



2007



# DRINKING WATER QUALITY REPORT

California Water System No. 3910012

The City of Stockton has prepared this 2007 Drinking Water Quality Report to inform you about the safety of the water we deliver to you every day. In calendar year 2007, the Water System delivered 12.6 billion gallons of water to over 47,690 individual service connections serving an estimated 157,390 persons residing in north and south Stockton. Approximately 32 percent of the water supplied to the system originated from wells owned by the City, with the remainder being treated surface water supplied by the Stockton East Water District (SEWD).

Twenty-five wells in the North System, two wells in the Walnut Plant System and seven wells in the South System provide the main sources of groundwater to the City of Stockton's Drinking Water System. In addition, three water storage sites provide for the temporary storage of up to nine million gallons of drinking water a day. Approximately 11.1 million gallons per day (365 day average) of drinking water is provided from the groundwater sources.

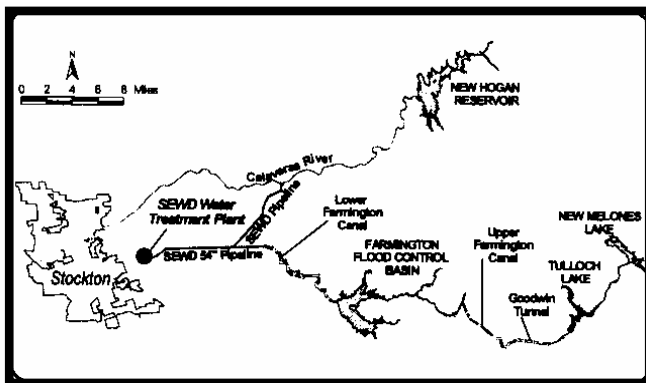
SEWD receives the surface water it supplies to the Stockton area from two separate sources. The first source of surface water comes from the Calaveras River system which includes the New Hogan Reservoir. Water from this source is diverted into a pipeline from the river at Bellota and brought to SEWD's modern water treatment plant located at 7676 East Main Street. The second source of surface water comes from the Stanislaus River system which includes the New Melones Reservoir. Water from this source is diverted from the river at Goodwin Dam and brought to SEWD's water treatment plant through the Goodwin Tunnel and upper and lower Farmington canals.

SEWD delivers treated water to the City of Stockton through two main lines that feed the North System and the South System, respectively. Treated drinking water is provided to the Walnut Plant System from the Stockton East treatment plant through an interconnect with the California Water Services Company system. Approximately 23.5 million gallons per day (365 day average) of drinking water is supplied from surface water sources.

The use of surface water from SEWD has enabled the City to reduce its dependence on groundwater to meet the needs of our customers. Eastern San Joaquin County has a problem with declining groundwater levels, and use of surface water has generally improved the groundwater levels under the City's water service areas, helping to conserve this valuable water resource. The blending of treated surface water with our groundwater supply varies from point to point throughout our system due to the seasonal demands and customer location relative to City wells. Treated surface water and ground water have different characteristics as many of our customers have noticed. Water hardness, taste and odor are but a few of these characteristics that may differ over the course of the year.

*The people that operate your City of Stockton Water System are committed to providing you with the highest quality water available, with the most effective customer service, at the lowest possible cost, consistent with all applicable State and Federal regulations and requirements. The Stockton City Council serves as the governing board for the City of Stockton Water System. They meet every Tuesday night at 5:30 p.m. at 425 N. El Dorado Street. The public is welcome.*

Stockton Surface Water Sources



*Should you wish additional copies of this brochure or desire further information about your water utility, please contact:*

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City of Stockton, Municipal Utilities Department  
2500 Navy Drive, Stockton CA 95206

Telephone: (209) 937- 8779

Email: Robert.Granberg@ci.stockton.ca.us

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Daimntawv tshaj tawm no muaj lus tseemceeb txog koj cov dej haus. Tshab txhais nws, los yog tham nrog tej tug neeg uas totaub txog nws.

