ITEM NO. 25

STAFF REPORT

CITY OF OCEANSIDE

DATE: August 25, 2010

TO: Honorable Mayor and City Councilmembers

FROM: Water Utilities Department

SUBJECT: **ACCEPTANCE OF THE REPORT ON WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS**

SYNOPSIS

Staff recommends that the City Council receive public comment and accept the report on water quality relative to public health goals.

BACKGROUND

The California Environmental Protection Agency Office of Environmental Health Hazard Assessment establishes Public Health Goals (PHGs) and the Environmental Protection Agency (USEPA) establishes Maximum Contaminant Level Goals (MCLGs) for drinking water contaminants. The PHGs/MCLGs are guidelines and are not requirements for any public water system. Maximum Contaminant Levels (MCLs) set by the State or Federal EPA are the mandatory limits for all public water systems and PHGs/MCLGs are frequently much lower than the MCLs. Under provisions of the California Health and Safety Code, once every three years the City is required to prepare a special report identifying water quality measurements that have exceeded PHGs, conduct a public hearing and receive comments from the public relative to the report (Exhibit A).

ANALYSIS

For the years 2007, 2008, and 2009, the report shows that Oceanside's drinking water continues to meet all State of California, Department of Health Services, and USEPA drinking water standards set to protect public health. However, the City's drinking water exceeded the PHGs/MCLGs for Lead, Gross Alpha Radiation and Uranium. The detected levels for these constituents were well below their respective MCLs, so this does not constitute a violation of drinking water regulations or indicate the water was unsafe to drink. These results could be considered typical for a California water agency.

Lead

The main sources of Lead in drinking water are Lead solder, commonly used before 1990 to join lengths of copper pipe together; and faucets containing brass or bronze internal parts, which usually contains lead impurities. High levels of Lead are not found in the water that Oceanside provides to its customers.

Every three years the City is required to sample 50 Oceanside homes for Lead, last completed in 2009. The samples are taken from faucets within each of the homes. Sampling for Lead at the tap helps to determine if a water system is providing corrosive water and causing Lead to leach into the water. The results of this testing are sent to each participating homeowner.

Based on our sampling results we are deemed by California Department of Public Health Services (CDPHS) to have "optimized corrosion control" for our system. Since we are meeting the "optimized corrosion control" requirements, it is not prudent to initiate additional corrosion control treatment. Therefore, no estimate of treatment cost has been included.

Gross Alpha Radiation and Uranium

Gross Alpha Radiation is caused by naturally-occurring radioactive elements that are present in the earth's crust. Uranium is a typical alpha radiation emitter that is found in ground and surface waters due to its natural occurrence in geological formations.

The City is required to conduct Radiological monitoring by sampling our water for four consecutive quarters every four years. This monitoring indicated the presence of low levels of Gross Alpha Radiation and Uranium.

The best available technology to lower the Gross Alpha Radiation and the Uranium levels is reverse osmosis (RO). The cost estimate to treat the City's water by RO is approximately $4.00 per unit (748 gallons). The amount of surface water treated per year is 30,723 acre feet or about 36,000 units per day. The cost for treatment would be $54 million per year, not including the cost of disposing of the concentrated waste from the treatment facility and the capital cost of $160 million.

The City of Oceanside's drinking water meets all CDPHS and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report to meet the State's Public Health Goals would require additional costly treatment processes. The effectiveness of these treatment processes required to make reductions to the PHGs/MCLGs is uncertain. Therefore, no action is proposed at this time.

FISCAL IMPACT

There is no fiscal impact indicated by this report.

COMMISSION OR COMMITTEE REPORT

A presentation of the Public Health Goals report was made to the Utilities Commission at its regularly scheduled meeting on July 20, 2010.

CITY ATTORNEY'S ANALYSIS

City Attorney analysis does not apply.

RECOMMENDATIONS

Staff recommends that the City Council receive public comment and accept the report on water quality relative to public health goals.

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Exhibit A – Report on Water Quality Relative to Public Health Goals

CITY OF OCEANSIDE
WATER UTILITIES DEPARTMENT

Report on Water Quality Relative to Public Health Goals

6/20/10

Background:

Provisions of the California Health and Safety Code specify that the City of Oceanside and other water utilities with more than 10,000 service connections prepare a special report by July 1, 2010 if their water quality measurements exceeded any State Public Health Goal (PHG) or Federal Maximum Contaminant Level Goal (MCLG) in calendar years 2007, 2008, and 2009. Only constituents which have a California Maximum Contaminant Level (MCL) or Action Level (AL) and either a PHG or MCLG that has been exceeded are to be addressed in this report. Included in this report is the numerical public health risk associated with the MCL and PHG or MCLG, the category or type of risk to health that could be associated with each constituent level, and an estimate of the cost to implement specified treatment if it is appropriate and feasible.

What is a MCLG, PHG, MCL and AL?

Public Health Goals (PHGs) and *Maximum Contaminant Level Goals (MCLGs)* are non-enforceable goals established by the State or Federal EPA and are based solely on public health risk considerations. PHGs are set by the State and MCLGs are set by the Federal Regulators. Research indicates that below the PHG/MCLG for a contaminant there are no known adverse health effects. The PHGs/MCLGs are not enforceable and are not required to be met by any public water system.

Maximum Contaminant Level (MCL) is the maximum level of a contaminant that is allowed in drinking water. The USEPA and the California Department of Public Health (CDPH) establish MCLs at very conservative levels to provide protection to consumers against all but very low to negligible risk. MCLs set by the State or Federal EPA are mandatory limits for all public water systems. MCLs are set as close as possible to PHGs/MCLGs but the MCL for a contaminant may be higher than the PHGs/MCLGs. This is because of the difficulties in measuring such small quantities of a contaminant, or a lack of available treatment technologies, or if EPA determines that the costs of treatment would outweigh the public health benefits of a lower MCL.

