

Drinking Water Quality Report 2016 Update

July 20, 2017 – BPU Staff Briefing
Peter Fulkerson, Water Quality Supervisor



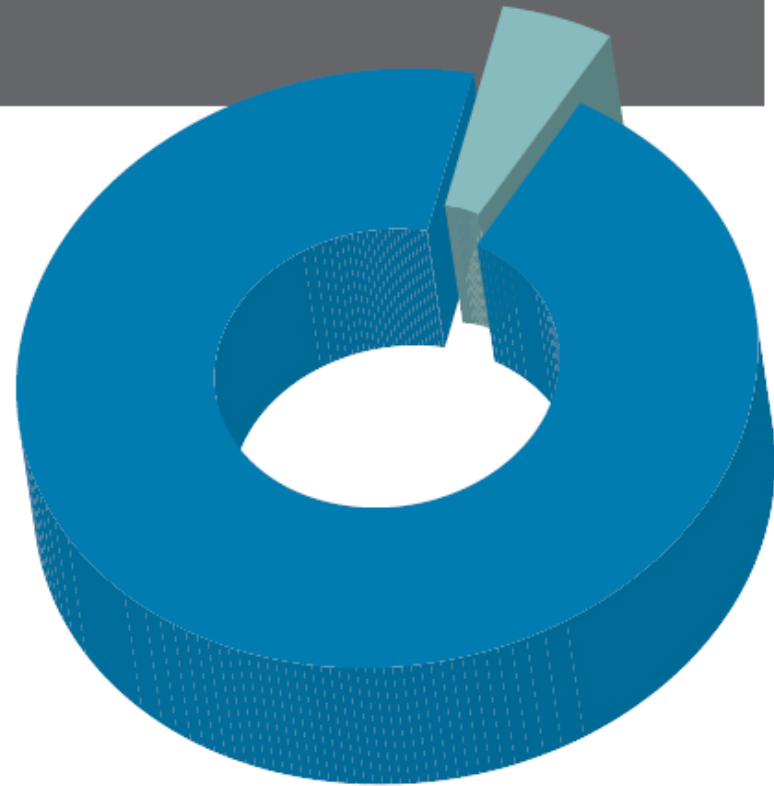
OUR FUTURE IN EVERY DRÖP

Water Supply Portfolio

As a Santa Rosa Water customer you are connected to Santa Rosa's public water system. The water supplied to homes and businesses is a combination of surface water from the Russian River and local groundwater.

95% Water Agency
(Russian river)

5% Groundwater



Compliance with the Safe Drinking Water Act (SDWA)

Federal Rules – Public drinking water quality:

- Total Coliform Rule
- Disinfectants/Disinfection By-Products Rule
- Lead and Copper Rule
- Groundwater Rule

State Regulations - Cross Connection Control

**City of Santa Rosa
Water Pressure Zones**

Map Produced by:
City of Santa Rosa
Engineering Services
Asset Management
69 Stony Circle,
Santa Rosa, CA
707-543-4200
Map Date: 4/7/2016

