Stanford University 2003 Annual Water Quality Report[1]

TABLE 1. WATER QUALITY REPORT FOR SFPUC SOURCE WATER SUPPLY 2003

PARAMETER	Unit	MCL	PHG (MCLG)	Range	Average (Maximum)	Typical Sources in Drinking Water
PRIMARY STANDARDS - MICROBIOLOGICAL CONTAMINANTS						
TURBIDITY [2]						
Unfiltered Hetch Hetchy Water	NTU	5 [3]	NS	0.24 - 0.74 [4]	(1.58) [5]	Soil run-off
Filtered Water - Sunol Valley WTP, max turbidity	NTU	1	NS	-	(0.4)	Soil run-off
Minimum percentage of time < 0.3 NTU	%	95 [6]	NS	99% [7]	-	Soil run-off
ORGANIC CHEMICALS [8]						
Total Trihalomethanes (TTHMs)	ppb	80	NS	25.3 - 75.1	50.8 [10]	By-product of drinking water chlorination
Total Haloacetic Acids (HAAs)	ppb	60	NS	16.2 - 35.1	29 [10]	By-product of drinking water chlorination
Total Organic Carbon [9]	ppb	NS	NS	2.4 - 3.3	2.8	By-product of drinking water chlorination
INORGANIC CHEMICALS						
Aluminum	ppb	1000	600	33 - 40	36.5	Erosion of natural deposits
Barium	ppb	1000	2000	<5 - 67	34	Erosion of natural deposits
Fluoride [11]	ppm	2	1	<0.1 - 0.2	0.1	Erosion of natural deposits
Nickel	ppb	100	12	<1 - 1	<1	Erosion of natural deposits
Nitrate (as NO_3)	ppm	45	45	0.2 - 0.7	0.45	Erosion of natural deposits, soil run-off
PARAMETER	Unit	MCL	PHG (MCLG)	Range	Average (Maximum)	Typical Sources in Drinking Water
CONSTITUENTS WITH SECONDARY STANDARDS						
Chloride	ppm	500	NS	<3 - 22	8	Runoff / leaching from natural deposits
Color	unit	15	NS	<5 - 6	<5	Naturally-occurring organic materials
Iron	ppb	300	NS	<10 - 28	14	Leaching from natural deposits
Specific Conductance	µS/cm	1600	NS	29 - 398	185	Substances that form ions when in water
Sulfate	ppm	500	NS	1 - 43	22	Leaching from natural deposits
Total Dissolved Solids	ppm	1000	NS	20 - 180	100	Runoff / leaching from natural deposits
Turbidity	NTU	5	NS	0.08	0.29	Soil runoff
OTHER WATER QUALITY PARAMETERS						
Alkalinity (as $CaCO_3$)	ppm	NS	10 - 156	67		
Boron	ppb	1000	<100 - 150	<100		
Calcium	ppm	NS	4 - 30	17		
Hardness (as $CaCO_3$)	ppm	NS	8 - 140	56		
Magnesium	ppm	NS	<0.5 - 13	6.5		
pH	Unit	NS	7.5 - 9.8	9.1		
Potassium	ppm	NS	<0.5 - 2	1		
Silica	ppm	NS	5 - 7	6.0		
Sodium	ppm	NS	3 - 27	15		

KEY: < = less than
AL = Action Level
N/A = Not Available
ND = Lower than detection, Not detected
NS = No Standard
NTU = Nephelometric Turbidity Unit
ppb = parts per billion
ppm = parts per million
µS/cm = microSiemens/centimeter
TON = Threshold Odor Unit

