

## 2019 Public Health Goal Report

June 2019

### INTRODUCTION

California Health and Safety Code (CHSC) Sections 116365 and 116470 require all public water systems in California serving more than 10,000 service connections to prepare a triennial Public Health Goal (PHG) report. This report is to contain information on 1) the detection of any contaminant in drinking water at a level exceeding a public health goal (PHG) or maximum contaminant level goal (MCLG), 2) the health risk associated with each contaminant exceeding a PHG, and 3) the estimated costs to remove detected contaminants to below the PHG using Best Available Technology (BAT). CHSC Sections 116365 and 116470 are included in this report as Attachment 1.

This 2019 PHG Report is based on water quality analyses performed during calendar years 2016, 2017, and 2018. If certain analyses were not performed during those years, the most recent data was used. Only contaminants that are regulated with a primary drinking water standard and exceeded a PHG or MCLG are required to be addressed in this report. Water quality data was summarized in the Annual Consumer Confidence Reports (CCRs), which were made available to all of Ventura Water's customers on the City's website, <https://ca-ventura.civicplus.com/904/Consumer-Confidence-Report>.

The Association of California Water Agencies (ACWA) prepared suggested guidelines (April 2019) for water utilities to use in preparation of PHG reports. The 2019 ACWA guidelines were used in the preparation of this report and included as Attachment 2.

### PUBLIC HEALTH GOAL BACKGROUND

PHGs are developed by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA). A PHG is the level or concentration of a constituent in water which poses no significant health risk if the constituent is consumed over a lifetime. PHGs are established based on human health risk assessments, and are recommended targets. CHSC Section 116365 requires a PHG to be developed for every constituent with a primary maximum contaminant level (MCL). While public water systems must address all MCL exceedances, they are not required to reduce or eliminate any constituent with an PHG exceedance.

CHSC Section 116470(f) also requires the MCLG to be used for comparison if there is no applicable PHG. MCLGs are set by the U.S. Environmental Protection Agency (US EPA) and are similar to PHGs.



Constituents with a MCLG but no PHG include coliform bacteria, individual disinfection by-product constituents, and gross alpha particle activity.

A list of constituents regulated in drinking water with the MCLs, PHGs, and MCLs is included as Attachment 3.

## **CONSTITUENTS EXCEEDING A PHG OR MCLG**

The following constituents and the sources were detected in Ventura Water's system at levels that exceeded the applicable PHGs or MCLGs. Available numerical health risks developed by OEHHA for the constituents are also summarized below. A numerical health risk is typically the risk of cancer estimated based on a daily water intake (2 liters) containing a contaminant at a known concentration (i.e. MCL) every day over the lifetime (70 years) of an adult.

**Arsenic** – Arsenic is naturally occurring in groundwater. Arsenic concentrations in Ventura Water's sources ranged from non-detect to 4 micrograms per liter ( $\mu\text{g/L}$ ), which is above the PHG of  $0.004 \mu\text{g/L}$ , but below the MCL of  $10 \mu\text{g/L}$ . Prolonged exposure to arsenic may increase the risk of cancer. OEHHA has determined that the health risk associated with concentrations above the PHG to be one excess case of cancer per million people. The risk associated with arsenic concentrations above the MCL to be 2.5 excess cases of cancer per 1,000 people over a 70-year lifetime exposure.

**Coliform Bacteria** – Coliform bacteria are naturally occurring in the environment and can indicate the presence of other pathogenic organisms originating from sewage, livestock, or other wildlife. Total coliform bacteria was detected in the City's distribution system at a maximum monthly percentage of 6.5% in 2016, which exceeded the MCLG of zero. Fecal and E. coli bacteria were not detected in the distribution system from 2016 to 2018. Fecal coliform bacteria are a subset of coliform bacteria that originate from the intestines of warm-blooded animals. E. coli bacteria are one of the most prevalent bacteria found in the feces of warm-blooded animals.

