



PUBLIC HEALTH GOALS
REPORT ON WATER QUALITY
CITY OF MORGAN HILL

JUNE 2019



CITY OF MORGAN HILL WATER SYSTEM PUBLIC HEALTH GOALS REPORT ON WATER QUALITY

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SECTION 1: BACKGROUND INFORMATION

What Are Public Health Goals (PHGs):

PHGs are water quality goals established by the California Office of Environmental Health Hazard Assessment (OEHHA) and are based solely on public health risk considerations. In setting the PHGs, OEHHA does not consider any of the practical risk-management factors which are considered by the United States Environmental Protection Agency (USEPA) and the State Water Resources Control Board (SWRCB) when setting drinking water standards. Some of these factors include Maximum Contaminant Levels (MCLs), including factors such as analytical detection capability, treatment technology available, and benefits & costs. PHGs are non-enforceable and are not required to be met by public water systems under the California Health and Safety Code. Maximum Contaminant Level Goals (MCLGs), established by USEPA, are the federal equivalent to PHGs.

Reporting Requirements:

Provisions of the California Health and Safety Code Section 116470 (see Attachment 1) specify that public water systems serving more than 10,000 service connections must prepare a special report if their water quality measurements have exceeded any PHGs. Reporting must be done every three years. The law also requires that where OEHHA has not adopted a PHG for a contaminant, the water suppliers are to use the MCLGs adopted by USEPA. The purpose of this report is to inform consumers of contaminants in City of Morgan Hill Water System's drinking water that exceeded the PHGs or MCLGs during 2016, 2017, and 2018. Included in PHG reports are the numerical public health risk associated with;

- The Maximum Contaminant Level (MCL) and the PHG or MCLG
- The category or type of risk to health that could be associated with each contaminant
- The best treatment technology available that could be used to reduce the contaminant level
- Estimate of the cost to install that treatment if it is appropriate and feasible.

For general information about the quality of the water delivered by City of Morgan Hill Water System, please refer to the latest Annual Water Quality Report. The report can be found online at:

www.morganhill.ca.gov/mhccreport

Water Quality Data Considered:

The water quality data collected by City of Morgan Hill Water System between 2016 and 2018 were considered for the purpose of determining compliance with drinking water standards and PHG reporting requirements (see Attachment 2). This data was all summarized in City of Morgan Hill's Annual Water Quality Reports, which are currently available to customers online at:

www.morganhill.ca.gov/mhccreport

For each regulated contaminant, SWRCB establishes Detection Limits for Purposes of Reporting (DLR). DLRs are the minimum levels at which any analytical result must be reported to SWRCB. Analytical results below the DLRs cannot be quantified with any certainty. In some cases, PHGs are set below the DLRs.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these PHG reports. ACWA guidelines were used in the preparation of this report and can be found by following the link below.

[2019-ACWA-PHG-Report-Guidance.pdf](#)

SECTION 2: CONTAMINANTS DETECTED THAT EXCEED PHGS OR MCLGS

Following is a discussion of the contaminants that was detected at levels above the PHG/MCLG. Reference Attachment 2 for MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants chart.

Lead:

The MCL for lead is 0.015 milligrams per liter (mg/L) in the triennial sample group. The City of Morgan Hill Water System results show a 0.008 mg/L sample during 2018. Although the City of Morgan Hill Water System is not over the MCL, the Public Health Goal (PHG) requires the City of Morgan Hill to report any samples over the PHG for Lead 0.002 mg/L. Lead may be an indicator of internal corrosion of/in the household plumbing system; discharges from industrial manufacturers; or erosion of natural deposits.

The reason for Lead drinking water standard is that infants and children who drink water containing lead in excess of the MCL may experience delays in their physical and mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

Copper:

The MCL for Copper is 1.3 mg/L. The City of Morgan Hill Water System results show a 0.370 mg/L sample during this period of 2018. Although the City of Morgan Hill Water System is not over the MCL, the Public Health Goal (PHG) requires the City of Morgan Hill to report any samples over the PHG for Copper 0.17 mg/L. Copper may be an indicator of internal corrosion the household plumbing system; discharges from industrial manufacturers; or erosion of natural deposits.

