City of Ceres
Water Division
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2015 Public Health Goals Report
The City of Ceres Water Division
Prepared by Water Quality Staff

Table of Contents

Glossary

AL:	Action Level
ACWA:	Association of California Water Agencies
BAT’s:	Best Available Technologies
CDPH:	California Department of Public Health
CPUC:	California Public Utilities Commission
DBCP:	Dibromochloropropane
GAC:	Granular Activated Carbon
MCL’s:	Maximum Contaminant Level’s
MCLG’S:	Maximum Contaminant Level Goal’s
OEHHA:	Office of Environmental Health Hazard Assessment
PHG’s:	Public Health Goal’s
RO:	Reverse Osmosis
SVE:	Soil Vapor Extraction
SWRCB:	State Water Resources Control Board
TCP:	1.2.3- Trichloropropane
USEPA:	U.S. Environmental Protection Agency
UV:	Ultraviolet

Executive Summary

The City of Ceres Water Division is required by the California Health and Safety Code, Section 116470 (b), to prepare a report regarding Public Health Goals (PHGs). This report is intended to provide information to the public and decision makers in addition to the Annual Water Quality Consumer Confidence Report with specific information regarding drinking water safety and the cost of further reducing contaminant levels to bring them closer to the PHGs.

This report documents the drinking water contaminants in our water supply found to be above California State PHGs and/or Federal Maximum Contaminant Level Goals (MCLGs) during calendar years 2012, 2013, 2014. PHGs and MCLGs are non-enforceable goals set by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) and the U.S. Environmental Protection Agency (EPA). PHGs are often not practically achievable from an economic and technological point of view. However, the goals are useful tools for regulators when deterring enforceable standards such as maximum contaminant levels (MCLs), that water suppliers are required to meet.

The City of Ceres water system complies with all health-based drinking water standards and Maximum Contaminant Levels (MCLs) required by the California Department of Public Health (CDPH) and the EPA. In the last three years, of the 100 plus PHGs and MCLGs currently established, only eight (Arsenic, Chromium six, DBCP, Lead, TCP, Radium 226 & 228, and Uranium) were exceeded. The City is not required to make any changes, and is not proposing to make any changes or modifications that would affect the quality of water delivered to its customers. The following table summarizes the finding from the 2015 PHG report:

Chemical	Units	MCL / [AL](1)	PHG or [MCLG](2)	Result	Sample Date
Arsenic	mg/L(3)	0.01	0.000004	0.024	2012
Chromium 6	mg/L	0.01	0.00002	0.0033	2014
DBCP	mg/L	0.0002	0.0000017	0.000098	2013
Lead	mg/L	[0.015]	0.0002	0.002	2014
TCP	mg/L	---(4)	0.0000007	0.00011	2014
Radium 226	pCi/L(5)	5	0.05	0.608	2013
Radium 228	pCi/L	5	0.019	0.219	2013
Uranium	pCi/L	20	0.43	14	2012

(1) AL: Action Level. CDPH requires that lead concentration in 90% of the water samples collected at customer taps not to exceed the AL.

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

(3) mg/L: parts per milligrams per liter (mg/L).

(4) No federal or state MCL have been set for TCP.

(5) Picocuries per liter (pCi/L).

Background:

Public Health Goals are established by California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) and are based solely on public health risk considerations. Health risk assessments of known and potentially harmful chemicals in the environment are provided by OEHHA to State and local environmental regulatory agencies that regulate drinking water. Not all chemicals are harmful since some chemicals, such as essential nutrients, are necessary for our health at the appropriate level. Other chemicals can be either beneficial or harmful, depending on the circumstances and the amount of chemical to which one is exposed. OEHHA establishes PHGs at levels that pose little or no threat to human health.

Most Public Health Goals are set at levels where the potential health risk is considered to be no more than one additional cancer case (beyond what would normally occur) in a population of one million people, assuming consumption of two liters of water per day over a 70 year lifetime. However, some PHGs are set at a zero risk. In determining PHGs, OEHHA does not consider any of the practical risk-management factors that are considered by the EPA or the California Department of Public Health (CDPH) in setting drinking water MCLs such as analytical detection capability, treatment technology availability, benefits and costs. Although, PHGs are not enforceable they establish goals that public water systems should strive, but are not required, to achieve. Maximum Contaminant Level Goals (MCLGs) are the federal equivalent to PHGs and similarly are non-enforceable standards.