**Lead and Copper** – The primary source for lead and copper in water is pipe corrosion, and levels of lead and copper vary from differences in plumbing and fixtures. Lead and copper have not been detected in Ventura's water sources. The most recent sampling for lead and copper was conducted in 2017. The 90<sup>th</sup> percentile concentration of lead was  $5.1 \mu\text{g/L}$ , which exceeds the PHG of  $0.2 \mu\text{g/L}$ , but is below the regulatory action level of  $15 \mu\text{g/L}$ . The 90<sup>th</sup> percentile concentration of copper was  $710 \mu\text{g/L}$ , which exceeds the PHG of  $0.3 \mu\text{g/L}$ , but is below the RAL of  $1,300 \mu\text{g/L}$ . Prolonged exposure to lead may increase the risk of cancer, or it can cause developmental or cardiovascular neurotoxicity. OEHHA has determined that the health risk associated with lead concentrations above the PHG to be less than one excess case of cancer per million people. The risk associated with lead concentrations above the MCL to be two excess cases of cancer per million people over a lifetime exposure. Exposure to high levels of copper may cause digestive system toxicity. OEHHA has not established a numerical health risk for copper because PHGs for non-carcinogenic constituents in drinking water are set at a concentration at

which no known or anticipated adverse health risks will occur, with an adequate margin of safety (OEHHA, 2019).

**Disinfection By-Products** – The primary source for disinfection by-products is the chlorination of drinking water. Disinfection by-products form when chlorine combines with natural organic matter in the water. The US EPA has adopted MCLs for the cumulative groups (total trihalomethanes, total haloacetic acids), but there are no MCLGs or PHGs established for these cumulative groups. Alternatively, there is no MCL for individual disinfection by-products, but bromodichloromethane, bromoform, and dichloroacetic acid each have an MCLG of zero. The health risks associated with prolonged exposure to disinfection by-products include an increased risk of cancer and general toxicity. OEHHA has not established numerical health risks for disinfection by-products.

**Gross Alpha** – Gross alpha particle activity is naturally occurring in groundwater. Gross alpha concentrations ranged from 3.1 to 14.9 picocuries per liter (pCi/L), which is above the MCLG of zero, but below the MCL of 50 pCi/L. Prolonged exposure to gross alpha may increase the risk of cancer. OEHHA has determined that the risk associated with gross alpha concentrations above the MCL to be 1 excess case of cancer per 1,000 people over a lifetime exposure to the most potent alpha emitter.

**Selenium** – Selenium is naturally occurring in groundwater. Selenium concentrations ranged from non-detect to 44 µg/L, which is above the PHG of 30 µg/L, but below the MCL of 50 µg/L. Prolonged exposure to selenium may cause hair loss or nail damage. OEHHA has not established a numerical health risk for selenium because PHGs for non-carcinogenic constituents in drinking water are set at a concentration at which no known or anticipated adverse health risks will occur, with an adequate margin of safety (OEHHA, 2019).

**Uranium** – Uranium is naturally occurring in groundwater. Uranium concentrations ranged from 2.7 to 13.9 pCi/L, which is above the PHG of 0.43 pCi/L, but below the MCL of 20 pCi/L. Prolonged exposure to uranium may increase the risk of cancer. OEHHA has determined that the health risk associated with concentrations above the PHG to be 1 excess case of cancer per million people. The risk associated with uranium concentrations above the MCL to be 5 excess cases of cancer per 100,000 people over a lifetime exposure.

## BEST AVAILABLE TECHNOLOGIES

CHSC Section 116470(b)(4) requires a description of the best available technology (BAT) to remove or reduce the concentrations of the constituents identified above. BATs, and the estimated costs of implementing the BATs, are described below.

**Coliform Bacteria** – The BAT for treating coliform organisms in drinking water is disinfection. Ventura Water already disinfects all water served to the its customers. To verify the disinfection, Ventura Water collects weekly samples at various locations throughout the distribution system for coliform analysis. Any samples positive for total coliform are immediately investigated and additional sampling is

conducted. Coliform bacteria are ubiquitous in the environment, and it is not unusual for a water system to have an occasional positive sample. Other measures in place to prevent contamination of the water supply with coliform bacteria include disinfectant boosting, pipeline flushing, which replaces stagnant water with fresh water with disinfectant in pipelines with minimal use, cross-connection control, and backflow prevention. Cross connection control and backflow prevention also prevents the entry of stagnant water into the drinking water distribution system.

