2008 Annual Water Quality Report

Stanford University Utilities Division

Top Quality Water

May 2009

The Stanford Utilities Division is pleased to provide you with the 2008 Annual Water Quality Report. During 2008, the San Francisco Public Utilities Commission (SFPUC) and Stanford University monitored water quality for both source and treated water supplies, and in all cases the water quality was in compliance with the California Department of Public Health (CDPH) and the United States Environmental Protection Agency (USEPA) drinking water requirements. We continue our commitment to provide our customers with safe, high quality drinking water. It is the policy of the Stanford Utilities Division to fully inform its consumers about the water quality standards and typical concentrations. Stanford's water supply is both chloraminated and fluoridated.

The Utilities Division manages the storage, distribution, maintenance, and monitoring programs for Stanford's drinking water supply.

Stanford routinely collects water quality samples from various locations within the campus distribution system. The most frequently collected samples are analyzed for coliform bacteria, chlorine residual, and general physical parameters. Additional water quality samples are collected to monitor for more constituents in compliance with CDPH requirements. A certified laboratory analyzes all samples. Stanford submits monthly reports that include all monitoring results to the CDPH.

SFPUC also collects daily water quality samples from various locations within their transmission system. The samples are analyzed for primary standards that apply to the protection of public health and secondary standards that refer to the aesthetic qualities of water such as taste and odor.

The Stanford Utilities Division also maintains flushing, cross-connection, and backflow prevention programs to ensure a consistent high quality drinking water supply.

In This Report

Stanford University's Drinking Water Sources

Water supplied to Stanford by the SFPUC comes from three major sources: Hetch Hetchy watershed in the Sierra Nevada Mountains, and local watersheds in Alameda, Santa Clara and San Mateo Counties.

Hetch Hetchy Reservoir

Hetch Hetchy Reservoir, which is the largest reservoir in the SFPUC system, is located in Yosemite National Park. It provided approximately 84 percent of the total water supply in 2008. Spring snowmelt flows down the Tuolumne River and fills the Hetch Hetchy Reservoir. The high quality Hetch Hetchy water supply meets all federal and state criteria for watershed protection, disinfection treatment, bacteriological quality and operational standards. As a result, the USEPA and CDPH granted the Hetch Hetchy water source a filtration exemption. This exemption is contingent upon the Hetch Hetchy water quality continuing to meet all filtration avoidance criteria.

Alameda Watershed

The Alameda watershed, spans more than 35,000 acres in Alameda and Santa Clara Counties. Surface water from rainfall and runoff is collected in the Calaveras and San Antonio Reservoirs. Prior to distribution, water from the watershed is treated at the Sunol Valley Water Treatment Plant (SVWTP).

