2021 data set, the total capital costs to install ion-exchange, reverse osmosis, and GAC Best Available Technology are estimated to be $72,717,925 and the annual O&M cost is estimated to be $7,779,812. The total annualized capital cost plus the annual O&M costs

[3] All results prior to 2020 did not detect tetrachloroethylene, and the well did not serve the system during 2021.

would be approximately $13,614,886. The estimated increase in each City of Sacramento customer's water bill would be approximately $95 per year or $7.90 per month.

Table 6: Summary of Capital and O&M Costs (2019 – 2021)

Well Number	Constituents Detected	Constituent Driving the Cost (& Treatment)	Cost of Treatment (2021 Dollars)		
			Capital Cost	Annual O&M	Annualized Total Cost*
91	Arsenic	Arsenic (IX-SBA)	$2,445,774	$284,295	$480,551
93	Arsenic	Arsenic (IX - SBA)	$2,284,785	$277,356	$460,693
94	Arsenic, Gross Alpha	Gross Alpha (RO)	$7,093,963	$735,000	$1,304,237
107	Arsenic, Radium	Arsenic (IX - SBA) & Radium (IX - SAC)	$5,467,810	$600,231	$1,038,982
112	Arsenic, PCE	Arsenic (IX - SBA) & PCE (GAC)	$3,322,636	$324,681	$591,298
114	Gross Alpha	Gross Alpha (RO)	$5,184,417	$513,675	$929,686
120	Arsenic	Arsenic (IX – SBA)	$3,295,343	$316,976	$581,403
122	Arsenic	Arsenic (IX - SBA)	$2,577,540	$295,031	$501,860
124	Arsenic	Arsenic (IX – SBA)	$2,544,702	$290,025	$494,219
126	Arsenic	Arsenic (IX - SBA)	$3,880,057	$328,461	$639,806
129	Arsenic	Arsenic (IX - SBA)	$2,408,957	$289,509	$482,810
131	Arsenic	Arsenic (IX - SBA)	$2,407,804	$287,736	$480,944
133	Arsenic	Arsenic (IX - SBA)	$3,075,571	$305,137	$551,929
134	Arsenic	Arsenic (IX - SBA)	$1,638,715	$263,708	$395,202
137	Arsenic	Arsenic (IX - SBA)	$3,180,348	$312,015	$567,214
138	Arsenic	Arsenic (IX - SBA)	$3,071,460	$298,817	$545,279
139	Arsenic	Arsenic (IX - SBA)	$3,078,680	$301,156	$548,197
143	Arsenic	Arsenic (IX – SBA)	$2,580,074	$298,777	$505,809
153A	Arsenic	Arsenic (IX - SBA)	$2,405,852	$284,735	$477,787
155	Arsenic, Radium	Arsenic (IX - SBA) & Radium (IX - SAC)	$4,177,869	$549,476	$884,719
156	Arsenic	Arsenic (IX - SBA)	$3,296,803	$309,998	$574,542
158	Arsenic	Arsenic (IX - SBA)	$3,298,767	$313,016	$577,718
		Total	**$72,717,925**	**$7,779,812**	**$13,614,886**

*Annualized total cost is the sum of the annual O&M cost and the amortized capital annual cost. The amortized capital annual cost was calculated assuming a 20-year amortization period and an interest rate of 5%.
IX = ion-exchange, SBA = strong base anion, SAC = strong acid cation, RO = reverse osmosis, GAC = granular activated carbon

RECOMMENDATIONS

The drinking water quality of the City of Sacramento Department of Utilities meets all State of California and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are already below the health based MCLs established to provide "safe drinking water," would require additional costly treatment processes and would increase the annual customer water bills. The health protection benefits of these potential reductions are unclear and may not be quantifiable. Therefore, no action is proposed

ATTACHMENTS

No. 1 Excerpt from California Health & Safety Code: Section 116470 (b)

No. 2 Table of California Regulated Constituents with MCLs and PHGs

No. 3 Health Risk Information for Public Health Goal Exceedance Reports. Prepared by the Office of Environmental Health Hazard Assessment. February 2022

No. 4 Description of Cost Estimating Methodology for this PHG Report

No.5 City of Sacramento – Department of Utilities 2019, 2020 and 2021 Consumer Confidence Reports.

ATTACHMENT 1

EXCERPT FROM CALIFRONIA HEALTH & SAFETY CODE SECTION 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.
(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.
(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.
(e) Enforcement of this section does not require the department to amend a public water system's operating permit.
(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

ATTACHMENT 2

TABLE OF CALIFORNIA REGULATED CONSTITUENTS WITH MCLs AND PHGs

MCLs, DLRs, PHGs, for Regulated Drinking Water Contaminants

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

Last Update: September 14, 2021

The following tables 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). For comparison, Federal MCLs and Maximum Contaminant Level Goals (MCLGs) (USEPA) are also displayed.

Inorganic Chemicals Table, Chemicals with MCLs in 22 CCR §64431

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Aluminum	1	0.05	0.6	2001	--	--
Antimony	0.006	0.006	0.001	2016	0.006	0.006
Arsenic	0.010	0.002	0.000004	2004	0.010	zero
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003	7 MFL	7 MFL
Barium	1	0.1	2	2003	2	2
Beryllium	0.004	0.001	0.001	2003	0.004	0.004
Cadmium	0.005	0.001	0.00004	2006	0.005	0.005
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999	0.1	0.1

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
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	0.2	0.2
Fluoride	2	0.1	1	1997	4.0	4.0
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*	0.002	0.002
Nickel	0.1	0.01	0.012	2001	--	--
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018	10	10
Nitrite (as N)	1 as N	0.4	1 as N	2018	1	1
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018	--	--
Perchlorate	0.006	0.002	0.001	2015	--	--
Selenium	0.05	0.005	0.03	2010	0.05	0.05
Thallium	0.002	0.001	0.0001	1999 (rev2004)	0.002	0.0005

Copper and Lead Table, 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.

State Regulated Copper and Lead Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Copper	1.3	0.05	0.3	2008	1.3	1.3
Lead	0.015	0.005	0.0002	2009	0.015	zero

Radiological Table, Radionuclides with MCLs in 22 CCR §64441 and §64443

[units are picocuries per liter (pCi/L), unless otherwise state; n/a = not applicable]

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a	15	zero
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a	4 mrem/yr	zero
Radium-226	--	1	0.05	2006		
Radium-228	--	1	0.019	2006		
Radium-226 + Radium-	5	--	--	--	5	zero

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
228						
Strontium-90	8	2	0.35	2006	--	--
Tritium	"20,000"	"1,000"	400	2006	--	--
Uranium	20	1	0.43	2001	30 µg/L	zero

Organic Chemicals Table, Chemicals with MCLs in 22 CCR §64444

Volatile Organic Chemicals (VOCs)

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Benzene	0.001	0.0005	0.00015	2001	0.005	zero
Carbon tetrachloride	0.0005	0.0005	0.0001	2000	0.005	zero
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)	0.6	0.6
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997	0.075	0.075
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)	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999	0.007	0.007
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018	0.07	0.07
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018	0.1	0.1
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000	0.005	zero
1,2-Dichloropropane	0.005	0.0005	0.0005	1999	0.005	zero
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)	--	--
Ethylbenzene	0.3	0.0005	0.3	1997	0.7	0.7
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999	--	--
Monochlorobenzene	0.07	0.0005	0.07	2014	0.1	0.1
Styrene	0.1	0.0005	0.0005	2010	0.1	0.1
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003	0.1	0.1
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Toluene	0.15	0.0005	0.15	1999	1	1
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999	0.07	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.0005	1	2006	0.2	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006	0.005	0.003
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009	0.005	zero
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	0.002	zero
Xylenes	1.750	0.0005	1.8	1997	10	10

Non-Volatile Synthetic Organic Chemicals (SOCs)

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Alachlor	0.002	0.001	0.004	1997	0.002	zero

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Atrazine	0.001	0.0005	0.00015	1999	0.003	0.003
Bentazon	0.018	0.002	0.2	1999 (rev2009)	--	--
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010	0.0002	zero
Carbofuran	0.018	0.005	0.0007	2016	0.04	0.04
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)	0.002	zero
Dalapon	0.2	0.01	0.79	1997 (rev2009)	0.2	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.000003	2020	0.0002	zero
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009	0.07	0.07
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003	0.4	0.4
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997	0.006	zero
Dinoseb	0.007	0.002	0.014	1997	0.007	0.007

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
				(rev2010)		
Diquat	0.02	0.004	0.006	2016	0.02	0.02
Endothal	0.1	0.045	0.094	2014	0.1	0.1
Endrin	0.002	0.0001	0.0003	2016	0.002	0.002
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003	0.00005	zero
Glyphosate	0.7	0.025	0.9	2007	0.7	0.7
Heptachlor	0.00001	0.00001	0.000008	1999	0.0004	zero
Heptachlor epoxide	0.00001	0.00001	0.000006	1999	0.0002	zero
Hexachlorobenzene	0.001	0.0005	0.00003	2003	0.001	zero
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014	0.05	0.05
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)	0.0002	0.0002
Methoxychlor	0.03	0.01	0.00009	2010	0.04	0.04
Molinate	0.02	0.002	0.001	2008	--	--
Oxamyl	0.05	0.02	0.026	2009	0.2	0.2

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Pentachlorophenol	0.001	0.0002	0.0003	2009	0.001	zero
Picloram	0.5	0.001	0.166	2016	0.5	0.5
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007	0.0005	zero
Simazine	0.004	0.001	0.004	2001	0.004	0.004
Thiobencarb	0.07	0.001	0.042	2016	--	--
Toxaphene	0.003	0.001	0.00003	2003	0.003	zero
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009	--	--
2,3,7,8-TCDD (dioxin)	3x10-8	5x10-9	5x10-11	2010	3x10-8	zero
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014	0.05	0.05

Disinfection Byproducts Table, Chemicals with MCLs in 22 CCR §64533

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Total Trihalomethanes	0.080	--	--	--	0.080	--

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Bromodichloromethane	--	0.0010	0.00006	2020	--	zero
Bromoform	--	0.0010	0.0005	2020	--	zero
Chloroform	--	0.0010	0.0004	2020	--	0.07
Dibromochloromethane	--	0.0010	0.0001	2020	--	0.06
Haloacetic Acids (five) (HAA5)	0.060	--	--	--	0.060	--
Monochloroacetic Acid	--	0.0020	--	--	--	0.07
Dichloroacetic Adic	--	0.0010	--	--	--	zero
Trichloroacetic Acid	--	0.0010	--	--	--	0.02
Monobromoacetic Acid	--	0.0010	--	--	--	--
Dibromoacetic Acid	--	0.0010	--	--	--	--
Bromate	0.010	0.0050**	0.0001	2009	0.01	zero
Chlorite	1.0	0.020	0.05	2009	1	0.8

Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
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

HEALTH RISK INFORMATION FOR PUBLIC HEALTH GOAL EXCEEDANCE REPORTS

PREPARED BY OEHHA
FEBRUARY 2022

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

Public Health Goals

Health Risk Information for Public Health Goal Exceedance Reports

February 2022

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

Health Risk Information for Public Health Goal Exceedance Reports

Prepared by

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

February 2022

NEW for the 2022 Report: New in this document are an updated Public Health Goal (PHG) for 1,2-dibromo-3-chloropropane (DBCP) and newly established PHGs for the trihalomethanes bromodichloromethane, bromoform, chloroform, and dibromochloromethane.