**Lead and Copper** – The BAT to reduce lead and copper in drinking water is corrosion control optimization. Lead and copper results from the triennial sampling in 2017 show that Ventura’s drinking water complies with the Federal Lead and Copper Rule and is considered to have optimized corrosion control. Additional corrosion control would be incapable of achieving the PHG, because a primary source of lead and copper in drinking water is the pipe and plumbing fixtures in residential household plumbing. Other factors that can increase lead and copper in water include:

- Household faucets or fittings made of brass;
- Copper and/or lead plumbing materials;
- Homes constructed between 1983 and 1988, containing copper plumbing with the potential for lead-based solder;
- Soft or corrosive water; and
- Water held stagnant in household plumbing.

Lead and copper have not been detected Ventura’s water sources. In addition to triennial lead and copper testing, Ventura Water monitors other water quality parameters related to corrosivity, such as pH, hardness, alkalinity, and dissolved solids, and will take additional action as necessary to optimize corrosion control in its water system.

**Arsenic, Gross Alpha, Selenium, and Uranium** – The only BAT available for the removal of gross alpha radioactivity in water for large water systems is reverse osmosis (RO), which can also effectively remove uranium, arsenic, and selenium. The cost of providing treatment using RO to reduce gross alpha, uranium, arsenic, and selenium in water is estimated to range from \$11,000,000 to \$13,600,000 per year, or between \$400 and \$500 per service connection per year.

**Disinfection By-Products** – Current treatment technologies used to reduce disinfection by-products in water consist of operational adjustments to chlorination processes and water distribution, and routine monitoring. In addition, granular activated carbon (GAC) or RO could further reduce the levels of disinfection by-products in water. However, disinfection by-products can be formed throughout the distribution system, and water treatment processes would be incapable of achieving the MCLG of zero for bromoform, bromodichloromethane, and dichloroacetic acid.



## RECOMMENDATIONS FOR FURTHER ACTION

Ventura Water’s drinking water quality meets all State of California and US EPA drinking water standards set to protect public health. To further reduce the levels of constituents identified in this report, additional costly treatment processes would be required. In addition, the effectiveness of the treatment processes to provide any significant reductions in constituent levels is not certain. The health protection benefits of further reductions in these constituents are not clear and may not be quantifiable in order to justify the costs. Therefore, no action is required or proposed.

**Attachment 1** – State of California Health and Safety Code Sections 116365 and 116470

### References

Association of California Water Agencies (ACWA), *“Suggested Guidelines for Preparation of Required Reports on Public Health Goals (PHGs) to satisfy requirements of California Health and Safety Code Section 116470(b),”* April 2019.

Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency, *“Health Risk Information for Public Health Goal Exceedance Reports,”* February 2019.

**State of California**

**HEALTH AND SAFETY CODE**

**Section 116365**

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116365. (a) The state board shall adopt primary drinking water standards for contaminants in drinking water that are based upon the criteria set forth in subdivision (b) and shall not be less stringent than the national primary drinking water standards adopted by the United States Environmental Protection Agency. A primary drinking water standard adopted by the state board shall be set at a level that is as close as feasible to the corresponding public health goal placing primary emphasis on the protection of public health, and that, to the extent technologically and economically feasible, meets all of the following:

(1) With respect to acutely toxic substances, avoids any known or anticipated adverse effects on public health with an adequate margin of safety.

(2) With respect to carcinogens, or any substances that may cause chronic disease, avoids any significant risk to public health.

(b) The state board shall consider all of the following criteria when it adopts a primary drinking water standard:

(1) The public health goal for the contaminant published by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c).

(2) The national primary drinking water standard for the contaminant, if any, adopted by the United States Environmental Protection Agency.

(3) The technological and economic feasibility of compliance with the proposed primary drinking water standard. For the purposes of determining economic feasibility pursuant to this paragraph, the state board shall consider the costs of compliance to public water systems, customers, and other affected parties with the proposed primary drinking water standard, including the cost per customer and aggregate cost of compliance, using best available technology.