In preparing the following report, all of the water quality data collected between 2012 thru 2014 for the purpose of determining compliance with drinking water standards were considered in conjunction with all contaminants that have a PHGs or MCLGs. This report provides the information required by the law. Included is the numerical public health risk associated with MCL, PHG or MCLG, the category or type of risk to health that could be associated with each constituent, the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it is appropriate and feasible.

What are Public Health Goals?

A Public Health Goal is the level of a chemical contaminant in drinking water that does not pose a significant risk to health. PHGs are not regulatory standards. However, state law requires that the State Water Resources Control Board (SWRCB) set drinking water standards for chemical contaminants as close to the corresponding PHG as is economically and technologically feasible. In some cases, it may not be feasible for SWRCB to set the drinking water standard for a contaminant at the same level as the PHG. The technology to treat the chemicals may not be available, or the cost of treatment may be very high. The USEPA and the California Department of Public Health are responsible for establishing regulations and setting drinking water standards and goals. These agencies, along with the California Public Utilities Commission (CPUC) set rules and regulations for water systems to follow.

None of the practical risk-management factors that are considered by the USEPA or CDHS in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. The PHGs are not enforceable and are not required to be met by any public water system. Maximum Contaminant Level Goals (MCLGs) are the federal equivalent to PHGs (see Appendix A).

Water Quality Data Considered:

All of the water quality data collected by our water system between 2012 and 2014 for purposes of determining compliance with drinking water standards for the 2015 Public Health Goal report was considered. This data was summarized in the City's 2012, 2013, and 2014 Annual Consumer Confidence Reports which were made accessible to our residents via the City of Ceres Water Division Website at http://www.ci.ceres.ca.us/213.html or by calling the Public Works Office at (209) 538-5732 and requesting a copy be mailed to their address.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these reports. The ACWA guidelines and cost estimate tables were used in the preparation of this report.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and California Department of Public Health adopt Best Available Technologies (BATs), which are the best known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

Constituents Detected that Exceed Public Health Goals or Maximum Contaminant Level Goals:

The following is a discussion of constituents that were detected in one or more of our drinking water sources at levels above the PHG, or if no PHG, above the MCLG. Maximum Contaminant Level Goals (MCLGs) and Public Health Goals are often set at very low levels depending on the established health risk, and in the case of USEPA, MCLGs can be set at zero for some contaminants. Many contaminants are considered to be carcinogenic and USEPA's policy is to set the applicable Maximum Contaminant Level Goals (MCLGs) at zero because they consider no amount of these contaminants to be without risk. It is understood by all that zero is an unattainable goal and cannot be measured by the practically available analytical methods. Note that by regulation, OEHHA cannot set a PHG at zero and must calculate a numerical level to address risk.

The following is a discussion of constituents that were detected at levels above the established PHGs, or if no PHG, above the applicable MCLGs during the calendar years of 2012, 2013, and 2014.

Inorganic Chemical Contaminants

Arsenic:

Arsenic is a naturally occurring element in the earth's crust and is very widely distributed in the environment. High levels of arsenic tend to be found more in ground water sources than in surface water sources of drinking water. The demand on ground water from municipal systems and private drinking water wells may cause water levels to drop and release arsenic from rock formations. Other sources of contaminant in the drinking water include erosion of natural deposits, runoff from orchards, and runoff from glass and electronics production waste. All humans are exposed to microgram quantities of arsenic (inorganic and organic) largely from food and to a lesser degree from drinking water and air.

The MCL for arsenic is 10 parts per billion (ppb), the PHG and MCLG for arsenic is 0.0004 ppb. The City has detected arsenic at Well 20 in exceedance of the MCL and the PHG; with a level of 24 ppb in 2012. The three year average arsenic level at Well 20 is 14.975 ppb. This well has been taken offline to comply.

The California Department of Public Health and USEPA have determined that arsenic is a health concern at certain levels of exposure. The category of health risk associated with arsenic is that some people who drink water containing arsenic above the MCL; over many years may experience skin damage, circulatory system problems and are at a higher risk of getting cancer. The numerical health risk for cancer attached to levels above the PHG is $1\text{x}10^{-6}$ which means one excess cancer case per million people exposed.

The California Department of Public Health lists the Best Available Technologies (BATs) for removing arsenic to below the MCL as activated alumina, ion exchange, lime softening, coagulation/filtration, electrodialysis, oxidation/filtration and reverse osmosis (RO). The most effective method to consistently remove arsenic to below the PHG is to install RO. Due to the high cost of installing RO and annual operation costs; Well 20 was taken off line therefore no estimate of cost has been included.