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

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

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

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

The Act requires that OEHHA publish PHGs based on health risk assessments using the most current scientific methods. As defined in statute, PHGs for non-carcinogenic chemicals in drinking water are set at a concentration "at which no known or anticipated adverse health effects will occur, with an adequate margin of safety." For carcinogens, PHGs are set at a concentration that "does not pose any significant risk to health." PHGs provide one basis for revising MCLs, along with cost and technological feasibility. OEHHA has been publishing PHGs since 1997 and the entire list published to date is shown in Table 1.

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

For more information on health risks: The adverse health effects for each chemical with a PHG are summarized in a PHG technical support document. These documents are available on the OEHHA website (https://oehha.ca.gov/water/public-health-goals-phgs).

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

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

[1] Based on the OEHHA PHG technical support document unless otherwise specified. The categories are the hazard traits defined by OEHHA for California's Toxics Information Clearinghouse (online at: https://oehha.ca.gov/media/downloads/risk-assessment//gcregtext011912.pdf).
[2] mg/L = milligrams per liter of water or parts per million (ppm)
[3] Cancer Risk = Upper bound estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] MCL = maximum contaminant level.
[5] NA = not applicable. Cancer risk cannot be calculated.
[6] The PHG for alachlor is based on a threshold model of carcinogenesis and is set at a level that is believed to be without any significant cancer risk to individuals exposed to the chemical over a lifetime.
[7] MFL = million fibers per liter of water.

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

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

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

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

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

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

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Di(2-ethylhexyl) phthalate (DEHP)	carcinogenicity (causes cancer)	0.012	1×10^{-6}	0.004	3×10^{-7} (three per ten million)
1,2-Dibromo-3-chloropropane (DBCP)	carcinogenicity (causes cancer)	0.000003 ($3x10^{-6}$)	1×10^{-6}	0.0002	7×10^{-5} (seven per hundred thousand)
1,2-Dichloro-benzene (*o*-DCB)	hepatotoxicity (harms the liver)	0.6	NA	0.6	NA
1,4-Dichloro-benzene (*p*-DCB)	carcinogenicity (causes cancer)	0.006	1×10^{-6}	0.005	8×10^{-7} (eight per ten million)
1,1-Dichloro-ethane (1,1-DCA)	carcinogenicity (causes cancer)	0.003	1×10^{-6}	0.005	2×10^{-6} (two per million)
1,2-Dichloro-ethane (1,2-DCA)	carcinogenicity (causes cancer)	0.0004	1×10^{-6}	0.0005	1×10^{-6} (one per million)
1,1-Dichloro-ethylene (1,1-DCE)	hepatotoxicity (harms the liver)	0.01	NA	0.006	NA
1,2-Dichloro-ethylene, cis	nephrotoxicity (harms the kidney)	0.013	NA	0.006	NA
1,2-Dichloro-ethylene, trans	immunotoxicity (harms the immune system)	0.05	NA	0.01	NA

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Dichloromethane (methylene chloride)	carcinogenicity (causes cancer)	0.004	1×10^{-6}	0.005	1×10^{-6} (one per million)
2,4-Dichloro-phenoxyacetic acid (2,4-D)	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.02	NA	0.07	NA
1,2-Dichloro-propane (propylene dichloride)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.005	1×10^{-5} (one per hundred thousand)
1,3-Dichloro-propene (Telone II®)	carcinogenicity (causes cancer)	0.0002	1×10^{-6}	0.0005	2×10^{-6} (two per million)
Dinoseb	reproductive toxicity (harms the uterus and testis)	0.014	NA	0.007	NA
Diquat	ocular toxicity (harms the eye) developmental toxicity (causes malformation)	0.006	NA	0.02	NA
Endothall	digestive system toxicity (harms the stomach or intestine)	0.094	NA	0.1	NA
Endrin	neurotoxicity (causes convulsions) hepatotoxicity (harms the liver)	0.0003	NA	0.002	NA
Ethylbenzene (phenylethane)	hepatotoxicity (harms the liver)	0.3	NA	0.3	NA

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Ethylene dibromide (1,2-Dibromoethane)	carcinogenicity (causes cancer)	0.00001	1×10^{-6}	0.00005	5×10^{-6} (five per million)
Fluoride	musculoskeletal toxicity (causes tooth mottling)	1	NA	2	NA
Glyphosate	nephrotoxicity (harms the kidney)	0.9	NA	0.7	NA
Heptachlor	carcinogenicity (causes cancer)	0.000008 (8×10^{-6})	1×10^{-6}	0.00001	1×10^{-6} (one per million)
Heptachlor epoxide	carcinogenicity (causes cancer)	0.000006 (6×10^{-6})	1×10^{-6}	0.00001	2×10^{-6} (two per million)
Hexachloroben-zene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.001	3×10^{-5} (three per hundred thousand)
Hexachloro-cyclopentadiene (HCCPD)	digestive system toxicity (causes stomach lesions)	0.002	NA	0.05	NA
Lead	developmental neurotoxicity (causes neurobehavioral effects in children) cardiovascular toxicity (causes high blood pressure) carcinogenicity (causes cancer)	0.0002	$<1\times10^{-6}$ (PHG is not based on this effect)	0.015 (AL[9])	2×10^{-6} (two per million)

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Lindane (γ-BHC)	carcinogenicity (causes cancer)	0.000032	1×10^{-6}	0.0002	6×10^{-6} (six per million)
Mercury (inorganic)	nephrotoxicity (harms the kidney)	0.0012	NA	0.002	NA
Methoxychlor	endocrine toxicity (causes hormone effects)	0.00009	NA	0.03	NA
Methyl tertiary-butyl ether (MTBE)	carcinogenicity (causes cancer)	0.013	1×10^{-6}	0.013	1×10^{-6} (one per million)
Molinate	carcinogenicity (causes cancer)	0.001	1×10^{-6}	0.02	2×10^{-5} (two per hundred thousand)
Monochloro-benzene (chlorobenzene)	nephrotoxicity (harms the kidney)	0.07	NA	0.07	NA
Nickel	developmental toxicity (causes increased neonatal deaths)	0.012	NA	0.1	NA
Nitrate	hematotoxicity (causes methemoglobinemia)	45 as nitrate	NA	10 as nitrogen (=45 as nitrate)	NA
Nitrite	hematotoxicity (causes methemoglobinemia)	3 as nitrite	NA	1 as nitrogen (=3 as nitrite)	NA

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

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

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

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Radium-228	carcinogenicity (causes cancer)	0.019 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	3×10^{-4} (three per ten thousand)
Selenium	integumentary toxicity (causes hair loss and nail damage)	0.03	NA	0.05	NA
Silvex (2,4,5-TP)	hepatotoxicity (harms the liver)	0.003	NA	0.05	NA
Simazine	general toxicity (causes body weight effects)	0.004	NA	0.004	NA
Strontium-90	carcinogenicity (causes cancer)	0.35 pCi/L	1×10^{-6}	8 pCi/L	2×10^{-5} (two per hundred thousand)
Styrene (vinylbenzene)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.1	2×10^{-4} (two per ten thousand)
1,1,2,2-Tetrachloro-ethane	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.001	1×10^{-5} (one per hundred thousand)
2,3,7,8-Tetra-chlorodibenzo-*p*-dioxin (TCDD, or dioxin)	carcinogenicity (causes cancer)	5×10^{-11}	1×10^{-6}	3×10^{-8}	6×10^{-4} (six per ten thousand)

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Tetrachloro-ethylene (perchloro-ethylene, or PCE)	carcinogenicity (causes cancer)	0.00006	1×10^{-6}	0.005	8×10^{-5} (eight per hundred thousand)
Thallium	integumentary toxicity (causes hair loss)	0.0001	NA	0.002	NA
Thiobencarb	general toxicity (causes body weight effects) hematotoxicity (affects red blood cells)	0.042	NA	0.07	NA
Toluene (methylbenzene)	hepatotoxicity (harms the liver) endocrine toxicity (harms the thymus)	0.15	NA	0.15	NA
Toxaphene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.003	1×10^{-4} (one per ten thousand)
1,2,4-Trichloro-benzene	endocrine toxicity (harms adrenal glands)	0.005	NA	0.005	NA
1,1,1-Trichloro-ethane	neurotoxicity (harms the nervous system), reproductive toxicity (causes fewer offspring) hepatotoxicity (harms the liver) hematotoxicity (causes blood effects)	1	NA	0.2	NA

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,1,2-Trichloro-ethane	carcinogenicity (causes cancer)	0.0003	1×10^{-6}	0.005	2×10^{-5} (two per hundred thousand)
Trichloro-ethylene (TCE)	carcinogenicity (causes cancer)	0.0017	1×10^{-6}	0.005	3×10^{-6} (three per million)
Trichlorofluoro-methane (Freon 11)	accelerated mortality (increase in early death)	1.3	NA	0.15	NA
1,2,3-Trichloro-propane (1,2,3-TCP)	carcinogenicity (causes cancer)	0.0000007 (7×10^{-7})	1×10^{-6}	0.000005 (5×10^{-6})	7×10^{-6} (seven per million)
1,1,2-Trichloro-1,2,2-trifluoro-ethane (Freon 113)	hepatotoxicity (harms the liver)	4	NA	1.2	NA
Trihalomethanes: Bromodichloro-methane	carcinogenicity (causes cancer)	0.00006	1×10^{-6}	0.080*	1.3×10^{-3} (1.3 per thousand)[11]
Trihalomethanes: Bromoform	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.080*	2×10^{-4} (two per ten thousand)[12]

* For total trihalomethanes (the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane). There are no MCLs for individual trihalomethanes.

[11] Based on 0.080 mg/L bromodichloromethane; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.

[12] Based on 0.080 mg/L bromoform; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.

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

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Trihalomethanes: Chloroform	carcinogenicity (causes cancer)	0.0004	1×10^{-6}	0.080*	2×10^{-4} (two per ten thousand)[13]
Trihalomethanes: Dibromochloro-methane	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.080*	8×10^{-4} (eight per ten thousand)[14]
Tritium	carcinogenicity (causes cancer)	400 pCi/L	1×10^{-6}	20,000 pCi/L	5×10^{-5} (five per hundred thousand)
Uranium	carcinogenicity (causes cancer)	0.43 pCi/L	1×10^{-6}	20 pCi/L	5×10^{-5} (five per hundred thousand)
Vinyl chloride	carcinogenicity (causes cancer)	0.00005	1×10^{-6}	0.0005	1×10^{-5} (one per hundred thousand)
Xylene	neurotoxicity (affects the senses, mood, and motor control)	1.8 (single isomer or sum of isomers)	NA	1.75 (single isomer or sum of isomers)	NA

* For total trihalomethanes (the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane). There are no MCLs for individual trihalomethanes.
[13] Based on 0.080 mg/L chloroform; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.
[14] Based on 0.080 mg/L dibromochloromethane; the risk will vary with different combinations and ratios of the other trihalomethanes in a particular sample.

