

CITY OF YUBA CITY
STAFF REPORT

Date: August 7, 2007
To: Honorable Mayor & Members of the City Council
From: Utilities Department
Presentation By: William P. Lewis - Director

Summary

Subject: **REPORT ON PUBLIC HEALTH GOALS FOR THE CITY'S SURFACE WATER SYSTEM.**

Recommendation: Conduct a public hearing, accept public comment. Approve the Public Health Goal Report.

Fiscal Impact: No fiscal impact.

Background:

SB 1307 (Calderone-Sher; effective 1-1-97) added provisions to the California Health and Safety Code which mandate that a Public Health Goal report be prepared every three years and a public hearing be conducted for water systems with greater than 10,000 connections. The attached report provides information to supplement the Annual Water Quality Reports which is mailed to each customer and posted on the City website. The report covers the surface water system. The groundwater systems have less than 10,000 connections.

Analysis:

The California Department of Health Services and USEPA establish drinking water standards. These standards are intended to protect public health and prevent water borne illness and disease. California and US-EPA also establish water quality public health goals. The public health goals are typically much more stringent than the adopted health standards. Whenever a health standard is exceeded Yuba City must immediately notify its customers per California regulations that may include mailings, advertisements in the local newspaper, door hangers or personal contact. Public health goals are not enforceable standards and no action to meet them is mandated.

The Public Health Goal Report has been prepared by staff comparing the City's surface water drinking water quality with public health goals adopted by Cal-EPA and the USEPA.

The report indicates that the surface water system met all public health goals with the exception of total Coliform. The health goal for total Coliform is zero positive samples. The surface water system had a total of 18 positive total Coliform samples of the 4756 that were collected. Total Coliform is not the same bacteria as E. Coliform. The presence E. Coliform and total Coliform is analyzed in all samples. There were no positive E. Coliform samples and the health goal was met.

Fiscal Impact:

No fiscal impact.

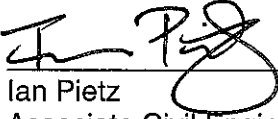
Alternatives:

Do not approve the Public Health Goal Report and provide staff with direction to make certain changes or make further evaluations.

Recommendation:

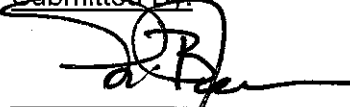
Conduct a public hearing, accept public comment. Approve the Public Health Goal Report.

Prepared By:



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Reviewed By:

Department Head

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CITY OF YUBA CITY



UTILITIES DEPARTMENT

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CITY OF YUBA CITY SURFACE WATER REPORT ON WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS

Background:

Provisions of the California Health and Safety Code SB 1307 (Calderone-Sher; effective 1-1-97) specify water systems with more than 10,000 service connections prepare a special report every three years if their water quality measurements have exceeded any California Public Health Goal. These goals are typically much more stringent than the adopted health standards. Whenever a health standard is exceeded Yuba City must immediately notify its customers per California regulations that may include mailings, advertisements in the local newspaper, door hangers or personal contact. The state and federal goals are non-enforceable and are established by the Cal-EPA's Office of Environmental Health Hazard Assessment or US-EPA. Only constituents which have a California primary health standard and either a state or federal goal are to be addressed in this report.

There are a few constituents that are routinely detected in water systems at levels below the health standards for which no state or federal goal has yet been adopted. These constituents are not addressed in this report.

This report provides detailed information if a constituent was detected in Yuba City's water supply between January 2004 and December 2006 at a level exceeded the state or federal goal. Only one constituent meets this criterion: total Coliform.

What Are the State and Federal Public Health Goals?

Public Health Goals are set by the Cal-EPA Office of Environmental Health Hazard Assessment or the US-EPA 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 Health Services in setting drinking water standards are considered in setting the Public Health Goals. These factors include establishing goals lower than can be measured by laboratories; there may not be a known treatment technology, neither benefits nor costs are evaluated. The goals are not enforceable and are not required to be met by any public water system.

Water Quality Data Considered:

All of the water quality data collected by the City's surface water system between January 2004 and December 2006 was considered. This is summarized in the 2004, 2005, and 2006 Annual Water Quality Reports which were mailed to all customers in the month June following each year. The annual reports are available for review at the Yuba City web site:

<http://www.yubacity.net/utilities/consumer-confidence-report.htm>

Guidelines Followed:

The Association of California Water Agencies formed a workgroup which prepared guidelines for water utilities to use in preparing this report. No guidance is available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the federal and state agencies adopt Best Available Technologies which are the best known methods of reducing contaminant levels to the health standard. Costs can be estimated for such technologies. However, since many state and federal goals are set much lower than the standard, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward to or near the state or federal goal, 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. Further actions Yuba City is taking to ensure future compliance with the health goal is discussed below.

