

Sonoma County Water Agency - Caissons 1 thru 6 - 2009 Water Quality Report

CLARITY OF WATER FROM GROUNDWATER SOURCES	MCL ⁽³⁾	Units	Sample Frequency	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6	Typical Source of Contaminant
Turbidity ⁽¹⁾	5	NTU	continuous	average 0.05 range (0.03 - 0.77)	average 0.04 range (0.03 - 0.38)	average 0.04 range (0.02 - 2.0)	average 0.05 range (0.04 - 2.0)	average 0.04 range (0.03 - 0.94)	average 0.03 range (0.02 - 2.0)	Sand

MICROBIOLOGICAL - Coliform Bacteria	MCL	Units	# Samples	Distribution System Monitoring for 2009
	<2 positive samples per month	coliforms/100ml	468	(0) positive samples
DISINFECTANT - Total Chlorine Residual	> 95% per month	detectable residual	663	Detectable residual in 100% of samples taken
Total Trihalomethanes ⁽²⁾ - Tank Samples	0.080	mg/L	72	average = 0.0170 mg/L range = (0.0085 mg/L - 0.0263 mg/L)

VOLATILE ORGANIC COMPOUNDS Section 64444 - Table A	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
Benzene	mg/L	0.001	0.0005	0.00015	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	mg/L	0.0005	0.0005	0.0001	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene (o-DCB)	mg/L	0.6	0.0005	0.6	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene (p-DCB)	mg/L	0.005	0.0005	0.006	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)	mg/L	0.005	0.0005	0.003	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	mg/L	0.0005	0.0005	0.0004	ND	ND	ND	ND	ND	ND
1,1,-Dichloroethylene (1,1-DCE)	mg/L	0.006	0.0005	0.01	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene (c-1,2-DCE)	mg/L	0.006	0.0005	0.1	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene (t-1,2-DCE)	mg/L	0.01	0.0005	0.06	ND	ND	ND	ND	ND	ND
Dichloromethane (Methylene Chloride)	mg/L	0.005	0.0005	0.004	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	mg/L	0.005	0.0005	0.0005	ND	ND	ND	ND	ND	ND
1,3-Dichloropropene	mg/L	0.0005	0.0005	0.0002	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/L	0.3	0.0005	0.3	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE) ⁽⁴⁾	mg/L	0.013	0.003	0.013	ND	ND	ND	ND	ND	ND
Monochlorobenzene (Chlorobenzene)	mg/L	0.07	0.0005	0.2	ND	ND	ND	ND	ND	ND
Styrene	mg/L	0.1	0.0005	0.0005	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/L	0.001	0.0005	0.0001	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	mg/L	0.005	0.0005	0.00006	ND	ND	ND	ND	ND	ND
Toluene	mg/L	0.15	0.0005	0.15	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	mg/L	0.005	0.0005	0.005	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane (1,1,1-TCA)	mg/L	0.2	0.0005	1.0	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane (1,1,2-TCA)	mg/L	0.005	0.0005	0.0003	ND	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	mg/L	0.005	0.0005	0.0017	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane (Freon 11)	mg/L	0.15	0.005	0.7	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	mg/L	1.2	0.01	4	ND	ND	ND	ND	ND	ND
Vinyl Chloride (VC)	mg/L	0.0005	0.0005	0.00005	ND	ND	ND	ND	ND	ND
Xylenes (m,p, & o)	mg/L	1.75	0.0005	1.8	ND	ND	ND	ND	ND	ND

⁽¹⁾ Turbidity: **Annual average** is the mean of the monthly average values, weighted by hours of pump operation each month.

Range refers to the minimum and maximum Turbidity readings recorded by the online Turbidimeters at each site.

⁽²⁾ Total Trihalomethanes: 40 CFR Section 141.12 - Is the sum of the concentrations of Bromodichloromethane, Dibromochloromethane, Bromoform, and Chloroform.

⁽³⁾ MCL: Secondary Standard.

⁽⁴⁾ Methyl tert-butyl ether (MTBE) is listed in both the Primary (Organic Chemicals - VOCs) and Secondary standards.