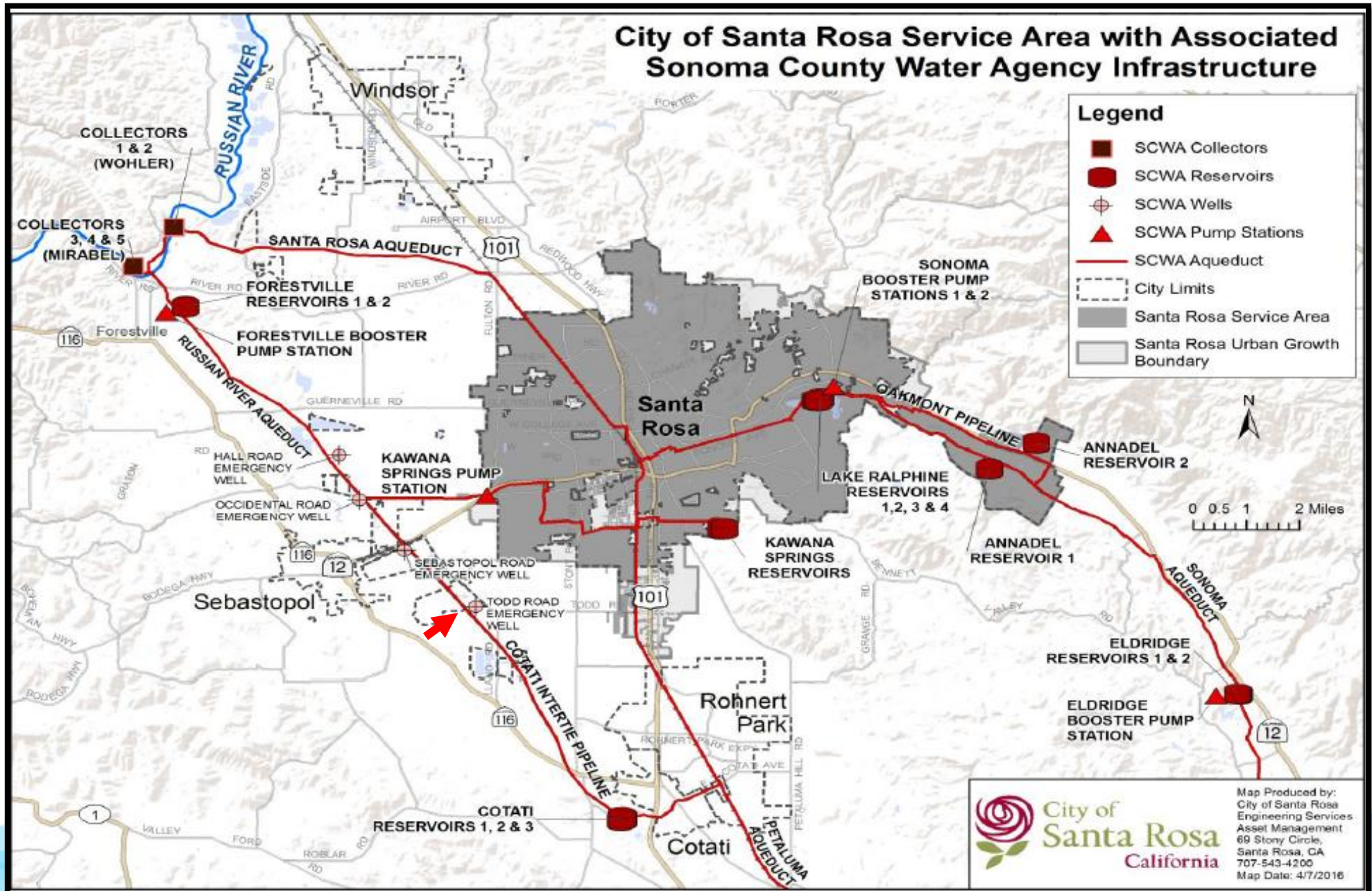
0 0.5 1 Miles

Legend

Aqueduct Zone	R2R4	R5	R10	R15
R1	R3	R6	R11	R16
R1R1	R4	R6R1	R12	R17
R2	R4R1	R7	R13	R17R1
R2R1	R4R2	R8	R13R1	
R2R2	R4R3	R9	R14	
R2R3	R4R4	R9R1	R14R1	

SCWA Transmission Lines

- 90 miles of pipelines from 12 to 54 inches



Field Sampling covers all areas of water system



Farmers Lane Well - Water Treatment Plant Samples



OUR FUTURE IN EVERY DROP

Water Quality Sampling

Sonoma County Water Agency - Caissons 1 thru 6 - 2016 Water Quality Report

CLARITY OF WATER FROM GROUNDWATER SOURCES	MCL	Units	Sample Frequency	Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
Turbidity ⁽¹⁾	5 ⁽²⁾	NTU	continuous	average 0.038 range (0.02 - 2.0)	average 0.037 range (0.02 - 2.0)	average 0.047 range (0.02 - 2.0)	average 0.043 range (0.02 - 2.0)	average 0.043 range (0.01 - 2.0)	average 0.035 range (0.02 - 0.76)