Hexavalent Chromium:

Hexavalent Chromium, also known as Chromium 6, is a heavy metal that is commonly found at low levels in drinking water. It occurs naturally in the environment from the erosion of natural chromium deposits. It can also be produced by industrial processes, leakage, poor storage or inadequate industrial waste disposal practices. Chromium is found in drinking water sources and the environment in two principal forms: trivalent chromium (chromium 3) and hexavalent chromium (chromium 6). Chromium 3 is found naturally in foods at low levels and is an essential human dietary nutrient. Chromium 6 is the more toxic form of chromium. Chromium is used in products and processes such as; stainless steel, textile dyes, wood preservation, leather tanning, and anti-corrosion coating. Chromium coatings are applied to aluminum, zinc, cadmium, copper, silver, magnesium, and tin to prevent rust or other damage that can occur from exposure to oxygen.

The newly adopted (July 1, 2014) MCL for Hexavalent Chromium is 0.010 mg/L (milligrams per liter) with a PHG of 0.00002 mg/L. The City has detected Chromium Six at several wells in exceedance of the PHG; Well 16 had the highest recorded level of 0.0033 mg/L in 2014. In general, a result exceeding the MCL triggers quarterly monitoring. Since we have not recorded a result above the MCL we are in full compliance with the drinking water standards for Hexavalent Chromium; but the Chromium Six levels in the system at times exceeds the PHG.

The California Department of Public Health and USEPA have determined that Chromium Six is a health concern at certain levels of exposure. The category of health risk associated with Chromium Six is that continued exposure to Chromium Six could result in allergic dermatitis (skin reactions) and has been found to cause gastrointestinal tumors in rats and mice. The numerical health risk for cancer attached to levels above the PHG is $1x10^{-6}$ which means one excess cancer case per million people exposed.

The California Department of Public Health lists the Best Available Technologies (BATs) for removing Chromium Six to below the MCL as coagulation/filtration (requires reduction to chromium III prior to treatment), ion exchange, and reverse osmosis (RO). Since we are meeting the MCL requirements, it is not practical to initiate additional treatment methods; which involves the addition of other chemicals that could raise other water quality issues. Therefore, no estimate of cost has been included.

Lead:

The principal source of lead in tap water is the pipes and plumbing fixtures in the customers own household plumbing. Factors that can increase the amount of lead in tap water include: household fittings or faucets made of brass; lead-based solder used to join fittings or piping materials; and water that is soft or corrosive. At the tap samples are first draw, 1 liter samples from taps where the water has stood in the pipes for a stagnation period of at least 6 hours (i.e., no toilet flushing, showering, or other use of water). Due to the stagnation period, lead at the tap samples does not serve as a good representation of what residents may be exposed to under typical conditions; these at the tap samples are most likely to have the highest lead levels.

There is no MCL for Lead. Instead the 90th percentile value of all samples from household taps in the distribution system cannot exceed an Action Level of 0.015 mg/l for lead. The PHG for lead is 0.0002 mg/l. An Action Level (AL) means the concentration of lead in water which is used to determine the treatment requirements that a water system is required to complete. Monitoring of lead and copper is conducted once every three years. The samples for lead in 2012 and 2013 were less than the PHG. Based on sampling of our distribution system in 2014, our 90th percentile value for lead was 0.002 mg/l. This is below the AL per the Lead and Copper Rule but above the PHG.

Lead is an important contaminant to monitor in drinking water. According to the USEPA, infants and children who drink water containing lead in excess of the Action Level could experience delays in their physical and mental development. Adults who drink this water over many years could develop kidney problems or high blood pressure. The California Department of Public Health states that lead in drinking water is rarely the sole cause of lead poisoning. However, it can significantly increase a person's total lead exposure. In addition, the risk of cancer for people who drink water with lead in excess of the PHG is 3 excess cases of cancer per 1 million people. The risk for people who drink water with lead in excess of the MCL is 2 excess cases of cancer per 1 million people.

Our water system is in full compliance with the Federal and State Lead and Copper Rule. Based on our extensive sampling, it was determined according to State regulatory requirements that we meet the Action Levels for Lead. Therefore, we are deemed by CDHS to have "optimized corrosion control" for our system.

In general, optimizing corrosion control is considered to be the best available technology to deal with corrosion issues and with any lead or copper findings. The City continues to monitor the water quality parameters that relate to corrosivity, such as pH, hardness, alkalinity, total dissolved solids, and will take action if necessary to maintain our system in an "optimized corrosion control" condition.