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

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

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

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

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] at the MCLG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Dichloroacetic acid (DCA)	Carcinogenicity (causes cancer)	0	0	none	NA
Trichloroacetic acid (TCA)	hepatotoxicity (harms the liver)	0.02	NA	none	NA
Monobromoacetic acid (MBA)	NA	none	NA	none	NA
Dibromoacetic acid (DBA)	NA	none	NA	none	NA
Total haloacetic acids (sum of MCA, DCA, TCA, MBA, and DBA)	general toxicity, hepatotoxicity and carcinogenicity (causes body and organ weight changes, harms the liver and causes cancer)	none	NA	0.06	NA
Radionuclides					
Gross alpha particles[9]	carcinogenicity (causes cancer)	0 (^{210}Po included)	0	15 pCi/L[10] (includes radium but not radon and uranium)	up to 1×10^{-3} (for ^{210}Po, the most potent alpha emitter)

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

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

Chemical	Health Risk Category[1]	US EPA MCLG[2] (mg/L)	Cancer Risk[3] at the MCLG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Beta particles and photon emitters[9]	carcinogenicity (causes cancer)	0 (^{210}Pb included)	0	50 pCi/L (judged equiv. to 4 mrem/yr)	up to 2×10^{-3} (for ^{210}Pb, the most potent beta-emitter)

ATTACHMENT 4

DESCRIPTION OF COST ESTIMATE PROCEDURES

Estimate of Ion-Exchange Treatment Costs – Cost estimates were developed for ion-exchange treatment of arsenic with a strong-base anion (SBA) resin and radium treatment with a strong acid cation (SAC) resin. The SBA and SCA treatment costs were estimated for arsenic and for radium-226/radium-228, respectively, in the finished water. The cost estimates were developed for each individual well using the maximum concentration measured during 2019 – 2021 as the treatment design influent concentration for arsenic and radium and using the maximum well production during the same period. The cost estimates were developed with WQTS' in-house SBA ion exchange treatment design and cost model. The cost estimates were based on 2013 costs and have an expected accuracy range of +50/-30%. For the model to predict cost, it needed to make projections about treatment performance based on water quality, and then constructed capital and annual O&M cost based on specific unit costs of equipment, chemicals, supplies, labor, energy, disposal fees, etc. Cost estimates assume that the treatment and operating costs using SBA resin would be similar to that of the SAC resin. The estimated costs also assume that the untreated liquid waste brine is discharged to the sewer. Some of the same wells that were reported in the City's 2019 PHG report again detected arsenic above the PHG (and these wells had capital and O&M costs developed previously for 2018 dollars). In this PHG report the capital and annual O&M costs were adjusted from 2013 dollars and 2018 dollars to 2021 dollars using the 20-city national average Engineering News Record Construction Cost Index for capital cost adjustment and the Consumer Price Index for O&M cost adjustment.

Estimate of Reverse Osmosis Treatment Cost – Cost estimates for gross alpha treatment of Wells 94 and 114 with reverse osmosis (RO) were estimated from cost equations generated for the removal of CrVI with RO technology and are reported in Seidel, et al. 2013.[4] Cost equations are provided for estimating capital and O&M costs in 2012 dollars. Capital costs are based on the design flow, whereas O&M costs are based on the average flow, which was set to 70% of the design flow. The cost equations assume that the RO concentrate is discharged to the sewer. The maximum water production for Well 94 during 2019 through 2021 was 679 gpm, and 460 gpm for Well 114, which were used as the design flow. The capital and annual O&M costs were adjusted from 2012 dollars to 2021 dollars using the 20-city national average Engineering News Record Construction Cost Index for capital cost adjustment and the Consumer Price Index for O&M cost adjustment.

Estimate of GAC Treatment Cost – Cost estimates for PCE treatment of Well 112 with GAC were estimated using the EPA's Office of Groundwater and Drinking Water Work Breakdown Structure Model for Granular Activated Carbon (EPA, August 12, 2014). Treatment assumptions included an Empty Bed Contact Time of 7.5 minutes and 150,000 bed volumes and a maximum production of 556

[4] Seidel, C. J., Najm, I. N., Blute, N. K., Corwin, C. J., & Wu, X. (2013). National and California treatment costs to comply with potential hexavalent chromium MCLs. American Water Works Association, 105(6), E320–E336.

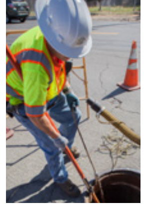
gpm. The capital and annual O&M costs were adjusted from 2014 dollars to 2021 dollars using the 20-city national average Engineering News Record Construction Cost Index for capital cost adjustment and the Consumer Price Index for O&M cost adjustment.

ATTACHMENT 5

CITY OF SACRAMENTO – DEPARTMENT OF UTILITIES

2019, 2020 AND 2021 CONSUMER CONFIDENCE REPORTS

City of SACRAMENTO
Department of Utilities



2019 CONSUMER CONFIDENCE REPORT

Important Drinking Water Quality Information for the Citizens of Sacramento

YOUR WATER MEETS OR EXCEEDS ALL FEDERAL AND STATE DRINKING WATER STANDARDS

This report is presented to enhance your understanding of where your water comes from and what it contains.

Seventy percent of the City of Sacramento's water supply comes from the American and Sacramento Rivers, with the remainder supplied by groundwater wells. The City of Sacramento takes many steps to ensure high quality drinking water, including source water protection, water treatment, distribution system operation, maintenance of potable water facilities, and water quality testing.

The city water supply is routinely tested for more than 100 substances; a complete list of detections can be found in the ***Water Quality Analysis Results for 2019*** tables on pages 4–6.

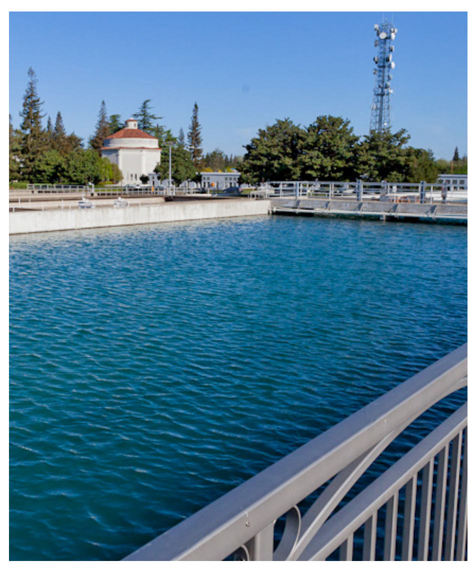
SOURCE WATER ASSESSMENT

A watershed sanitary survey (WSS) focuses on evaluating source water quality and potential watershed contaminant sources to provide key information to aid in understanding how to maintain and possibly improve source water protection, the first barrier in protecting public health. An evaluation of water treatment plant capabilities and treated water quality provides an assessment of the ability of a water utility to treat their source water.

Initial WSS reports for the City's Sacramento River and American River water sources were completed in 2000 and 2001. These reports indicated that both rivers are most vulnerable to contaminants from recreational activities and that the Sacramento River is also most susceptible to agricultural contaminants. The City of Sacramento, in partnership with several other water utilities, complete WSS updates of the river water sources every five years. The WSS updates were most recently completed in 2015 and 2018 for the Sacramento and American Rivers, respectively. Currently, the 2020 update for the Sacramento River WSS is in process.

An assessment of the City's groundwater wells was completed in January 2001. Due to the proximity to potential contaminant sources, the wells north of the American River are considered most vulnerable to sewage collection systems, leaking underground storage tanks, known contaminant plumes, agricultural drainage, gas stations, dry cleaners, metal plating and chemical processing storage facilities, electrical/electronic manufacturing, and automobile repair and body shops. Wells south of the American River are considered vulnerable to leaking underground storage tanks and sewage collection systems.

Despite these potential vulnerabilities, your water continues to meet or exceed all state and federal drinking water standards. Copies of the complete assessments are available for review at the City of Sacramento, Department of Utilities, 1395 35th Avenue, or call 916-808-5454 to request a summary of the assessments.



WATER EFFICIENCY

Water-use efficiency is a California way of life, and the City of Sacramento continues to encourage water conservation. Find tips to save water and available rebates at *SacWaterWise.com*

What You Should Know About...

LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with customer service lines and home plumbing. The City of Sacramento is responsible for providing high quality drinking water, but cannot control the variety of materials used in customer 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 EPA Safe Drinking Water Hotline or at http://www.epa.gov/lead.

LEAD IN SCHOOLS

The City of Sacramento responded proactively to State requirements enacted in 2017 to test for lead in schools; through the end of 2019 the City has tested over 600 samples from 132 schools, representing all public schools served by City water, as well as many private schools that opted to participate.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

PFAS are human-made substances that are an emerging concern in drinking water. Two of these substances, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) have been extensively produced and studied in the United States.

During 2019. the City of Sacramento confirmed the presence of these substances in some of its ground water sources at levels which do not approach the response levels established by the State Water Resources Control Board. The City of Sacramento is committed to continuing to monitor this emerging situation. For more information, visit: https://www.cityofsacramento.org/Utilities/Water/Water-Quality/PFAS

ALGAL TOXINS

Microcystins and cylindrospermopsin are algal toxins produced by naturally occurring cyanobacteria in surface water sources (such as the American and Sacramento Rivers). These compounds are subject to a U.S. EPA Health Advisory and due to their potential presence in our source waters, the City of Sacramento voluntarily monitors for these compounds during vulnerable seasons, typically summer through late fall. There were no detections of microcystins or cylindrospermopsin during routine 2019 monitoring.

EARTHY OR MUSTY TASTE AND ODOR

In late summer, some customers may notice an earthy or musty taste in City water. This is due to the presence of Geosmin and 2-Methylisoborneol (MIB), odor compounds which are not removed through conventional water treatment. Although these compounds do not impact the safety of the City's drinking water, some customers find the taste and odor to be objectional. Chilling the water or adding lemon can help diminish the taste.

REQUIRED DISCLOSURES FOR DRINKING WATER CONSUMERS

This information is presented to further educate consumers about drinking water contaminants.

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

Contaminants that may be present in source water include:

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

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

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

WATER QUALITY ANALYSIS RESULTS FOR 2019

Your water meets or exceeds all federal and state drinking water standards.

The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. While the City of Sacramento tests for more than 100 substances, this report only lists those detected at or above the federal or state level for reporting.