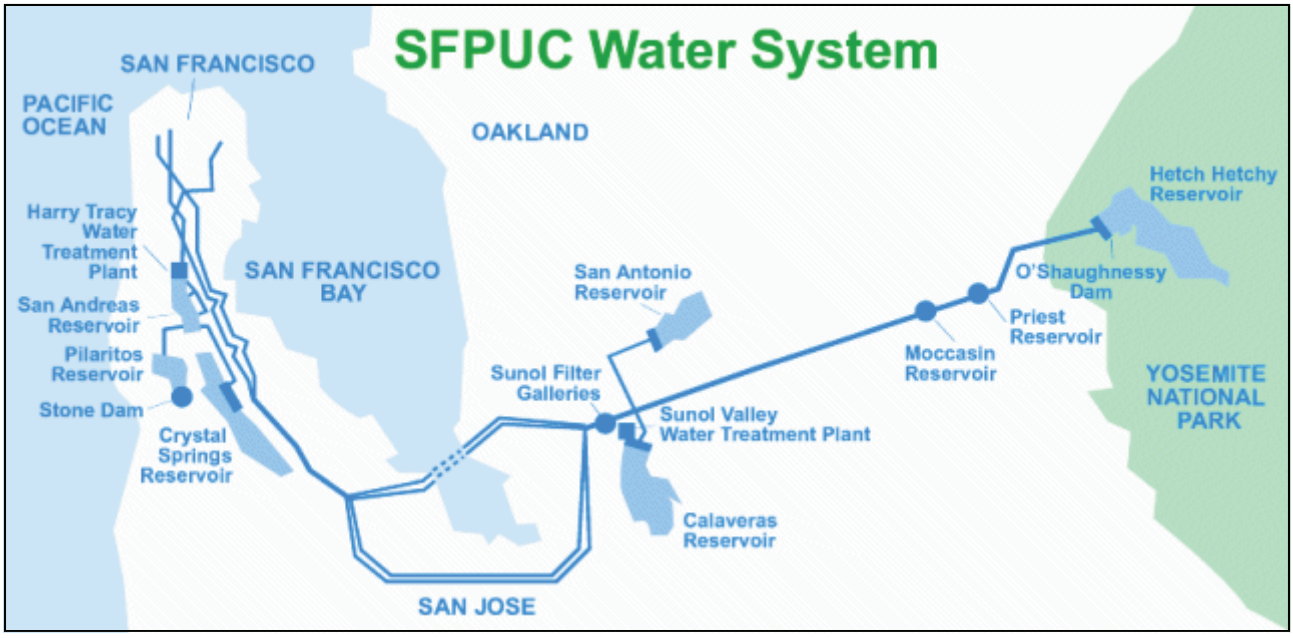
San Mateo Watershed

Surface water from rainfall and runoff captured in the 23,000-acre Peninsula watershed, which is located in San Mateo County, is stored in four reservoirs: Crystal Springs (Lower and Upper), San Andreas, Pilarcitos and Stone Dam. This water source is treated at the Harry Tracy Water Treatment Plant prior to delivery to customers.

Watershed Protection

The SFPUC aggressively protects the natural water resources entrusted to its care. An annual report on the Hetch Hetchy, Priest, and Moccasin watersheds is prepared to evaluate the sanitary conditions, water quality, and potential contamination sources in these watersheds. The report also presents performance results of watershed management activities implemented by the SFPUC to reduce the potential contamination sources. The 2008 sanitary survey concludes that very low levels of contaminants associated with wildlife and human activities exist in those upcountry watersheds.

The SFPUC also conducts sanitary surveys of the local watersheds every five years. The potential contamination sources identified in the 2005 survey are similar to the upcountry watersheds. These survey reports are available at the CDPH San Francisco Dis-



Protecting Our Water Quality

Information from the USEPA and the CDPH

In order to ensure that tap water is safe to drink, the USEPA and CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH 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, including *Cryptosporidium* and *Giardia*. The presence of small amounts of contaminants does not necessarily indicate that 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 (800) 426-4791.

Contaminants in Drinking Water

The sources of drinking water (both tap 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, which, in some cases, are radioactive and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharge, oil and gas production, mining, or farming.

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

Pesticides and Herbicides, that may originate from a variety of sources such as agricultural, urban storm water 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 storm water runoff, and septic systems.

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural live stock operations, and wildlife.

Cryptosporidium

Cryptosporidium is a parasitic microbe found in most surface water.

The SFPUC tests regularly for this waterborne pathogen, and found it at very low levels in source water and treated water in 2008. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. If ingested, these parasites may produce symptoms of nausea, stomach cramps, diarrhea, and associated headaches.

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 microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (800) 426-4791 or Website: *epa.gov/safewater*.

Important Definitions

The water quality data table (Page 5) summarizes the 2008 sampling results from laboratory analyses of parameters detected in SFPUC's source water supply and Stanford's distribution system. An extensive water sample collection and testing protocol is used at the various water sources throughout the SFPUC transmission system and in the campus distribution system. Both the SFPUC and Stanford monitor for many additional parameters, which were not detected.