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

**Chi tiết này thật quan trọng.  
Xin nhờ người dịch cho quý vị.**

ລາຍງານນີ້ມີຂໍ້ມູນສໍາຄັນກ່ຽວກັບນໍ້າປະປາຂອງທ່ານ. ຈົ່ງໃຫ້ຄົນອື່ນຮູ້ເປັນຄວາມໃຫ້ທ່ານ, ຫລືໃຫ້ປຶກສາກັບຄົນໃດຄົນໜຶ່ງທີ່ເຂົາໃຈເລື້ອງ.

## Test Results

The following constituents were detected in the most recent sampling of one or more of the 25 wells in service during 2007 or of the surface water which was used as a source of drinking water for the system in 2007. Regulations allow for a representative number of the wells to be sampled each year, on a rotating basis. Data in this report represent sampling from 2005 through 2007, unless otherwise noted. Regulations also allow for monitoring of some constituents less frequently than once a year. Ranges included in the tables are based on individual results whether or not compliance is determined by individual results or by averages. Analyses were performed for many other constituents that were not detected and are not included in this report. Feel free to contact the City of Stockton for a complete list of analyses and results.

**Table 1a: Detected Constituents with Primary Drinking Water Standards – regulated to protect your health**

Constituent	units	Primary MCL	PHG (MCLG)	Ground Sources		Surface Source		Did we meet the regulation?	Typical Source of Constituent
				Range	Average	Range	Average		
Aluminum	mg/L	1	0.6	<0.050 – 0.079	<0.050		<0.050	Yes	Erosion of natural deposits
Arsenic	µg/L	10	0.004	<2 – 10	4		<2	Yes	Erosion of natural deposits; runoff from orchards, and electronics production wastes
Barium	mg/L	1	2	<0.1 – 0.32	0.19		<0.1	Yes	Erosion of natural deposits
Chromium, Total	µg/L	50	(100)	<10 – 14	<10		<10	Yes	Discharge from chrome plating; erosion of natural deposits
Fluoride	mg/L	2.0	1	<0.1 – 0.14	<0.1		<0.1	Yes	Erosion of natural deposits
Nickel	µg/L	100	12	<10 – 14	<10		<10	Yes	Erosion of natural deposits; discharge from metal factories
Nitrate (as NO <sub>3</sub> )	mg/L	45	45	<2.0 – 29	9.3		<2.0	Yes	Runoff/leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium	µg/L	50	(50)	<5.0 – 7.1	<5.0		<5.0	Yes	Erosion of natural deposits; discharge from mines and chemical manufacturers
Alpha Activity, Gross	pCi/L	15 <sup>(1)</sup>	(0)	<3.0 – 15.0	3.39		<3.0	Yes	Erosion of natural deposits
Radium 228 <sup>(3)</sup>	pCi/L	<sup>(2)</sup>	N/A	<1.0 – 1.71	<1.0		NR	N/A	Erosion of natural deposits
Uranium	pCi/L	20 <sup>(1)</sup>	0.43	<1.0 – 15.2	4.91		<2.0	Yes	Erosion of natural deposits
Beta Activity, Gross	pCi/L	50 <sup>(1)(4)</sup>	(0)	NR	NR		<4.0 – 7.52	Yes	Decay of natural and man-made deposits
	units	Primary MCL	PHG (MCLG)	Surface Source				Did we meet the regulation?	Typical Source of Constituent
Turbidity <sup>(5)</sup>	NTU	TT	N/A	Percentage of samples less than 0.3 = 100% Highest single turbidity measurement = 0.08				Yes	Soil runoff

Constituent	units	Primary MCL (MRDL)	MCLG (MRDLG)	Distribution System		Did we meet the regulation?	Typical Source of Constituent
				Range	Average		
Total Coliform Bacteria	% positive samples	5% <sup>(6)</sup>	0	0 – 0.7	0.2	Yes	Naturally present in the environment
Chlorine as Cl <sub>2</sub>	mg/L	(4.0)	(4.0)	0.02 – 1.33	0.57	Yes	Drinking water disinfectant added for treatment
Total Trihalomethanes (TTHM)	µg/L	80	N/A	<0.5 – 50 <sup>(7)</sup>	35	Yes	By-product of drinking water chlorination
Haloacetic Acids 5 (HAA5)	µg/L	60	N/A	<2.0 – 25.4 <sup>(7)</sup>	15.0	Yes	By-product of drinking water chlorination
Constituent	units	Action Level	PHG	Level Detected at the 90 <sup>th</sup> percentile	Number of Samples exceeding the AL	Did we meet the regulation?	Typical Source of Constituent
Copper <sup>(8)</sup>	mg/L	1.3	0.17	0.13	0 of 50	Yes	Internal corrosion of household plumbing systems
Lead <sup>(8)</sup>	µg/L	15	2	<5	0 of 50	Yes	Internal corrosion of household plumbing systems

(1) Compliance based on average values for four quarters.