MICROBIOLOGICAL - Coliform Bacteria	MCL	Units	# Samples	Distribution System Monitoring for 2016
DISINFECTANT - Total Chlorine Residual	< 2 positive samples per month	coliforms/100ml	520	[0] positive samples
Total Trihalomethanes ⁽²⁾ - Tank Samples	> 95% per month	detectable residual	615	Detectable residual in 100% of samples taken
	0.080	mg/L	72	average = 0.0183 mg/L range = (0.0095 mg/L - 0.0275 mg/L)

VOLATILE ORGANIC COMPOUNDS Section 64444 - Table A	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1 31-Aug-16	Caisson 2 31-Aug-16	Caisson 3 30-Aug-16	Caisson 4 30-Aug-16	Caisson 5 30-Aug-16	Caisson 6 31-Aug-16
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-Dichloropropane	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	0.0	0.003	0.013	ND	ND	ND	ND	ND	ND
Monochlorobenzene (Chlorobenzene)	mg/L	0.07	0.0005	0.07	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	1.3	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

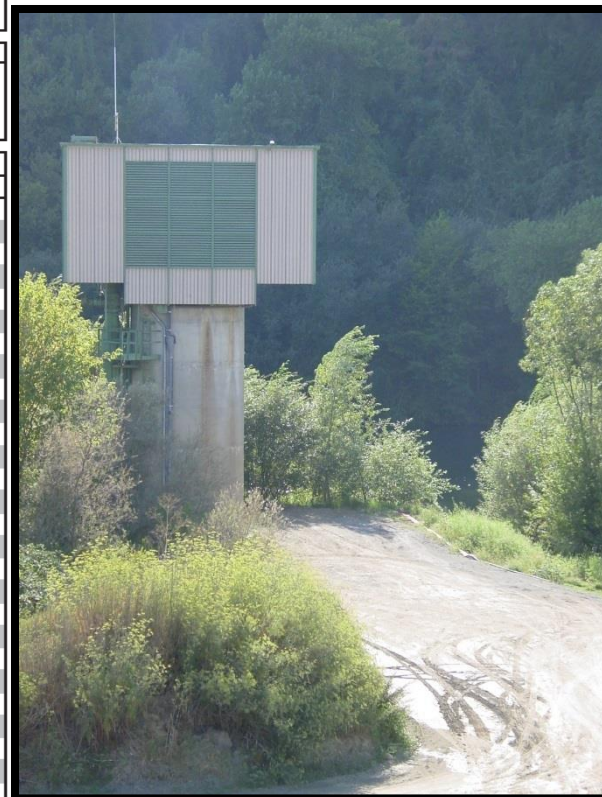
⁽¹⁾ Turbidity: *Annual average* is the mean of the monthly average values, weighted by hours of pump operation each month.

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.



