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BURBANK WATER and POWER

Report on Public Health Goals

Burbank Water System 2022 – 2024 Report

Report Prepared by
Burbank Water and Power

Introduction

Public Health Goals - Background

Provisions of the California Health and Safety Code, Section 116470(b), require public water systems serving more than 10,000 service connections to prepare a report (in plain language) containing information on the "detection" of any contaminants at levels above the Public Health Goals (PHGs) adopted by the State Office of Environmental Health Hazard Assessment (OEHHA) or the additional Maximum Contaminant Level Goals (MCLGs) set by the United States Environmental Protection Agency (USEPA). The first report was required and prepared July 1, 1998, and is required to be updated every three years thereafter.

Burbank Water and Power (BWP) is providing information in conformance with this requirement by providing this revised and updated report at this time. If a constituent was detected in the water supply between 2022 and 2024 at a level exceeding an applicable PHG or MCLG, this report provides health and treatment cost information as required by law.

Regulatory Overview

Regulations and Drinking Water

The USEPA and the State Water Resources Control Board – Division of Drinking Water (DDW) are responsible for establishing regulations and setting drinking water standards and goals. These agencies set rules and regulations for water systems to follow.

Drinking water goals include MCLGs and PHGs. MCLGs are levels of contaminants in drinking water below which there is no known or expected risk to public health. They are set by the USEPA and allow for a margin of safety. MCLGs are not enforceable drinking water standards. PHGs are water quality goals set by the OEHHA and are recommended target levels and are not required to be met by any public water systems.

Drinking water standards are also known as Maximum Contaminant Levels (MCLs) and Action Levels (ALs). MCLs are the highest level of a contaminant allowed in drinking water. They are set as close to MCLGs and PHGs as are economically and technologically feasible. MCLs are enforceable water quality standards that public water systems must meet. ALs are the concentrations of a contaminant which, if

exceeded, triggers treatment or other requirements that the water system must follow.

PHGs and MCLGs are not water quality standards. MCLGs and PHGs are goals identifying extremely small risks. These risks are normally assessed where one person in a million would be at risk to a contaminant. Determinations of health risk at these low levels are frequently theoretical and are based on risk assessments made using assumptions and mathematical extrapolations. Many contaminants are considered to be carcinogenic. The USEPA has set these MCLGs at zero, which cannot be measured by available analytical methods.

The USEPA and DDW have established Best Available Technologies (BATs) to remove or reduce contaminants to levels at or approaching the PHGs and MCLGs, where technologically feasible. The following information discusses the constituents found in the water served by the water system at or above the MCLGs and PHGs, the established BAT, and the cost estimate to remove the contaminant to the goal levels, where technologically feasible. Please note that accurate cost estimates are difficult, if not impossible, and are highly speculative and theoretical.

Guidelines Followed

Preparation of the Report

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these required reports. The ACWA guidelines were used in the preparation of our report. No guidance was available from state regulatory agencies.

Constituents Detected that Exceed PHGs or MCLGs

Bromate

Bromate is a chemical that is formed when ozone is used to disinfect drinking water and reacts with naturally occurring bromide found in source water. Bromate has been detected in City's water supply with values that ranged from non-detect (ND)

to 1.4 µg/L. The USEPA MCL is 10 µg/L for RAA and the PHG is 0.1 µg/L. BWP's water system is in full compliance with the federal drinking water standard for bromate, but we have detected bromate in the system above the PHG.

The DDW and USEPA have determined that bromate is a health concern at certain levels of exposure. The category of health risk associated with bromate, and the reason that a drinking water standard was adopted for it, is that some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. The numerical health risk for the PHG of 0.1 µg/L is one in a million. DDW and USEPA set the drinking water standard for bromate at 10 µg/L for RAA to reduce the risk of cancer or other adverse health effects.

The Best Available Technology (BAT) for removing bromate to below the PHG is control of ozone treatment process to reduce production of bromate. This is typically accomplished by treating the source water in a variety of ways to reduce the natural organic matter (NOM), which will allow a reduction in the applied dose of ozone used for disinfection. However, in BWP's water system, the source water is treated by a third party. Therefore, the bromate would need to be treated directly. The most effective treatment technique to reduce the bromate levels in the source water to levels below the PHG is to treat the water by reverse osmosis (RO) at the select sites where the water exceeds the PHG. The cost to install and operate an RO system to remove bromate to below the PHG in BWP's water system would be approximately $1.8 million annually which includes construction and annual operational cost. This translates into a monthly cost of $5.50 per connection for the life of the treatment system.