(c) (1) The Office of Environmental Health Hazard Assessment shall prepare and publish an assessment of the risks to public health posed by each contaminant for which the state board proposes a primary drinking water standard. The risk assessment shall be prepared using the most current principles, practices, and methods used by public health professionals who are experienced practitioners in the fields of epidemiology, risk assessment, and toxicology. The risk assessment shall contain an estimate of the level of the contaminant in drinking water that is not anticipated to cause or contribute to adverse health effects, or that does not pose any significant risk to health. This level shall be known as the public health goal for the contaminant. The public health goal shall be based exclusively on public health considerations and shall be set in accordance with all of the following:

(A) If the contaminant is an acutely toxic substance, the public health goal shall be set at the level at which no known or anticipated adverse effects on health occur, with an adequate margin of safety.

(B) If the contaminant is a carcinogen or other substance that may cause chronic disease, the public health goal shall be set at the level that, based upon currently available data, does not pose any significant risk to health.

(C) To the extent information is available, the public health goal shall take into account each of the following factors:

(i) Synergistic effects resulting from exposure to, or interaction between, the contaminant and one or more other substances or contaminants.

(ii) Adverse health effects the contaminant has on members of subgroups that comprise a meaningful portion of the general population, including, but not limited to, infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other subgroups that are identifiable as being at greater risk of adverse health effects than the general population when exposed to the contaminant in drinking water.

(iii) The relationship between exposure to the contaminant and increased body burden and the degree to which increased body burden levels alter physiological function or structure in a manner that may significantly increase the risk of illness.

(iv) The additive effect of exposure to the contaminant in media other than drinking water, including, but not limited to, exposures to the contaminant in food, and in ambient and indoor air, and the degree to which these exposures may contribute to the overall body burden of the contaminant.

(D) If the Office of Environmental Health Hazard Assessment finds that currently available scientific data are insufficient to determine the level of a contaminant at which no known or anticipated adverse effects on health will occur, with an adequate margin of safety, or the level that poses no significant risk to public health, the public health goal shall be set at a level that is protective of public health, with an adequate margin of safety. This level shall be based exclusively on health considerations and shall, to the extent scientific data is available, take into account the factors set forth in clauses (i) to (iv), inclusive, of subparagraph (C), and shall be based on the most current principles, practices, and methods used by public health professionals who are experienced practitioners in the fields of epidemiology, risk assessment, and toxicology. However, if adequate scientific evidence demonstrates that a safe dose response threshold for a contaminant exists, then the public health goal should be set at that threshold. The state board may set the public health goal at zero if necessary to satisfy the requirements of this subparagraph.

(2) The determination of the toxicological endpoints of a contaminant and the publication of its public health goal in a risk assessment prepared by the Office of Environmental Health Hazard Assessment are not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The Office of Environmental Health Hazard Assessment and the state board shall not impose any mandate on a public water system that requires the public water system to comply with a public health goal. The Legislature finds

and declares that the addition of this paragraph by Chapter 777 of the Statutes of 1999 is declaratory of existing law.

(3) (A) The Office of Environmental Health Hazard Assessment shall, at the time it commences preparation of a risk assessment for a contaminant as required by this subdivision, electronically post on its Internet Web site a notice that informs interested persons that it has initiated work on the risk assessment. The notice shall also include a brief description, or a bibliography, of the technical documents or other information the office has identified to date as relevant to the preparation of the risk assessment and inform persons who wish to submit information concerning the contaminant that is the subject of the risk assessment of the name and address of the person in the office to whom the information may be sent, the date by which the information shall be received in order for the office to consider it in the preparation of the risk assessment, and that all information submitted will be made available to any member of the public who requests it.

(B) A draft risk assessment prepared by the Office of Environmental Health Hazard Assessment pursuant to this subdivision shall be made available to the public at least 45 calendar days before the date that public comment and discussion on the risk assessment are solicited at the public workshop required by Section 57003.

