



# NEWPORT BEACH

## City Council Staff Report

June 28, 2016  
Agenda Item No. 17

**TO:** HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL

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**TITLE:** 2015 Drinking Water Quality Report on Public Health Goals

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### **ABSTRACT:**

The California Health and Safety Code requires the City of Newport Beach to prepare a report every three years if any of the water quality samples collected between 2013 and 2015 exceed a Public Health Goal (PHG) or Maximum Contaminant Level Goal (MCLG).

Five elements exceeded the PGH or MCLG during the three-year period. This report describes PHGs and MCLGs, the elements, health risks, and best available technology including the cost of treatment if appropriate and feasible.

### **RECOMMENDATION:**

- a) Determine that the action is exempt from the California Environmental Quality Act (CEQA) pursuant to Sections 15060(c)(2) and 15060(c)(3) of the CEQA Guidelines because it will not result in a physical change to the environment, directly or indirectly; and
- b) Receive and file.

### **FUNDING REQUIREMENTS:**

There is no fiscal impact related to this item.

### **DISCUSSION:**

#### **Background:**

Provisions of the California Health and Safety Code Section 116470 (b) specify public water systems serving more than 10,000 service connections must prepare a 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 California-Environmental Protection Agency's (CEPA's) Office of Environmental Health Hazard Assessment (OEHHA) and based solely on public health risk considerations. 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 Goals (MCLGs) adopted by United States 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.

All water quality data for purposes of determining compliance with drinking water standards between 2013 and 2015 are considered in this report. If a constituent was detected 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 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.

The United States Environmental Protection Agency (USEPA) and State Water Resources Control Board (SWRCB) have adopted Best Available Technologies (BAT) that is the best-known methods of reducing contaminant levels to the MCL. Costs are estimated for implementing 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 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.

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.

#### *Coliform Bacteria:*

During 2013, 2014 and 2015, we collected over 4,698 samples for coliform analysis. In October of 2013, one sample was positive for coliform bacteria but absent for fecal bacteria. Six re-check samples were negative and follow-up actions were taken. The sample happened to be taken on an extremely windy day at a sample station located under a tree. The sample could have been contaminated via airborne particles. The birds nesting above the station may have contributed to the positive; therefore, foreseeing possible repeat positives, the sample station was moved with SWRCB approval. No further problems have been detected.

The MCL for coliform is 5 percent 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 they cannot do so with coliforms.

Coliform bacteria are indicator organisms 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. USEPA states “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.

We add monochloramine as a disinfectant to our water sources to assure the water is microbiologically safe. The 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 is essential in supplying safe good tasting drinking water.

Other equally important measures we have implemented include an effective cross-connection control program, maintenance of a disinfectant residual, monitoring and surveillance program, and maintaining positive pressures in our distribution system. Our system has already taken all steps described by SWRCB in Section 64447, Title 22, CCR as “best available technology” for coliform bacteria.

#### *Arsenic:*

Arsenic is an element that occurs naturally in the earth’s crust. Accordingly, there are natural sources of exposure for arsenic. Exposure to arsenic at high levels can pose serious health effects known to cause skin cancer and other cancers of the internal organs. In addition, it has been reported to affect the vascular system and has been associated with the development of diabetes. The USEPA established a (MCL) for arsenic of 50 parts per billion in 1975. In January 2002, USEPA adopted a new standard for arsenic in drinking water that requires water suppliers to reduce arsenic to ten parts per billion by January 2006. Groundwater and imported water in Orange County generally range between non-detectable levels and five parts per billion.

The BAT treatment for arsenic to lower the level below the MCL is adsorptive media systems. Since the level of arsenic in each of the City wells is already below the MCL, the adsorptive media systems treatment method would likely be used to attempt to lower the arsenic level below the 0.004 parts per billion (ppb) PHG. The USEPA has estimated a centralized treatment plant of this type would cost approximately \$8 million per year, including initial construction costs and additional operation and maintenance costs. This would result in an assumed increased cost for each water customer of \$327 per customer annually.

