



PUBLIC HEALTH GOALS
REPORT ON WATER QUALITY
CITY OF Morgan Hill

JUNE 2016



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

TABLE OF CONTENTS

SECTION 1: BACKGROUND INFORMATION

WHAT ARE PUBLIC HEALTH GOALS (PHGs)?.....	3
REPORTING REQUIREMENTS	3
WATER QUALITY DATA CONSIDERED.....	3
GUIDELINES FOLLOWED	4

SECTION 2: CONTAMINANTS DETECTED THAT EXCEED PHGS OR MCLGS

Lead	4
Copper.....	4
Arsenic.....	5
Chromium VI.....	5

SECTION 3: RECOMMENDATIONS

ATTACHMENT 1: EXCERPT FROM CALIFORNIA HEALTH & SAFETY CODE SECTION 116470	6
ATTACHMENT 2: CALIFORNIA MCLS & PHGS AND FEDERAL MCLGS	7

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 take into account 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 (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 2013, 2014, and 2015. 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 <http://www.morgan-hill.ca.gov/DocumentCenter/Home/View/16252>

WATER QUALITY DATA CONSIDERED:

The water quality data collected by City of Morgan Hill Water System between 2013 and 2015 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 <http://www.morgan-hill.ca.gov/DocumentCenter/Home/View/16252>

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.

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 more than .015 milligrams per liter (mg/L) in the triennial sample group. The City of Morgan Hill Water System results show a .005 mg/L sample during 2012. In 2015 the sample results showed 0 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. Lead may be an indicator of internal corrosion the household plumbing system; discharges from industrial manufacturers; 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 action level 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 more than 1.3 mg/L in the triennial sample group. The City of Morgan Hill Water System results show a 0.5 mg/L sample during this period of 2012 and the City of Morgan Hill Water System results show a 0.3 mg/L sample for the period of 2015. 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. Copper may be an indicator of internal corrosion the household plumbing system; discharges from industrial manufacturers; 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 action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess

of the action level over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Arsenic:

The MCL for Arsenic is more than .010 mg/L in any sample. During 2015 the City of Morgan Hill Water System results show a sample level of .0013 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. Arsenic may be an indicator of erosion of natural deposits; runoff from orchards; glass and electric production wastes.

The reason for Arsenic drinking water standards is some people who drink water containing Arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer.

Chromium VI:

The MCL for Chromium VI is more than .010 mg/L in any sample. During 2015 the City of Morgan Hill Water System results show a sample level of .0096 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. 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 drinking water standards is some people who drink water containing Chromium VI in excess of the MCL over many years may have an increased risk of getting cancer.

SECTION 3: RECOMMENDATIONS

City of Morgan Hill Water System 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: September 23, 2015				
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 and 1,2,3-Trichloropropane (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	NO
Antimony	0.006	0.006	0.02	NO
Antimony	--	--	0.0007	NO
Arsenic	0.010	0.002	0.000004	Yes
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	0.010	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?
<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	Yes
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	0.1	NO
trans-1,2-Dichloroethylene	0.01	0.0005	0.06	NO
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	NO
1,2-Dichloropropane	0.005	0.0005	0.0005	NO
1,3-Dichloropropene	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
1,1,2,2-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
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
Carbofuran	--	--	0.0007	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	0.015	NO
Diquat	--	--	0.006	NO
Endrin	0.002	0.0001	0.0018	NO
Endrin	--	--	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	0.5	NO
Picloram	--	--	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	0.07	NO
Thiobencarb	--	--	0.042	NO
Toxaphene	0.003	0.001	0.00003	NO

Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				PHG Exceeded?
Total Trihalomethanes	0.080	--	0.0008	NO
Bromodichloromethane	(ZERO)	0.0010	(ZERO)	NO
Bromoform	(ZERO)	0.0010	(ZERO)	NO
Chloroform	(ZERO)	0.0010	(ZERO)	NO
Dibromochloromethane	(ZERO)	0.0010	(ZERO)	NO
Haloacetic Acids (five) (HAA5)	0.060	--	(ZERO)	NO
Monochloroacetic Acid	(ZERO)	0.0020	(ZERO)	NO
Dichloroacetic Acid	(ZERO)	0.0010	(ZERO)	NO
Trichloroacetic Acid	(ZERO)	0.0010	(ZERO)	NO
Monobromoacetic Acid	(ZERO)	0.0010	(ZERO)	NO
Dibromoacetic Acid	(ZERO)	0.0010	(ZERO)	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)	(ZERO)	(ZERO)	0.000003	NO
1,2,3-Trichloropropane	(ZERO)	(ZERO)	0.0000007	NO
*OEHA'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.				