



**City of Milpitas
2013 Public Health Goals (PHGs) Report**

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EXECUTIVE SUMMARY

Every three years, the California Department of Public Health (CDPH) requires public water systems serving more than 10,000 service connections to prepare a written report on any chemical, microbiological, or radiological contaminants detected in the potable water supply at concentrations exceeding either a Public Health Goal (PHG) or a Maximum Contaminant Level Goal (MCLG). These goals are not regulatory drinking water standards (known as Maximum Contaminant Levels, or MCLs), but are values thought by either the federal or state government to have potential public health impacts. Reports cover three calendar years of water quality data and are to be completed by July 1st after the third year. The City is required to hold a public hearing to receive comment on the report at any regular public meeting scheduled “reasonably” after report completion. The City is then required to notify the State of the public hearing.

Staff completed the “City of Milpitas Report on Public Health Goals for the Public Water System,” included in the Council folders, by the July 1, 2013 deadline, after reviewing all water monitoring data for the calendar years 2010 through 2012. This review identified the following PHG exceedances:

- Lead – The City analyzed 37 water samples from home taps in 2010 for lead and found that most samples exceeded the PHG of 0.2 parts per billion (ppb). Lead detections typically result from the corrosion of lead solder in home plumbing, as lead is not detected in the municipal water. Suppliers can reduce lead concentrations from home plumbing by reducing the corrosivity of supplied water. However, CDPH has determined that the City’s wholesale suppliers have already implemented optimum corrosion controls and no further action is necessary. Customers with lead-solder plumbing can further reduce their exposure by not drinking or cooking with “first flush” water (water that sits overnight in home plumbing).
- Coliform – Coliform bacteria are abundantly present in nature and so are considered a potential indicator of contamination. The City tested 5977 water samples for coliform bacteria during the three-year period of 2010, 2011 and 2012 and found three positive results. Subsequent re-sampling did not reproduce positive results. The three positive results exceeded the MCLG (greater than 0% positive), but did not exceed the MCL (greater than 5% positive of samples taken in a monthly batch, equating to five positives in a monthly batch of 100).

The water delivered by the City has met all regulatory drinking standards and is considered to be safe for consumption. More information on the City’s water quality can be found in the annual Consumer Confidence Report, attached in Appendix A of this report.

Any questions regarding this report should be directed to:

Marilyn Nickel, P.E.
City of Milpitas, Utility Engineering
455 E. Calaveras Blvd., Milpitas, CA 95035-5411

Phone: 408.586.3347
Fax: 408.586.3305

INTRODUCTION

Provisions of Section 116470 of the Health and Safety Code (see Appendix B) specify that public water systems serving more than 10,000 service connections must prepare a report to inform the public of any Public Health Goal (PHG) exceedances, and hold a public hearing for the purpose of accepting and responding to public comment. The report, due every three years, is required by July 1, 2013, and a public hearing must be held for the purpose of accepting and responding to public comment at any time subsequent to the report.

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA), which is part of the California Environmental Protection Agency, and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the U.S. Environmental Protection Agency (USEPA) or the California Department of Public Health (CDPH) in setting Maximum Contaminant Levels (MCLs) are considered in setting PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. PHGs are not enforceable and are not required to be met by any public water system. Maximum Contaminant Level Goals (MCLGs) are the federal equivalent to PHGs.

The purposes of this report are the following:

- Identify each contaminant detected in drinking water that exceeds the applicable PHG (or MCLG if a PHG has not been adopted),
- Disclose the health risk associated for each contaminant identified,
- Describe the best available technology (BAT) to remove the contaminant or reduce the concentration of the contaminant,
- Estimate the aggregate cost and the cost per customer of utilizing technology to reduce the concentration of that contaminant to a level at or below the PHG (or MCLG), and
- Describe what action, if any, the City intends to take to reduce the concentration of the contaminant and the basis for that decision.

Although the City's supplies meet all drinking water requirements (see Appendix A – July 2013 Consumer Confidence Report), two of the more stringent PHG levels were exceeded as described in the following sections. All of the water quality data collected by the City's water system from 2010 through 2012 for purposes of determining compliance with drinking water standards were considered.