(2) The MCL is based on Combined Radium (Radium 226 + Radium 228). Radium 226 and Radium 228 do not have individual MCLs. The MCL for Combined Radium is 5 pCi/L. Radium 226 was not detected.

(3) Radium 228 testing was conducted for initial monitoring required by new regulations.

(4) Effective 6-11-06, the gross Beta Particle Activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. 50 pCi/L is used as a screening level.

(5) For surface water systems, the Treatment Technique requires that each month the turbidity level of the filtered water is less than or equal to 0.3 NTU in 95% of the measurements and shall not exceed 1.0 NTU at any time. Turbidity is a measure of the cloudiness of the water. It is monitored as a good indicator of the effectiveness of the filtration system.

(6) Presence of coliform bacteria in no more than 5% of monthly samples.

(7) Compliance is based on the quarterly Running Annual Average. The highest level reported in the range is the result of an individual sample.

(8) Lead and Copper are required to be monitored every three years. This was last done in 2007.

**Key:** < – Less than  
µg/L – Micrograms per Liter

uS/cm – Micro-siemens per centimeter  
mg/L – Milligrams per Liter

N/A – Not Applicable  
NR – Testing not required

NTU – Nephelometric Turbidity Unit  
pCi/L – Picocuries per Liter

**Table 1b: Detected Constituents with Secondary Drinking Water Standards – regulated for aesthetic qualities**

Constituent	units	Secondary MCL	Ground Sources		Surface Source	Typical Source of Constituent
			Range	Average	Average	
Aluminum	µg/L	200	<50 – 79	<50	<50	Erosion of natural deposits
Chloride	mg/L	500	5.7 – 130	31	3	Runoff/leaching from natural deposits; seawater influence
Color	units	15	<1 – 15	<1	12	Naturally occurring organic materials
Copper	mg/L	1.0	<0.05 – 0.11	<0.05	<0.05	Erosion of natural deposits; leaching from wood preservatives
Iron	µg/L	300	<100 – 300	<100	<100	Leaching from natural deposits; industrial wastes
Manganese	µg/L	50 <sup>(1)</sup>	<20 – 120	28	<20	Leaching from natural deposits
Specific Conductance	µS/cm	1,600	280 – 840	466	164	Substances that form ions when in water; seawater influence
Sulfate	mg/L	500	8.2 – 53	25	8	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	mg/L	1,000	190 – 550	315	120	Runoff/leaching from natural deposits
Turbidity (Laboratory)	NTU	5	<0.5 – 1.5	<0.5	0.9	Soil runoff
Zinc	mg/L	5.0	<0.05 – 74	<0.05	<0.05	Runoff/leaching from natural deposits; industrial wastes

(1) On an intermittent basis, five wells (No. 4, 11, 15, 16, and 23) supplied ground water that exceeded the Secondary MCL (50 µg/L) for Manganese. Test data for these five wells indicated the Manganese concentration to be 97, 120, 110, 120, and 96 µg/L, respectively.

