Attachment A

Public Health Goals

Report on Water Quality

June 2019

HELIX WATER DISTRICT

PUBLIC HEALTH GOALS REPORT ON WATER QUALITY

SECTION 1: BACKGROUND INFORMATION

History

California Health and Safety Code Section 116470 (attached) specifies that larger (more than 10,000 service connections) water utilities prepare a special report by July 1, 2019, if their water quality measurements have exceeded any Public Health Goals (PHG). PHGs are non-enforceable goals established by the California Office of Environmental Health Hazard Assessment. The law also requires that where OEHHA has not adopted PHGs for a constituent, the water suppliers are to use the Maximum Contaminant Level Goals (MCLG) adopted by the U.S. Environmental Protection Agency (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.

The Association of California Water Agencies (ACWA) formed a workgroup which has developed guidelines for water utilities to use in preparing these newly required reports. Therefore, the ACWA guidelines were used in the preparation of Helix Water District's report. No guidance was available from state regulatory agencies.

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 has yet been adopted by OEHHA or USEPA. An example of this is total trihalomethanes. These are addressed in the district's annual water quality report, also known as the consumer confidence report. The law specifies what information is to be provided in this annual report.

If a constituent was detected in the district's water supply between 2016 and 2018 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 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 Public Health Goals?

PHGs are set by the California 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 Water Resources Control Board Division of Drinking Water (DDW), which sets standards for MCLs in drinking water, is considered in setting the PHGs. These factors include analytical detection capability, available treatment technology, benefits and costs. The PHGs are non-enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.

Reporting Requirements

The purpose of this report is to inform consumers of the district's drinking water PHGs that were exceeded during 2016, 2017 and 2018, pursuant to California Health and Safety

Code Section 116470(b). In addition, this report provides information about the cost of achieving a water quality level that does not exceed the PHGs. For general information about the quality of the water delivered by the district, please refer to the district's consumer confidence report, also known as the annual water quality report. An online version of the 2019 annual water quality report can be found at www.hwd.com. Included in this report is information about the MCL and the PHG, the health risk associated with each constituent, the best available treatment technology that may reduce the constituent level, and an estimate of the cost to install such treatment.

Water Quality Data Considered

All water quality data collected by the district's water system between 2016 and 2018 for purposes of determining compliance with drinking water standards was considered. This data was summarized in the district's 2016, 2017 and 2018 annual water quality reports. The report is electronically delivered or mailed to all district customers annually in June.

For each regulated contaminant, the DDW establishes detection limits for the purposes of reporting or DLR. DLRs are the minimum levels at which any analytical result must be reported to the DDW. Results indicated below the DLRs cannot be quantified with any certainty. In some cases, PHGs are set below the DLR. Any contaminant reported below the DLR will be considered zero for the purpose of this report. This approach is accepted by the DDW.

Best Available Treatment Technology and Cost Estimates

Both the USEPA and DDW adopt Best Available Technologies or BATs, which are the best methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies; however, since many PHGs and 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 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.

SECTION 2: CONSTITUENTS DETECTED THAT EXCEED A PUBLIC HEALTH GOAL

Radiological

Gross Alpha Particle Activity

Radionuclides, such as gross alpha, in water supplies are from erosion of natural deposits. The term radionuclide refers to naturally occurring elemental radium, radon, uranium and thorium. Each of those elements has an unstable atomic nucleus that spontaneously decays producing ionizing radiation. Gross alpha is defined as the sum total of these radionuclides. Exposure to ionizing radiation in concentrations exceeding the MCL may have carcinogenic (cancer causing), mutagenic (causing mutation of cells) or teratogenicity (causing abnormalities in offspring) effects. The USEPA's MCLGs for gross alpha particle is zero and the California MCL is 15 picocuries per liter (pCi/L). Helix Water

District's Lake Jennings had a gross alpha of 3.3 pCi/L. Thus, this level is well below the MCL. The health risk category based on experimental animal testing data evaluated in the USEPA MCLGs document and California MCL has determined gross alpha particle as a carcinogen. The USEPA's MCLG for gross alpha is zero and a cancer risk of one additional case per million people for the DDW MCL of 15 pCi/L. *Note: Cancer Risk – Theoretical 70 year lifetime excess cancer risk at a statistical confidence limit. Actual cancer risk may be lower or zero.*