1 Regulated for Public Health - Primary MCL

Constituent	Unit	Year Sampled	State or Federal Goal PHG	Highest Amount Allowed MCL	Surface Water Range	Surface Water Average	Groundwater Range	Groundwater Average	Typical Sources
Arsenic	µg/L	2017 - 2019	0.004	10	ND	ND	ND - 4.2	2.5	Erosion of natural deposits
Barium	mg/L	2017 - 2019	2	1	ND	ND	ND - 0.2	ND	Erosion of natural deposits
Fluoride in source water[A]	mg/L	2019	1	2.0	ND	ND	ND - 0.2	0.1	Erosion of natural deposits
Nitrate (as Nitrogen)	mg/L	2019	10	10	ND	ND	ND - 3.6	1.6	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium	µg/L	2017- 2019	30	50	ND	ND	ND - 8.8	ND	Erosion of natural deposits
TOC / Control of DBP Precursors	mg/L	2019	NA	[TT] 2.0[B]	1.9[B]		NA		Various natural and man-made sources
Turbidity[C]	NTU	2019	NA	[TT] 1 NTU	0.13[D]		NA	NA	Soil runoff
				[TT] 95% of samples ≤0.3 NTU	100%[E]		NA	NA	

Constituent	Unit	Year Sampled	State or Federal Goal PHG	Highest Amount Allowed MCL	Distribution System Range	Distribution System Average	Typical Sources
Chlorine	mg/L	2019	[MRDLG] 4.0 (as Cl_2)	[MRDL] 4.0 (as Cl_2)	ND[F] - 1.6	0.7	Drinking water disinfectant added for treatment
Fluoride[A]	mg/L	2019	1	2.0	ND - 0.9	0.7	Water additive that promotes strong teeth
Haloacetic Acids	µg/L	2019	NA	60	ND - 42[G]	38[H]	By-product of drinking water disinfection
Total Coliform Bacteria	% samples positive	2019	[MCLG] 0	5.0%	0.0%[I]		Naturally present in the environment
Trihalomethanes	µg/L	2019	NA	80	1.9 - 74[G]	60[H]	By-product of drinking water disinfection

Constituent	Unit	Year Sampled	State or Federal Goal PHG	Action Level	# of Samples Collected	90th Percentile Level	# of Sites Exceeding AL	Typical Sources
Lead	µg/L	2017	0.2	15	62	ND	0	Internal corrosion of household water plumbing systems
Copper	mg/L	2017	0.3	1.3	62	0.11	0	Internal corrosion of household water plumbing systems

NOTES: (A) In accordance with State law, the City of Sacramento adjusts the natural levels of fluoride in our water supplies to the optimal level determined by the Centers for Disease Control. More information about fluoridation is available at: http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml (B) Source water TOC less than 2.0 mg/L used as alternative criteria to exempt from removal ratio requirements. Value given represents maximum running annual average of any quarter during 2019. (C) Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. (D) Value given is the highest individual value measured during 2019. (E) 100% of turbidity measurements were in compliance during 2019. (F) Distribution samples with no detectable chlorine residual undergo further analysis to ensure compliance with microbiological water quality regulations. (G) Range is based on all individual sample values from 2019. (H) Average given is maximum of all locational running annual averages calculated during 2019. (I) Value given is the maximum percent positive of any month during 2019.

2 Regulated for Drinking Water Aesthetics - Secondary MCL

Constituent	Unit	Year Sampled	Highest Amount Allowed MCL	Surface Water		Groundwater		Typical Sources
				Range	Average	Range	Average	
Chloride	mg/L	2017 - 2019	500	ND	ND	14 - 76	38	Erosion or leaching of natural deposits
Manganese	µg/L	2017 - 2019	50	ND	ND	ND - 22	ND	Leaching from natural deposits
Specific Conductance	µS/cm	2017 - 2018	1600	89 - 139	114	310 - 740	409	Substances that form ions when in water
Sulfate	mg/L	2017 - 2019	500	5.6 - 15	10	3.3 - 34	10	Erosion or leaching of natural deposits
Total Dissolved Solids	mg/L	2017 - 2019	1000	45 - 83	64	226 - 466	290	Erosion or leaching of natural deposits

Constituent	Unit	Year Sampled	MCL	Distribution System		Typical Sources
				Range	Average	
Color	color units	2019	15	ND - 3	ND	Naturally occurring organic materials
Odor	TON	2019	3	ND - 2	ND	Naturally occurring organic materials
Turbidity	NTU	2019	5	ND - 1.0	0.1	Soil runoff

3 Constituents With No Established MCL

Unregulated constituent monitoring helps determine where certain water constituents occur and whether they should be regulated

Constituent	Unit	Year Sampled	PHG	Surface Water		Groundwater		Distribution System	
				Range	Average	Range	Average	Range	Average
Androstene	µg/L	2014	NA	ND-0.00034	ND	ND	ND	NA	NA
Chlorate	µg/L	2014	NA	ND	ND	ND	ND	ND - 61	ND
1,4-Dioxane	µg/L	2014	NA	ND	ND	ND - 0.2	ND	NA	NA
Germanium	µg/L	2019	NA	ND	ND	ND - 100	8.3	NA	NA
Hexavalent Chromium	µg/L	2016 - 2019	0.02[J]	ND	ND	ND - 7.7	4.8	NA	NA
Manganese	µg/L	2019	NA	1.3	1.3	ND - 21	3.9	NA	NA
Molybdenum	µg/L	2014 - 2015	NA	ND	ND	ND	ND	ND - 1	ND
Strontium	µg/L	2014 - 2015	NA	48 - 130	76	190 - 380	265	48 - 370	181
Testosterone	µg/L	2014	NA	ND-0.00026	ND	ND	ND	NA	NA
Total HAA5[K]	µg/L	2019	NA	NA	NA	NA	NA	4.2 - 28	22
Total HAA6Br[K]	µg/L	2019	NA	NA	NA	NA	NA	1.0 - 3.6	2.1
Total HAA9[K]	µg/L	2019	NA	NA	NA	NA	NA	5.0 - 30	24
Vanadium	µg/L	2014 - 2015	NA	0.4 - 3	1.4	15 - 41	25	0.4 - 38	14

(J) There is currently no MCL for hexavalent chromium. The previous MCL of 10 µg/L was withdrawn on September 11, 2017.
(K) While five Haloacetic Acids (HAA5) are included in Table 1 due to routine distribution monitoring to protect public health, the Fourth Unregulated Contaminant Monitoring Rule requires monitoring for several unregulated Haloacetic Acid compounds in addition to HAA5.

4 Other Parameters of Interest to Customers

Constituent	Unit	Year Sampled	Surface Water		Groundwater	Groundwater
			Range	Average	Range	Average
Total Alkalinity	mg/L	2017 - 2019	19 - 40	30	97 - 226	140
Calcium	mg/L	2017 - 2019	8 - 14	11	16 - 53	27
Hardness	mg/L	2017 - 2019	27 - 52	40	92 - 304	156
Magnesium	mg/L	2017 - 2019	1 - 4	3	10 - 37	19
Sodium	mg/L	2017 - 2019	2 - 5	3	19 - 42	28

Key Terms and Abbreviations

µS/cm Microsiemens per centimeter; measure of electrical conductivity.

90th Percentile The value for which 90 percent of samples had a lower result.

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

Constituent A chemical or parameter measured in the water supply

DBP Disinfection By-Products: Substances that can form during a reaction of a disinfectant with naturally present organic matter in the water.

Cl_2 Free Chlorine: Chlorine available for disinfection.

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

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

mg/L Milligrams per liter: Equivalent to 1 second in 11.5 years.

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

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

NA Not Applicable

ND Not Detected

NTU Nephelometric Turbidity Units: Measures cloudiness of water.

pCi/L Picocuries per liter: Measures radiation.

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

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

TOC Total Organic Carbon: A measurement of the potential of water to form DBPs.

TON Theshold Odor Number: The greatest dilution of a sample with odor-free water that yields a detectable odor.

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

µg/L Micrograms per liter: Equivalent to 1 second in nearly 32 years.

TO REPORT A CONCERN

City of Sacramento, Department of Utilities
311 or 916-264-5011
(24 hours a day, 7 days a week)
www.cityofsacramento.org/utilities

FOR QUESTIONS ABOUT THIS REPORT CONTACT

Rory Hartkemeyer
916-808-3737

ADDITIONAL WATER QUALITY INFORMATION IS AVAILABLE

U.S. EPA Safe Drinking Water Hotline
1-800-426-4791
http://epa.gov/ground-water-and-drinking-water

NOTICE OF OPPORTUNITY FOR PUBLIC PARTICIPATION

The Sacramento City Council generally holds public meetings the 1st and 4th Tuesday of the month at 5 p.m., and 2nd Tuesday of the month at 2 p.m. in the City Council Chambers at 915 I Street, Sacramento. You can access Council agendas at www.cityofsacramento.org/clerk.

916-264-5011
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Мы говорим по-русски · ພວກເຮົາເວົ້າພາສາລາວໄດ້
Peb hais lus Hmoob · Chúng tôi nói tiếng Việt

This report contains important information translations.

"هذا ألتقرير يحتوي على معلوماً ت مهمّة تتعلق بمياه ألشفة (أو ألشرب).
ترجم ألتقرير, أو تكلم مع شخص يستطيع أن يفهم ألتقرير."

Այս զեկույցը պարունակում է կարեւոր տեղեկատվություն Ձեր խմելու ջրով: Թարգմանել այն, կամ խոսել մեկի հետ, ով հասկանում է այն:

此份有關你的食水報告,內有重要資料和訊息,請找
他人為你翻譯及解釋清楚。

此份有关你的食水报告,内有重要资料和讯息,请找
他人为你翻译及解释清楚。

این اطلاعیه شامل اطلاعات مهمی راجع به آب آشامیدنی است.اگر نمیتوانیداین اطلاعات را بزبان انگلیسی
بخوانیدلطفاازکسی که میتواندیاری بگیریدتامطالب رابرای شمابه فارسی ترجمه کند.

यह सूचना महत्वपूर्ण है ।
कृपा करके किसी से :सका अनुवाद करायें ।

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

この報告書には上水道に関する重要な情報が記されております。翻訳を御依頼なされるか、内容をご理解なさっておられる方にお尋ね下さい。

របាយការណ៍នេះមានពត៌មានសំខាន់អំពីទឹកបរិភោគ ។ សូមបកប្រែ ឬពិគ្រោះជាមួយអ្នកដែលមើលយល់របាយការណ៍នេះ ។

이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시요.

ລາຍງານນີ້ມີຂໍ້ມູນສຳຄັນກ່ຽວກັບນ້ຳປະປາຂອງທ່ານ. ຈົ່ງໃຫ້ຄົນອື່ນແປຄວາມໃຫ້ທ່ານ, ຫລືໃຫ້ປຶກສາກັບຄົນໃດຄົນໜຶ່ງທີ່ເຂົ້າໃຈເລື້ອງ.

Naaiv norm sou maaih jienv nyei fienx gorngv taux meih nyei wuom hopv. Faan fai gorngv bun mienh hiuv duqv.

ਇਹ ਸੂਚਨਾ ਮਹਤੱਵਪੂਰਣ ਹੈ।
ਕ੍ਰਿਪਾ ਕਰਕੇ ਕਿਸੀ ਤੋਂ ਇਸ ਦਾ ਅਨੁਵਾਦ ਕਰਾਉ।

Acest raport conține informații importante despre apa de băut. Traduceți-o sau discutați cu cineva care o înțelege.

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

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

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

Цей звіт містить важливу інформацію про вашу питну воду. Перекласти його, або поговорити з кимось, хто його розуміє.

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

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City of SACRAMENTO
Department of Utilities

2020 CONSUMER CONFIDENCE REPORT

Important Drinking Water Quality Information for the Citizens of Sacramento

YOUR WATER MEETS OR EXCEEDS ALL FEDERAL AND STATE DRINKING WATER STANDARDS

This report is presented to enhance your understanding of where your water comes from and what it contains.