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SYNTHETIC ORGANIC COMPOUNDS <i>Section 64444 - Table A</i>	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
Alachlor	mg/L	0.002	0.001	0.004	ND	ND	ND	ND	ND	ND
Atrazine	mg/L	0.001	0.0005	0.00015	ND	ND	ND	ND	ND	ND
Bentazon	mg/L	0.018	0.002	0.2	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	mg/L	0.0002	0.0001	0.000004	ND	ND	ND	ND	ND	ND
Carbofuran	mg/L	0.018	0.005	0.0017	ND	ND	ND	ND	ND	ND
Chlordane	mg/L	0.0001	0.0001	0.00003	ND	ND	ND	ND	ND	ND
2,4 - Dichlorophenoxyacetic acid (2,4-D)	mg/L	0.07	0.01	0.02	ND	ND	ND	ND	ND	ND
Dalapon	mg/L	0.2	0.01	0.79	ND	ND	ND	ND	ND	ND
Dibromochloropropane (DBCP)	mg/L	0.0002	0.00001	0.0000017	ND	ND	ND	ND	ND	ND
Di(2-ethylhexyl)adipate	mg/L	0.4	0.005	0.2	ND	ND	ND	ND	ND	ND
Di(2-ethylhexyl)phthalate (DEHP)	mg/L	0.004	0.003	0.012	ND	ND	ND	ND	ND	ND
Dinoseb	mg/L	0.007	0.002	0.014	ND	ND	ND	ND	ND	ND
Diquat	mg/L	0.02	0.004	0.015	ND	ND	ND	ND	ND	ND
Endothall	mg/L	0.1	0.045	0.58	ND	ND	ND	ND	ND	ND
Endrin	mg/L	0.002	0.0001	0.0018	ND	ND	ND	ND	ND	ND
Ethylene Dibromide (EDB)	mg/L	0.00005	0.00002	0.00001	ND	ND	ND	ND	ND	ND
Glyphosate	mg/L	0.7	0.025	0.9	ND	ND	ND	ND	ND	ND
Heptachlor	mg/L	0.00001	0.00001	0.000008	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	mg/L	0.00001	0.00001	0.000006	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	mg/L	0.001	0.0005	0.00003	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	mg/L	0.05	0.001	0.05	ND	ND	ND	ND	ND	ND
Lindane (gamma - BHC)	mg/L	0.0002	0.0002	0.000032	ND	ND	ND	ND	ND	ND
Methoxychlor	mg/L	0.03	0.01	0.03	ND	ND	ND	ND	ND	ND
Molinate	mg/L	0.02	0.002	0.001	ND	ND	ND	ND	ND	ND
Oxamyl	mg/L	0.05	0.02	0.026	ND	ND	ND	ND	ND	ND
Pentachlorophenol	mg/L	0.001	0.0002	0.0003	ND	ND	ND	ND	ND	ND
Picloram	mg/L	0.5	0.001	0.5	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs)	mg/L	0.0005	0.0005	0.00009	ND	ND	ND	ND	ND	ND
Simazine	mg/L	0.004	0.001	0.004	ND	ND	ND	ND	ND	ND
Thiobencarb ⁽⁵⁾	mg/L	0.07	0.001	0.07	ND	ND	ND	ND	ND	ND
Toxaphene	mg/L	0.003	0.001	0.00003	ND	ND	ND	ND	ND	ND
2,3,7,8-TCDD (Dioxin)	mg/L	3 x 10 ⁻⁸	5 x 10 ⁻⁹	1 x 10 ⁻⁹	ND	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	mg/L	0.05	0.001	0.025	ND	ND	ND	ND	ND	ND

⁽⁵⁾ Thiobencarb is listed in both the Primary (Organic Chemicals - SOC) and Secondary standards.

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INORGANIC CHEMICALS <i>Section 64431 - Table A</i>	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
Aluminum ⁽⁶⁾	µg/L	1000	50	600	< 50	< 50	< 50	< 50	< 50	< 50
Antimony	µg/L	6	6	20	< 6	< 6	< 6	< 6	< 6	< 6
Arsenic	µg/L	10	2	0.004	< 2	< 2	< 2	< 2	< 2	< 2
Asbestos	MFL	7	0.2	7	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Barium	µg/L	1000	100	2000	< 100	< 100	< 100	< 100	< 100	< 100
Beryllium	µg/L	4	1	1	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium	µg/L	5	1	0.04	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	µg/L	50	10	{ 100 }	< 2	< 2	< 2	< 2	< 2	< 2
Cyanide	mg/L	0.15	0.1	0.15	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Fluoride (F) Natural-Source	mg/L	2.0	0.1	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Mercury	µg/L	2	1	1.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Nickel	µg/L	100	10	12	< 2	< 2	< 2	< 2	< 2	< 2
Nitrate (as NO3)	mg/L	45	2	45	< 1	< 1	< 1	< 1	< 1	< 1
Nitrate + Nitrite (as N)	mg/L	10	0.4	10	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Nitrite (as N)	mg/L	1	0.4	1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Perchlorate	µg/L	6	4.0	6	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0 / < 4.0 ⁽¹⁰⁾
Selenium	µg/L	50	5	{ 50 }	< 5	< 5	< 5	< 5	< 5	< 5
Thallium	µg/L	2	1	0.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