TABLE 2. WATER QUALITY REPORT FOR STANFORD UNIVERSITY DISTRIBUTION SYSTEM 2003

PARAMETER	Unit	MCL	PHG (MCLG)	Range	Average (Maximum)	Typical Sources in Drinking Water
MICROBIOLOGICAL CONTAMINANTS						
Total Coliform Bacteria [12]	% monthly positive sample	5	NS (0)	0-0	0	Naturally present in the environment
Turbidity	NTU	5	NS	0.1-0.5	0.3	Soil runoff
ORGANIC CHEMICALS						
Disinfection By Products						
Total Trihalomethanes	ppb	80	NS	49.5-93.8	72.0 [10]	By-product of drinking water chlorination
Total Haloacetic Acids	ppb	60	NS	9.9-42	23.6 [10]	By-product of drinking water chlorination
INORGANIC CHEMICALS						
Fluoride [13]	ppm	NS	NS	.08-1.29	0.95	Natural Dep.; Additive which promotes strong teeth.
Chlorine	ppm	MRDL = 4	MRDLG = 4	0.46-0.88	0.6[10]	Drinking water disinfectant added for treatment.
LEAD AND COPPER RULE STUDY	Unit	AL	PHG	Range	90th Percentile[14]	Typical Sources in Drinking Water
Lead	ppb	15	2	<2-3	<2 [16]	Corrosion of household plumbing systems
Copper	ppb	1300	170	<10-120	40 [15]	Corrosion of household plumbing systems

(1) All results met State and Federal drinking water regulations.
(2) Turbidity is a water clarity indicator; it also indicates water quality and treatment system efficiency.
(3) The turbidity standard for unfiltered supplies is 5 NTU.
(4) Results are based on monthly average turbidities measured at Tesla Portal.
(5) Higher turbidities occurred in the Hetch Hetchy system but the water was not served to customers.
(6) For filtered supplies, two turbidity standards apply.
These are: turbidity should be less than 0.3 NTU at least 95% of the time and 1 NTU maximum.
(7) The reported data is the minimum percent of time that the filtered water has turbidity less than 0.3 NTU.
(8) DOHS has approved SFPUC's request for a waiver of 76 additional synthetic organic chemicals.
(9) Total Organic Carbon is a precursor for disinfection byproducts formation.
Data obtained from effluent monitoring at Sunol Valley Water Treatment Plant.
(10) The reported data is the highest running annual average value.
(11) Data are source water fluoride levels obtained from Hetch Hetchy, Calaveras and San Antonio Reservoirs.
(12) Results are published as percent of positive samples per month.
(13) Stanford University added fluoride in 2003, as reported above to prevent dental cavities in consumers.
(14) The 90th percentile level of lead or copper must be less than the action level.
(15) In 2001, all Stanford residence sampled were below the copper Action Level at consumer taps.
(16) In 2001, all Stanford residence sampled were below the lead Action Level at consumer taps.

Stanford University 2003 Annual

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PARAMETER	Unit	MCL
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minimum percentage of time < 0.3 NTU	%	95 [6]
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Total Trihalomethanes (TTHMs)	ppb	80
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Total Organic Carbon [9]	ppb	NS
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Aluminum	ppb	1000
Barium	ppb	1000
Fluoride [11]	ppm	2
Nickel	ppb	100
Nitrate (as NO_3)	ppm	45
CONSTITUENTS WITH SECONDARY STANDARDS	**Unit**	**SMCL**
Chloride	ppm	500
Color	unit	15
Iron	ppb	300
Specific Conductance	µS/cm	1600
Sulfate	ppm	500
Total Dissolved Solids	ppm	1000
Turbidity	NTU	5
OTHER WATER QUALITY PARAMETERS	**Unit**	**AL**
Alkalinity (as $CaCO_3$)	ppm	NS
Boron	ppb	1000
Calcium	ppm	NS
Hardness (as $CaCO_3$)	ppm	NS
Magnesium	ppm	NS
pH	Unit	NS
Potassium	ppm	NS
Silica	ppm	NS
Sodium	ppm	NS

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Chlorine	ppm	MRDL = 4
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UC SOURCE WATER SUPPLY 2003

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UNIVERSITY DISTRIBUTION SYSTEM 2003

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MRDLG = 4	0.46-0.88	0.6[10]	Drinking water disinfectant added for treatment.
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