Seventy percent of the City of Sacramento's water supply comes from the American and Sacramento Rivers, with the remainder supplied by groundwater wells and transfers from Sacramento County Water Agency and Sacramento Suburban Water District.

The city water supply is routinely tested for more than 100 substances; all detected substances are disclosed in the tables on the following pages.

SOURCE WATER ASSESSMENT

A watershed sanitary survey (WSS) focuses on evaluating source water quality and potential watershed contaminant sources to provide key information to aid in understanding how to maintain and possibly improve source water protection, the first barrier in protecting public health. An evaluation of water treatment plant capabilities and treated water quality provides an assessment of the ability of a water utility to treat their source water.

Initial WSS reports for the City's Sacramento River and American River water sources were completed in 2000 and 2001. These reports indicated that both rivers are most vulnerable to contaminants from recreational activities and that the Sacramento River is also most susceptible to agricultural contaminants. The City of Sacramento, in partnership with several other water utilities, complete WSS updates of the river water sources every five years. The WSS updates were most recently completed in 2015 and 2018 for the Sacramento and American Rivers, respectively. Currently, the 2020 update for the Sacramento River WSS is in process.

An assessment of the City's groundwater wells was completed in January 2001. Due to the proximity to potential contaminant sources, the wells north of the American River are considered most vulnerable to sewage collection systems, leaking underground storage tanks, known contaminant plumes, agricultural drainage, gas stations, dry cleaners, metal plating and chemical processing storage facilities, electrical/electronic manufacturing, and automobile repair and body shops. Wells south of the American River are considered vulnerable to leaking underground storage tanks and sewage collection systems.

Despite these potential vulnerabilities, your water continues to meet or exceed all state and federal drinking water standards. Please call 916-808-5454 to request a summary of the assessments or make an appointment for an in-person viewing.

WATER EFFICIENCY

Water-use efficiency is a California way of life, and the City of Sacramento continues to encourage water conservation. Find tips to save water and available rebates at *SacWaterWise.com*

WATER QUALITY ANALYSIS RESULTS FOR 2020

Your water meets or exceeds all federal and state drinking water standards.

The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. While the City of Sacramento tests for more than 100 substances, this report only lists those detected at or above the federal or state level for reporting.

1 Regulated for Public Health - Primary MCL

Constituent (Unit)	Typical Sources	Year Monitored	System Average	PRIMARY WATER SUPPLY: E.A. Fairbairn Water Treatment Plant (American River)	PRIMARY WATER SUPPLY: Sacramento River Water Treatment Plant	PRIMARY WATER SUPPLY: City of Sacramento Groundwater	WATER TRANSFERS[H]: Sacramento County Water Agency	WATER TRANSFERS[H]: Sacramento Suburban Water District	Highest Amount Allowed MCL	State or Federal Goal PHG
Aluminum (mg/L)	Erosion of natural deposits; residual from some surface water treatment processes	2020	ND	ND	0.05	ND	ND	ND–0.05	1	0.6
Arsenic (µg/L)	Erosion of natural deposits	2020	2.8	ND	ND	ND–4.6	ND–7.4	ND–4.3	10	0.004
Barium (mg/L)	Erosion of natural deposits	2020	0.03	ND	ND	ND–0.18	ND–0.87	ND–0.14	1	2
Chlorine (mg/L)	Drinking water disinfectant added for treatment	2020	0.7	ND–1.3[A, B]					[MRDL] 4.0 (as Cl_2)	[MRDLG] 4 (as Cl_2)
Chromium Total (µg/L)	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits	2020	ND	ND	ND	ND	ND–10	ND	50	[MCLG] 100
Copper (mg/L)	Internal corrosion of household water plumbing systems	2020	na	62 samples collected; 90th percentile concentration: 0.09; 0 sites exceeding AL					[AL] 1.3	0.3
Fluoride in source water[C] (mg/L)	Erosion of natural deposits	2020	0.1	ND	ND	ND–0.2	ND–0.4	ND	2.0	1
Fluoride in treated water[C] (mg/L)	Water additive that promotes strong teeth	2020	0.7	0.0–0.9[A]					2.0	1
Gross Alpha[I] (pCi/L)	Erosion of natural deposits	2012–2020	ND	ND	ND	ND–8.0	ND–3.8	ND–6.8	15	[MCLG] 0
Haloacetic Acids (µg/L)	By-product of drinking water disinfection	2020	34[D]	3.5–29[A]					60	na
Lead (µg/L)	Internal corrosion of household water plumbing systems	2020	na	62 samples collected; 90th percentile concentration: ND; 0 sites exceeding AL					[AL] 15	0.2
Nitrate as Nitrogen (mg/L)	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits	2020	1.4	ND	ND	ND–3.8	ND–3.5	ND–7.6	10	10
Selenium (µg/L)	Erosion of natural deposits	2020	ND	ND	ND	ND–6.5	ND	ND	50	30
Tetrachloroethylene (µg/L)	Discharge from factories, dry cleaners, and auto shops (metal degreaser)	2020	ND	ND	ND	ND–1.8	ND	ND	5	0.06
TOC / Control of DBP Precursors (mg/L)	Various natural and man-made sources	2020	na	1.3[E,F]	1.4[E,F]	na	1.1	na	[TT] 2.0	na
Total Coliform Bacteria (% samples positive)	Naturally present in the environment	2020	na	0.4%[F]					5.0%	[MCLG] 0
Trihalomethanes (µg/L)	By-product of drinking water disinfection	2020	54[D]	9.2–66[A]					80	na
Turbidity[G] (NTU)	Soil runoff	2020	na	0.08[F]	0.14[F]	na	0.08	na	[TT] 1 NTU	na
Turbidity[G] (% of samples ≤0.3 NTU)	Soil runoff	2020	na	100% of samples ≤0.3 NTU	100% of samples ≤0.3 NTU	na	100% of samples ≤0.3 NTU	na	[TT] 95% of samples ≤0.3 NTU	na

(A) Range of all results observed in Distribution system. (B) Distribution samples with ND chlorine residual undergo further analysis to ensure compliance with microbiological water quality regulations. (C) In accordance with State law, the City of Sacramento adjusts the natural levels of fluoride in our water supplies to the optimal level determined by the Centers for Disease Control. More information about fluoridation is available at: http://www.waterboards.ca.gov/drinking_water/certlic/drinking-water/Fluoridation.shtml (D) Maximum of all locational running annual averages calculated during 2020. (E) Source water TOC less than 2.0 mg/L used as alternative criteria to exempt from removal ratio requirements for surface water sources. Values given represents maximum running annual average of any quarter during 2020 for each source. (F) Highest value measured or calculated during 2020. (G) Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. (H) Please see 2020 Consumer Confidence Reports published by these agencies for more detailed water quality information; Sacramento County Water Agency https://waterresources.saccounty.net/ccr/ and Sacramento Suburban Water District https://www.sswd.org/departments/water-quality/consumer-confidence-reports (I) Gross alpha is used as a general indicator for the presence of radiological constituents. The gross alpha result for one well was just over half the MCL. As required, the well was then tested for uranium and the result was 2.8 pCi/L, which is less than the uranium MCL of 20 pCi/L. Uranium was detected in Sacramento County Water Agency sources between ND—2.71 PCi/L and in Sacramento Suburban Water District sources between ND—3.2 PCi/L.

Units

µg/L	micrograms per liter: equivalent to 1 second in nearly 32 years
µS/cm	microsiemens per centimeter: measure of electrical conductivity
mg/L	milligrams per liter: equivalent to 1 second in 11.5 years
NTU	Nephelometric Turbidity Units: measures cloudiness of water
pCi/L	Picocuries per liter: measures radiation
TON	Theshold Odor Number: The greatest dilution of a sample with odor-free water that yields a detectable odor

Key Terms and Abbreviations

90th Percentile	The value for which 90 percent of samples had a lower result
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow
Constituent	A chemical or parameter measured in the water supply
DBP	Disinfection By-Products: Substances that can form during a reaction of a disinfectant with naturally present organic matter in the water
Cl_2	Free Chlorine: chlorine available for disinfection
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHG (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants
MRDLG	Maximum Residual Disinfectant Level Goal: The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants
na	Not applicable
ND	Not detected
PHG	Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency
TOC	Total Organic Carbon: a measurement of the potential of water to form DBPs
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water

2 Regulated for Drinking Water Aesthetics - Secondary MCL

Constituent (Unit)	Typical Sources	Year Monitored	System Average	PRIMARY WATER SUPPLY			WATER TRANSFERS		Highest Amount Allowed MCL
				E.A. Fairbairn Water Treatment Plant (American River)	Sacramento River Water Treatment Plant	City of Sacramento Groundwater	Sacramento County Water Agency	Sacramento Suburban Water District	
Aluminum (μg/L)	Erosion of natural deposits; residual from some surface water treatment processes	2020	ND	ND	53	ND	ND	ND–54	200
Chloride (mg/L)	Erosion or leaching of natural deposits	2020	37.6	5.3	6.3	13–72	5–270	3.3–66	500
Copper (mg/L)	Erosion of natural deposits	2020	ND	ND	ND	ND	ND–0.11	ND–0.10	1
Color (units)	Naturally occurring organic materials	2020	ND	ND–5[A]					15
Manganese (μg/L)	Leaching of natural deposits	2020	ND	ND	ND	ND	ND–41	ND–41	50
Odor (units)	Naturally occurring organic materials	2020	ND	ND–2[A]					3
Specific Conductance (μS/cm)	Substances that form ions when in water	2020	405	89	139	310–740	100–1200	160–510	1600
Sulfate (mg/L)	Erosion or leaching of natural deposits	2020	11	8.5	15.8	3.5–31.8	ND–13	1.4–29	500
Total Dissolved Solids (mg/L)	Erosion or leaching of natural deposits	2020	268	64	98	210–420	76–710	130–340	1000
Turbidity (units)	Soil runoff	2020	ND	ND–1[A]					5

(A) Range of all results observed in Distribution system.

3 Other Parameters of Interest to Customers / Constituents With No Established MCL

	Constituent (Unit)	Year Monitored	System Average	PRIMARY WATER SUPPLY			WATER TRANSFERS	
				E.A. Fairbairn Water Treatment Plant (American River)	Sacramento River Water Treatment Plant	City of Sacramento Groundwater	Sacramento County Water Agency	Sacramento Suburban Water District
	Calcium (mg/L)	2020	28	11.2	16	17–50	4.4–73	16–58
	Chromium, Hexavalent[J] (μg/L)	2020	3.8	ND	ND	ND–7.7	na	na
	Hardness (mg/L)	2020	146	37	62	85–267	20–330	74–270
	Magnesium (mg/L)	2020	18	2.2	5.6	9.3–35	2.0–34	8.4–32
	Sodium (mg/L)	2020	26	2.6	7.6	17–42	16–120	11–56
	Total Alkalinity (mg/L)	2020	133	26	54	91–220	48–230	75–180
UCMR	Germanium (μg/L)	2019–2020	ND	ND	ND	ND	ND–1.9	ND–0.4
UCMR	Manganese (μg/L)	2019–2020	2.6	0.46–1.3	ND–0.74	ND–16.5	ND–25	ND–36
UCMR	Total HAA5[K] (μg/L)	2019–2020	24.1	4.2–35[A]				
UCMR	Total HAA6Br[K] (μg/L)	2019–2020	3	1.0–7.8[A]				
UCMR	Total HAA9[K] (μg/L)	2019–2020	27	5.0–38[A]				

(A) Range of all results observed in Distribution system. (J) There is currently no MCL for hexavalent chromium. The previous MCL of 10 μg/L was withdrawn on September 11, 2017. (K) While five Haloacetic Acids (HAA5) are included in Table 1 due to routine distribution monitoring to protect public health, the Fourth UCMR required monitoring for several unregulated Haloacetic Acid compounds in addition to HAA5.