Action Level (AL) is the maximum level of Lead or Copper allowed in the water. If the AL is exceeded the water is considered corrosive to plumbing and corrosion control measures must be implemented by the water supplier.

Water Quality Data Considered:

All of the water quality data collected by our water system for 2007, 2008 and 2009 for purposes of determining compliance with drinking water standards was considered. This data was all summarized in our 2007, 2008 and 2009 Annual Water Quality Reports.

Constituents Detected that Exceed a PHG or a MCLG:

Drinking water distributed in the City of Oceanside exceeded the PHGs or MCLGs for Lead, Gross Alpha Radiation and Uranium. The detected levels for these constituents were well below their respective MCLs, so this does not constitute a violation of drinking water regulations or indicate the water was unsafe to drink. These results could be considered typical for a California water agency. More detailed information for these constituents follows.

Lead:

The main sources of Lead in drinking water are Lead solder, commonly used before 1990 to join lengths of copper pipe together; and faucets containing brass or bronze internal parts, which usually contains lead impurities. High levels of Lead are not found in the water that Oceanside provides to its customers.

Every three years the City is required to sample 50 Oceanside homes for Lead, last completed in 2009. Because home plumbing and fixtures are the primary sources of Lead in our drinking water, the samples are taken from faucets within each of the homes. Sampling for Lead at the tap helps to determine if a water system is providing corrosive water and causing Lead to leach into the water.

There is no MCL for Lead. Instead the 90th percentile value of all samples from household taps cannot exceed an Action Level (AL) of 15 µg/L (µg/L is approximately equivalent to ppb). This means that 90% of the 50 homes tested must be below 15 µg/L. The 90th percentile of our sampling of tap water samples in 2009 was 2 µg/L. The non enforceable PHG for Lead is 0.2 µg/L.

Our water system is in full compliance with the Federal and State Lead requirements. Based on our sampling results we are deemed by CA Department of Public Health Services to have "optimized corrosion control" for our system. In general, optimizing corrosion control is considered to be the best available technology to deal with corrosion issues and with any Lead findings. We continue to monitor our water quality parameters that relate to corrosion, such as the pH, hardness, alkalinity, total dissolved solids, and will take action if necessary to maintain our system in an "optimized corrosion control" condition.

Exposure to Lead has been associated with a large variety of human toxicological effects. Lead is known to cause changes in the cardiovascular, hematological, musculoskeletal, renal, reproductive, neurological, and immunological systems. In addition, Lead may cause an increased risk of lung and stomach cancer. The cancer risk at the PHG is 3×10^{-7} or 3 excess cancer cases in 10 million people. The cancer risk at the AL is 2×10^{-6} or 2 excess cancer cases in a million people.

Since we are meeting the "optimized corrosion control" requirements, it is not prudent to initiate additional corrosion control treatment as it involves the addition of other chemicals and there could be additional water quality issues raised. Therefore, no estimate of cost has been included.

Gross Alpha Radiation and Uranium:

Gross Alpha Radiation is caused by naturally-occurring radioactive elements that are present in the earth's crust. Uranium is a typical alpha radiation emitter that is found in ground and surface waters due to its natural occurrence in geological formations.

The requirement for radiological monitoring is to sample our water for four consecutive quarters every four years. The City of Oceanside's radiological results are from 2006 - 2007. This monitoring indicated the presence of low levels of Gross Alpha Radiation and Uranium. The State of California MCL for Gross Alpha Radiation is 15 pCi/L and the results for our water ranged from 3.3 to 4.3 pCi/L. The MCL for Uranium is 20 pCi/L and the results for our water ranged from 1.8 to 4.8 pCi/L.

The MCLG for Gross Alpha Radiation is zero. Since this type of radiation is used as a screening test for a large group of radionuclides and the risks vary for each type of radionuclide, the EPA has set the MCLG at zero. Uranium has a PHG of 0.43 pCi/L.

Constituent	Unit	Our Water	MCL Legal Limit	PHG/MCLG Non enforceable goal
Alpha Radiation	pCi/L	3.3 – 4.3	15	0
Uranium	pCi/L	1.8 – 4.8	20	0.43

The health risk category for Uranium is carcinogenicity. Carcinogenic risk means that the constituent is capable of producing cancer. The numerical health risk for Uranium based on the MCL is 5×10^{-5}. This means five excess cancer cases per 100,000 population. The numerical health risk for Uranium at the PHG is 1×10^{-6}. This means one excess cancer case per 1,000,000 population.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and CDHS specify Best Available Technologies (BATs) which are the best known methods of reducing contaminant levels to meet the MCL. Costs can be estimated for such technologies. However, since many PHGs/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 to 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 best available technology (BAT) to lower the Gross Alpha Radiation and Uranium level is reverse osmosis (RO). The cost estimate to treat the City's water by RO is approximately $4.00 per unit (748 gallons). The amount of surface water treated per year is 30723 acre feet or about 36000 units per day. The cost for treatment would be $54 million per year, not including the cost of disposing of the concentrated waste from the treatment facility and the capital cost of $160 million.

Recommendations

The City of Oceanside's drinking water meets all CA and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report will require additional costly treatment processes. The effectiveness of these treatment processes required to make reductions to the PHGs/MCLGs is uncertain. Therefore, no action is proposed at this time.