The Water Quality Data table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (PHG), the average and range, and the typical sources of such contamination. Footnotes explaining these data and a key to units of measurement are also included.

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 (see definitions below) as is economically and technologically feasible. Secondary MCLs (SMCLs) 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 USEPA.

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.

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

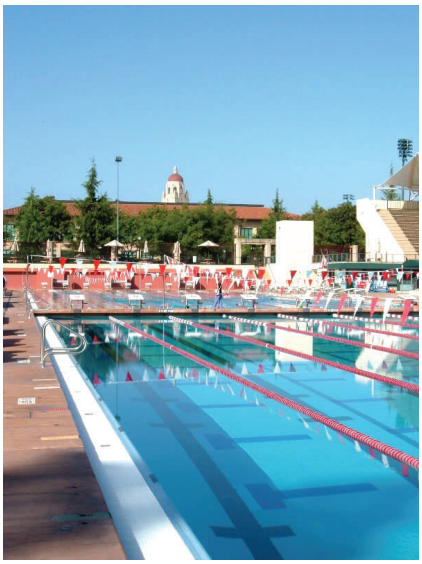
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the USEPA.

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

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

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

Diverse Uses of Campus Domestic Water



Swimming Pools

Drinking Fountains

Laboratories

Water Quality Data

Stanford University's Annual Water Quality Data for 2008 (1)

DETECTED CONTAMINANTS

CONSTITUENTS WITH PRIMARY STANDARDS	Unit	MCL	PHG or (MCLG)	Range or Result	Average or (Maximum)	Typical Sources in Drinking Water
TURBIDITY (2) (SFPUC samples)						
Unfiltered Hetch Hetchy Water, max 5 NTU	NTU	5	NS	0.24 - 0.46 (3)	(2.85) (4)	Soil run-off
Filtered Water - Sunol Valley WTP, max 1 NTU	NTU	1	NS	NA	(0.21)	Soil run-off
95 percent of time < 0.3 NTU	NTU	1	NS	100% (5)	NA	Soil run-off
DISINFECTION BY-PRODUCTS (SFPUC samples)						
Total Trihalomethanes (TTHMs)	ppb	80	NS	8 - 48	(31) (6)	By-product of drinking water chlorination
Total Haloacetic Acids (HAAs)	ppb	60	NS	4 - 26	(17) (6)	By-product of drinking water chlorination
Total Organic Carbon (TOC) (7)	ppm	TT	NS	2.2 - 2.8	2.5	Various natural and man-made sources
DISINFECTION BY-PRODUCTS (Stanford samples)						
Total Trihalomethanes (TTHMs)	ppb	80	NS	25 - 46	(39) (6)	By-product of drinking water chlorination
Total Haloacetic Acids (HAAs)	ppb	60	NS	15 - 40	(24) (6)	By-product of drinking water chlorination
MICROBIOLOGICAL						
Total Coliform (Stanford samples) percentage of positives detected in any month	%	≤5	(0)	0	(0)	Naturally present in the environment
Giardia Lamblia (SFPUC samples)	cyst/L	TT	(0)	ND - 0.03	(0.03)	Naturally present in the environment
INORGANIC CHEMICALS						
Fluoride (source water)(8) (SFPUC samples)	ppm	2.0	1.0	<0.1 - 0.8	0.2	Erosion of natural deposits
Total Chlorine (Stanford samples)	ppm	MRDL=4	MRDLG=4	1.4 - 2.5	(2.1) (6)	Water disinfectant added for treatment