What You Should Know About...

LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with customer service lines and home plumbing. The City of Sacramento is responsible for providing high quality drinking water, but cannot control the variety of materials used in customer 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 EPA Safe Drinking Water Hotline 1-800-426-4791 or at http://www.epa.gov/lead.

LEAD IN SCHOOLS

The City of Sacramento responded proactively to State requirements enacted in 2017 to test for lead in schools; through the end of 2020 the City has tested over 600 samples from 132 schools, representing all public schools served by City water, as well as many private schools that opted to participate.

ALGAL TOXINS

Microcystins and cylindrospermopsin are algal toxins produced by naturally occurring cyanobacteria in surface water sources (such as the American and Sacramento Rivers). These compounds are subject to a U.S. EPA Health Advisory and due to their potential presence in our source waters, the City of Sacramento to voluntarily monitors for these compounds during vulnerable seasons, typically summer through late fall. There were no detections of microcystins or cylindrospermopsin during routine 2020 monitoring.

EARTHY OR MUSTY TASTE AND ODOR

In late summer, some customers may notice an earthy or musty taste in City water. This is due to the presence of Geosmin and 2-Methylisoborneol (MIB), odor compounds which are not removed through conventional water treatment. Although these compounds do not impact the safety of the City's drinking water, some customers find the taste and odor to be objectionable. Chilling the water or adding lemon can help diminish the taste.

PER- AND POLY-FLUOROALKYL SUBSTANCES (PFASs)

According to the California State Water Resources Control Board, exposure to Per- and Polyfluoroalkyl Substances (PFASs) through drinking water has become an increasing concern due to the tendency of PFASs to accumulate in groundwater. PFASs are a large group of human-made substances that have been used extensively in consumer products designed to be waterproof, stain-resistant or non-stick. In addition, they have been used in fire-retarding foam and various industrial processes. Two of the PFAS, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) have been extensively produced and studied in the United States. The following summarizes PFOA and PFOS detections in the City of Sacramento source water in 2020, in relation to Response and Notification Levels established by the State of California:

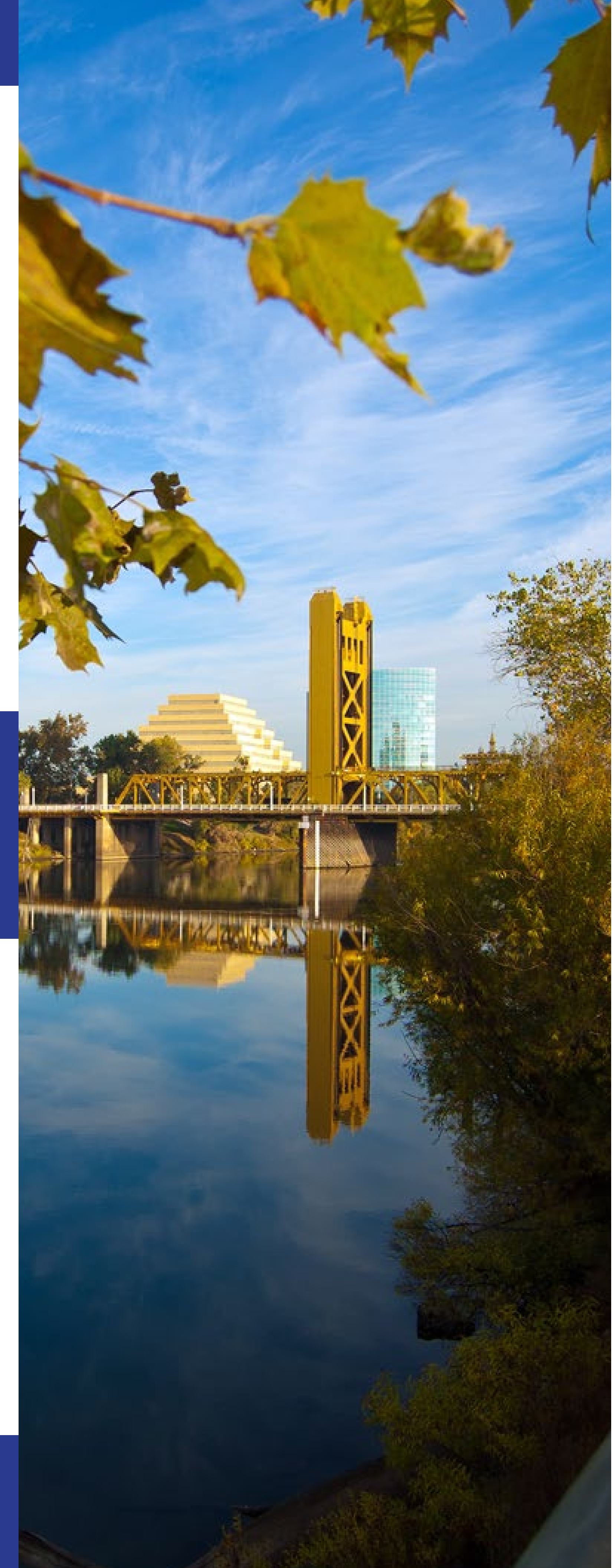
Chemical (Unit)	Notification Level	Response Level	American and Sacramento Rivers	City of Sacramento Groundwater	Sacramento County Water Agency	Sacramento Suburban Water District	Health Effects
Perfluorooctanoic Acid [PFOA] (ng/L)	5.1	10	ND	ND–10[L]	ND–4.8	ND	Perfluorooctanoic acid exposures resulted in increased liver weight and cancer in laboratory animals.
Perfluorooctanesulfonic Acid [PFOS] (µg/L)	6.5	40	ND	ND–24	ND–5.2	ND	Perfluorooctanesulfonic acid exposures resulted in immune suppression and cancer in laboratory animals.

(L) PFAS was detected at the response level of 10 ng/L in one well which was immediately removed from service.

Key Terms And Units

ND	Not Detected
ng/L	Nanograms per Liter; Equivalent to 1 second in nearly 32,000 years
Notification Level	Notification levels are established as precautionary measures for contaminants that are candidates for drinking water standards but have not yet undergone or completed the regulatory standard setting process
Response Level	A response level (RL) is set higher than a notification level and represents a recommended chemical concentration level at which water systems consider taking a water source out of service or provide treatment if that option is available to them

As part of our mission to provide City customers with drinking water of the highest quality, the City of Sacramento is committed to continued monitoring, transparent public notification, and effective management of this emerging water quality issue. For more detailed information, visit: https://www.cityofsacramento.org/Utilities/Water/Water-Quality/PFAS



REQUIRED DISCLOSURES FOR DRINKING WATER CONSUMERS

This information is presented to further educate consumers about drinking water contaminants.

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

Contaminants that may be present in source water include:

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

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

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

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Peb hais lus Hmoob · Chúng tôi nói tiếng Việt

This report contains important information translations.

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

Այս զեկույցը պարունակում է կարեւոր տեղեկատվություն Ձեր խմելու ջրով: Թարգմանել այն, կամ խոսել մեկի հետ, ով հասկանում է այն:

此份有關你的食水報告,內有重要資料和訊息,請找
他人為你翻譯及解釋清楚。

此份有关你的食水报告,内有重要资料和讯息,请找
他人为你翻译及解释清楚。

این اطلاعیه شامل اطلاعات مهمی راجع به آب آشامیدنی است. اگر نمی توانید این اطلاعات را بزبان انگلیسی
بخوانید لطفا از کسی که میتواند یاری بگیرید تا مطالب را برای شما به فارسی ترجمه کند

यह सूचना महत्वपूर्ण है ।
कृपा करके किसी से :सका अनुवाद करायें ।

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

この報告書には上水道に関する重要な情報が記されて
おります。翻訳を御依頼なされるか、内容をご理解なさっ
ておられる方にお尋ね下さい。

របាយការណ៍នេះមានពត៌មានសំខាន់
អំពីទឹកបរិភោគ ។ សូមបកប្រែ
ឬពិគ្រោះជាមួយអ្នកដែលមើលយល់
របាយការណ៍នេះ ។

이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시요.

ລາຍງານນີ້ມີຂໍ້ມູນສຳຄັນກ່ຽວກັບນ້ຳປະປາຂອງທ່ານ. ຈົ່ງໃຫ້ຄົນທີ່ແປຄວາມໃຫ້ທ່ານ,
ຫລືໃຫ້ປຶກສາກັບຄົນໃດຄົນໜຶ່ງທີ່ເຂົ້າໃຈເລື່ອງ.

Naaiv norm sou maaih jienv nyei fienx gorngv taux meih nyei wuom hopv. Faan fai gorngv bun mienh hiuv duqv.

ਇਹ ਸੂਚਨਾ ਮਹੱਤਵਪੂਰਣ ਹੈ।
ਕ੍ਰਿਪਾ ਕਰਕੇ ਕਿਸੀ ਤੋਂ ਇਸ ਦਾ ਅਨੁਵਾਦ ਕਰਾਓ।

Acest raport conține informații importante despre apa de băut.
Traduceți-o sau discutați cu cineva care o înțelege.

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

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

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

Цей звіт містить важливу інформацію про вашу питну воду.
Перекласти його, або поговорити з кимось, хто його розуміє.

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

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City of SACRAMENTO
Department of Utilities

Jeffrey Emocling, Senior Plant Operator

Sacramento River Water Treatment Plant Intake Structure

2021 CONSUMER CONFIDENCE REPORT

IMPORTANT DRINKING WATER QUALITY INFORMATION FOR THE CITIZENS OF SACRAMENTO

This report is presented to help City of Sacramento Water customers understand where their tap water comes from and what it contains. It summarizes the most recent testing results through December 2021. The City's water supply is routinely tested for more than 100 substances in order to confirm that **your water meets or exceeds all federal and state drinking water standards.**

As a provider of a critical and life-sustaining service we are committed to notifying customers of any change in our safe drinking water compliance status. This report is the most current for the period June 01, 2022 through May 31, 2023.

SOURCES OF WATER

Eighty percent of the City of Sacramento's water supply comes from the American and Sacramento Rivers, with the remainder supplied by groundwater wells and transfers from Sacramento County Water Agency and Sacramento Suburban Water District. For more information on Sources of Water see Source Water Assessment on page 3.