Since we are meeting the "optimized corrosion control" requirements, it is not recommended that additional treatments to remove lead be implemented. Therefore, no estimate of cost has been included.

Organic Chemical Contaminants

Dibromochloropropane:

Dibromochloropropane (DBCP) was originally introduced under the trade name Fumazone and was used as a soil fumigant for the control of plant parasitic nematodes. The major agricultural use was on soybeans, cotton, pineapples, and orchards. DBCP is a simple halogenated hydrocarbon that is liquid at room temperature. DBCP is miscible in water and alcohols and is also very volatile.

The MCL for DBCP is 0.0002 mg/L, the PHG and MCLG for DBCP is 0.0000017 mg/L. The City has detected DBCP in exceedance of the PHG; with a level of 0.000098 mg/L in 2013. Although, the DBCP level in the system at times has exceeded the PHG; our water system is in full compliance with the drinking water standards for DBCP.

The California Department of Public Health and USEPA have determined that DBCP is a health concern at certain levels of exposure. DBCP is a banned nematocide that may still be present in soils due to runoff or leaching from former use on various crops. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Furthermore, some people who drink water containing DBCP in excess of the MCL over many years may experience reproductive difficulties. The numerical health risk for the PHG of 1.7 ng/L (nanograms per liter) is one excess case of cancer per million people. The numerical health risk for the MCL of 200 ng/L is one excess case of cancer per ten thousand people.

The California Department of Public Health lists the Best Available Technologies (BATs) for removing DBCP as treatment with granular activated carbon (GAC) and by packed tower aeration. The most effective method to consistently remove DBCP to below the PHG is to install GAC treatment at the select sources where the water exceeds the PHG. Since we are meeting the MCL requirements, it is not practical to initiate additional treatment methods; which involves the addition of other chemicals that could raise other water quality issues. Therefore, no estimate of cost has been included.

Radiological Chemical Contaminants

Uranium:

Uranium is a naturally occurring radioactive element that is ubiquitous in the earth's crust. Uranium is found in ground and surface waters due to its natural occurrence in geological formations. Due to its abundance in geological formations uranium varies from place to place and is a highly variable source of contamination in drinking water. Since uranium occurs as a trace element it is found in many types of rocks. Other sources of contaminant in the drinking water include phosphate deposits and mine tailings, as well as from run-off of phosphate fertilizers from agricultural land.

The MCL for Uranium is 20 pCi/L (picocuries per liter), the PHG is 0.43 pCi/L and the MCLG is 0 pCi/L. The City has detected uranium in exceedance of the PHG; with a level of 14 pCi/L in 2012. Uranium is a contaminant that is averaged to verify compliance. The three year average Uranium level at the well with the highest recorded result is 10.119 pCi/L. Although, the Uranium level in the system at times has exceeded the PHG; our water system is in full compliance with the drinking water standards for Uranium.

The California Department of Public Health and USEPA have determined that uranium is a health concern at certain levels of exposure. The radiological constituent is a naturally occurring contaminant in groundwater supplies. However, exposure to uranium in drinking water may experience kidney toxicity, and increased risk of cancer. This constituent has also been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. The numerical health risk for the PHG of 0.43 pCi/L is $1\text{x}10^{-6}$ which means one excess cancer case per million people. The numerical health risk for the MCL of 20 pCi/L is 5 excess cancer cases per hundred thousand people.

The California Department of Public Health lists the Best Available Technologies (BATs) for removing uranium is ion exchange, reverse osmosis (RO), lime softening, or coagulation/filtration. The most effective method to consistently remove uranium to below the PHG is to install RO treatment at the select sources where the water exceeds the PHG. The City of Ceres Water System is in full compliance with the drinking water standard for uranium, but the uranium level in the system at times exceeds the PHG. Since we are meeting the MCL requirements, it is not recommended to initiate additional treatment methods; which involves the addition of other chemicals that could raise other water quality issues. Therefore, no estimate of cost has been included.

Radium:

The radionuclides Radium 226 and Radium 228 are naturally occurring. They are formed from the decay of the primordial radionuclides uranium 238 and thorium 232 in the earth's crust. As such, there is a small amount of radium 226 and radium 228 in most environmental media including drinking water. Radium 226 decays by emitting an alpha particle and Radium 228 decays by beta particle emissions, in both cases accompanied by gamma emissions.