CONSTITUENTS WITH SECONDARY STANDARDS (SFPUC samples except Color)	Unit	SMCL	PHG	Range	Average	Typical Sources in Drinking Water
Chloride	ppm	500	NS	4 - 15	10	Runoff / leaching from natural deposits
Color (Stanford Samples)	unit	15	NS	<5 - 10	6	Naturally occurring organic materials
Specific Conductance	µS/cm	1600	NS	31 - 288	164	Substances that form ions when in water
Sulfate	ppm	500	NS	1.0 - 34.9	16.4	Runoff/leaching from natural deposits
Total Dissolved Solids	ppm	1000	NS	39 - 203	111	Runoff / leaching from natural deposits
Turbidity	NTU	5	NS	0.06 - 0.30	0.15	Soil runoff

LEAD AND COPPER RULE STUDY (Stanford Samples, 54 samples collected)	Unit	AL	PHG	Range	90th Percentile (9)	Typical Sources in Drinking Water
Copper	ppb	1300	300	<10 - 100	60 (10)	Corrosion of household plumbing systems
Lead	ppb	15	2	<2.0 - 2.1	2.0 (11)	Corrosion of household plumbing systems

OTHER WATER QUALITY PARAMETERS (SFPUC Samples)	Unit	NL	Range	Average
Alkalinity (as $CaCO_3$)	ppm	NS	10 - 96	50
Calcium	ppm	NS	3 - 26	13
Chlorate (12)	ppb	(800)NL	49 - 224	155
Hardness (as $CaCO_3$)	ppm	NS	14 - 100	54
Magnesium	ppm	NS	0.2 - 9.0	4.9
pH	unit	NS	8.5 - 9.2	8.8
Potassium	ppm	NS	<0.2 - 1.2	0.6
Silica	ppm	NS	5.0 - 7.7	5.4
Sodium	ppm	NS	3 - 20	13

Key:		
</≤	=	less than / less than equal to
TT	=	Treatment Technique
AL	=	Action Level
NA	=	Not Applicable
NL	=	Notification Level
NS	=	No Standard
NTU	=	Nephelometric Turbidity Unit
ppb	=	parts per billion
ppm	=	parts per million
µS/cm	=	microSiemens/centimeter

1. All results met State and Federal drinking water health standards.
2. Turbidity is a water clarity indicator; it also indicates the effectiveness of the filtration plants.
3. Turbidity is measured every four hours. These are monthly average turbidity values.
4. This is the highest single measurement in 2008. The startup of San Joaquin Pipeline No. 2 caused elevated turbidities on 3/13/08 as a result of sediment re-suspension in the pipeline.
5. There is no MCL for turbidity. The limits are based on the TT requirements in the State Drinking Water regulations.
6. This is the highest quarterly running annual average value.
7. TOC is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.
8. The SFPUC adds fluoride to the naturally occurring level to help prevent dental caries in consumers. The fluoride levels in the treated water are maintained within a range of 0.8 - 1.5 ppm, as required by CDPH regulations.
9. The 90th percentile levels of lead and copper must not be greater than the action levels.
10. In 2006, no residences were over the copper Action Level at consumer taps. Customer tap sampling is required again in 2009.
11. In 2006, no residences were over the lead Action Level at consumer taps. Customer tap sampling is required again in 2009.
12. There was no chlorate detected in the raw water sources. The detected chlorate in treated water is a byproduct of the degradation of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection.

STANFORD UNIVERSITY
Dept. 33730, P.O. Box 39000
San Francisco, CA 94139
WATER, SEWER & GROUND RENT STATEMENT

1. New graphic and text box that will change periodically and provide information related to water use.

2. New graph showing 13 bill periods of average daily water use. Bill periods are months that may have varying number of days.