FINDINGS

The City purchases water from the San Francisco Public Utilities Commission (SFPUC) and the Santa Clara Valley Water District (SCVWD) and maintains separate service areas for each (see Figure 1). Table 1 shows that the water quality exceeded the PHG for lead and the MCLG for coliform.

Table 1 - Water Quality Exceedances

Contaminant	PHG ¹ or MCLG	MCL	Milpitas service area ²	Comments
Lead	0.2 ppb	N/S	<0.5 – 48 ppb	37 taps were sampled in 2010; most samples exceeded the PHG.
Coliform	0% positive	>5% Positive in month	3 (SFPUC)	5997 samples were taken from January 1, 2010 to December 31, 2012; 3 samples were positive.

1 PHGs adopted by OEHHA

2 ppb = parts per billion

N/S No Standard

Lead

The City water supply does not contain detectable levels of lead. However, special samplings showed that lead levels can increase within households due to leaching from household plumbing and fixtures. CDPH requires the City to monitor for household lead once every three years. Out of 37 samples collected in 2010, most samples exceeded the lead PHG of 0.2 ppb.

Coliform

The City took 5997 samples (27 per week) from 2010 to 2012 throughout the distribution system and used a state-certified laboratory to analyze for coliform. Three samples collected in July 2010, October 2011, and October 2012, were coliform positive. All samples were taken from the SFPUC service area. Subsequent re-sampling at each location and two other locations (one upstream and one downstream) were coliform negative. The State MCL for coliform is more than 5% positive per month and the City did not violate the coliform standard. However the Federal MCLG is 0% positive, which the City did exceed.