WATER EFFICIENCY

Water-use efficiency is a California way of life, and the City of Sacramento continues to encourage water conservation. Find tips to save water and available rebates at SacWaterWise.com

Sacramento River, upstream of Sacramento River Intake Structures

REQUIRED DISCLOSURES FOR DRINKING WATER CONSUMERS

This information is presented to further educate consumers about drinking water contaminants.

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

Contaminants that may be present in source water include:

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

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

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

SOURCE WATER ASSESSMENT

A watershed sanitary survey (WSS) focuses on evaluating source water quality and potential watershed contaminant sources to provide key information to aid in understanding how to maintain and possibly improve source water protection, a critical first step in ensuring public health. An evaluation of water treatment plant capabilities and treated water quality provides an assessment of the ability of a water utility to treat their source water.

Initial WSS reports for the City's Sacramento River and American River water sources were completed in 2000 and 2001. These reports indicated that both rivers are most vulnerable to contaminants from recreational activities and that the Sacramento River is also most susceptible to agricultural contaminants. The City of Sacramento, in partnership with several other water utilities, complete WSS updates of the river water sources every five years. The WSS updates were most recently completed in 2018 and 2020 for the American and Sacramento Rivers respectively.

An assessment of the City's groundwater wells was completed in January 2001. Due to the proximity to potential contaminant sources, the wells north of the American River are considered most vulnerable to sewage collection systems, leaking underground storage tanks, known contaminant plumes, agricultural drainage, gas stations, dry cleaners, metal plating and chemical processing storage facilities, electrical/electronic manufacturing, and automobile repair and body shops. Wells south of the American River are considered vulnerable to leaking underground storage tanks and sewage collection systems.

Despite these potential vulnerabilities, your water continues to meet or exceed all state and federal drinking water standards. Please call 916-808-5454 to request a summary of the assessments or make an appointment for an in-person viewing.

Meter upgrade at EA Fairbairn Water Treatment Plant

WATER QUALITY ANALYSIS RESULTS FOR 2021

Your water meets or exceeds all federal and state drinking water standards.

1 Regulated for Public Health (PDWS)

	Constituent (Unit)	Highest Amount Allowed MCL, MRDL or TT	State or Federal Goal PHG, MCLG or MRDLG	Year Monitored	System Average
DISINFECTION and DBP	Chlorine as Cl_2 (mg/L)	4	4	2021	0.6
	Haloacetic Acids (µg/L)	60	NA	2021	25 [B]
	Trihalomethanes (µg/L)	80	NA	2021	51 [B]
	Control of DBP Precursors - TOC (mg/L)	2.0	NA	2021	NA
INORGANIC	Aluminum (mg/L)	1	0.6	2020 – 2021	ND
	Arsenic (µg/L)	10	0.004	2020 – 2021	2.7
	Barium (mg/L)	1	2	2020 – 2021	ND
	Chromium Total (µg/L)	50	100	2020 – 2021	ND
	Copper (mg/L)	1.3 [AL]	0.3	2020	NA
	Fluoride in source water [D] (mg/L)	2.0	1	2021	ND
	Fluoride in treated water [D] (mg/L)	2.0	1	2021	0.7
	Lead (µg/L)	15 [AL]	0.2	2020	NA
	Nitrate as Nitrogen (mg/L)	10	10	2021	1.3
	Selenium (µg/L)	50	30	2020 – 2021	ND
MICRO-BIOLOGICAL	Total Coliform Bacteria (percent samples positive)	5.0 percent of monthly samples are positive	0	2021	NA
	E. Coli Bacteria (positive samples)	0 positive samples	0	2021	ND
RADIO-LOGICAL	Gross Alpha (pCi/L)	15	0	2014 – 2021	ND
TREATMENT TECHNIQUE	Turbidity [F] (NTU)	1 NTU	NA	2021	NA
	Turbidity [F] (NTU)	at least 95% of samples ≤ 0.3 NTU	NA	2021	NA

(A) Range of all results observed in distribution system; samples with ND chlorine undergo further analysis to ensure water supply safety.

(B) Compliance with MCL confirmed quarterly (every three months); system average shown represents highest locational running annual average calculated during any of the four quarters of 2021 while range represents all results observed in distribution system.

(C) Compliance with TT confirmed quarterly (every three months); value shown represents highest running annual average calculated during any of the four quarters of 2021.

(D) In accordance with State law, the City of Sacramento adjusts the natural levels of fluoride in our water supplies to the optimal level determined by the Centers for Disease Control. More information about fluoridation is available at: http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

(E) Starting July 1, 2021, the MCL changed from total coliforms to E. Coli; for more information see "Federal and State Revised Total Coliform Rule" on page 8.

(F) Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

(G) Please see 2021 Consumer Confidence Reports published by these agencies for more detailed water quality information; Sacramento County Water Agency https://waterresources.saccounty.net/ccr/ and Sacramento Suburban Water District https://www.sswd.org/departments/water-quality/consumer-confidence-reports

Units

µg/L	micrograms per liter: equivalent to 1 second in nearly 32 years
µS/cm	microsiemens per centimeter: measure of electrical conductivity
mg/L	milligrams per liter: equivalent to 1 second in 11.5 years
NTU	Nephelometric Turbidity Units: measures cloudiness of water
pCi/L	picocuries per liter: measures radiation
TON	Theshold Odor Number: The greatest dilution of a sample with odor-free water that yields a detectable odor

While the City of Sacramento tests for more than 100 substances, this report only lists those detected at or above the federal or state level for reporting.

The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. For this reason, some of our data, while representative, are more than one year old.

PRIMARY WATER SUPPLY			WATER TRANSFERS[G]		
E.A. Fairbairn Water Treatment Plant (American River)	Sacramento River Water Treatment Plant	City of Sacramento Groundwater	Sacramento County Water Agency	Sacramento Suburban Water District	Typical Sources in Drinking Water
ND – 1.4 [A]					Drinking water disinfectant added for treatment
2.7 – 31 [B]					By-product of drinking water disinfection
8.0 – 71 [B]					By-product of drinking water disinfection
1.4 [C]	1.7 [C]	NA	NA	NA	Various natural and man-made sources
ND	0.05	ND	ND	ND	Erosion of natural deposits; residual from some surface water treatment processes
ND	ND	2.4 – 4.6	ND – 8.7	ND – 4.3	Erosion of natural deposits
ND	ND	ND – 0.26	ND – 0.87	ND – 0.14	Erosion of natural deposits
ND	ND	ND	ND – 10	ND	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
62 samples collected; 0 individual samples exceeded AL 90th percentile concentration: 0.09 (Less than AL, meets requirement)					Internal corrosion of household water plumbing systems
ND	ND	ND – 0.2	ND – 0.7	NA	Erosion of natural deposits
0.0 – 0.9 [A]					Water additive that promotes strong teeth
62 samples collected; 2 individual samples exceeded AL 90th percentile concentration: ND (Less than AL, meets requirement)					Internal corrosion of household water plumbing systems
ND	ND	ND – 3.5	ND – 3.6	ND – 6.7	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
ND	ND	ND – 6.5	ND	ND	Erosion of natural deposits
0.0 percent [E]					Naturally present in the environment
No positive samples [E]					Human and animal fecal waste
ND	ND	ND – 5.8	ND – 5.1	ND – 5.7	Erosion of natural deposits
0.22	0.11	NA	NA	NA	Soil runoff
100%	100%	NA	NA	NA	Soil runoff

Key Terms and Abbreviations

90th Percentile	The value for which 90 percent of samples had a lower result
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow
Constituent	A chemical or parameter measured in the water supply
DBP	Disinfection By-Products: Substances that can form during a reaction of a disinfectant with naturally present organic matter in the water
Cl_2	Free Chlorine: chlorine available for disinfection
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHG (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants
MRDLG	Maximum Residual Disinfectant Level Goal: The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants
NA	Not applicable - unable to calculate average or monitoring requirement does not apply to all drinking water sources
ND	Not detected
PDWS	Primary Drinking Water Standard: MCLs, MRDLs and treatment techniques (TTs) for contaminants that affect health, along with their monitoring and reporting requirements.
PHG	Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency
TOC	Total Organic Carbon: a measurement of the potential of water to form DBPs
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water

2 Regulated for Drinking Water Aesthetics - Secondary MCL

Constituent (Unit)	Year Monitored	System Average	PRIMARY WATER SUPPLY: E.A. Fairbairn Water Treatment Plant (American River)	PRIMARY WATER SUPPLY: Sacramento River Water Treatment Plant	PRIMARY WATER SUPPLY: City of Sacramento Groundwater
Aluminum (µg/L)	2020 – 2021	ND	ND	51	ND
Chloride (mg/L)	2020 – 2021	34	5.3	5.6	13 – 69
Copper (mg/L)	2020 – 2021	ND	ND	ND	ND
Color (units)	2021	ND			ND – 6 [A]
Manganese (µg/L)	2020 – 2021	ND	ND	51	ND
Odor (units)	2021	ND			ND – 1 [A]
Specific Conductance (µS/cm)	2020 – 2021	392	98	150	294 – 790
Sulfate (mg/L)	2020 – 2021	11	9.9	14	5.1 – 32
Total Dissolved Solids (mg/L)	2020 – 2021	261	75	100	210 – 480
Turbidity (units)	2021	ND			ND – 7.5 [A]

(A) Range of all results observed in distribution system.

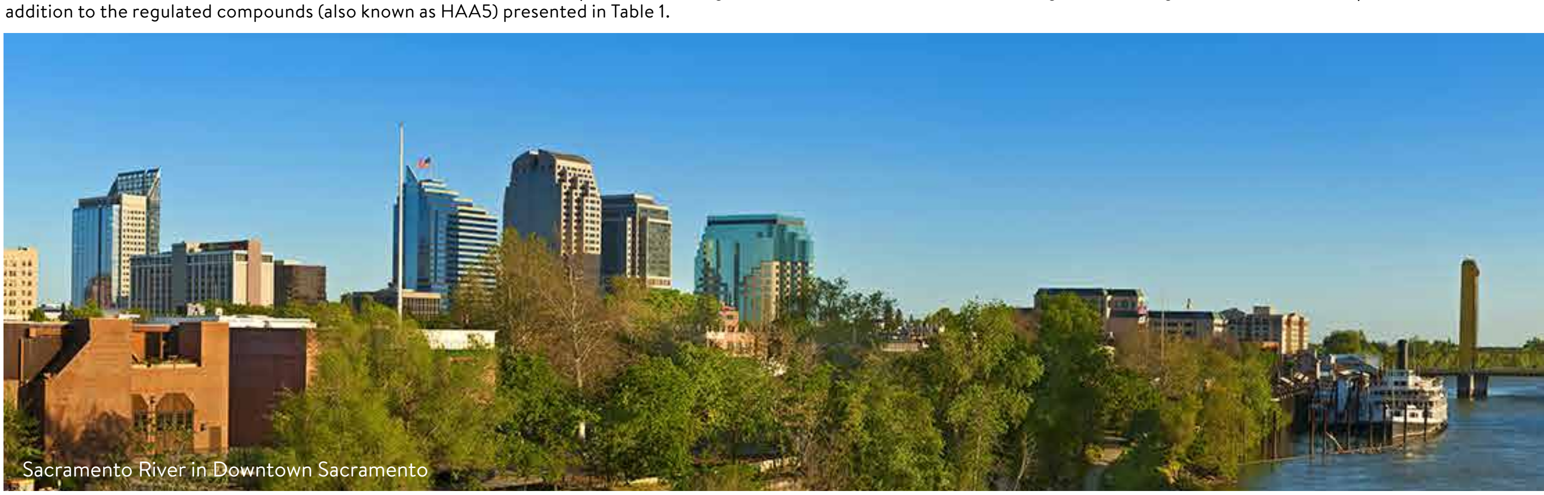
3 Other Parameters of Interest to Customers / Constituents With No Established MCL

