



City of  
**Santa Rosa**  
California

**PUBLIC HEALTH GOALS  
REPORT ON WATER QUALITY**

**CITY OF SANTA ROSA  
PUBLIC DRINKING WATER UTILITY**

**Public Water System ID# CA 4910009**



JULY 2010

**CITY OF SANTA ROSA  
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PUBLIC HEALTH GOALS REPORT ON WATER QUALITY**

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## **SECTION 1: BACKGROUND INFORMATION**

Provisions of the California Health and Safety Code (Attachment 1) specify that larger (>10,000 service connections) water utilities prepare a special report by July 1, 2010 if their water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). 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. (Attachment 2 is a list of all regulated constituents with the MCLs and PHGs or MCLGs.)

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 including Total Trihalomethanes. These will be addressed in a future required report after a PHG has been adopted.

The law specifies what information is to be provided in the report. (See Attachment 1)

If a constituent was detected in the Utilities water supply between 2007 and 2009 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 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)?**

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal-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 Public Health (CDPH) in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.

### **Water Quality Data Considered**

All of the water quality data collected by our water system and provided by our wholesale supplier between 2007 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 which were mailed to all of our customers in June of each year. (Attachment 3)

### **Guidelines Followed**

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these newly required reports. The ACWA guidelines were used in the preparation of our report. No guidance was available from state regulatory agencies.

## **Best Available Treatment Technology and Cost Estimates**

Both the USEPA and CDPH adopt what are known as BATs or Best Available Technologies which are the best known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all 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 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.

## **SECTION 2: CONSTITUENTS DETECTED THAT EXCEED PHGS OR MCLGS**

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 the calendar years 2007 through 2009, the City of Santa Rosa Utilities Department was required to collect a minimum of 120 samples per month to meet the monitoring requirements for the Total Coliform Rule. The average samples collected per month is approximately 145. Occasionally, a sample was found to be positive for coliform bacteria but re-samples were confirmed as negative and follow-up actions were taken. A summary of coliform positive results are indicated in Table 1.

**TABLE 1**

<i>Month</i>	<i>Number of Samples Collected</i>	<i>Number of Coliform Positive Results</i>	<i>Percent Positive</i>
<i>June 2007</i>	<i>126</i>	<i>1</i>	<i>0.79</i>
<i>October 2007</i>	<i>145</i>	<i>1</i>	<i>0.69</i>
<i>December 2007</i>	<i>135</i>	<i>1</i>	<i>0.74</i>
<i>November 2008</i>	<i>128</i>	<i>1</i>	<i>0.78</i>
<i>September 2009</i>	<i>150</i>	<i>1</i>	<i>0.67</i>

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

Coliform bacteria are an indicator organism 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. 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.

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. This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water.

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

### **Lead**

There is no MCL for Lead. Instead the 90th percentile value of all samples from household taps in the distribution system cannot exceed an Action Level of 15 micrograms-per-liter (ug/l) for lead. The PHG for lead is 0.2 ug/l. Lead and copper enter drinking water primarily through plumbing materials on the customer’s side of the water service. There is no MCL for Lead in sources such as groundwater from wells.

Exposure to lead and copper may cause health problems ranging from stomach distress to brain damage. On June 7, 1991, USEPA published a regulation to control lead and copper in drinking water. This regulation is known as the Lead and Copper Rule (also referred to as the LCR) which has also been adopted by CDPH. Numerical health risk data on lead has not yet been provided by OEHHA, the State agency responsible for providing that information.

All of our purchased source water samples for lead in 2007 and 2008 were less than the PHG while 2009 results were just slightly above the PHG at 0.77 ug/l due to maintenance work on two of the 12 sources and inadequate flushing. Subsequent resampling of the two sources after proper flushing resulted in no detection of lead. Santa Rosa’s locally derived well water has not detected lead. Based on extensive household tap sampling of our distribution system in 2007, our 90th percentile value for lead was 3.6 ug/l which was over the PHG of 0.2 ug/l. Our next round of lead and copper household tap sampling will take place in the third quarter of 2010.

The treatment technique for the rule requires systems to monitor drinking water at customer taps. If lead concentrations exceed an action level of 15 ug/l or copper concentrations exceed an action level of 1.3 mg/l in more than 10% of customer tap samples, the system must undertake a number of additional actions to control corrosion. If the action level for lead is exceeded, the system must also inform the public about steps they should take to protect their health.

The City of Santa Rosa water system is in full compliance with the Federal and State Lead and Copper Rule. Based on our extensive sampling, it was determined according to State regulatory requirements that we are significantly below the Action Levels for Lead. Therefore, we are deemed by CDPH 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 or copper findings. We continue to monitor our water quality parameters that

relate to corrosivity, 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.

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.

### **SECTION 3: RECOMMENDATIONS FOR FURTHER ACTION**

The drinking water quality of the City of Santa Rosa Utilities Department meets all State of California, Department of Public Health 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 Maximum Contaminant Levels 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**

- Attachment 1 Excerpt from California Health & Safety Code: Section 116470
- Attachment 2 Table of Regulated Constituents with MCLs, PHGs or MCLGs
- Attachment 3 City of Santa Rosa Utilities Department’s 2007, 2008 and 2009 Water Quality Reports

## ATTACHMENT 1

### Excerpt from California Health and Safety Code Section 116470

(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.

.....

(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.