The MCL for combined Radium (226 + 228) is 5 pCi/L, the PHG for radium 226 is 0.05 pCi/L and the PHG for radium 228 is 0.019 pCi/L. The City has detected radium in exceedance of the PHG; with a level of 0.608 for radium 226 and 0.219 for radium 228. Although, the radium levels in the system at times have exceeded the PHG; our water system is in full compliance with the drinking water standards for radium.

The California Department of Public Health and USEPA have determined that combined radium is a health concern at certain levels of exposure. Its most common isotopes are radium-226, radium-224, and radium-228. MCLs have been set for the isotopes radium-226 and radium-228 in drinking water. The category of health risk associated with combined radium, and the reason that a drinking water standard was adopted for it, is that some people who drink water containing radium-226 and/or radium-228 in excess of the MCL over many years may have an increased risk of getting cancer. The numerical health risk for cancer attached to levels above the PHG is $1\text{x}10^{-6}$ which means one excess cancer case per million people exposed. The numerical health risk for cancer attached to levels above the MCL is $1\text{x}10^{-4}$ which means one excess cancer case per ten thousand people exposed for Radium-226 and $3x10^{-4}$ which means three excess cancer case per ten thousand people exposed for Radium-228. CDPH and USEPA set the drinking water standard for combined radium at 5 pCi/L to reduce the risk of cancer or other adverse health effects.

The California Department of Public Health lists the Best Available Technologies (BATs) identified to remove combined radium from drinking water is ion exchange, reverse osmosis (RO), and lime softening. The most effective method to consistently remove combined radium to the Maximum Contaminant Level Goal is to install RO treatment at the select sources where the water exceeds the MCLG. The City of Ceres Water System is in full compliance with the drinking water standard for radium, but the radium level in the system at times exceeds the PHG. Since we are meeting the MCL requirements, it is not practical to initiate additional treatment methods; which involves the addition of other chemicals that could raise other water quality issues. Therefore, no estimate of cost has been included.

Unregulated Chemical Contaminants

1.2.3- Trichloropropane (TCP):

TCP is not found in nature, it is completely man made. TCP has been used as an industrial solvent, as a cleaning and degreasing agent, and in the production of pesticides. TCP is currently used as a chemical intermediate in the creation of other chemicals, including polysulfone liquid polymers and dichloropropene, and in the synthesis of hexafluoropropylene. In addition, it is used as a crosslinking agent in the creation of polysulfides. TCP is a chlorinated hydrocarbon that is typically found at industrial or hazardous waste sites.

TCP levels in drinking water are currently unregulated, but the State Water Resources Control Board is in the process of developing a Maximum Contaminant Level (MCL) for TCP. The State of California has adopted a Public Health Goal for TCP of 0.0000007 mg/L. The City has detected TCP in exceedance of the PHG; with a level of 0.00011 mg/L in 2014.

The California Department of Public Health and USEPA have determined that TCP is a health concern at certain levels of exposure. The category of health risk associated with TCP is that animal studies have shown that long-term TCP exposure may cause kidney failure, reduced body weight, and increased incidences of tumors within numerous organs and are at a higher risk of getting cancer. The numerical health risk for cancer attached to levels above the PHG is $1x10^{-6}$ which means one excess cancer case per million people exposed.

The EPA lists the Best Available Technologies (BATs) available for removing TCP contamination from ground water to be granular activated carbon (GAC), soil vapor extraction (SVE), ultraviolet (UV) radiation and chemical oxidation with potassium permanganate. Laboratory-scale use of an oxidation process (HiPOx) using ozone and hydrogen peroxide has also been successful.

Since there is not an MCL requirements to meet and PHGs are not enforceable or required to be met by any public water system; it is not practical to initiate additional treatment methods. Therefore, no estimate of cost has been included.

Cost of Treatment

The cost of treatment can depend upon a number of constraints and factors. They include the type of treatment, the number of separate treatment facilities required, if there are multiple contaminants, whether they can all be removed with one treatment technology or require multiple technologies. The money that would be required for these additional treatment processes might provide greater public health protection benefits if spent on other water system operation, surveillance, new well construction, and monitoring programs.

Summary of Findings

Overall, eight contaminants were detected in the City of Ceres Water System at concentrations above the Public Health Goal and/or Maximum Contaminant Level Goals. The drinking water quality in our water system meets all State of California Department of Health Services and USEPA drinking water standards set to protect public health. At no time did the water system serve water that contained contaminants in violation recognized and enforceable MCLs. To further reduce the levels of the constituents identified in this report that is already significantly below the health-based Maximum Contaminant Levels established to provide “safe drinking water”, additional costly treatment processes would be required. The effectiveness of the treatment process to provide any significant reductions in constituent levels at these already low levels is uncertain. The health protection benefits of these further hypothetical reductions are not clear and may not be quantifiable; therefore no action is proposed. If you have any questions about this report, please visit our website at http://www.ci.ceres.ca.us/213.html to review the Consumer Confidence Report for 2012 through 2014.

