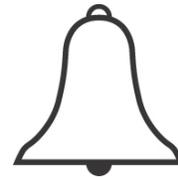


Santa Margarita Water District



MEMORANDUM

TO: Board of Directors

DATE: July 6, 2016

FROM: Rich Kissee

SUBJECT: Public Hearing to Consider the Adoption of the Santa Margarita Water District Report on Water Quality Relative to Public Health Goals

SUMMARY

Issue: Since 1998, the California Health and Safety Code has mandated that a report on the District's water quality related to the public health goals be prepared and a public hearing be held every three years to provide information to interested customers. This report is in addition to the annual Water Quality Reports mailed to each customer.

Recommendation: Adopt the report.

Committee Status: This topic was discussed in the Water Quality Ad Hoc Meeting on May 31, 2016.

Fiscal Impact: None

Previous Related Action: The District previously adopted Public Health Goals in July of 2013.

DISCUSSION

The California legislature passed the Calderone/Sher Safe Water Drinking Act in 1996 (SB 1307, effective 1-1-97). This law requires the California State Water Resources Control Board (SWRCB) to regularly require tests of drinking water quality and to set standards for contaminants that might be found in the water. The Act also requires that the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) develop public health goals (PHGs) for contaminants in California's publicly supplied drinking water.

Public water utilities with more than 10,000 services connections are required by the provisions of the California Health and Safety Code (Section 116470 (2)[b]) to prepare a special report by July 1 every three (3) years if any water quality measurements exceed any of the PHGs or Maximum Contaminant Levels (MCLs). The purpose of the hearing is to accept and respond to public comment.

Attached for review and consideration for adoption is the Santa Margarita Water District 2016

Public Health Goals Report comparing the District's drinking water quality with the PHGs adopted by OEHHA and with the Maximum Contaminant Level Goal (MCLG) adopted by the United States Environmental Protection Agency (USEPA).

A PHG establishes the level of a chemical containment in drinking water which is considered to not pose a significant risk to public health. PHGs are non-enforceable goals established by OEHHA and are not regulatory standards. However, state law requires SWRCB to set drinking water standards for chemical contaminants as close to the corresponding PHG as is economically and technically 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. SWRCB must consider these factors when developing a drinking water standard.

The law requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers must use the MCLs adopted by the USEPA. Only constituents which have a primary drinking water standard and for which either a PHG or MCLG has been set need to be addressed.

If a constituent was detected in the District's water supply from the years 2013 to 2015 at a level exceeding an applicable PHG or MCLG, this report provides the information as required. Also included in this report is the numerical associated public health risk, the category or type of risk to health, 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 appropriate and feasible.

The purpose of the law is to give water system customers access to information on levels of contaminants even below the enforceable and mandatory Maximum Contaminant Levels (MCLs) set by SWRCB and USEPA. In addition, the law provides an idea of the cost to totally eliminate any trace of the contaminant from drinking water regardless of how minimal the risk might be. The required report is unique to California.

The drinking water quality of the Santa Margarita Water District meets all SWRCB and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are 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 processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable.

In order to comply with regulations, the District issued public notice on June 24 & June 30, 2016 in the Orange County Register (attachment B).

SANTA MARGARITA WATER DISTRICT

2016 PUBLIC HEALTH GOALS REPORT

Background:

Provisions of the California Health and Safety Code Section 116470(b) specify that larger (>10,000 service connections) water utilities prepare a special report by July 1, 2016 if their water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the MCLGs adopted by USEPA. Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed.

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 nor MCLG have yet been adopted by OEHHA or USEPA including Total Trihalomethanes. These will be addressed in a future required report after a PHG has been adopted.

The new law specifies what information is to be provided in the report. If a constituent was detected in the District's water supply between 2013 and 2015 at a level exceeding an applicable PHG or MCLG, this report provides the information required by the law. Included is 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 the California Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal-EPA and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or the California Division of Drinking Water 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. MCLGs are the federal equivalent to PHGs.

Water Quality Data Considered:

All of the water quality data collected by our water system between 2013 and 2015 for purposes of determining compliance with drinking water standards was considered. This data was all summarized in our 2013, 2014, and 2015 Consumer Confidence Reports which were mailed to all of our customers before July 1st of each year.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these newly required reports. The ACWA

26111 Antonio Parkway, Rancho Santa Margarita, CA 92688 • Mailing - P.O. Box 7005, Mission Viejo, CA 92690-7005

Web: www.SMWD.com

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guidelines were used in the preparation of our 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 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 nor 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 a PHG or a MCLG:

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 – Refer to Table 1.