*Uranium:*

The PHG set by OEHHA for uranium is 0.43 picocuries per liter (pCi/L), and the SWRCB has set the MCL for uranium at 20 pCi/L. Uranium is naturally occurring in groundwater. We have detected uranium in all of our wells at levels between 1.12 to 6.06 pCi/L. The levels detected were below the MCLs at all times. People who drink water containing uranium above the MCL throughout their lifetime could experience an increased risk of cancer. SWRCB states "Drinking water which meets this standard (the MCL) is associated with little to none of this risk and should be considered safe with respect to Uranium."

The BAT treatment for uranium to lower the level below the MCL is Ion Exchange/Water Softening treatment. Since the level of uranium in each of the City wells is already below the MCL, the Ion Exchanged/Water Softening treatment method would likely be used to attempt to lower the uranium level below the 0.5 pCi/L PHG. The USEPA has estimated a centralized treatment plant of this type would cost approximately \$10 million per year, including initial construction costs and additional operation and maintenance costs. This would result in an estimated increased cost for each water customer of \$500 annually.

*Gross Alpha:*

Gross alpha is the measurement of radioactive particle activity for a group of radionuclides which include uranium, combined radium, and radon. The SWRCB has established the MCL for gross alpha as 15 pCi/L (excluding uranium and radon), which is used as a screening standard to determine if further radionuclide monitoring is necessary.

There are no PHG set by OEHHA, but the USEPA has an MCLG for gross alpha of zero. We have detected gross alpha in some of our wells at levels up to 4.68 pCi/L. However, the level of gross alpha detected is mainly contributed to the uranium content. After the uranium content is deducted, the net alpha is less than the minimum detectible level for regulatory reporting. Therefore, no health risks or estimates of treatment are included in this report.

*Chromium Hexavalent:*

The PHG for Chromium, hexavalent (Cr-6) is 0.02 ppb. The MCL for the drinking water standard for Cr-6 is 10 ppb. We have detected Cr-6 at a level of .03 to .26 ppb. The levels detected were below the MCLs at all times. The category of health risk associated with Cr-6, and the reason that a drinking water standard was adopted for it, is that people who drink water containing Cr-6 above the MCL throughout their lifetime could experience an increased risk of getting cancer. The BAT for Cr-6 to lower the level below the MCL are reduction/coagulation/filtration, ion exchange, or reverse osmosis. The USEPA has estimated a centralized treatment plant of this type would cost approximately \$10 million per year, including initial construction costs and

additional operation and maintenance costs. This would result in an assumed increased cost for each water customer of \$500 annually.

### Summary

Constituent	PHG/MCLG	Actual	MCL/Action Level
Coliform	0	.65%	<5% per month
Arsenic	.004 ppb	ND-3.7 ppb	10 ppb
Uranium	0.43 pCi/l	1.12 to 6.06 pCi/l	20 pCi/l
Gross Alpha	0	ND to 4.68 pCi/l	15 pCi/l
Chromium Hexavalent	.02 ppb	.03 to .26 ppb	10 ppb

### Recommendations for further action:

The drinking water quality of the City of Newport Beach meets all State and Federal drinking water standards set to protect public health. To further reduce the levels of the constituents that are already significantly below the Maximum Contaminant Levels would require costly treatment. The effectiveness of the treatment processes to remove a constituent or even lower the level is uncertain. The health protection benefits of these further hypothetical reductions are not clear and may not be quantifiable. Therefore, no action is proposed.

### **ENVIRONMENTAL REVIEW:**

Staff recommends the City Council find this action is not subject to the California Environmental Quality Act (CEQA) pursuant to Sections 15060(c)(2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment) and 15060(c)(3) (the activity is not a project as defined in Section 15378) of the CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, because it has no potential for resulting in physical change to the environment, directly or indirectly.

### **NOTICING:**

The agenda item has been noticed according to the Brown Act (72 hours in advance of the meeting at which the City Council considers the item).

### **ATTACHMENTS:**

None