

City of Woodland

REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: May18, 2010

SUBJECT: 2009 Water Quality Report and Notification of Boron Levels in
Drinking Water

Report in Brief

The City of Woodland is dedicated and committed to providing the highest quality drinking water feasible. Each year, the City samples and analyzes the water supply to ensure the system meets or exceeds all regulatory requirements for health standards. The attached 2009 Annual Water Quality Report educates consumers by outlining and defining the test results and sources for both regulated and unregulated substances and identifies areas of continuing and growing concern for water system reliability. The results from the 2009 testing and analysis, as outlined in the attached report, reflect that Woodland water continues to meet or exceed all current primary and secondary quality standards without violations, however one issue warrants discussion. Boron exceeded a “notification” level, requiring a formal notification to the Council and is reviewed in the discussion section.

Staff recommends that the City Council review and accept the attached 2009 Annual Water Quality Report.

Background

Per State guidelines the City, as a Water Purveyor, produces and distributes an Annual Water Quality Report to inform consumers of water quality testing results and to address related items or areas of interest to current or future water quality. The attached report was tailored per staff input and will be published by Gemini Group LLC for distribution to consumers as inserts in the utility bills. As outlined in the report, drinking water standards are identified as Primary (regulated and enforced for health), Secondary (regulatory recommendations for aesthetics – taste, odor, color), and Unregulated (may be regulated in the future and some are of concern on the other end of the cycle in wastewater effluents). The report addresses the sources, source water assessment, health information, and contact information related to the City’s drinking water. The report also identifies future requirements related to water conservation, water supply protection, water hardness and specific constituents of growing concern.

Discussion

The City obtains its water from wells which tap into groundwater aquifers at varying depths throughout the city. Groundwater aquifers are primarily replenished from rain seeping into the soil and becoming trapped at varying depths by impermeable layers (which in this region are typically clay deposits). Groundwater replenishment is a slow process for reaching the depths from which water is drawn and the process serves to filter the water from most impurities carried from the surface. The quality of water eventually delivered to customers is largely a function of chemical and mineral leaching and erosion of the geologic formations from which the aquifers flow. Before entering the City system, water is disinfected using small amounts of chlorine.

Protection of groundwater aquifer(s) from contamination is of paramount concern to the City and a continuing focus for pursuing future system reliability. Contaminants that may end up in the water supply primarily come from septic systems, storm water runoff carrying chemicals and other constituents washed from pavements, industrial wastes, animal wastes, fertilizers and pesticides from agricultural and landscaped areas, copper and lead leaching from pipes, and from the chlorine disinfection process itself.

Two constituents warranting mention are nitrate and boron. Nitrate contamination of groundwater comes from fertilizers, industrial waste chemicals, seepage from septic systems and animal manure. Nitrate concentration levels vary throughout the City and vary within each well site at different times and different levels (aquifer zones). However, trends demonstrate nitrate levels are rising on average at a concerning number of well sites and the City is taking actions to address this concern.

Boron is a naturally occurring chemical common of Woodland's water which exceeds the quantity for Unregulated Substances' "notification level" and requires formal Council notification. The notification level for Boron is 1 mg/L and the concentration of Boron in City's wells range from 1.6 mg/L – 2.3 mg/L. Currently, there is no established acute or long term health risks associated with boron in drinking water. However, boron is toxic to plants and agronomists and farmers prefer irrigation water with less than 1 mg/L of boron. This becomes a potential impact on the other end of the treatment process for wastewater effluent standards for Tule Canal and the Yolo bypass.

Fiscal Impact

Staff management, publication and distribution costs for the annual Water Quality Report are approximately \$5,000 and are funded through the Water Enterprise Fund. There is no impact on the General Fund.

Public Contact

The water quality report will be distributed to residents via their utility bill before July 2010. The report (English and Spanish) will be distributed to managers of apartments, retirement homes and property managers to be made available to their residents. City Departments will also receive copies

(English and Spanish) to make available to the general public. Both the English and Spanish versions of the water quality report will be available through the City website. The City's water supply and reliability focus has been presented (and has been well received) in various forums around the City including the Chamber of Commerce. Continuing public education is planned as the City progresses in addressing system needs.