RADIONUCLIDE - <i>Section 64442</i>										
Gross Alpha (4 quarterly samples every 9 years)	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					15-Mar-05	pCi/L	15	3	{ 0 }	0.05 ± 1.18
8-Jun-05	pCi/L	15	3	{ 0 }	-0.24 ± 0.47	0.06 ± 0.82	0.26 ± 0.87	-0.80 ± 0.43	-0.45 ± 0.53	---
1-Sep-05	pCi/L	15	3	{ 0 }	0.329 ± 0.724	0.000 ± 0.403	3.49 ± 0.949	0.000 ± 0.574	0.000 ± 0.485	---
5-Dec-05	pCi/L	15	3	{ 0 }	0.0706 ± 0.589	0.00 ± 0.48	0.00 ± 0.554	0.733 ± 0.778	0.00 ± 0.543	---
Next Sample					Due 2014	Due 2014	Due 2014	Due 2014	Due 2014	---
10-Apr-06	pCi/L	15	3	{ 0 }	---	---	---	---	---	1.09 ± 0.683
28-Jul-06	pCi/L	15	3	{ 0 }	---	---	---	---	---	0.401 ± 0.682
29-Aug-06	pCi/L	15	3	{ 0 }	0.433 ± 0.720	0.240 ± 0.612	0.000 ± 0.467	0.0773 ± 0.598	0.384 ± 0.652	0.0703 ± 0.607
10-Oct-06	pCi/L	15	3	{ 0 }	---	---	---	---	---	0.000 ± 0.466
23-Sep-08	pCi/L	15	3	{ 0 }	0.416 ± 0.820	0.533 ± 0.832	0.239 ± 0.828	0.843 ± 1.00	0.214 ± 0.712	1.19 ± 1.06

RADIONUCLIDE - <i>Section 64442</i>										
Radium-228 (4 quarterly samples)	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					10-Jul-06	pCi/L	5	1	0.019	0.000 ± 0.496
10-Oct-06	pCi/L	5	1	0.019	0.136 ± 0.449	0.000 ± 0.474	0.083 ± 0.495	0.120 ± 0.500	0.000 ± 0.480	0.000 ± 0.517
	pCi/L	5	1	0.019	---	---	---	---	---	---
	pCi/L	5	1	0.019	---	---	---	---	---	---

⁽⁶⁾ Aluminum is listed in both the Primary (Inorganic Chemicals) and Secondary standards.

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SECONDARY STANDARDS <i>Section 64449 - Table A</i>	Units	Secondary MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
Aluminum ⁽⁶⁾	µg/L	200	50	600	< 50	< 50	< 50	< 50	< 50	< 50
Color	Color Units	15			< 3	< 3	< 3	< 3	< 3	< 3
Copper ⁽⁷⁾	µg/L	1300 ⁽⁷⁾	50	300	13 / < 10 ⁽¹⁰⁾	10 / < 10 ⁽¹⁰⁾	< 10	< 10	< 10	< 10
Foaming Agents (MBAS)	mg/L	0.5			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Iron	µg/L	300	100		230 / < 100 ⁽¹⁰⁾	< 100	< 100	< 100	< 100	< 100
Manganese	µg/L	50	20		< 20	< 20	< 20	< 20	< 20	< 20
Methyl tert-butyl ether (MTBE) ⁽⁴⁾	mg/L	0.005	0.003	0.013	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Odor - Threshold	TON	3	1		< 1	< 1	< 1	< 1	< 1	< 1
Silver	µg/L	100	10		< 10	< 10	< 10	< 10	< 10	< 10
Thiobencarb ⁽⁵⁾	mg/L	0.001	0.001	0.07	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Turbidity	NTU	5			See page 1	See page 1	See page 1	See page 1	See page 1	See page 1
Zinc	µg/L	5000	50		< 10	< 10	< 10	14	< 10	< 10

SECONDARY STANDARDS <i>Section 64449 - Table B</i>	Units	Recommended MCL	DLR	Upper MCL	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
Total Dissolved Solids	mg/L	500		1000	100	74	120	97	120	85
Specific Conductance	µS/cm	900		1600	190	200	190	180	210	200
Chloride	mg/L	250		500	5.4	5.7	6.0	5.5	5.8	5.5
Sulfate	mg/L	250	0.5	500	12	13	12	12	13	14