**Table 1c: Detected Unregulated Constituents – Unregulated monitoring helps EPA and the California Department of Public Health to determine where certain contaminants occur and whether the contaminants need to be regulated.**

Constituent	units	Ground Sources		Surface Source
		Range	Average	Average
Total Hardness (as CaCO <sub>3</sub> ) <sup>(1)</sup>	mg/L	110 – 370	216	64.6
Boron	µg/L	<100 – 220	<100	<100
Chromium, Hexavalent	µg/L	<1.0 – 5.3	2.9	<1.0
Sodium	mg/L	15 – 50	25	5
Vanadium	µg/L	<3.0 – 27	16	<3.0

(1) Conversion: Hardness (grains per gallon) = Hardness as CaCO<sub>3</sub> (mg/L) multiplied by 0.0584

**Table 2: Other Constituents Measured**

Constituent	units	Ground Sources		Surface Source
		Range	Average	Average
Total Alkalinity	mg/L	110 – 290	176	70
Calcium	mg/L	23 – 83	50	16
Magnesium	mg/L	8.6 – 40	22	6
Potassium	mg/L	2.7 – 7.1	5.2	2
Radon	pCi/L	625 – 717	671	NR

## Definitions

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

**Maximum Contaminant Level (MCL):** 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 are set to protect the odor, taste and appearance of drinking water.

**Maximum Contaminant Level Goal (MCLG):** 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. Environmental Protection Agency.

**Maximum Residual Disinfectant Level (MRDL):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

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

**Public Health Goal (PHG):** 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 Environmental Protection Agency.

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

The following general information is provided in order to comply with California Code of Regulations [Title 22, Chapter 15, Article 20], California Health and Safety Code [Section 116470] and the Federal Consumer Confidence Rule [40 CFR Part 141 Subpart O].

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 (USEPA) 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 provide the same protection for public health.

**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 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, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally occurring or be the result of oil and gas production and mining activities.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are also available from the Safe Drinking Water Hotline (1-800-426-4791).

On September 27, 2006 new Secondary Regulations were adopted by the California State Department of Public Health requiring water systems to report water sources utilized for supplying drinking water that exceeded the Secondary MCLs. As shown on Table 1b, five groundwater wells (No. 4, 11, 15, 16, and 23) supplied water intermittently into the water system after the adoption of this rule: Well No. 4 supplied water for 58 days, Well No. 11 – 64 days, Well No. 15 – 40 days, Well No. 16 – 4 days, and Well No. 23 – 76 days. Production from these wells only represents 1.2 % of the total water used by the City of Stockton's water customers. The operation of these wells was required in order to maintain adequate system pressure and to maintain storage for fire protection within the water distribution system. The water from these sources was blended with other groundwater

sources and surface water from SEWD. In addition, when these wells were in operation a sequestering agent was added to the water to minimize the aesthetic effects of Manganese. At the reported levels, Manganese may cause aesthetic problems such as laundry and/or fixture staining. At higher levels, Manganese may also cause taste and/or color problems at the customer's tap.

Radon is a radioactive gas that occurs naturally in some groundwater. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. There is no federal regulation for radon levels in drinking water at present.

While your drinking water meets the current EPA standard for arsenic it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Nitrate in drinking water at levels above 45 mg/L 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 mg/L 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.

In 2001, The City of Stockton, in cooperation with the State Department of Public Health, completed the Drinking Water Source Assessment and Protection Assessment for the City Well system. The following information is presented as a result of this assessment.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

- ◆ Automobile - Gas Stations
- ◆ Plastics/synthetics producers
- ◆ Automobile - repair shops
- ◆ Fleet/truck/bus terminals
- ◆ Airports - Maintenance/fueling areas
- ◆ Underground storage tanks - Confirmed leaking tanks
- ◆ Chemical/Petroleum processing/storage
- ◆ NPDES/WDR permitted discharges
- ◆ Photo processing/printing
- ◆ Housing - high density
- ◆ Agricultural drainage
- ◆ Agricultural drainage

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

- ◆ Metal plating/finishing/fabricating activities can be associated with the detected aluminum and tetrachloroethylene. Aluminum can also occur naturally in the environment as well.
- ◆ Sewer collection systems, septic systems (high density) and animal operations can be associated with nitrates detected.
- ◆ Electrical/electronic manufacturing activities can be associated with aluminum contaminants detected in the water supply

A copy of the complete assessment may be viewed at:

California Department of Public Health  
Drinking Water Field Operations Branch–Stockton District Office  
31 E Channel Street, Room 270  
Stockton, California 95202 (209) 948-7696

You may request a summary of the assessment be sent to you by contacting: Joseph O. Spano, P.E., District Engineer