Gross Alpha Particle Activity

Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Gross alpha particle activity has been detected in City's water supply with values that ranged from 8.6 to 10.2 picoCuries/L (pCi/L). There is no PHG for gross particle activity. The MCLG is 0 pCi/L, and the MCL is 15 pCi/L. The levels detected in our system were below the MCL at all times but were over the level identified by USEPA as the MCLG.

The DDW and USEPA, which set drinking water standards, have determined that gross alpha particle activity is a health concern at certain levels of exposure. This radiological constituent is a naturally occurring contaminant in some groundwater and surface water supplies. The category of health risk associated with gross alpha particle activity, and the reason that a drinking water standard was adopted for it, is that some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. The numerical health risk for the MCLG of zero pCi/L is zero. DDW and USEPA set the drinking water

standard for gross alpha particle activity at 15 pCi/L to reduce the risk of cancer or other adverse health effects.

The Best Available Technology (BAT) identified to treat gross alpha particle activity is reverse osmosis (RO). The most effective method to consistently remove gross alpha particle activity to the PHG is to install RO treatment at the select groundwater and surface water connections sites where the water exceeds the MCLG. The cost to install and operate RO removal systems to remove gross alpha particle activity to the MCLG in BWP's water system would be approximately $9.5 million annually which includes construction and annual operational costs. This translates into a monthly cost of $29.00 per connection ($$ cost /services) for the life of the treatment system.

Gross Beta Particle Activity

Certain minerals are radioactive and may emit a form of radiation known as photons and beta radiation. Gross beta particle activity has been detected in City's water supply with values that ranged from 4.3 to 6.7 picoCuries/L (pCi/L). There is no PHG for gross beta particle activity. The MCLG is zero pCi/L, and the MCL is 50 pCi/L. The levels detected in our system were below the MCL at all times but were over the level identified by the USEPA as the MCLG.

The DDW and USEPA, which set drinking water standards, have determined that gross beta particle activity is a health concern at certain levels of exposure. This radiological constituent is a naturally occurring contaminant in some groundwater and surface water supplies. The category of health risk associated with gross beta particle activity, and the reason that a drinking water standard was adopted for it, is that some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer. The numerical health risk for the MCLG of zero pCi/L is zero. DDW and USEPA set the drinking water standard for gross beta particle activity at 50 pCi/L to reduce the risk of cancer or other adverse health effects.

The Best Available Technologies (BATs) identified to treat gross beta particle activity are ion exchange and reverse osmosis (RO). The most effective method to consistently remove beta and photon emitters to the MCLG is to install RO treatment at the select groundwater and surface water connections sites where the water exceeds the MCLG. The cost to install and operate RO removal systems to remove beta and photon emitters to the MCLG in BWP's water system would be approximately $9.5 million annually which includes construction and annual

operational cost. This translates into a monthly cost of $29.00 per connection ($$ cost /services) for the life of the treatment system.

Hexavalent Chromium

Hexavalent chromium is a heavy metal that has been used in industrial applications and found naturally occurring throughout the environment. Hexavalent chromium has been detected in City's water supply with levels ranged from 3.7 to 4.2 µg/L. The USEPA MCL is 10 µg/L for RAA and the PHG is 0.02 µg/L. BWP's water system is in full compliance with the federal drinking water standard for hexavalent chromium, but we have detected hexavalent chromium in the system above the PHG.

The DDW and USEPA have determined that hexavalent chromium is a health concern at certain levels of exposure. The presence of hexavalent chromium in drinking water at or above the MCL may cause an increased risk of stomach cancer and reproductive harm. Numerical health risk for the PHG of 0.02 µg/L is one in a million. DDW and USEPA set the drinking water standard for hexavalent chromium at 10 µg/L for RAA to reduce the risk of cancer or other adverse health effects.

The Best Available Technologies (BATs) identified to treat hexavalent chromium are ion exchange (IX) and reduction-coagulation-filtration. The cost to install and operate IX removal systems to remove hexavalent chromium to the MCLG in BWP's water system would be approximately $19 million annually which includes construction and annual operational cost. This translates into a monthly cost of $59.50 per connection ($$ cost /services) for the life of the treatment system.