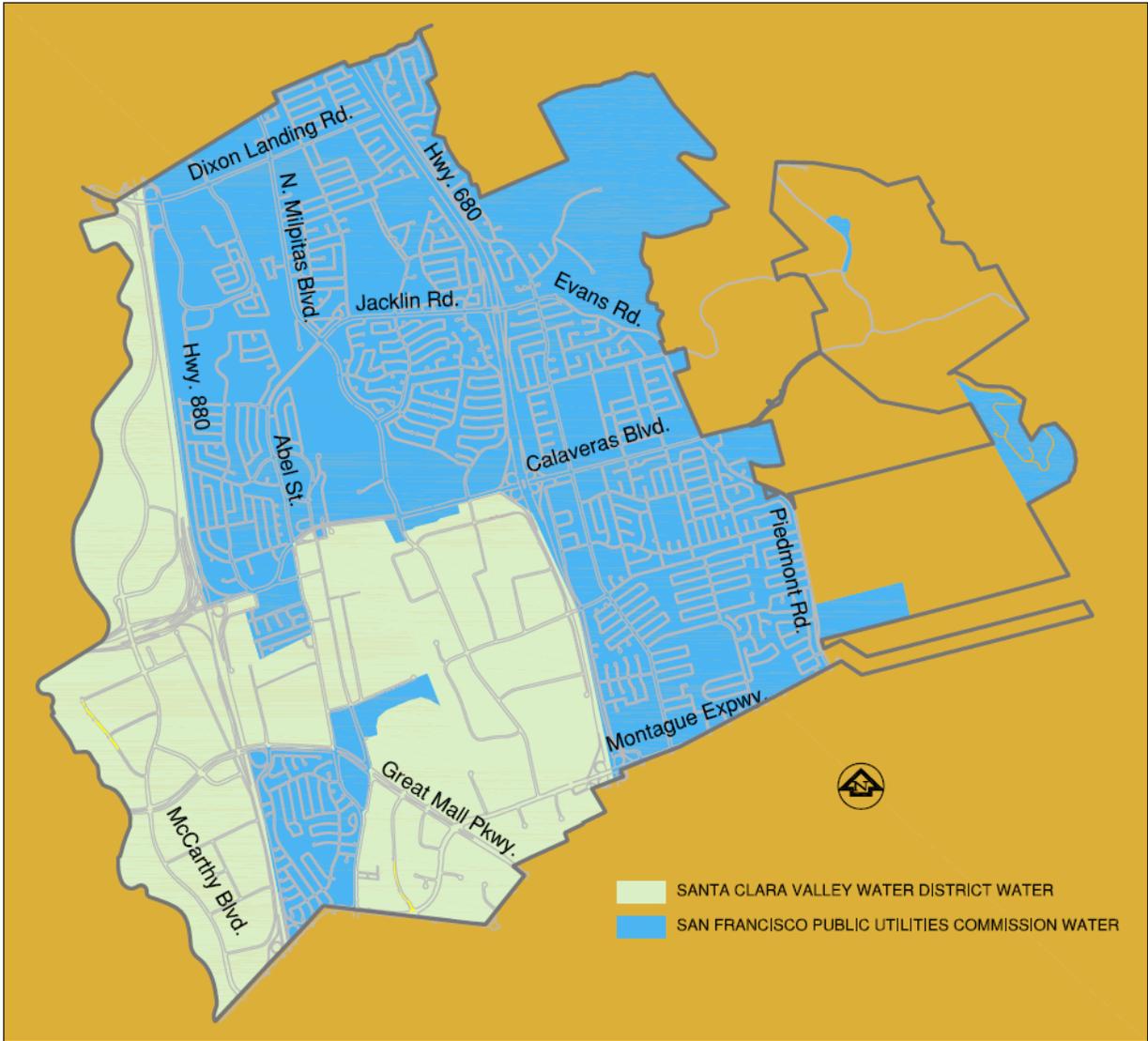


Figure 1 - Water Supply Service Areas

DISCUSSION

This section describes public health risks associated with lead and coliform and the best available treatment technologies (BAT). This section also explains why cost estimates for treatment are not required for the City's water utility.

Lead

Lead is a cumulative toxic substance with no known human health benefits. It is a normally a low level background component in the environment caused by extensive corrosion inhibitor use in paints, water piping and various alloys. In addition to drinking water, lead intake can also occur through air, house dust, and lead-based paints. Lead is considered to be a health risk at levels above 15 ppb. The PHG for lead in drinking water is 0.2 ppb. The laboratory testing precision of lead below 0.5 ppb is reported as below and no numerical number is available. The Association of California Water Agencies has provided guidance that when the lab reports a below 0.5 ppb, then it is considered zero and met the 0.2 ppb health goal. So, 11 of the 37 have met the health goal. It should be noted that it is the 90 percentile value that is compared to the action level of 15 ppb for compliance. In this case, it is compliant as the 90 percentile is 3.9 ppb.

Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning ability of children, and slight increases in the blood pressure of some adults. Lead has also been linked to human kidney and nervous system damage.

The City's municipal water supply has no detectable levels of lead. Although there are no lead pipes in the City's municipal water distribution system, USEPA has determined that lead can enter drinking water primarily as a result of corrosion, or wearing away, of materials containing lead, such as lead solder in household plumbing. Anytime the water in a faucet has been unused for more than six hours, the City advises residents to flush the water from the tap (run the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds) before using it for drinking or cooking. Deposits form on the piping walls over time, which act as a protective coating on solder. Homes built after 1986 were built with low lead solder and so have less risk of lead contamination.

Corrosion Control Treatment Optimization

Corrosion control through water chemistry and adjustment is the best available technology (BAT) for lead control. The two wholesalers, SFPUC and SCVWD, have conducted evaluations to determine what could be done on a regional basis to minimize corrosiveness of water to reduce the tendency of lead to leach into water. SCVWD has optimized their system by adding phosphoric acid to their water, while SFPUC has increased pH levels to decrease corrosion. Therefore, no further action is required by the City.