	Constituent (Unit)	Year Monitored	System Average	PRIMARY WATER SUPPLY: E.A. Fairbairn Water Treatment Plant (American River)	PRIMARY WATER SUPPLY: Sacramento River Water Treatment Plant	PRIMARY WATER SUPPLY: City of Sacramento Groundwater
	Calcium (mg/L)	2020 – 2021	27	12	15	17 – 62
	Chromium, Hexavalent [G] (µg/L)	2020 – 2021	4.3	ND	ND	ND – 9.1
	Hardness (mg/L)	2020 – 2021	140	40	60	85 – 320
	Magnesium (mg/L)	2020 – 2021	17	2.4	5.5	9.3 – 39
	Sodium (mg/L)	2020 – 2021	25	3.0	6.9	19 – 42
	Total Alkalinity (mg/L)	2020 – 2021	130	27	52	91 – 260
UCMR4 [H]	Germanium (µg/L)	2018 – 2020	ND	ND	ND	ND
UCMR4 [H]	Manganese (µg/L)	2018 – 2020	2.3	0.46 – 1.3	ND – 0.74	ND – 16.5
UCMR4 [H]	Total HAA5 (µg/L) [H]	2018 – 2020	24.1			4.2 – 35 [A]
UCMR4 [H]	Total HAA6Br (µg/L) [H]	2018 – 2020	3			1.0 – 7.8 [A]
UCMR4 [H]	Total HAA9 (µg/L) [H]	2018 – 2020	27			5.0 – 38 [A]

(A) Range of all results observed in distribution system.

(G) As of December 31st, 2021 there was no MCL for hexavalent chromium. The previous MCL of 10 µg/L was withdrawn on September 11, 2017.

(H) The federal government uses Unregulated Contaminant Monitoring Rule(s) (UCMR) to collect data for contaminants that are suspected to be present in drinking water but do not have health-based standards set. The fourth UCMR (UCMR 4) required monitoring for 30 chemical contaminants including several unregulated haloacetic compounds in addition to the regulated compounds (also known as HAA5) presented in Table 1.


Sacramento River in Downtown Sacramento

WATER TRANSFERS			
Sacramento County Water Agency	Sacramento Suburban Water District	Highest Amount Allowed MCL	Typical Sources
ND	ND	200	Erosion of natural deposits; residual from surface water treatment processes
5 – 270	3.3 – 66	500	Erosion or leaching of natural deposits
ND	ND – 0.10	1	Erosion of natural deposits
		15	Naturally occurring organic materials
ND – 23	ND – 30	50	Leaching of natural deposits
		3	Naturally occurring organic materials
200 – 1200	160 – 510	1600	Substances that form ions when in water
ND – 13	1.4 – 29	500	Erosion or leaching of natural deposits
170 – 710	130 – 340	1000	Erosion or leaching of natural deposits
		5	Soil runoff

WATER TRANSFERS	
Sacramento County Water Agency	Sacramento Suburban Water District
4.4 – 73	14 – 44
NA	NA
20 – 330	26 – 230
2.0 – 34	5.2 – 29
16 – 120	7.8 – 27
91 – 230	67 – 190
ND – 1.9	ND
ND – 25	ND – 26


Sedimentation Basin at Sacramento River Water Treatment Plant


Sacramento River Water Treatment Plant

LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with customer service lines and home plumbing. The City of Sacramento is responsible for providing high quality drinking water, but cannot control the variety of materials used in customer 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 EPA Safe Drinking Water Hotline 1-800-426-4791 or at http://www.epa.gov/lead.

LEAD IN SCHOOLS

Between 2017 and 2019 the City of Sacramento provided lead testing to all public pre-kindergarten through 12th grade schools receiving City of Sacramento water supply as well as private schools that opted to participate. More than 600 samples were tested representing 132 schools and results were less than 5 ppb in 97 percent of the samples. All results are publicly available on the State Water Board's website http://www.waterboards.ca.gov-/drinking_water/certlic/drinking-water/leadsamplinginschools.html

CYANOTOXINS

Microcystins and cylindrospermopsin are algal toxins produced by naturally occurring cyanobacteria in surface water sources (such as the American and Sacramento Rivers). These compounds are subject to a U.S. EPA Health Advisory and due to their potential presence in our source waters, the City of Sacramento voluntarily monitors for these compounds during vulnerable seasons, typically summer through late fall. There were no detections of microcystins or cylindrospermopsin during routine 2021 monitoring.

Sedimentation Basin at EA Fairbairn Water Treatment Plant

EARTHY OR MUSTY TASTE AND ODOR

Some customers may notice an earthy or musty taste in City water, most often occurring in late summer. This is due to the presence of Geosmin and 2-Methylisoborneol (MIB), odor compounds which are not removed through conventional water treatment. Although these compounds do not impact the safety of the City's drinking water, some customers find the taste and odor to be objectionable. Chilling the water can help diminish the taste.

FEDERAL AND STATE REVISED TOTAL COLIFORM RULE

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

Freeport Reservoir

PER- AND POLY-FLUOROALKYL SUBSTANCES (PFASs)

According to the California State Water Resources Control Board Division of Drinking Water (DDW), exposure to Per- and Polyfluoroalkyl Substances (PFASs) through drinking water has become an increasing concern due to the tendency of PFASs to accumulate in groundwater. PFASs are a large group of human-made substances that have been used extensively in consumer products designed to be waterproof, stain-resistant or non-stick. In addition, they have been used in fire-retarding foam and various industrial processes.

While PFASs do not yet have maximum contaminant levels (MCLs) set by regulation, DDW can recommend interim action for water providers by establishing Notification Levels and Response Levels (levels at which providing health-based advisories, and removing a source from service respectively are recommended. Three of the PFAS, perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and Perfluorobutanesulfonic acid (PFBS) have Notification Levels and Response Levels established by DDW. Throughout 2021 monitoring did not indicate any PFASs compounds were present in American or Sacramento River sources. In City Groundwater, some very low concentrations of PFOA and PFBS were observed during 2021 below Notification and Response Levels. PFOS was detected in Groundwater at levels ranging from Not Detected to 16 nanograms per Liter or ng/L (a unit of concentration equivalent to 1 second in nearly 32,000 years). Since some results are above the Notification Level of 5.1 ng/L the following Health Effects language is provided: perfluorooctanesulfonic acid (PFOS) exposures resulted in immune suppression and cancer in laboratory animals.

As part of our mission to provide City customers with drinking water of the highest quality, the City of Sacramento is committed to continued monitoring, transparent public notification, and effective management of this emerging water quality issue. For more detailed information, visit: https://www.cityofsacramento.org/Utilities/Water/Water-Quality/PFAS

Sacramento River Water Treatment Plant Intake Structure

TO REPORT A CONCERN

City of Sacramento, Department of Utilities
311 or 916-264-5011
(24 hours a day, 7 days a week)
www.cityofsacramento.org/utilities

FOR QUESTIONS ABOUT THIS REPORT CONTACT

Rory Hartkemeyer
916-808-3738

ADDITIONAL WATER QUALITY INFORMATION IS AVAILABLE

www.sacramentowaterquality.com

U.S. EPA Safe Drinking Water Hotline
1-800-426-4791
http://epa.gov/ground-water-and-drinking-water

NOTICE OF OPPORTUNITY FOR PUBLIC PARTICIPATION

The Sacramento City Council generally holds public meetings on Tuesday at 2 p.m. and/or 5 p.m. in the City Council Chambers at 915 I Street, Sacramento. You can access Council agendas at www.cityofsacramento.org/-clerk.

POTABILITY STATEMENT

The City of Sacramento water supply meets all potability requirements as set forth by the United States Environmental Protection Agency (USEPA) and the California Safe Drinking Water Act, Title 22. This certification relates to City of Sacramento water that is provided up to the property line or backflow preventer, whichever comes first.


Tanisha Parker, Customer Service Representative

UP-TO-DATE WATER QUALITY INFORMATION IS AVAILABLE
www.sacramentowaterquality.com

CALL 916-264-5011
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Peb hais lus Hmoob · Chúng tôi nói tiếng Việt

"هذا التقرير يحتوي على معلومات مهمّة تتعلق بمياه الشفة (أو الشرب).
ترجم التقرير , أو تكلم مع شخص يستطيع أن يفهم التقرير."

Այս զեկույցը պարունակում է կարեւոր տեղեկատվություն Ձեր խմելու ջրով: Թարգմանել այն, կամ խոսել մեկի հետ, ով հասկանում է այն:

此份有關你的食水報告,內有重要資料和訊息,請找
他人為你翻譯及解釋清楚。

此份有关你的食水报告,内有重要资料和讯息,请找
他人为你翻译及解释清楚。

این اطلاعیه شامل اطلاعات مهمی راجع به آب آشامیدنی است. اگر نمیتوانید این اطلاعات را بزبان انگلیسی
بخوانید لطفا از کسی که میتواند یاری بگیرید تا مطالب را برای شما به فارسی ترجمه کند.

यह सूचना महत्वपूर्ण है ।
कृपा करके किसी से :सका अनुवाद करायें ।

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

この報告書には上水道に関する重要な情報が記されて
おります。翻訳を御依頼なされるか、内容をご理解なさっ
ておられる方にお尋ね下さい。

របាយការណ៍នេះមានពត៌មានសំខាន់
អំពីទឹកបរិភោគ ។ សូមបកប្រែ
ឬពិគ្រោះជាមួយអ្នកដែលមើលយល់
របាយការណ៍នេះ ។

이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시요.

ລາຍງານນີ້ມີຂໍ້ມູນສຳຄັນກ່ຽວກັບນ້ຳປະປາຂອງທ່ານ. ຈົ່ງໃຫ້ຄົນທີ່ແປຄວາມໃຫ້ທ່ານ,
ຫລືໃຫ້ປຶກສາກັບຄົນໃດຄົນໜຶ່ງທີ່ເຂົ້າໃຈເລື່ອງ.

Naaiv norm sou maaih jienv nyei fienx gorngv taux meih nyei wuom hopv. Faan fai gorngv bun mienh hiuv duqv.

ਇਹ ਸੂਚਨਾ ਮਹੱਤਵਪੂਰਣ ਹੈ।
ਕ੍ਰਿਪਾ ਕਰਕੇ ਕਿਸੀ ਤੋਂ ਇਸ ਦਾ ਅਨੁਵਾਦ ਕਰਾਓ।

Acest raport conține informații importante despre apa de băut. Traduceți-o sau discutați cu cineva care o înțelege.

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

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

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

Цей звіт містить важливу інформацію про вашу питну воду. Перекласти його, або поговорити з кимось, хто його розуміє.

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

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