(C) At the time the Office of Environmental Health Hazard Assessment publishes the final risk assessment for a contaminant, the office shall respond in writing to significant comments, data, studies, or other written information submitted by interested persons to the office in connection with the preparation of the risk assessment. These comments, data, studies, or other written information submitted to the office shall be made available to any member of the public who requests it.

(D) After the public workshop on the draft risk assessment, as required by Section 57003, is completed, the Office of Environmental Health Hazard Assessment shall submit the draft risk assessment for external scientific peer review using the process set forth in Section 57004 and shall comply with paragraph (2) of subdivision (d) of Section 57004 before publication of the final public health goal.

(d) Notwithstanding any other provision of this section, any maximum contaminant level in effect on August 22, 1995, may be amended by the state board to make the level more stringent pursuant to this section. However, the state board may only amend a maximum contaminant level to make it less stringent if the state board shows clear and convincing evidence that the maximum contaminant level should be made less stringent and the amendment is made consistent with this section.

(e) (1) All public health goals published by the Office of Environmental Health Hazard Assessment shall be established in accordance with the requirements of subdivision (c). The office shall determine, at least once every five years, whether there has been a detection of the corresponding contaminant of each public health goal in the preceding five years in the testing required pursuant to this chapter. Each public health goal shall be reviewed at least once every five years unless the office determines, pursuant to this paragraph, that there has not been a detection of the corresponding contaminant in the preceding five years. Reviewed public health goals

shall be revised, pursuant to subdivision (c), as necessary based upon the availability of new scientific data.

(2) On or before January 1, 1998, the Office of Environmental Health Hazard Assessment shall publish a public health goal for at least 25 drinking water contaminants for which a primary drinking water standard has been adopted by the state board. The office shall publish a public health goal for 25 additional drinking water contaminants by January 1, 1999, and for all remaining drinking water contaminants for which a primary drinking water standard has been adopted by the state board by no later than December 31, 2001. A public health goal shall be published by the Office of Environmental Health Hazard Assessment at the same time the state board proposes the adoption of a primary drinking water standard for any newly regulated contaminant.

(f) The state board or Office of Environmental Health Hazard Assessment may review, and adopt by reference, any information prepared by, or on behalf of, the United States Environmental Protection Agency for the purpose of adopting a national primary drinking water standard or maximum contaminant level goal when it establishes a California maximum contaminant level or publishes a public health goal.

(g) At least once every five years after adoption of a primary drinking water standard, the state board shall review the primary drinking water standard and shall, consistent with the criteria set forth in subdivisions (a) and (b), amend any standard if either of the following occur:

(1) Changes in technology or treatment techniques that permit a materially greater protection of public health or attainment of the public health goal.

(2) New scientific evidence that indicates that the substance may present a materially different risk to public health than was previously determined.

(h) No later than March 1 of every year, the state board shall provide public notice of each primary drinking water standard it proposes to review in that year pursuant to this section. Thereafter, the state board shall solicit and consider public comment and hold one or more public hearings regarding its proposal to either amend or maintain an existing standard. With adequate public notice, the state board may review additional contaminants not covered by the March 1 notice.

(i) This section shall operate prospectively to govern the adoption of new or revised primary drinking water standards and does not require the repeal or readoption of primary drinking water standards in effect immediately preceding January 1, 1997.

(j) The state board may, by regulation, require the use of a specified treatment technique in lieu of establishing a maximum contaminant level for a contaminant if the state board determines that it is not economically or technologically feasible to ascertain the level of the contaminant.

(Amended by Stats. 2018, Ch. 51, Sec. 15. (SB 854) Effective June 27, 2018.)