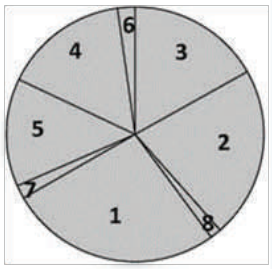
John Smith
155 San Jose Drive
Stanford, CA 94305

Service Address
John Smith
155 San Jose Drive
Stanford, CA 94305

Faculty/Staff ID#: 000
Water Meter #: D0000

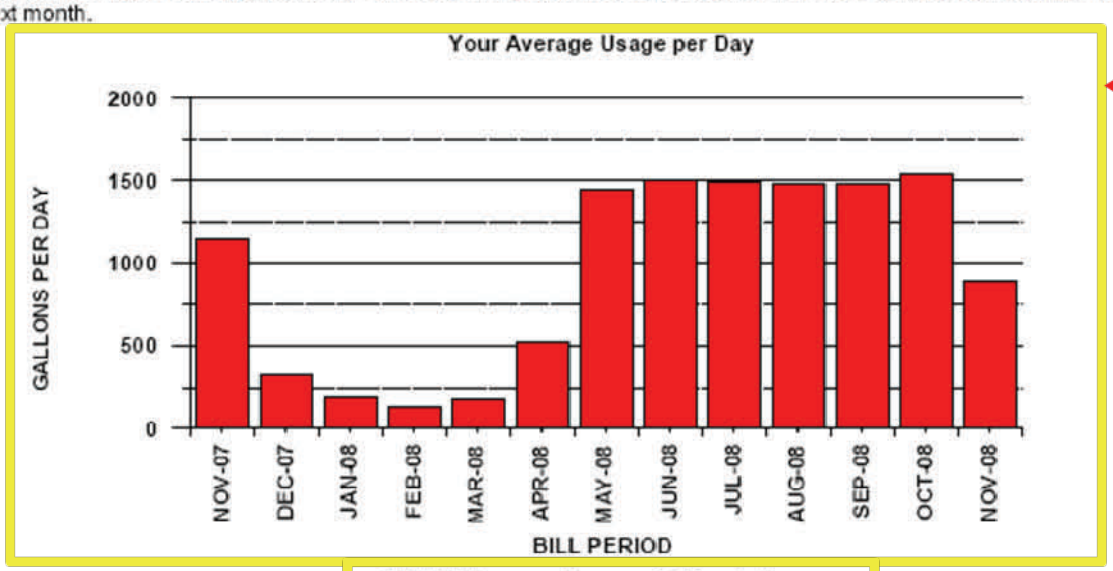
Statement date:
Service period: 10/14/08
to 11/13/08

Current meter reading:	6487
Previous meter reading:	2916
Difference:	3,571
Multiplier:	7.48
Consumption (gals):	**26,711.08**
Rate per 1,000 gals:	$5.88
Current Water Costs:	**$157.06**
Sewer Charge:	**$28.70**
Ground Rent:	**$213.48**
Total Costs:	**$399.24**



Typical Daily Indoor Household Water Use (gallons/person) (Source: AWWA, 1999)
1) Toilets: 27%, 19 gallons
2) Clothes Washers: 22%, 15 gallons
3) Showers: 17%, 12 gallons
4) Faucets: 16%, 11 gallons
5) Leaks: 14%, 9 gallons
6) Other: 2%, 2 gallons
7) Baths (non-daily): 1%, 1 gallon
8) Dishwashers: 1%, 1 gallon

Your current water, sewer, and ground rent costs will be automatically deducted from your bank account on the 1st of next month.



NOV-07 Average Usage : 1,143 gals/day
NOV-08 Average Usage : 890 gals/day
Last 12 Months Average Usage : 929 gals/day

For questions call (650) 725-8030. http://lbre.stanford.edu/sem/water_conservation H

3. Average water use (gals/day) for same bill period previous year, current bill period, and an average use for the last 12 months. Note: Annual (gals/day) average use includes seasonal use, e.g., irrigation, etc.

