2019 TRIENNIAL PUBLIC HEALTH GOAL REPORT
FOR THE
DRINKING WATER IN THE MAIN WATER SYSTEM

Background:

Provisions of the California Health and Safety Code (HSC §116470(b)) specify that water utilities with greater than 10,000 service connections prepare a special Public Health Goal Report (Report) every three years if water quality measurements have exceeded any Public Health Goal (PHG); the latest Report is due by July 1, 2019. PHGs are non-enforcement goals established by the California Environmental Protection Agency's (Cal-EPA) Office of Environmental Health Hazard Assessment (OEHAA). The regulation also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goal (MCLG) adopted by the United States Environmental Protection Agency (USEPA). Only constituents having a California primary drinking water standard, also known as a Maximum Contaminant Level (MCL), and either a PHG or MCLG are required to be addressed in the Report. The attached table contains a list of all regulated constituents with the MCLs and PHGs or MCLGs.

There are a few constituents that are routinely detected in water systems at levels usually well below the drinking water standards for which no PHG or MCLG has yet been adopted by OEHHA or USEPA. As PHGs and MCLGs are updated the District will include them in its evaluation in future Reports as applicable.

The Report addresses any constituent detected in the District's water supply between 2016 and 2018 at a level exceeding any applicable PHG or MCLG, as required by the regulation. The Report includes the numerical public health risk associated with the MCL and the 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 PHGs?

PHGs are set by OEHHA and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) in setting MCL drinking water standards 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. MCLGs are the federal equivalent to PHGs and likewise are non-enforceable.

Water Quality Data Considered:

All of the water quality data collected in the Main Water System between 2016 and 2018 was considered for purposes of determining compliance with drinking water standards. This data was previously summarized in our 2016, 2017, and 2018 Annual Water Quality (AWQ) Reports, which are available on the District's website.

Guidelines Followed:

A workgroup formed by Association of California Water Agencies (ACWA) prepared guidelines for water utilities, which were used in the preparation of this PHG Report. No guidance was available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and DDW adopt what are known as 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 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 a PHG or a MCLG:

Two constituents- total coliform bacteria and E.coli *bacteria* - were detected in the distribution system at levels above the MCLGs. There is no PHG for total coliform or *E. coli* bacteria; the MCLs were not exceeded for either.

Constituent	Result	MCL	PHG	MCLG
Total Coliform Bacteria	1% percent of monthly samples were positive	5% of the samples collected during any month are total coliform positive (1)	None	0%
E.*coli* Bacteria	1 initial sample tested positive for E.*coli* bacteria	Any repeat sample is fecal coliform or E.*coli* positive; or any repeat sample following a fecal or E.*coli* positive routine sample is total coliform positive (1,2)	None	0

(1) California Code of Regulation, Title 22, §64426.1 (b)
(2) Code of Federal Regulations, Title 40, §141.860 (a)

- *Total Coliform Bacteria:*

Between 2016 and 2018, 100 to 125 samples were collected by the District each month and analyzed for the presence of coliform bacteria. Two times in a three-year period (one time in 2016 and one time in 2018), an initial sample was found to test positive for coliform bacteria. However, the confirmation samples tested negative and, as a result, no follow up actions were

necessary. A maximum of 1% of these samples tested positive in each of the months in which these detections occurred.

The MCL for total coliform is 5% positive samples of all samples per month and the MCLG is zero. Since a single sample tested positive during two separate months, the MCLG was exceeded even though confirmation sampling tested negative for coliform bacteria presence. The reason for the coliform drinking water standard is to minimize the possibility of the water containing pathogens, which are organisms that cause waterborne disease. Because coliform is only a surrogate indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. While USEPA normally sets MCLGs "at a level no known or anticipated adverse effects on persons would occur", they indicate that they cannot do so with coliform bacteria. Therefore, it was set to zero.

Coliform bacteria are an indicator organism that are ubiquitous in nature and are not generally considered harmful. They are used because of the ease in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated and follow up sampling performed. It is not at all unusual for a system to have an occasional positive initial sample given its prevalence in nature.

- *E.coli Bacteria:*

Between 2016 and 2018, 100 to 125 samples were collected by the District each month and analyzed for the presence of *E. coli* bacteria. One time in 2018 an initial sample was found to test positive for *E. coli* bacteria. However, the confirmation samples tested negative and, as a result, no follow up actions were necessary.

The MCL for *E. coli* is based on either an *E. coli* positive repeat sample following a total coliform (TC) positive routine sample or a TC-positive repeat sample following an *E. coli* -positive routine sample. The MCLG is set at zero. Since only a single sample tested positive during the three year period there was no MCL violation. The MCLG of zero was exceeded even though confirmation sampling tested negative for *E. coli* bacteria presence.

The reason for the *E. coli* drinking water standard is to minimize the possibility of the water containing pathogens, which are organisms that cause waterborne disease. *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a greater health risk for infants, young children, the elderly and people with severely-compromised immune systems.

- Treatment Technologies*:*

One of the primary treatment technologies utilized by the District to ensure the drinking water system is microbial safe (i.e. free of disease causing pathogens) is adding chlorine at its water treatment plants. The chlorine residual levels are carefully controlled at the treatment plants and within the distribution systems to provide the best health protection without causing the water to have undesirable taste and odor or increasing the disinfection byproduct level. This

careful balance of treatment processes is essential to continue supplying customers with safe drinking water.

Other actions that the District implemented over the years to protect the drinking water quality include: an effective cross-connection control program, maintenance of a disinfectant residual throughout our system, an effective monitoring and surveillance program and maintaining positive pressures in our distribution system. The District is taking all of the steps described by DDW as "best available technology" for total coliform and *E. coli* bacteria in Section 64447, Title 22, of the California Code of Regulations.

Recommendations for Further Action:

The drinking water quality of the District's Main Water System meets all DDW, and USEPA drinking water standards set to protect public health. Any additional effort by the District to further reduce the levels of coliform bacteria that are already significantly below the health-based MCLs established to provide "safe drinking water" would require additional costly treatment processes. The effectiveness of any new treatment process (es) to provide any significant reductions in coliform levels at these already low values is uncertain. In addition, the health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed.

ATTACHMENTS:

No. 1 Table of Regulated Constituents with MCLs, PHGs or MCLGs

REFERENCES:

No. 1 Excerpt from California Health & Safety Code: Section 116470(b)
No. 2 El Dorado Irrigation District's 2016, 2017, and 2018 Water Quality Reports
No. 3 ACWA *"Suggested Guidelines for Preparation of Required on Public Health Goals (PHGs) to satisfy requirements of California Health and Safety Code Section 116470(b)"* dated April 2019

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

Regulated Contaminant	MCL	DLR	PHG	Date of PHG
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.001	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)
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	0.013	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)	0.2	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	0.0007	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)
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)	$3x10^{-8}$	$5x10^{-9}$	$5x10^{-11}$	2010
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014
Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				
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 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 DDW requests. These are not currently regulated drinking water contaminants.				
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.