Although corrosion control is considered to be the BAT for reducing lead in drinking water, consumers at risk can take additional measures to reduce lead leaching at the tap. One such

measure is to replace household brass fixtures with “lead-free” fixtures. Brass fixtures were more typically installed in homes built prior to 1996. The 1996 Safe Drinking Water Act was amended to include the regulation of leaded plumbing fittings and fixtures and prohibit the use of fittings and fixtures that contain more than 4% lead. Consumers can also take the following steps to reduce lead levels at their taps:

- Flush the taps for about 15-30 seconds before using it for drinking or cooking any time the water in a faucet has been unused for more than six hours.
- Use cold water for cooking, as hot water dissolves lead faster than cold water.

Coliform

The MCL for coliform is more than 5% positive samples of all samples per month and the MCLG is zero. The reason for the coliform drinking water standard is to identify 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 that they cannot do so with coliform.

Coliform bacteria are an indicator organism that are ubiquitous in nature and are not generally considered harmful. They are used as an indicator of potential contamination because of their ease in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated and report sampling done. It is not unusual for a system to have an occasional positive sample.

CDPH has identified certain technologies, treatment techniques and other means that can be used to achieve compliance with total coliform MCL as BAT for coliform bacteria in Section 64447, Title 22, CCR. These include:

- 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, and
- Filtration and/or disinfection of approved surface water, or disinfection of groundwater.

In addition to the BAT listed above, the City has implemented the following: an effective cross-connection control program, water main flushing program, an effective monitoring and surveillance program and maintenance of positive pressures in the distribution system.

The water that the City receives from its regional water suppliers is disinfected by chloramination and ozonation. The City occasionally adds chlorine to the reservoirs to maintain optimal disinfection. 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.

The City has implemented a program to control microbiological contamination to the maximum extent possible. There are no additional actions available to feasibly further reduce coliform results.

CONCLUSIONS

SFPUC and SCVWD are implementing corrosion control treatment in order to minimize corrosiveness of the water, thereby minimizing lead concentrations at household taps. The City's water system is in full compliance with CDPH drinking water standards.

Corrosion control optimization is considered to be the BAT for corrosion issues and lead findings. The City continues to monitor water quality parameters that relate to corrosivity. Simple practices on the part of the consumers, such as flushing the taps and using cold water for cooking or drinking, may reduce the amount of lead in the drinking water.

Since the City is meeting the "optimized corrosion control" requirements, it is not necessary to initiate additional corrosion control treatment. Thus, no cost estimate is needed.

Coliform is an indicator organism used to determine the potential presence of pathogenic organisms in water. Ongoing efforts such as disinfection, maintenance of disinfectant residual, cross-connection control, water main flushing, monitoring and surveillance programs and maintenance of positive pressures in the City's distribution system will minimize occurrence of microbiological contamination in the City's water. The City system complies with BAT for coliform as described in Section 64447, Title 22, CCR and with the State MCL for coliform. Thus, no cost estimate is needed.

APPENDIX A

July 2013 Consumer Confidence Report

APPENDIX B

Section 116470 of the Health and Safety Code

Health and Safety Code
Section 116470

(a) 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 on a bulletin board at the entrance to or in the office of the park, and make available upon request, a copy of the report. The report shall include all of the following information:

- (1) The source of the water purveyed by the public water system.
- (2) A brief and plainly worded definition of the terms "maximum contaminant level," "primary drinking water standard," and "public health goal."
- (3) If any regulated contaminant is detected in public drinking water supplied by the system during the past year, the report shall include all of the following information:
 - (A) The level of the contaminant found in the drinking water, and the corresponding public health goal and primary drinking water standard for that contaminant.
 - (B) Any violations of the primary drinking water standard that have occurred as a result of the presence of the contaminant in the drinking water and a brief and plainly worded statement of health concerns that resulted in the regulation of that contaminant.
 - (C) The public water system's address and phone number to enable customers to obtain further information concerning contaminants and potential health effects.
- (4) Information on the levels of unregulated contaminants, if any, for which monitoring is required pursuant to state or federal law or regulation.
- (5) Disclosure of any variances or exemptions from primary drinking water standards granted to the system and the basis therefor.

(b) 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 public health goal, 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 public health goal.
- (2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal 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 best available technology, 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 public health goal.

(6) Briefly describes 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.

(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.

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

(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

(g) 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).