Take the pledge and reduce your water use by 10%

On April 17, 2009, the SFPUC affirmed the continuation of 10 percent voluntary water reductions throughout the service area. Under prudent utility practice, the SFPUC believes there is a need to continue preserving water supply in our reservoirs in the event of a fourth dry year. Carryover storage is a critical element to the SFPUC's water supply since it provides the ability for the SFPUC to meet demands during dry years while reducing the need for mandatory reductions. (*Source: SFPUC, 2009*) To find out more please see:

http://sfwater.org/detail.cfm/MC_ID/13/MSC_ID/168/MTO_ID/357/C_ID/4413/ListID/1

To help save water at your home you can do the following:

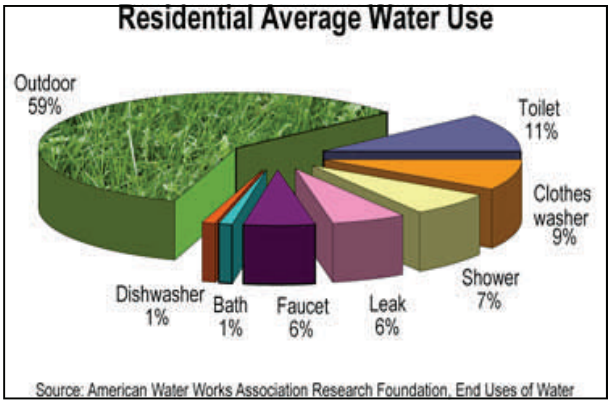
Water Wise House Call – **Highly Recommended -** contact Santa Clara Valley Water District to schedule your **FREE** Water Wise House Call at: ***(800) 548-1882*** or visit: *http://cf.valleywater.org/Water/Water_conservation/In_the_home/House_call_request.cfm*

(Note: Your water meter number is your account number.)

High Efficiency Toilet Rebate – visit our website for more information at; h*ttp://lbre.stanford.edu/sem/water_conservation*

Water Wise Landscape Rebate – **Prerequisite** - you need to complete a Water Wise House Call before you can participate in the landscape rebate.

Free Water Saving Devices – To receive shower heads (*2.0 gpm*), kitchen (*2.2 gpm*) and bathroom (*1.5 gpm*) sink aerators contact Lowell Price at (650) 725-8963 or lowell.price@stanford.edu.



- Monitor your water bill for unusually high use. Your bill and water meter are tools that can help you discover leaks. Turn off all water and check your meter, if it is moving you may have a leak.
- Adjust your watering schedule for each season. In fall, unless it's very hot outside you can reduce your watering time by half. By December, you can turn off your irrigation completely.
- When running a bath, plug the tub before turning the water on, and then adjust the temperature as the tub fills up.
- When washing dishes by hand, fill the sink basin or a large container and rinse when all of the dishes have been soaped and scrubbed.
- Turn off the faucet while brushing your teeth and shaving.

For more water saving tips visit our website at: http://lbre.stanford.edu/sem/water_tips

Emergency Preparedness

Although Stanford strives to ensure a reliable supply of water for our customers, a natural disaster such as a major earthquake could interrupt water delivery. Residents are encouraged to store drinking water in case of an emergency. Stanford recommends storing at least three days worth of water (one gallon of water per person, per day, including pets) in food-grade plastic containers, such as two-liter soda bottles, and replacing supplies every six months.

To learn more about emergency preparedness for yourself and your family, visit *http://lbre.stanford.edu/sem/sites/all/lbre-shared/files/docs_public/drinking_water_emergency_response_information.pdf*

Este reporte contiene información muy importante sobres el agua que toma. Llame a Stanford University 650-725-8030 sí necesita ayuda en español.

Contact Information

USEPA Drinking Water Homepage:
www.epa.gov/safewater/ or
Safe Drinking Water Hotline
(800) 426-4791

CDPH Drinking Water Program Homepage:
http://www.cdph.ca.gov/certlic/drinkingwater/Pages/default.aspx

SFPUC's Homepage: sfwater.org

Stanford's Utilities Water Homepage:
http://lbre.stanford.edu/sem/drinking_water

If you have questions or need additional information about this report or Stanford's water quality, please contact;

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Utilities Division
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Stanford, CA 94305-7270