SANTA MARGARITA WATER DISTRICT

Table 1 : 2016 PHG Triennial Report - Calendar Years 2013, 2014 and 2015

During the 2013 - 2015 period, our water supplier MWDC detected minor levels of Gross Alpha, Gross Beta, Uranium, Arsenic and Hexavalent Chromium that exceed the PHGs or MCLGs as indicated below:

Parameters	Units	Maximum Contaminant Level	Public Health Goal (PHG)	Date of (PHG)	Maximum Contaminant Level Goal (MCLG)	SMWD SOURCE WATER					
						2013		2014		2015	
						Average	Range	Average	Range	Average	Range
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals											
Arsenic	ppb	10	0.004	2004	-	2	2	-	-	2.3	2.3
Chromium, Hexavalent (MWDC)	ppb	10	0.02	2011	-	0.085	0.051 – 0.14	0.061	0.061	0.061*	0.061*
Chromium, Hexavalent (SMWD)						0.073	0.051 – 0.1	0.039	0.039	0.039*	0.039*
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 - OEHA concluded in 2003 that a PHG was not practical	pCi/L	15	none	n/a	0	3	ND - 3	ND	ND - 4	ND**	ND - 4**
Gross beta particle activity - OEHA concluded in 2003 that a PHG was not practical	pCi/L	50	none	n/a	0	ND	ND - 4	5	4 - 6	5**	4 - 6**
Uranium	pCi/L	20	0.43	2001	-	2	2	3	2 - 3	3**	2 - 3**
Microbiological Contaminants (TT = Treatment Techniques)											
Total Coliform	%	5%	-		0%	-	-	-	-	1%	0 - 1%

* Data taken from 2014 - UCMR3 Monitoring - MWDC and SMWD Tables

** Tested in 2014 - MWDC Table

Arsenic:

Arsenic is a naturally occurring element in the earth's crust and is very widely distributed in the environment. All humans are exposed to microgram quantities of arsenic (inorganic and organic) largely from food (25 to 50 µg/day) and to a lesser degree from drinking water and air. Some edible seafood may contain higher concentrations of arsenic which is predominantly in less acutely toxic organic forms.

In certain geographical areas, natural mineral deposits may contain large quantities of arsenic and this may result in higher levels of arsenic in water. Waste chemical disposal sites may also be a source of arsenic contamination of water supplies. The main commercial use of arsenic in the U.S. is in pesticides, mostly herbicides and in wood preservatives. Misapplication or accidental spills of these materials could result in contamination of nearby water supplies. Burning of fossil fuels also produces low levels of arsenic emissions. Arsenic may also be found in low levels in tobacco smoke.

The PHG for Arsenic is 0.000004 mg/L and the MCL is 0.010 mg/L. The category of health risk associated with Arsenic, and the reason that a drinking water standard was adopted for it, is that 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. ¹

There are several Best Available Technologies (BAT) to lower the Arsenic levels below the PHG. Examples are ion exchange, blending (for groundwater sources), Granular Ferric Oxide (GFO)/adsorption-, coagulation/filtration, and reverse osmosis.

The estimated costs to adopt such BATs including annualized capitals and O&M range from \$0.37 - \$6.65 per 1000 gallons of water treated.³ This would result in an assumed increased cost for each customer of \$58.67 – \$1,055/year depending on the treatment technology chosen.

Chromium, Hexavalent:

Much of the low level Hexavalent Chromium found in drinking water is naturally occurring, reflecting its presence in geological formations throughout the state. However, there are areas of contamination in California from historic industrial use, such as the manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion coatings, where Hexavalent Chromium contaminated waste has migrated into the underlying groundwater. ²

A drinking water sample with a detection of Hexavalent Chromium above the PHG of 0.02 ppb does not necessarily represent a public health concern. The PHG is based on a cancer risk of no more than one case of cancer per one million people. The PHG tries to account for persons at three different stages in their lives by including protection factors to account for age and by applying higher rates of water consumption in their calculation. The PHG represents the level of Hexavalent Chromium at which no adverse health effects would be anticipated over an entire lifetime of exposure to the most sensitive population. So, a PHG is not a boundary line between a “safe” and “dangerous” level of a chemical, and drinking water is frequently demonstrated as safe to drink even if it contains chemicals at levels exceeding their PHGs. OEHHA provides additional information on potential health risks and its PHG on its website. ²

Reduction-Coagulation-Filtration and Ion Exchange (Weak base anion resin) are the Best Available Technologies (BAT) to lower the Hexavalent Chromium levels to 1 ppb. The estimated costs to adopt such BATs including annualized capitals and O&M range from \$1.58 - \$9.95 per 1000 gallons of water treated.³ This would result in an assumed increased cost for each customer of \$248.62 - \$1,565.66/year depending on the treatment technology chosen.