The reason for Copper drinking water standard is copper is an essential nutrient, but some people who drink water containing copper in excess of the MCL over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the MCL over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

For customers concerned about lead and/or copper in their drinking water, below are some steps to take to reduce exposure.

Have household water tested for lead and copper.

Find out whether household pipes/fixtures contain lead or lead solder and replace if desired.

Run household water for 15-30 seconds to help flush lead and copper from the pipes.

Aluminum:

The MCL for Aluminum is more than 1 mg/L in any sample. During 2018 the City of Morgan Hill Water System results show a sample level of 0.6 mg/L. Although the City of Morgan Hill Water System is not over the MCL, the Public Health Goal (PHG) requires the City of Morgan Hill to report any samples over the PHG for Aluminum 0.6 mg/L. Aluminum may be an indicator of erosion of natural deposits; residue from surface water treatment plants.

The reason for Aluminum drinking water standards is some people who drink water containing Aluminum more than the MCL over many years may experience short term gastrointestinal tract effects.

Chromium VI:

The MCL for Chromium VI was repealed in 2017 which means water systems are not required to test for or report it as drinking water contaminant. The State of California is in process of establishing a new MCL for Chromium VI and once adopted the new MCL will apply to public water systems. During 2016 the City of Morgan Hill Water System results show a sample level of 0.0027 mg/L which is greater than the PHG 0.00002 mg/L. Chromium VI may be an indicator of discharge from electroplating factories; leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits.

The reason for Chromium VI is considered as a PHG is that some people have shown an increased risk of getting cancer when exposed through drinking water.

SECTION 3: TREATMENT FEASIBILITY AND RECOMMENDATIONS

Both the USEPA and SWRCB adopt what are known as BATs, or Best Available Technologies, 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.

The City of Morgan Hill drinking water does not exceed MCL's for the PHG contaminants discussed above. Consequently, Staff is recommending that no additional treatment be applied to the City drinking water system. The City will continue to coordinate with SWRCB to identify

any additional measures that will improve operations and water quality in the distribution system. No further action is proposed at this time.

ATTACHMENT 1

EXERPT FROM CALIFORNIA HEALTH & SAFETY CODE SECTION 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.
- (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

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants (Units are in milligrams per liter (mg/L), unless otherwise noted.) Last Update: December 26, 2018				
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, PHGs for NDMA (which are not yet regulated) are included at the bottom of this table.				
	MCL	DLR	PHG	PHG Exceeded?
<i>Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals</i>				
Aluminum	1	0.05	0.6	Yes
Antimony	0.006	0.006	0.001	NO
Arsenic	0.010	0.002	0.000004	NO
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	NO
Barium	1	0.1	2	NO
Beryllium	0.004	0.001	0.001	NO
Cadmium	0.005	0.001	0.00004	NO
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	NO
Chromium, Hexavalent – 0.01-mg/L MCL & 0.01 mg/L DLR repealed September 2017	na	0.001	0.00002	Yes
Cyanide	0.15	0.1	0.15	NO
Fluoride	2	0.1	1	NO
Mercury (inorganic)	0.002	0.001	0.0012	NO
Nickel	0.1	0.01	0.012	NO
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO ₃ (=10 as N)	NO
Nitrite (as N)	1 as N	0.4	1 as N	NO
Nitrate + Nitrite (as N)	10 as N	--	10 as N	NO
Perchlorate	0.006	0.004	0.001	NO
Selenium	0.05	0.005	0.03	NO
Thallium	0.002	0.001	0.0001	NO

Copper and Lead, 22 CCR §64672.3				PHG Exceeded?
Copper	1.3	0.05	0.3	
Lead	0.015	0.005	0.0002	Yes
Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity				PHG Exceeded?
[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	NO
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr.	4	none	NO
Radium-226	--	1	0.05	NO
Radium-228	--	1	0.019	NO
Radium-226 + Radium-228	5	--	--	NO
Strontium-90	8	2	0.35	NO
Tritium	20,000	1,000	400	NO
Uranium	20	1	0.43	NO

