

Contra Costa Water District



TRIENNIAL REPORT ON WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS

May 2013

Prepared in Accordance with:
California Health and Safety Code, Section 116470



quality and experience



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BACKGROUND

The California Health and Safety Code Section 116470 (b) specifies that water utilities serving more than 10,000 connections prepare a brief written report every three years that documents detections of any constituents that exceed a Public Health Goal (PHG) in the preceding three years. PHGs are non-enforceable goals established by the California 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 Maximum Contaminant Level Goal (MCLG) adopted by the United States Environmental Protection Agency (USEPA). Only constituents that have both a California primary drinking water standard and a PHG or MCLG are to be addressed in the report.

CCWD prepared the last Triennial PHG Report in 2010. The 2013 Triennial PHG Report covers constituents detected in Contra Costa Water District's (CCWD) water supply during calendar years 2010 through 2012 at a level exceeding an applicable PHG or MCLG and provides the required information for each constituent. Included is 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 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 the California Department of Public Health (CDPH) in setting 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.

WATER QUALITY DATA CONSIDERED

All of the water quality data that was collected from CCWD's water system during calendar years 2010, 2011 and 2012 for purposes of determining compliance with drinking water standards was reviewed. The data was summarized in the 2010, 2011, and 2012 Annual Water Quality Reports that were mailed to all CCWD customers.

GUIDELINES FOLLOWED

The Association of California Water Agencies (ACWA) formed a workgroup in 2004 to establish guidelines for water utilities to use in preparing these reports. The guidelines were updated in 2013 and were utilized in the preparation of this report. No formal guidance was available from state regulatory agencies.

BEST AVAILABLE TREATMENT TECHNOLOGY AND COST ESTIMATES

Both the USEPA and CDPH have identified best available technologies that 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, because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to 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 MCLG

The following is a discussion of constituents that were detected in one or more of CCWD’s drinking water sources at levels above the PHG, or if no PHG, above the MCLG.

Total Coliform Bacteria

During calendar years 2010 through 2012, CCWD was required to collect a minimum of 120 samples per month to meet the monitoring requirements of the Total Coliform Rule. Approximately 180 samples per month are collected on average, but the actual number varied from month to month. Occasionally, a sample was found to be positive for coliform bacteria but secondary samples were negative and follow up actions were taken. A summary of coliform positives is indicated in Table 1.

Table 1: Summary of Total Coliform Results

Month	Number of Samples Collected	Number of Samples Coliform Positive	Percent Positive	Number of Follow-up Samples Coliform Positive
July 2010	183	2	1.1%	0
November 2010	175	2	1.1%	0
December 2010	188	2	1.1%	0
November 2011	175	1	0.6%	0
April 2012	173	1	0.6%	0
June 2012	181	1	0.6%	0
November 2012	175	2	1.1%	0
December 2012	179	2	1.1%	0

The MCL for total coliform is less than 5% positive samples of all samples per month, and the MCLG is zero. The reason for the total coliform drinking water standard is to minimize the possibility of the water containing pathogens, which are organisms that cause waterborne disease. Because total coliform bacteria are 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 total coliform bacteria.

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 done. 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. In all cases of

detection in CCWD treated water, follow-up samples were negative for total coliform indicating good water quality and no system contamination.

CCWD utilizes ozone as a primary disinfectant in the treatment process to achieve the requisite microbial inactivation outlined in the Surface Water Treatment Rule to assure that the water served is microbiologically safe. Before delivery to the distribution system, chloramines are added at a carefully controlled residual level to provide the best health protection without causing the water to have undesirable taste and odor or increasing the disinfection byproduct formation potential. This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water.

Other equally important measures that CCWD has 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 the distribution system. CCWD’s system has already taken all of the steps identified by CDPH as best available technology for coliform bacteria in Section 64447, Title 22, of the California Code of Regulations.

Radionuclides

During calendar years 2010 through 2012, CCWD was required to collect samples and test for radionuclides from source water locations at least once during the three-year period. This sampling was performed in 2010. Two radiological constituents were found at detectable levels. Uranium had one result over the PHG, and gross beta particle activity (gross beta) had results over the MCLG. A summary of the results is shown in Table 2.

Table 2: Summary of Radiological Constituents Detected

Constituent	PHG (pCi/L)	MCL (pCi/L)	MCLG (pCi/L)	DLR (pCi/L)	Range (pCi/L)	Average (pCi/L)
Gross Beta	None	50	0	4	ND-5.8	ND
Uranium	0.43	20	NA	1	ND-1.3	ND

pCi/L = picoCuries per liter

NA = Not Applicable

ND = Non-Detect

These constituents were found at levels just above the Detection Limit for Reporting (DLR) and were still much lower than the respective MCLs. Recent testing in 2013 has confirmed no detections of radiological constituents. A description of the public health risks, categories of health risks and best available treatment technology for each of the detected constituents follows.

Gross Beta

CDPH has set the drinking water standard for gross beta at 50 pCi/L. The MCLG is set at zero. The numerical public health risk associated with the MCLG is zero.

In 2010, gross beta was detected at six out of nine source water locations. The range of results was from non-detect to 5.8 pCi/L with an average below the DLR.

Gross beta in drinking water can occur from natural sources. There are also a number of anthropogenic (man-made) sources such as radioactive materials used in the medical industry. Some people who drink water containing gross beta in excess of the MCL over many years may have an increased risk of getting cancer. The best available technology for removal of gross beta has been identified as ion exchange and reverse osmosis.

Uranium

CDPH has set the drinking water standard for uranium at 20 pCi/L. The PHG is set at 0.43 pCi/L, although the DLR is set at 1 pCi/L. The numerical public health risk associated with the PHG is 1×10^{-6} .

In 2010, uranium was found just above the detectable level of 1.3 pCi/L at one out of nine CCWD source water locations tested.

The major source of uranium in drinking water is from erosion of natural deposits. 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. The best available technology for removal of uranium has been identified as ion exchange and reverse osmosis.

RECOMMENDATIONS FOR FURTHER ACTION

CCWD's drinking water quality meets all CDPH and USEPA drinking water standards set to protect public health. The levels of constituents identified in this report are already significantly below the health-based MCLs established to provide safe drinking water. Further reductions in these levels would require additional costly treatment processes and the ability of these processes to provide significant additional reductions in constituent levels is uncertain. In addition, the health protection benefits of these possible reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed at this time.