



BOARD ACTION

Agenda Number:

Meeting Date: August 9, 2022

TITLE **REPORT ON WATER QUALITY RELATIVE TO CALIFORNIA PUBLIC HEALTH GOALS 2019-2021**

ACTION Motion: Resolution: Ordinance:

- RECOMMENDED ACTION**
- Conduct a public hearing to provide an opportunity for public comment.
 - Accept the Public Health Goals (PHGs) Report.
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SUMMARY The California Health and Safety Code specifies that water systems serving more than 10,000 service connections prepare a special report every three years if their water quality measurements have exceeded any PHGs. The current report covers calendar years 2019, 2020, and 2021 and was completed in June 2022. PHGs are non-enforceable goals established by the state Office of Environmental Health Hazard Assessment (OEHHA). Only constituents with California primary drinking water standards – designated with a maximum contaminant level (MCL) – are included in this regulation. For these constituents, District-measured levels are compared to OEHHA-adopted PHGs. If no PHG exists, water suppliers must compare to the maximum contaminant level goals (MCLGs) adopted by the United States Environmental Protection Agency (USEPA).

DISCUSSION The District’s drinking water quality meets all state and federal drinking water standards set to protect public health. Some constituents are routinely detected in the District’s water at levels well below the drinking water standards for which no PHG nor MCLG has yet been adopted by OEHHA or USEPA. The current list of regulated constituents with MCLs and PHGs (or MCLGs) is attached. One example is total Trihalomethanes (THMs). Although there are PHGs for individual THM species such as chloroform and dichlorobromomethane, there is no PHG for the sum of the four THMs; therefore, they are not included in this report. If a constituent was detected in the District's water supply between 2019 and 2021 at a level exceeding an applicable PHG or MCLG, this report provides the information required by law. Water suppliers are required to include the numerical public health risk associated with the MCL and the PHG or MCLG, the category or type of risk to health that is 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.

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 the State in setting enforceable drinking water maximum contaminant levels (MCLs) are considered when setting PHGs. These factors include analytical detection capability, treatment technology available, benefits, and costs. The PHGs are not

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Funds Available: N/A	Budget Coding: N/A		Approved:
Attachment(s): Table of Regulated Constituents			

enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to state PHGs.

Water Quality Data Considered and Guidance Used

Water quality data collected by the District between January 1, 2019 and December 31, 2021 for purposes of determining compliance with drinking water standards was used in preparation of this report. This data was summarized in the 2019, 2020, and 2021 Consumer Confidence Reports; this PHG report is a separate requirement. The Association of California Water Agencies (ACWA) prepared guidelines for water utilities to ensure uniformity and consistent interpretation of the regulatory language. As in all previous reporting periods, the ACWA guidelines were used to prepare this report.

Constituents Detected Exceeding a PHG or a MCLG

One constituent, bromate, was detected in the water supplied by the Sobrante WTP and the Upper San Leandro (USL) Water Treatment Plants (WTPs) at levels above the PHG. Bromate is formed when naturally occurring bromide in the source water reacts with ozone. Ozone is used at the District’s Sobrante and USL WTPs primarily to control taste- and odor-causing compounds. Algal blooms in the source water reservoirs can create significant tastes and odor, discoloration, and occasionally cyanotoxins. Ozone effectively oxidizes and destroys these unwanted compounds.

The PHG for bromate is 0.1 parts per billion (ppb), and the MCL is 10 ppb. During this reporting period, the District switched analytical methods for bromate to better quantify very low levels. The previous method, EPA Method 300.1, had a detection limit for the purposes of reporting (DLR) of 5 ppb. The current method, EPA Method 317.0, has a DLR of 1 ppb. The levels detected are shown below in Table 1, each is below the MCL.

Table 1. Running Annual Average Bromate Results, Calculated Quarterly, Parts per Billion (ppb)

Date	2019		2020		2021	
	Sobrante WTP	USL WTP	Sobrante WTP	USL WTP	Sobrante WTP	USL WTP
Quarter 1	<1	<1.3*	2.3	<1	3.5	3.5
Quarter 2	<1	<1.3*	4.0	<1	2.6	2.3
Quarter 3	<1	<1.3*	4.8	<1	2.2	2.3
Quarter 4	1.7	<1	4.7	<1	1.7	1.4

*These results include samples analyzed by EPA Method 300.1 which has a higher detection limit than Method 317.0 (the current District standard).