Chemicals with MCLs in 22 CCR §64444—Organic Chemicals				PHG Exceeded?
(a) Volatile Organic Chemicals (VOCs)				
Benzene	0.001	0.0005	0.00015	NO
Carbon tetrachloride	0.0005	0.0005	0.0001	NO
1,2-Dichlorobenzene	0.6	0.0005	0.6	NO
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	NO
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	NO
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	NO
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	NO
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	NO
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	NO
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	NO
1,2-Dichloropropane	0.005	0.0005	0.0005	NO
1,3-Dichloropropane	0.0005	0.0005	0.0002	NO
Ethylbenzene	0.3	0.0005	0.3	NO
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	NO
Monochlorobenzene	0.07	0.0005	0.07	NO
Styrene	0.1	0.0005	0.0005	NO
1,1,1,2-Tetrachloroethane	0.001	0.0005	0.0001	NO
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	NO
Toluene	0.15	0.0005	0.15	NO
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	NO
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	NO
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	NO

	MCL	DLR	PHG	PHG Exceeded?
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals				
Trichloroethylene (TCE)	0.005	0.0005	0.0017	NO
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	NO
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	NO
Vinyl chloride	0.0005	0.0005	0.00005	NO
Xylenes	1.75	0.0005	1.8	NO

(b) Non-Volatile Synthetic Organic Chemicals (SOCs)				PHG Exceeded?
Alachlor	0.002	0.001	0.004	NO
Atrazine	0.001	0.0005	0.00015	NO
Bentazon	0.018	0.002	0.2	NO
Benzo(a)pyrene	0.0002	0.0001	0.000007	NO
Carbofuran	0.018	0.005	0.0017	NO
Chlordane	0.0001	0.0001	0.00003	NO
Dalapon	0.2	0.01	0.79	NO
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.0000017	NO
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	NO
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	NO
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	NO
Dinoseb	0.007	0.002	0.014	NO
Diquat	0.02	0.004	0.006	NO
Endrin	0.002	0.0001	0.0003	NO
Endothal	0.1	0.045	0.094	NO
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	NO
Glyphosate	0.7	0.025	0.9	NO
Heptachlor	0.00001	0.00001	0.000008	NO
Heptachlor epoxide	0.00001	0.00001	0.000006	NO
Hexachlorobenzene	0.001	0.0005	0.00003	NO
Hexachlorocyclopentadiene	0.05	0.001	0.002	NO
Lindane	0.0002	0.0002	0.000032	NO
Methoxychlor	0.03	0.01	0.00009	NO
Molinate	0.02	0.002	0.001	NO
Oxamyl	0.05	0.02	0.026	NO
Pentachlorophenol	0.001	0.0002	0.0003	NO
Picloram	0.5	0.001	0.166	NO
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	NO
Simazine	0.004	0.001	0.004	NO
2,4,5-TP (Silvex)	0.05	0.001	0.003	NO
2,3,7,8-TCDD (dioxin)	3x10 ⁻⁸	5x10 ⁻⁹	5x10 ⁻¹¹	NO
Thiobencarb	0.07	0.001	0.042	NO
1,2,3- Trichloropropane	0.000005	0.000005	0.0000007	NO
Toxaphene	0.003	0.001	0.00003	NO

Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				PHG Exceeded?
Total Trihalomethanes	0.080	--	--	NO
Bromodichloromethane	--	0.0010	0.00006	NO
Bromoform	--	0.0010	0.0005	NO
Chloroform	--	0.0010	0.0004	NO
Dibromochloromethane	--	0.0010	0.0001	NO
Haloacetic Acids (five) (HAA5)	0.060	--	--	NO
Monochloroacetic Acid	--	0.0020	--	NO
Dichloroacetic Acid	--	0.0010	--	NO
Trichloroacetic Acid	--	0.0010	--	NO
Monobromoacetic Acid	--	0.0010	--	NO
Dibromoacetic Acid	--	0.0010	--	NO
Bromate	0.010	0.0050**	0.0001	NO
Chlorite	1.0	0.020	0.05	NO
Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.				PHG Exceeded?
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	NO
*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.				