Recommendation for Action

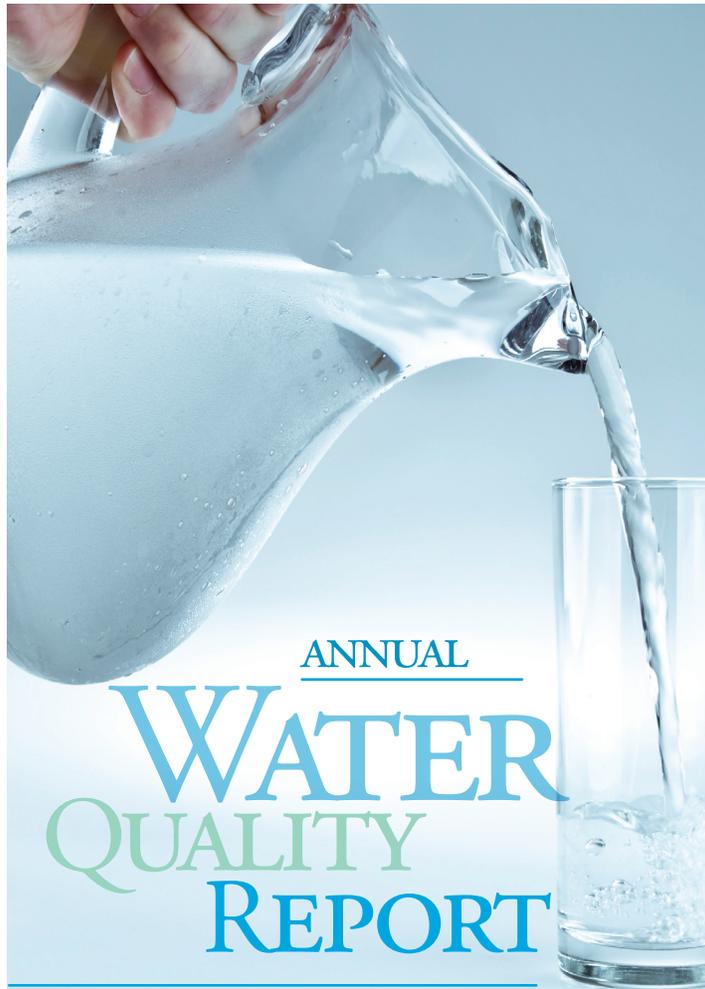
Staff recommends that the City Council review and accept the attached 2009 Annual Water Quality Report.

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Public Works Director

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City Manager

Attachment: 2009 Water Quality Report

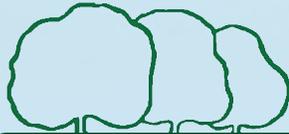


ANNUAL

WATER QUALITY REPORT

Water testing performed in 2009

Proudly Presented By:



CITY OF WOODLAND

Anualmente la Ciudad de Woodland distribuye un reporte a todos los clientes explicando la calidad y el contenido del agua potable, que asegure que el agua proveída sea suficientemente limpia y saludable para beber. Para ver la versión del reporte en español por favor visite la página de Internet www.cityofwoodland.org y entre a las secciones Homepage > Government > Departments > Public Works > Issues & Information > 2009 Water Quality Report

PWS ID#: 5710006

To Our Water Customers:

The City of Woodland is pleased to provide you with its 2009 annual water quality report. This report is designed to inform you about the quality of the water that is provided to you.

The City of Woodland is dedicated and committed to providing our customers with the highest quality drinking water available. We are pleased to announce that the City of Woodland's water supply meets or exceeds all federal and state standards. Our goal is to continue to provide a safe and dependable supply of drinking water.

Under the guidelines provided by the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Public Health (CDPH), the City of Woodland monitors and tests the drinking water from source to tap. Before water reaches your tap, hundreds of these tests have been performed to detect more than 80 different kinds of contaminants and ensure that your water meets all regulatory requirements for health standards.

In addition to the substances reported, we tested for 100 other substances and no measurable amounts were found. We hope this report will provide the answers to any questions you may have about the drinking water supplied by the City of Woodland.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or www.epa.gov/safewater/hotline/.



Get Involved

The City of Woodland periodically conducts public meetings and workshops concerning water issues. The Woodland City Council receives public comments at their regular meetings, which are held on the first and third Tuesdays of each month. For more information, please call the Secretary to the City Manager at (530) 661-5800 or go to <http://www.cityofwoodland.org/gov/cityhall/council/default.asp>.

Nitrate in Drinking Water

Nitrate in drinking water at levels above 45 ppm is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 ppm may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Contact Us

For more information about this report, or for any questions relating to your drinking water, please phone the Woodland Public Works Department at (530) 661-5962 or email pubworks@cityofwoodland.org.

Para más información acerca del reporte o si tiene preguntas acerca del agua potable por favor llame al Departamento de Obras Públicas de la Ciudad de Woodland al (530) 661-5962 o envíe un correo electrónico a pubworks@cityofwoodland.org.

Property owners, please share this information with your tenants!



Where Does Your Water Come From?

Woodland's water supply is pumped from 16 operational ground water wells located throughout the city to its distribution pipe system. Ground water comes from rain that seeps down through the soil until it reaches an impermeable layer. Woodland's water does not pass through a central water treatment facility but is filtered naturally by the sand and gravel as it passes through the aquifers. This is standard practice in well water systems.

The only treatment administered is the addition of liquid chlorine (sodium hypochlorite) at the wells, for disinfection. The 0.2 parts per million dosage is typical of water systems throughout the country. Caution should be taken when using chlorinated water for medical uses such as for dialysis machines or when adding water to fish tanks or ponds.

For water quality reasons, the City is planning on receiving winter water and most of summer water from the Sacramento River by approximately 2016.