**State of California**

**HEALTH AND SAFETY CODE**

**Section 116470**

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116470. (a) As a condition of its operating permit, every public water system shall annually prepare a consumer confidence report and mail or deliver a copy of that report to each customer, other than an occupant, as defined in Section 799.28 of the Civil Code, of a recreational vehicle park. A public water system in a recreational vehicle park with occupants as defined in Section 799.28 of the Civil Code shall prominently display on a bulletin board at the entrance to or in the office of the park, and make available upon request, a copy of the report. The report shall include all of the following information:

- (1) The source of the water purveyed by the public water system.
  - (2) A brief and plainly worded definition of the terms “maximum contaminant level,” “primary drinking water standard,” and “public health goal.”
  - (3) If any regulated contaminant is detected in public drinking water supplied by the system during the past year, the report shall include all of the following information:
    - (A) The level of the contaminant found in the drinking water, and the corresponding public health goal and primary drinking water standard for that contaminant.
    - (B) Any violations of the primary drinking water standard that have occurred as a result of the presence of the contaminant in the drinking water and a brief and plainly worded statement of health concerns that resulted in the regulation of that contaminant.
    - (C) The public water system’s address and phone number to enable customers to obtain further information concerning contaminants and potential health effects.
  - (4) Information on the levels of unregulated contaminants, if any, for which monitoring is required pursuant to state or federal law or regulation.
  - (5) Disclosure of any variances or exemptions from primary drinking water standards granted to the system and the basis therefor.
- (b) On or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare a brief written report in plain language that does all of the following:
- (1) Identifies each contaminant detected in drinking water that exceeds the applicable public health goal.
  - (2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal for that contaminant.

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

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

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

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

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

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

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

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

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

(Repealed and added by Stats. 1996, Ch. 755, Sec. 12. Effective January 1, 1997.)

**MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants**

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

Last Update: March 13, 2019

This table includes:

- California's maximum contaminant levels (MCLs)
- Detection limits for purposes of reporting (DLRs)
- [Public health goals \(PHGs\) from the Office of Environmental Health Hazard Assessment \(OEHHA\)](#)

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

For comparison:

[Federal MCLs and Maximum Contaminant Level Goals \(MCLGs\) \(US EPA\)](#)

Regulated Contaminant	MCL	DLR	PHG	Date of PHG
<b>Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals</b>				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.001	2016
Arsenic	0.010	0.002	0.000004	2004
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003
Barium	1	0.1	2	2003
Beryllium	0.004	0.001	0.001	2003
Cadmium	0.005	0.001	0.00004	2006
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999
Chromium, Hexavalent - 0.01-mg/L MCL & 0.001-mg/L DLR repealed September 2017	--	--	0.00002	2011
Cyanide	0.15	0.1	0.15	1997
Fluoride	2	0.1	1	1997
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*
Nickel	0.1	0.01	0.012	2001
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018
Nitrite (as N)	1 as N	0.4	1 as N	2018
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018
Perchlorate	0.006	0.004	0.001	2015
Selenium	0.05	0.005	0.03	2010
Thallium	0.002	0.001	0.0001	1999 (rev2004)
<b>Copper and Lead, 22 CCR §64672.3</b>				
<i>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</i>				
Copper	1.3	0.05	0.3	2008
Lead	0.015	0.005	0.0002	2009
<b>Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity</b>				
[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]				
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a

MCL	MCLG
--	--
0.006	0.006
0.010	zero
7 MFL	7 MFL
2	2
0.004	0.004
0.005	0.005
0.1	0.1
--	--
0.2	0.2
4.0	4.0
0.002	0.002
--	--
10	10
1	1
--	--
--	--
0.05	0.05
0.002	0.0005
<b>Copper and Lead, 22 CCR §64672.3</b>	
<i>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</i>	
1.3	1.3
0.015	zero
<b>Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity</b>	
[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]	
15	zero
4 mrem/yr	zero

Radium-226	--	1	0.05	2006
Radium-228	--	1	0.019	2006
Radium-226 + Radium-228	5	--	--	--
Strontium-90	8	2	0.35	2006
Tritium	20,000	1,000	400	2006
Uranium	20	1	0.43	2001
<b>Chemicals with MCLs in 22 CCR §64444—Organic Chemicals</b>				
<b>(a) Volatile Organic Chemicals (VOCs)</b>				
Benzene	0.001	0.0005	0.00015	2001
Carbon tetrachloride	0.0005	0.0005	0.0001	2000
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000
1,2-Dichloropropane	0.005	0.0005	0.0005	1999
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)
Ethylbenzene	0.3	0.0005	0.3	1997
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999
Monochlorobenzene	0.07	0.0005	0.07	2014
Styrene	0.1	0.0005	0.0005	2010
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001
Toluene	0.15	0.0005	0.15	1999
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.0005	1	2006
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)
Vinyl chloride	0.0005	0.0005	0.00005	2000
Xylenes	1.750	0.0005	1.8	1997
<b>(b) Non-Volatile Synthetic Organic Chemicals (SOCs)</b>				
Alachlor	0.002	0.001	0.004	1997
Atrazine	0.001	0.0005	0.00015	1999
Bentazon	0.018	0.002	0.2	1999 (rev2009)
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010
Carbofuran	0.018	0.005	0.0007	2016
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)
Dalapon	0.2	0.01	0.79	1997 (rev2009)
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.0000017	1999
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997
Dinoseb	0.007	0.002	0.014	1997 (rev2010)