ATTACHMENT No. A

Table of Regulated Constituents with MCLs, PHGs, or MCLGs

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants **(Units are in milligrams per liter (mg/L), unless otherwise noted.)** **Last Update: June 1, 2014**				
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) The federal MCLG for chemicals without a PHG, microbial contaminants, and the DLR for 1,2,3-TCP Also, PHGs for NDMA and 1,2,3-Trichloropropane (which are not yet regulated) are included at the bottom of this table.				
	MCL	**DLR**	**PHG or (MCLG)**	**Date of PHG**
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.02	1997
Antimony	--	--	0.0007	2009 draft
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 - MCL effective July 1, 2014	0.010	0.001	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 NO3)	45	2	45	1997
Nitrite (as N)	1 as N	0.4	1 as N	1997
Nitrate + Nitrite	10 as N	--	10 as N	1997

Perchlorate	0.006	0.004	0.006	2004
Perchlorate	--	--	0.001	2012 draft
Selenium	0.05	0.005	0.03	2010
Thallium	0.002	0.001	0.0001	1999 (rev2004)
Copper and Lead, 22 CCR §64672.3				
Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule				
Copper	1.3	0.05	0.3	2008
Lead	0.015	0.005	0.0002	2009
Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity				
[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]				
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a
Radium-226	--	1	0.05	2006
Radium-228	--	1	0.019	2006
Radium-226 + Radium-228	5	--	--	--
Strontium-90	8	2	0.35	2006
Tritium	20,000	1,000	400	2006
Uranium	20	1	0.43	2001
Chemicals with MCLs in 22 CCR §64444—Organic Chemicals				
(a) Volatile Organic Chemicals (VOCs)				
Benzene	0.001	0.0005	0.00015	2001
Carbon tetrachloride	0.0005	0.0005	0.0001	2000
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999
cis-1,2-Dichloroethylene	0.006	0.0005	0.1	2006
trans-1,2-Dichloroethylene	0.01	0.0005	0.06	2006
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000
1,2-Dichloropropane	0.005	0.0005	0.0005	1999

1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)
Ethylbenzene	0.3	0.0005	0.3	1997
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999
Monochlorobenzene	0.07	0.0005	0.07	2014
Styrene	0.1	0.0005	0.0005	2010
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001
Toluene	0.15	0.0005	0.15	1999
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	2006
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)
Vinyl chloride	0.0005	0.0005	0.00005	2000
Xylenes	1.75	0.0005	1.8	1997
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)				
Alachlor	0.002	0.001	0.004	1997
Atrazine	0.001	0.0005	0.00015	1999
Bentazon	0.018	0.002	0.2	1999 (rev2009)
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010
Carbofuran	0.018	0.005	0.0017	2000
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)
Diquat	0.02	0.004	0.015	2000
Endrin	0.002	0.0001	0.0018	1999 (rev2008)
Endothal	0.1	0.045	0.094	2014
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	0.5	1997
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007
Simazine	0.004	0.001	0.004	2001
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014
2,3,7,8-TCDD (dioxin)	$3x10^{-8}$	$5x10^{-9}$	$5x10^{-11}$	2010
Thiobencarb	0.07	0.001	0.07	2000
Toxaphene	0.003	0.001	0.00003	2003
Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				
Total Trihalomethanes	0.080	--	0.0008	2010 draft
Bromodichloromethane	--	0.0010	--	--
Bromoform	--	0.0010	--	--
Chloroform	--	0.0010	--	--
Dibromochloromethane	--	0.0010	--	--
Haloacetic Acids (five) (HAA5)	0.060	--	--	--
Monochloroacetic Acid	--	0.0020	--	--
Dichloroacetic Adic	--	0.0010	--	--
Trichloroacetic Acid	--	0.0010	--	--
Monobromoacetic Acid	--	0.0010	--	--
Dibromoacetic Acid	--	0.0010	--	--
Bromate	0.010	0.0050**	0.0001	2009
Chlorite	1.0	0.020	0.05	2009
Chemicals with PHGs established in response to CDPH requests. These are not currently regulated drinking water contaminants.				
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006
1,2,3-Trichloropropane	--	--	0.0000007	2009
*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.				