The EPA Radionuclides Rule lists the BATs for radionuclides as reverse osmosis, ion exchange, and lime softening. For the sake of this report, one BAT will be explored for achieving compliance with the MCL for gross alpha particle activity, reverse osmosis. All costs including capital, land, construction, engineering, planning, environmental, contingency, and operating and maintenance are included. However, only general assumptions can be made for these items. Cost estimating guidelines from USEPA, American Water Works Association Research Foundation, American Water Works Association, and the American Society of Civil Engineers were used in determining the cost to implement the BAT. Assuming about 57,000 service connections, the estimated cost to install and operate such a treatment system at the R.M. Levy Water Treatment Plant would result in an increased cost for each customer of approximately $320 - $613 per service connection per year. These values were assessed using ACWA's February 2012 'Suggested Guidelines' for reverse osmosis treatment technology and include annualized capital and operating and maintenance costs indexed to 2018. The study referenced was Malcolm Pirnie's "RO estimate for CA Urban Water Agencies, large surface water treatment plants treating water from the SWP to meet State 2 D/DBP and bromate regulation, 1998," and does not include other potential costs and risks, including site location and conditions issues, brine disposal, increased corrosion risks, and increased water waste due to brine creation.

Uranium

Uranium is a naturally-occurring radioactive element that is ubiquitous in the Earth's crust. Uranium is found in ground and surface waters due to its natural occurrence in geological formations. The national average uranium concentration in drinking water is between one and four picocuries per liter.

The requirement for radiological monitoring, including uranium, is four consecutive quarters every four years. The district's radiological results are from the years 2016 and 2018 and sampling occurred more frequently than required. The California MCL for uranium is 20 pCi/L. The district is well below this level with uranium results that averaged 3.5 pCi/L.

The PHG for uranium is 0.43 pCi/L. The numerical health risk for uranium based on the California PHG is 1×10^{-6}. This means one excess cancer case per million population. The health risk category for uranium is carcinogenicity; chronic toxicity (cancer, human data; kidney toxicity). Carcinogenic risk means capable of producing cancer. Chronic toxicity

risk means there may be adverse effects that usually develop gradually from low levels of chemical exposure and that persist for a long time.

The BAT cited in literature to remove uranium is reverse osmosis. The cost analysis is the same as gross alpha.

SECTION 3: RECOMMENDATIONS FOR FURTHER ACTION

The district's drinking water quality meets all DDW 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 MCLs 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.

REFERENCES

Health and Safety Code Section 116470

As a condition of its operating permit, every public water system shall annually prepare a consumer confidence report and mail or deliver a copy of that report to each customer, other than an occupant, as defined in Section 799.28 of the Civil Code, of a recreational vehicle park. A public water system in a recreational vehicle park with occupants as defined in Section 799.28 of the Civil Code shall prominently display a copy of the report on a bulletin board at the entrance to or in the office of the park, and make available upon request.

On or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable PHG, shall prepare a brief written report in plain language that does all of the following:

1. Identifies each contaminant detected in drinking water that exceeds the applicable PHG.

2. Discloses the numerical public health risk, determined by the office, associated with the MCL for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the PHG for that contaminant.

3. Identifies the category of risk to public health, including, but not limited to, carcinogenic, mutagenic, teratogenic, and acute toxicity, associated with exposure to the contaminant in drinking water, and includes a brief plainly worded description of these terms.

4. Describes the BAT, if any is then available on a commercial basis, to remove the contaminant or reduce the concentration of the contaminant. The public water system may, solely at its own discretion, briefly describe actions that have been taken on its own, or by other entities, to prevent the introduction of the contaminant into drinking water supplies.

5. Estimates the aggregate cost and the cost per customer of utilizing the technology described in paragraph (4), if any, to reduce the concentration of that contaminant in drinking water to a level at or below the PHG.

6. Describes briefly what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant in public drinking water supplies and the basis for that decision.

7. Requires public water systems to prepare a report pursuant to subdivision (b) and shall hold a public hearing for the purpose of accepting and responding to public

comments on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

8. Does not require a public water system to take any action to reduce or eliminate any exceedance of a PHG.

9. Enforcement of this section does not require the department to amend a public water system's operating permit.

10. Pending adoption of a PHG by the OEHHA pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national MCLG adopted by the USEPA for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

    10.1. This section is intended to provide an alternative form for the federally required consumer confidence report as authorized by 42 U.S.C. Section 300g-3(c).