“WHEN THE WELL'S DRY, WE KNOW
THE WORTH OF WATER. — Benjamin Franklin”

Source Water Assessment

The California Department of Public Health requires water providers to conduct a source water assessment (SWA) to help protect the quality of future water supplies. The SWA describes where a water system's drinking water comes from, the type of polluting activities that may threaten source water quality, and an evaluation of the water's vulnerability to those threats. The assessment for the City of Woodland's water was completed in December of 2002, and our ground water is most vulnerable to present-day land use activities, including agriculture, use of septic systems, gas stations, dry cleaners, and historical contamination plumes from these sources. A copy of the complete assessment report is available at <http://swap.ice.ucdavis.edu/TSinfo/TSources.asp?mySystem=5710006>.

Substances That Could Be in Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic Contaminants, such as salts and metals, that can be naturally occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, that may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and which can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems;

Radioactive Contaminants, that can be naturally occurring or can be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Water Conservation

Join with the City of Woodland in conserving water to meet the state goal of a 20% reduction in water consumption by 2020. With water meters being installed and increasing demands on our ground water aquifer, it is more important than ever to conserve water both to help the environment and to save money. Over 50 percent of water usage in Northern California is for landscaping. As the summer approaches, check your irrigation system for leaks; consider installing a weather-based irrigation controller and replacing some of your turf with low water-use plants. For more information on home and landscape water conservation and/or to request a water-wise kit and water conservation devices, go to www.cityofwoodland.org/waterconservation.

How Hard Is My Water?

A concentration of 17.1 parts per million (ppm) of hard water is equal to 1 grain per gallon. Woodland's water can be as high as 450 ppm, which equals about 26.3 grains per gallon. Water hardness does not affect a person's health but may not be aesthetically pleasing. Over time, water hardness leaves mineral deposits in pipes, fixtures, and equipment which may impact their life expectancy. (See table above.)

Protect Your Water Supply - Prevent Pollution of Runoff

Unlike sanitary sewer flows, there is no treatment of stormwater and other urban runoff before it is released to local waterways. Polluted runoff can affect drinking water sources. This, in turn, can affect human health and increase drinking water costs. Please help protect water supply. Properly dispose of household and automotive products that contain chemicals. Minimize the use of fertilizers and pesticides that can wash off and pollute streams or seep into ground water supplies.

What Does Our Water Contain?

Before we deliver water to your homes, we take many steps to ensure its safety. During the past year we have taken hundreds of water samples in order to determine the presence of any inorganic, biological, radioactive, volatile organic, or synthetic organic constituents. In response to your concerns, we regularly collect and test other samples from the water sources, the distribution system, and customers' homes. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

The State requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED PRIMARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppm)	2009	1	0.6	0.08	ND-0.42	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (ppb)	2009	10	0.004	0.50	ND-2.5	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Asbestos (MFL)	2009	7	7	0.01	ND-0.19	No	Internal corrosion of asbestos cement water mains; erosion of natural deposits
Barium (ppm)	2009	1	2	0.27	0.22-0.34	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium (ppb)	2009	50	(100)	21	14-32	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (ppm)	2009	2.0	1	0.12	ND-0.21	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Haloacetic Acids (ppb)	2009	60	NA	3.2	ND-5	No	By-product of drinking water disinfection
Nitrate [as nitrate] (ppm)	2009	45	45	24	2.4-38	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium (ppb)	2009	50	(50)	8.1	3.6-21	No	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	3.7	1.6-4.9	No	By-product of drinking water chlorination

Distribution System Lead and Copper (Tap water samples were collected from 63 homes in 2007)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2007	1.3	0.3	0.095	0	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2007	15	2	2.5	3	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

REGULATED SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	PHG (MCLG)	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2009	500	NS	82	61-98	No	Runoff/leaching from natural deposits; seawater influence
Iron (ppb)	2009	300	NS	140	ND-720	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2009	50	NS	5	ND-24	No	Leaching from natural deposits
Specific Conductance (µS/cm)	2009	1,600	NS	976	900-1,000	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2009	500	NS	38	34-43	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2009	1,000	NS	602	550-630	No	Runoff/leaching from natural deposits
Turbidity (NTU)	2009	5	NS	0.62	ND-2.3	No	Soil runoff

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH
Bicarbonate (ppm)	2009	354	330–370
Boron (ppm)	2009	1.97	1.6–2.3
Calcium (ppm)	2009	75	69–79
Hardness (as CaCO₃) (ppm)	2009	416	380–450
Magnesium (ppm)	2009	56	50–62
pH (Units)	2009	8	7.9–8
Potassium (ppm)	2009	2.4	2.3–2.6
Sodium (ppm)	2009	60	56–68
Total Alkalinity (ppm)	2009	354	330–370



Definitions

AL (Regulatory Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA.

MFL (million fibers per liter): A measure of the presence of asbestos fibers that are longer than 10 micrometers.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NS: No standard.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

PDWS (Primary Drinking Water Standard): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PHG (Public Health Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California EPA.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.