Coliform Bacteria:

In the month of October, 2015, we collected 156 samples from our distribution system for total coliform analysis and 1.23% of these samples were positive for coliform bacteria.

The United States Environmental Protection Agency (USEPA) has revised the 1989 Total Coliform Rule (TCR). The Revised Total Coliform Rule (RTCR) offers a meaningful opportunity for greater public health protection beyond the 1989 TCR. The 1989 TCR provisions remained effective until March 31, 2016. PWSs and primacy agencies must comply with the requirements of the RTCR beginning April 1, 2016. Information in the 2016 PHG report still follows the current TCR provisions.

The MCL for coliform is 5% positive samples of all samples per month and the MCLG is zero. 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 where no known or anticipated adverse effects on persons would occur”, they indicate that they cannot do so with coliforms.

Coliform bacteria are indicator organisms which are ubiquitous in nature and 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 is performed. It is not at all unusual for a system to have an occasional positive sample. It is difficult, if not impossible to assure that a system will never get a positive sample.

Our water is treated with chloramines to assure that the water served is microbiologically safe. The chloramine residual levels are carefully controlled to provide the best health protection without causing the water to have undesirable taste or odor, or an increase of disinfection byproducts. This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water. We are working closely with our water supplier and are being proactive with managing our reservoirs to maintain slightly higher disinfectant residual. We are also being proactive with monitoring our water quality by conducting more sampling and analyses beyond what is required by the permit and by DDW.

Other equally important measures that we have implemented 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. Our system has already taken all of the steps described by SCWRCB as “best available technology” for coliform bacteria in Section 64447, Title 22, California Code of Regulations. The District meets the MCL requirements for coliform bacteria for this monitoring period.

Radiological:

Most drinking water sources have very low levels of radioactive contaminants, which are not considered to be a public health concern. Most of the contaminations are naturally occurring, although contamination of drinking water sources from human-made nuclear materials can also occur. During the 2013 – 2015 period, our supplier detected minor levels of Gross Alpha and Gross Beta particle emitters, as indicated in Table 1. There are no Public Health Goals (PHG) set for Gross Alpha and Gross Beta while the MCLG was set at zero by USEPA. Uranium has a PHG set at 0.43 pCi/L.

Certain minerals are radioactive and may emit a form of radiation known as photons, alpha, and beta radiation. Some people who drink water containing alpha, beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer. Also, some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.¹

Recommendations for Further Action:

The drinking water quality of the Santa Margarita Water District meets all State Water Control Resource Board – Division of Drinking Water and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are 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 processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed.

¹ CCR Guidance, Appendix A-1, January 15, 2016

² California State Water Resource Control Board Chromium-6 Fact Sheet, September 25, 2015

³ Cost Estimates for Treatment Technologies – ACWA Suggested Guidelines for Preparation of Required Reports on PUBLIC HEALTH GOALS (PHGs) to satisfy requirements of California Health and Safety Code Section 116470(b)

ATTACHMENT B

NOTICE IS HEREBY GIVEN THAT A PUBLIC HEARING WILL BE HELD BEFORE THE SANTA MARGARITA WATER DISTRICT (SMWD) BOARD OF DIRECTORS, AT

7:00 PM, JULY 6, 2016

IN THE DISTRICT BOARD ROOM, 26111 ANTONIO PARKWAY, RANCHO SANTA MARGARITA, ON THE FOLLOWING SEPARATE MATTERS:

1. SMWD provides meters for residential, irrigation and commercial use to insure the specified type and manufacturer is utilized. The District is proposing to modify its meter fee schedule for provision of meters to developers and contractors. Meter pricing is based on the cost of the meter and the cost to the District to warehouse and process meter orders. The data supporting the basis upon which such fees were calculated is available to the public in the District's office at the address noted above.
2. The District will provide opportunity for public input on the 2016 Report on Water Quality Public Health Goals. Public water systems serving more than 10,000 service connections must prepare a brief, written report that gives information on the detection of any contaminants above the Public Health Goals published by the State Office of Environmental Health Hazard Assessment. The report is available to the public. For more information, or to receive a copy of the report, please contact Daniel Peterson at 949-459-6594.

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