5	zero
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--	--
30 µg/L	zero
0.005	zero
0.005	zero
0.6	0.6
0.075	0.075
--	--
0.005	zero
0.007	0.007
0.07	0.07
0.1	0.1
0.005	zero
0.005	zero
--	--
0.7	0.7
--	--
0.1	0.1
0.1	0.1
0.1	0.1
0.005	zero
1	1
0.07	0.07
0.2	0.2
0.005	0.003
0.005	zero
--	--
--	--
0.002	zero
10	10
0.002	zero
0.003	0.003
--	--
0.0002	zero
0.04	0.04
0.002	zero
0.2	0.2
0.0002	zero
0.07	0.07
0.4	0.4
0.006	zero
0.007	0.007

Diquat	0.02	0.004	0.006	2016
Endothal	0.1	0.045	0.094	2014
Endrin	0.002	0.0001	0.0003	2016
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003
Glyphosate	0.7	0.025	0.9	2007
Heptachlor	0.00001	0.00001	0.000008	1999
Heptachlor epoxide	0.00001	0.00001	0.000006	1999
Hexachlorobenzene	0.001	0.0005	0.00003	2003
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)
Methoxychlor	0.03	0.01	0.00009	2010
Molinate	0.02	0.002	0.001	2008
Oxamyl	0.05	0.02	0.026	2009
Pentachlorophenol	0.001	0.0002	0.0003	2009
Picloram	0.5	0.001	0.166	2016
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007
Simazine	0.004	0.001	0.004	2001
Thiobencarb	0.07	0.001	0.042	2016
Toxaphene	0.003	0.001	0.00003	2003
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009
2,3,7,8-TCDD (dioxin)	3x10 <sup>-8</sup>	5x10 <sup>-9</sup>	5x10 <sup>-11</sup>	2010
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014
<b>Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts</b>				
Total Trihalomethanes	0.080	--	--	--
Bromodichloromethane	--	0.0010	0.00006	2018 draft
Bromoform	--	0.0010	0.0005	2018 draft
Chloroform	--	0.0010	0.0004	2018 draft
Dibromochloromethane	--	0.0010	0.0001	2018 draft
Haloacetic Acids (five) (HAA5)	0.060	--	--	--
Monochloroacetic Acid	--	0.0020	--	--
Dichloroacetic Acid	--	0.0010	--	--
Trichloroacetic Acid	--	0.0010	--	--
Monobromoacetic Acid	--	0.0010	--	--
Dibromoacetic Acid	--	0.0010	--	--
Bromate	0.010	0.0050**	0.0001	2009
Chlorite	1.0	0.020	0.05	2009
<b>Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.</b>				
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.				

0.02	0.02
0.1	0.1
0.002	0.002
0.00005	zero
0.7	0.7
0.0004	zero
0.0002	zero
0.001	zero
0.05	0.05
0.0002	0.0002
0.04	0.04
--	--
0.2	0.2
0.001	zero
0.5	0.5
0.0005	zero
0.004	0.004
--	--
0.003	zero
--	--
3x10 <sup>-8</sup>	zero
0.05	0.05
<b>Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts</b>	
0.080	--
--	zero
--	zero
--	0.07
--	0.06
0.060	--
--	0.07
--	zero
--	0.02
--	--
--	--
0.01	zero
1	0.8
<b>Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.</b>	
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