Total Coliform Bacteria

From 2022 to 2024, the monthly percentage of total coliform samples testing positive above the MCLG ranged from 0.0% to 3.0%. BWP collects between 104 and 130 samples every month at points throughout the water distribution system that are analyzed for total coliforms.

The MCL for total coliform is 5% of monthly samples, and the MCLG is 0% of monthly samples. The total coliform bacteria percentage levels for water in the distribution system never exceeded the MCL between 2022 and 2024.

The DDW and USEPA, which set drinking water standards, have determined that the presence of total coliform is a possible health concern. Total coliform bacteria are common in the environment and are generally not harmful themselves. The

presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes that distribute the water and indicates that the water may be contaminated with organisms that may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water but also may be caused by a number of factors other than your drinking water.

Because coliform is only an indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. The DDW has set an enforceable drinking water standard for total coliform to reduce the risk of adverse health effects. Under this standard, no more than 5% of the samples collected during a month can contain these bacteria. Drinking water that meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

The DDW lists four operating and maintenance conditions as the Best Available Technology (BAT) for protection against microbiological contaminants. These conditions are practiced by BWP, and are as follows:

- Protection of wells from coliform contamination by appropriate placement and construction
- Maintenance of a disinfectant residual throughout the distribution system
- Proper maintenance of the distribution system
- Filtration and disinfection of approved surface water, and disinfection of groundwater

BWP chloraminates their source to assure that the water served is microbiologically safe. The chlorine residual levels are carefully controlled 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 our customers with safe drinking water.

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. BWP has already taken all of the steps described by DDW as “best available technology” for coliform bacteria in Section 64447, Title 22, CCR.

Uranium

Uranium has been detected in City's water supply with values that ranged from 11 to 14.3 picoCuries/L (pCi/L). The PHG for uranium is 0.43 pCi/L, and the MCL is 20 pCi/L. The levels detected in our system were below the MCL at all times but were over the level identified by DDW as the PHG.

The DDW and USEPA, which set drinking water standards, have determined that uranium is a health concern at certain levels of exposure. This radiological constituent is a naturally occurring contaminant in some groundwater and surface water supplies. The category of health risk associated with uranium, and the reason that a drinking water standard was adopted for it, is that 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 numerical health risk for the PHG of 0.43 pCi/L is one in a million. DDW set the drinking water standard for uranium at 20 pCi/L to reduce the risk of cancer or other adverse health effects.

The Best Available Technologies (BATs) identified to treat uranium are ion exchange, reverse osmosis (RO), lime softening, and coagulation/filtration. The most effective treatment system to consistently remove uranium to the PHG is RO treatment installed at the select groundwater and surface water connections sites where the water exceeds the PHG. The cost to install and operate RO removal systems to remove uranium to the PHG in BWP's water system would be approximately $9.5 million annually which includes construction and annual operational cost. This translates into a monthly cost of $29.00 per connection ($$ cost /services) for the life of the treatment system.

Summary of Findings

Overall, six constituents were detected in BWP's water system at concentrations/levels above the PHGs or MCLGs. The system never exceeded an MCL during the period of 2022 to 2024. The drinking water quality of BWP's water system meets all the drinking water standards to protect public health. Therefore, no further action is required at this time.

Although PHGs and MCLGs are not enforceable, they are goals that BWP continuously strives to meet. However, it is important to maintain a perspective about the nature of the level of PHGs, MCLGs and the numerical risk presented in this report. The state agency that develops the PHGs understandably does so in a very conservative manner.

In an effort to continue providing high-quality water with the available resources, BWP is committed to fulfilling the requirements and regulations mandated by DDW and USEPA. As part of that commitment, we perform the following tasks as part of our maintenance of infrastructure:

- Cleaning tanks and reservoirs (once every three to five years)
- Maintaining an effective cross-connection program on an on-going basis
- Supporting cleanup and abatement of contaminants discharged into the soil and groundwater on an on-going basis
- Replacing old water mains
- Fire hydrants and system dead-end flushing program

If you have any questions about this report, please call us at (818) 238-3500. We are available to answer your questions or visit our website at http://www.burbankwaterandpower.com.