Constituents Detected That Exceed State or Federal Goals:

The following is a discussion of total Coliform detected at levels above the state and federal goals. Total Coliform is not the same bacteria as E. Coliform. The presence E. Coliform and total Coliform is analyzed for in all samples. There were no positive E. Coliform samples. E. Coliform is considered to be a health risk and water quality standards are set at zero positive samples, whereas total Coliform health standard allows five percent positive samples. E. Coliform has not been detected in the water system. The health goal for both total and E. Coliform is zero positive samples.

Total Coliform Bacteria:

Typically Yuba City collects over 100 samples each month for total and E. Coliform analysis, while only 60 are required. The extra samples are collected to ensure safe high quality water is delivered to the customers, and serves as an early warning in the event there were to be a problem. Occasionally, a sample was found to be positive for total Coliform bacteria follow up actions are always taken including additional monitoring and flushing of water mains. The majority of months had zero percent positive samples. The last positive total Coliform sample was detected in March 2006, and none have been detected in 2007. A maximum of 8.3% of these samples were positive in February 2005. This event was caused by construction activities that generated high velocities in a nearby section of the water pipelines. The public was notified as required by the California Department of Health Services. During the three year period a total of 4,756 Coliform samples were collected and there were a total of eighteen positive samples, ten of which were in February 2005, and total positive rate of 0.4%. There was at least one positive total Coliform sample detected in seven of the thirty six months evaluated. There were no E. Coliform positive samples during this same period.

The health standard for total Coliform is five percent positive samples of all samples per month and the goal is zero positive samples. The basis of the total Coliform drinking water standard is

to minimize the possibility waterborne caused illness or disease, while recognizing that total Coliform are ubiquitous and occasionally are present in the water supply. Because total Coliform is only a surrogate indicator of the potential presence of disease causing organisms, it is not possible to state a specific numerical health risk. While USEPA normally sets goals "at a level where no known or anticipated adverse effects on persons would occur", they indicate that they cannot do so with total Coliform.

Total Coliform bacteria are an indicator organism that are found in most all natural environments and are not generally considered harmful. Total Coliform is used because of the ease in monitoring and analysis. If total Coliform is not present in the water supply then it is assumed that disease causing bacteria are also not present. The presence of total Coliform bacteria however does not necessarily indicate that other harmful bacteria are present. Total Coliform bacteria may be present when bacteria that can cause health concerns can not survive. Analytical techniques for determining if total Coliform or E. Coliform bacteria are present are readily available and analysis time takes only twenty-four hours. Analysis for specific pathogenic bacteria is typically only available at research or specialized laboratories, and analysis time is several days or weeks. If a positive total Coliform sample is found, it indicates a potential problem that needs to be investigated and follow up sampling done. Presence of total Coliform bacteria does not in and of itself indicate a health concern. It is not at all unusual for a system to have an occasional presence of total Coliform bacteria. It is difficult, if not impossible; to assure that a system will never detect a positive sample for total Coliform.

Total Coliform is removed from the raw water supply through treatment at the water plant and addition of chlorine. Yuba City adds chlorine at the Water Treatment Plant and storage reservoirs to assure that the water served is free from disease causing bacteria. Water systems are required to maintain a chlorine residual of 0.2 mg/l in the distribution system. 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. Chlorine residuals were always maintained in the reservoirs and the distribution system. Chlorine concentration is measured in every Coliform analysis. This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water. Other equally important measures that have been implemented include: an effective cross-connection control program, maintenance of a disinfectant residual throughout the piping system, an effective monitoring and surveillance program and maintaining high water pressures in the water pipelines. The Yuba City water system has already taken all of the steps described by California as "best available technology" for Coliform bacteria in Section 64447, Title 22, CCR.

July 23, 2007 Yuba City received approval from the California Department of Health Services to begin utilization of the expanded surface water treatment plant. This expansion includes the installation of twelve million gallons per day of membrane filters. These membrane filters are considered to be more reliable in removing Coliform and other bacteria. Membrane filtration is the most reliable technique for ensuring the filtration of bacteria. The long term capital improvement program anticipates changing all of the existing sand/anthracite filters to membrane filters.

Recommendations for Further Action:

To further reduce the level of Coliform that are already significantly below the health-based standard established to provide "safe drinking water" would require additional costly treatment processes. The conversion of the sand/anthracite filters to low pressure membranes will be

done per the adopted capital improvement plan. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed other than continued implementation of the Water Master Plan.