ADDITIONAL CONSTITUENTS ANALYZED	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
					1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09	1-Sep-09
pH	pH				7.4	7.5	7.4	7.7	7.4	7.4
Total Hardness as CaCO ₃	mg/L				91	99	96	90	107	100
Calcium	mg/L				18	20	18	17	20	19
Magnesium	mg/L				11	12	12	11	14	13
Sodium	mg/L				8.3	8.4	9.6	8.7	8.0	8.0
Potassium	mg/L				1.1	1.1	1.4	1.2	1.0	1.0
Total Alkalinity as CaCO ₃	mg/L				100	120	110	100	120	110
Hydroxide as CaCO ₃	mg/L				< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbonate as CaCO ₃	mg/L				< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bicarbonate as CaCO ₃	mg/L				100	120	110	100	120	110
Agressiveness Index					11.55	11.20	11.17	11.04	11.50	11.06
Lead ⁽⁷⁾	µg/L	15 ⁽⁷⁾	5	0.2	6.6 / < 2	2.6 / < 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Radon 222 ± Counting Error ⁽⁹⁾	pCi/L		100		162 ± 23	185 ± 21	133 ± 21	211 ± 23	172 ± 23	214 ± 23
N-Nitrosodimethylamine (NDMA) ⁽⁸⁾	µg/L	0.01 ⁽⁸⁾	0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
1,2,3-Trichloropropane (1,2,3-TCP) ⁽⁸⁾⁽⁹⁾	µg/L	0.005 ⁽⁸⁾	0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

⁽⁴⁾ Methyl tert-butyl ether (MTBE) is listed in both the Primary (Organic Chemicals - VOCs) and Secondary standards.

⁽⁵⁾ Thiobencarb is listed in both the Primary (Organic Chemicals - SOCs) and Secondary standards.

⁽⁶⁾ Aluminum is listed in both the Primary (Inorganic Chemicals) and Secondary standards.

⁽⁷⁾ Notification Level under the Lead and Copper Rule.

⁽⁸⁾ Notification Level

⁽⁹⁾ 1,2,3 TCP and Radon 222 resampled 10/15/09 due to lab and/or sampling error.

⁽¹⁰⁾ Metals resampled 10/15/09 after flushing well for a day

NOTES:

MCL:	<u>Maximum Contaminant Level:</u> The highest level of a contaminant that is allowed in drinking water. MCLs are set close to the PHGs and MCLGs as is economically and technologically feasible. Blanks indicate that no numerical values have been established.		
DLR:	<u>Detection Limits for the Purposes of Reporting:</u> The designated minimum level at or above which any analytical finding of a contaminant in drinking water resulting from monitoring shall be reported. Blanks indicate that no numerical values have been established.		
MCLG:	<u>Maximum Contaminant Level Goal:</u> 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. Blanks indicate that no numerical values have been established.		
PHG:	<u>Public Health Goal:</u> The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are determined by the Office of Environmental Health Hazard Assessment. Blanks indicate that no numerical values have been established.		
Notification Levels:	<u>Notification Levels:</u> Are health-based advisory levels established by DHS for chemicals in drinking water that lack Maximum Contamination Levels (MCL).		
Unregulated Contaminant:	<u>Unregulated Contaminant:</u> Constituents that do not have drinking water standards and have been determined by CDHS or EPA to warrant monitoring for occurrence data.		
µg/L:	Micrograms per liter (equals parts per billion)	TON:	Threshold Odor Number
mg/L:	Milligrams per liter (equals parts per million)	µmho/cm:	Micromhos per centimeter
pCi/L:	Picocuries per liter (a measure of radioactivity)	ND:	Non detected
NTU:	Nephelometric Turbidity Units	N/A:	Not available
MFL:	Million fibers per liter greater than 10 micrometers		
Production 1, 4, & 7:	Wells 1 through 7. Collectively referred to as the "Russian River Well Field". Chemical monitoring required on Wells 1, 4, & 7.		

FOOTNOTES:

- ⁽¹⁾ Turbidity: Turbidity readings are collected approximately every 2.5 minutes. **Annual average** is the mean of the monthly average values, weighted by hours of pump operation each month. **Range** refers to the minimum and maximum Turbidity readings recorded by the online Turbidimeters at each site.
- ⁽²⁾ Total Trihalomethanes: 40 CFR Section 141.12 - Is the sum of the concentrations of Bromodichloromethane, Dibromochloromethane, Bromoform, and Chloroform.
- ⁽³⁾ MCL: Secondary Standard.
- ⁽⁴⁾ Methyl tert-butyl ether (MTBE) is listed in both the Primary (Organic Chemicals - VOCs) and Secondary standards.
- ⁽⁵⁾ Thiobencarb is listed in both the Primary (Organic Chemicals - SOCs) and Secondary standards.
- ⁽⁶⁾ Aluminum is listed in both the Primary (Inorganic Chemicals) and Secondary standards.
- ⁽⁷⁾ Notification Level under the Lead and Copper Rule.
- ⁽⁸⁾ Notification Level
- ⁽⁹⁾ 1,2,3 TCP and Radon 222 resampled 10/15/09 due to lab and/or sampling error.
- ⁽¹⁰⁾ Metals resampled 10/15/09 after flushing well for a day