## ATTACHMENT 2

### CALIFORNIA MCLS & PHGS AND FEDERAL MCLGS

Parameters/Constituents	Units	State MCL	DLR	PHG or (MCLG)	PHG EXCEEDED
<b>INORGANICS</b>					
ALUMINUM	mg/L	1	0.05	0.6	NO
ANTIMONY	mg/L	0.006	0.006	0.02	NO
ARSENIC	mg/L	0.05	0.002	0.000004	NO
ASBESTOS	M/fibers/L	7	0.2	7	NO
BARIUM	mg/L	1	0.1	2	NO
BERYLLIUM	mg/L	0.004	0.001	0.001	NO
CADMIUM	mg/L	0.005	0.001	0.00004	NO
CHROMIUM	mg/L	0.05	0.01	Withdrawn 11/01	NO
COPPER (at-the-tap; 90 <sup>th</sup> percentile)	mg/L	AL=1.3	0.050	0.3	NO
FLUORIDE	mg/L	2	0.1	1	NO
LEAD (at-the-tap; 90 <sup>th</sup> percentile)	mg/L	Al=0.015	0.005	0.0002	YES
MERCURY	mg/L	0.002	0.001	0.0012	NO
NICKEL	mg/L	0.1	0.01	0.012	NO
NITRATE [as N]	mg/L	10			NO
NITRATE [as N03]	mg/L	45	2	45	NO
NITRITE [as N]	mg/L	1	0.4	1	NO
SELENIUM	mg/L	0.05	0.005	(0.05)	NO
THALLIUM	mg/L	0.002	0.001	0.0001	NO
<b>VOLATILE ORGANICS</b>					
1,1,1-TRICHLOROETHANE	mg/L	0.2	0.0005	1	NO
1,1,2,2-TETRACHLOROETHANE	mg/L	0.001	0.0005	0.0001	NO
1,1,2-TRICHLOROETHANE	mg/L	0.005	0.0005	0.0003	NO
1,1-DICHLOROETHANE	mg/L	0.005	0.0005	0.003	NO
1,1-DICHLOROETHYLENE	mg/L	0.006	0.0005	0.0004	NO
1,2,4-TRICHLOROBENZENE	mg/L	0.005	0.0005	0.005	NO
1,2-DICHLOROBENZENE	mg/L	0.6	0.0005	0.6	NO
1,2-DICHLOROETHANE	mg/L	0.0005	0.0005	0.0004	NO
1,2-DICHLOROPROPANE	mg/L	0.0005	0.0005	0.0005	NO
1,3-DICHLOROPROPENE	mg/L	0.0005	0.0005	0.0002	NO
1,4-DICHLOROBENZENE	mg/L	0.005	0.0005	0.006	NO
BENZENE	mg/L	0.001	0.0005	0.00015	NO
CARBON TETRACHLORIDE	mg/L	0.0005	0.0005	0.0001	NO



DICHLOROMETHANE	mg/L	0.005	0.0005	0.004	NO
ETHYLBENZENE	mg/L	0.3	0.0005	0.3	NO
MTBE (Primary)	mg/L	0.013	0.003	0.013	NO
MONOCHLOROENZENE	mg/L	0.07	0.0005	0.2	NO
STYRENE	mg/L	0.1	0.0005	0.0005	NO
TETRACHLOROETHYLENE	mg/L	0.005	0.0005	0.00006	NO
TOLUENE	mg/L	0.15	0.0005	0.15	NO
TRICHLOROETHYLENE	mg/L	0.005	0.0005	0.0017	NO
TRICHLOROFLUORMETHANE	mg/L	0.15	0.005	0.7	NO
TRICHLOROTRIFLUOROETHANE (FREON 113)	mg/L	1.2	0.01	4	NO
VINYL CHLORIDE	mg/L	0.0005	0.0005	0.00005	NO
XYLENES (total)	mg/L	1.75	0.0005	1.8	NO
CIS-1,2-DICHLOROETHYLENE	mg/L	0.006	0.0005	0.1	NO
TRANS-1,2-DICHLOROETHYLENE	mg/L	0.01	0.0005	0.06	NO

### SYNTHETIC ORGANIC

2,4,5-TP (Silvex)	mg/L	0.05	0.001	0.025	NO
ATRAZINE	mg/L	0.001	0.0005	0.00015	NO
DALAPON	mg/L	0.2	0.01	0.79	NO
DIQUAT	mg/L	0.02	0.004	0.015	NO
ENDOTHALL	mg/L	0.1	0.045	0.58	NO
ETHYLENE DIBROMIDE	mg/L	0.00005	0.00002	0.00001	NO
HEPTACHLOR	mg/L	0.00001	0.00001	0.000008	NO
HEPTACHLOR EPOXIDE	mg/L	0.00001	0.00001	0.000006	NO
LINDANE	mg/L	0.0002	0.0002	0.000032	NO
METHOXYCHLOR	mg/L	0.03	0.01	0.03	NO
OXAMYL	mg/L	0.05	0.02	0.026	NO
PENTACHLOROPHENOL	mg/L	0.001	0.0002	0.0003	NO
PICLORAM	mg/L	0.5	0.001	0.5	NO
SIMAZINE	mg/L	0.004	0.001	0.004	NO

### MICROBIOLOGICAL

COLIFORM % POSITIVE SAMPLES	%	5		(zero)	YES
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### RADIOLOGICAL

GROSS ALPHA	pCi/L	15	3	(zero)	NO
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MCL = Maximum Contaminant Level

MCLG = Maximum Contaminant Level Goal

PHG = Public Health Goal

DLR = Detection Limit for Reporting purposes (set by CDHS)

TT = Treatment Technique

(a) - USEPA adopted an arsenic level of 10 ppb that became effective on Jan. 23, 2006.