The category of health risk associated with bromate (assuming chronic exposure) and the numerical risk level at both the PHG and the MCL are shown in Table 2.

Table 2. Health Risk Categories and Cancer Risk Values for Chemicals with Public Health Goals (PHGs) adapted from OEHHA, 2022

Chemical	Health Risk Category	California PHG (ppb)	Cancer Risk at the PHG	California MCL (ppb)	Cancer Risk at the California MCL
Bromate	Carcinogenicity (causes cancer)	0.1	1 x 10 ⁻⁶ (one per million)	10	1 x 10 ⁻⁴ (one per ten thousand)

Best Available Treatment Technology and Cost Estimates

Both USEPA and DDW adopt Best Available Technologies (BATs) which are demonstrated methods of reducing contaminant levels to the MCL. However, since many PHGs and all MCLGs are much lower than the MCLs, it is not always feasible to determine what treatment would be needed (and at what cost) to further reduce a constituent to or even near the PHG or MCLG. Estimating the costs to reduce bromate to the PHG of 0.1 ppb is not possible because we cannot analytically detect bromate at this level. The lowest level of bromate that can be detected by the District’s lab is 1 ppb.

DDW and USEPA consider “control of ozone treatment process to reduce production of bromate” as the BAT for bromate control. The District has studied different methods of bromate control and has incorporated the most promising technologies into upcoming capital projects at the WTPs. For the Sobrante and USL Reliability projects, chloramination ahead of ozonation will be included to enable operators to better limit the formation of bromate during the ozonation process.

Recommendations for Further Action

Of the dozens of compounds analyzed, only bromate was detected above its PHG. The ability of the treatment processes to provide additional significant reduction in bromate levels is uncertain due to analytical limitations. Operators will continue to optimize ozone dosage to lower bromate levels in treated water to the extent possible. No further action is recommended.

SUSTAINABILITY

Social

The purpose of the Triennial PHG report is to provide consumers with information on regulated contaminants detected in the water above the PHGs but below the enforceable MCLs. This report is available on the District website and will replace the prior report for calendar years 2016, 2017, and 2018.

ALTERNATIVE

Do not prepare the report and hold a public hearing. This alternative is not recommended because the District would not remain in compliance with environmental laws and regulations.

TABLE OF REGULATED CONSTITUENTS

MCLs, DLRs, PHGs, for Regulated Drinking Water Contaminants

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

Last Update: September 14, 2021

The following tables 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). For comparison, Federal MCLs and Maximum Contaminant Level Goals (MCLGs) (USEPA) are also displayed.

Inorganic Chemicals Table, Chemicals with MCLs in 22 CCR §64431

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Aluminum	1	0.05	0.6	2001	--	--
Antimony	0.006	0.006	0.001	2016	0.006	0.006
Arsenic	0.010	0.002	0.000004	2004	0.010	zero
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003	7 MFL	7 MFL
Barium	1	0.1	2	2003	2	2
Beryllium	0.004	0.001	0.001	2003	0.004	0.004
Cadmium	0.005	0.001	0.00004	2006	0.005	0.005
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999	0.1	0.1

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
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	0.2	0.2
Fluoride	2	0.1	1	1997	4.0	4.0
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*	0.002	0.002
Nickel	0.1	0.01	0.012	2001	--	--
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018	10	10
Nitrite (as N)	1 as N	0.4	1 as N	2018	1	1
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018	--	--
Perchlorate	0.006	0.002	0.001	2015	--	--
Selenium	0.05	0.005	0.03	2010	0.05	0.05
Thallium	0.002	0.001	0.0001	1999 (rev2004)	0.002	0.0005

Copper and Lead Table, 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.

State Regulated Copper and Lead Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Copper	1.3	0.05	0.3	2008	1.3	1.3
Lead	0.015	0.005	0.0002	2009	0.015	zero

Radiological Table, Radionuclides with MCLs in 22 CCR §64441 and §64443

[units are picocuries per liter (pCi/L), unless otherwise state; n/a = not applicable]

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a	15	zero
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a	4 mrem/yr	zero
Radium-226	--	1	0.05	2006		
Radium-228	--	1	0.019	2006		
Radium-226 + Radium-	5	--	--	--	5	zero

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
228						
Strontium-90	8	2	0.35	2006	--	--
Tritium	"20,000"	"1,000"	400	2006	--	--
Uranium	20	1	0.43	2001	30 µg/L	zero

Organic Chemicals Table, Chemicals with MCLs in 22 CCR §64444

Volatile Organic Chemicals (VOCs)

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Benzene	0.001	0.0005	0.00015	2001	0.005	zero
Carbon tetrachloride	0.0005	0.0005	0.0001	2000	0.005	zero
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)	0.6	0.6
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997	0.075	0.075
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)	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999	0.007	0.007
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018	0.07	0.07
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018	0.1	0.1
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000	0.005	zero
1,2-Dichloropropane	0.005	0.0005	0.0005	1999	0.005	zero
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)	--	--
Ethylbenzene	0.3	0.0005	0.3	1997	0.7	0.7
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999	--	--
Monochlorobenzene	0.07	0.0005	0.07	2014	0.1	0.1
Styrene	0.1	0.0005	0.0005	2010	0.1	0.1
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003	0.1	0.1
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001	0.005	zero

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Toluene	0.15	0.0005	0.15	1999	1	1
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999	0.07	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.0005	1	2006	0.2	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006	0.005	0.003
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009	0.005	zero
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	0.002	zero
Xylenes	1.750	0.0005	1.8	1997	10	10

Non-Volatile Synthetic Organic Chemicals (SOCs)

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Alachlor	0.002	0.001	0.004	1997	0.002	zero

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Atrazine	0.001	0.0005	0.00015	1999	0.003	0.003
Bentazon	0.018	0.002	0.2	1999 (rev2009)	--	--
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010	0.0002	zero
Carbofuran	0.018	0.005	0.0007	2016	0.04	0.04
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)	0.002	zero
Dalapon	0.2	0.01	0.79	1997 (rev2009)	0.2	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.000003	2020	0.0002	zero
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009	0.07	0.07
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003	0.4	0.4
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997	0.006	zero
Dinoseb	0.007	0.002	0.014	1997	0.007	0.007

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
				(rev2010)		
Diquat	0.02	0.004	0.006	2016	0.02	0.02
Endothal	0.1	0.045	0.094	2014	0.1	0.1
Endrin	0.002	0.0001	0.0003	2016	0.002	0.002
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003	0.00005	zero
Glyphosate	0.7	0.025	0.9	2007	0.7	0.7
Heptachlor	0.00001	0.00001	0.000008	1999	0.0004	zero
Heptachlor epoxide	0.00001	0.00001	0.000006	1999	0.0002	zero
Hexachlorobenzene	0.001	0.0005	0.00003	2003	0.001	zero
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014	0.05	0.05
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)	0.0002	0.0002
Methoxychlor	0.03	0.01	0.00009	2010	0.04	0.04
Molinate	0.02	0.002	0.001	2008	--	--
Oxamyl	0.05	0.02	0.026	2009	0.2	0.2

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Pentachlorophenol	0.001	0.0002	0.0003	2009	0.001	zero
Picloram	0.5	0.001	0.166	2016	0.5	0.5
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007	0.0005	zero
Simazine	0.004	0.001	0.004	2001	0.004	0.004
Thiobencarb	0.07	0.001	0.042	2016	--	--
Toxaphene	0.003	0.001	0.00003	2003	0.003	zero
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009	--	--
2,3,7,8-TCDD (dioxin)	3x10 ⁻⁸	5x10 ⁻⁹	5x10 ⁻¹¹	2010	3x10 ⁻⁸	zero
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014	0.05	0.05

Disinfection Byproducts Table, Chemicals with MCLs in 22 CCR §64533

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Total Trihalomethanes	0.080	--	--	--	0.080	--

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Bromodichloromethane	--	0.0010	0.00006	2020	--	zero
Bromoform	--	0.0010	0.0005	2020	--	zero
Chloroform	--	0.0010	0.0004	2020	--	0.07
Dibromochloromethane	--	0.0010	0.0001	2020	--	0.06
Haloacetic Acids (five) (HAA5)	0.060	--	--	--	0.060	--
Monochloroacetic Acid	--	0.0020	--	--	--	0.07
Dichloroacetic Acid	--	0.0010	--	--	--	zero
Trichloroacetic Acid	--	0.0010	--	--	--	0.02
Monobromoacetic Acid	--	0.0010	--	--	--	--
Dibromoacetic Acid	--	0.0010	--	--	--	--
Bromate	0.010	0.0050**	0.0001	2009	0.01	zero
Chlorite	1.0	0.020	0.05	2009	1	0.8

Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
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.