OUR FUTURE IN EVERY DROP

Water Quality Sampling

Sonoma County Water Agency - Caissons 1 thru 6 - 2016 Water Quality Report

INORGANIC CHEMICALS Section 64431 - Table A	Units	STATE MCL	DLR	PHG { MCLG }	Caisson 1 31-Aug-16	Caisson 2 31-Aug-16	Caisson 3 30-Aug-16	Caisson 4 30-Aug-16	Caisson 5 30-Aug-16	Caisson 6 31-Aug-16
Aluminum ⁽⁶⁾	µg/L	1000	50	600	< 50	< 50	< 50	< 50	< 50	< 50
Antimony	µg/L	6	6	1	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Arsenic	µg/L	10	2	0.004	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
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	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium	µg/L	5	1	0.04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium	µg/L	50	10	{ 100 }	< 10	< 10	< 10	< 10	< 10	< 10
Chromium, Hexavalent (CrVI)	µg/L	10	1.0	0.02	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide	mg/L	0.15	0.1	0.15	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Fluoride (F) Natural-Source	mg/L	2.0	0.1	1	0.11	0.11	0.10	0.11	0.11	0.10
Mercury	µg/L	2	1	1.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nickel	µg/L	100	10	12	< 10	< 10	< 10	< 10	< 10	< 10
Nitrate (as N)	mg/L	10	0.40	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
Nitrate + Nitrite (as N)	mg/L	10	---	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
Nitrite (as N)	mg/L	1	0.40	1	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Perchlorate	µg/L	6	4	1	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Selenium	µg/L	50	5	30	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Thallium	µg/L	2	1	0.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

RADIONUCLIDE - Section 64442	Units	STATE MCL	DLR	PHG { MCLG }	Next Complete Sampling Due 2023					
Gross Alpha (4 quarterly samples every 9 years)					Caisson 1	Caisson 2	Caisson 3	Caisson 4	Caisson 5	Caisson 6
11-Mar-14	pCi/L	15	3	{ 0 }	0.907 ± 1.10	0.455 ± 0.893	0.588 ± 0.977	0.936 ± 1.14	0.121 ± 0.777	0.000 ± 0.763
24-Jun-14	pCi/L	15	3	{ 0 }	0.113 ± 0.729	0.377 ± 0.854	0.047 ± 0.772	0.000 ± 0.694	0.000 ± 0.705	0.396 ± 0.944
19-Aug-14	pCi/L	15	3	{ 0 }	0.045 ± 0.740		0.000 ± 0.650		0.000 ± 0.728	
20-Aug-14	pCi/L	15	3	{ 0 }		0.277 ± 0.803		0.366 ± 0.829		1.36 ± 1.20
18-Nov-14	pCi/L	15	3	{ 0 }		0.000 ± 0.671	0.000 ± 0.749	0.380 ± 0.906	0.266 ± 0.769	0.337 ± 0.933
19-Nov-14	pCi/L	15	3	{ 0 }	0.019 ± 0.724					

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

Water Quality Sampling

Sonoma County Water Agency - Production Wells 1, 4, 6, 7, Occidental, Todd and Sebastopol Production Wells - 2016 Water Quality Report

INORGANIC CHEMICALS	Units	STATE	DLR	PHG	Production 1	Production 4	Production 6	Production 7	Todd #1	Sebastopol #2	Occidental #2
Section 64431 - Table A		MCL		{ MCLG }	30-Aug-16	30-Aug-16	30-Aug-16	30-Aug-16	31-Aug-16	31-Aug-16	12-Oct-16
Aluminum ⁽³⁾	µg/L	1000	50	600	140	< 50	< 50	< 50	< 50	< 50	< 50
Antimony	µg/L	6	6	1	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Arsenic	µg/L	10	2	0.004	< 2.0	< 2.0	< 2.0	< 2.0	2.2	< 2.0	< 2.0
Asbestos	MFL	7	0.2	7	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Barium	µg/L	1000	100	2000	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Beryllium	µg/L	4	1	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium	µg/L	5	1	0.04	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium	µg/L	50	10	{ 100 }	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chromium, Hexavalent (CrVI)	µg/L	10	1	0.02	0.56	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide	mg/L	0.15	0.1	0.15	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030
Fluoride (F) Natural-Source	mg/L	2.0	0.1	1	< 0.10	0.10	0.10	< 0.10	0.11	0.11	0.17
Mercury	µg/L	2	1	1.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Nickel	µg/L	100	10	12	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Nitrate (as N)	mg/L	10	0.4	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
Nitrate + Nitrite (as N)	mg/L	10	---	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
Nitrite (as N)	mg/L	1	0.4	1	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Perchlorate	µg/L	6	4	1	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Selenium	µg/L	50	5	30	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Thallium	µg/L	2	1	0.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



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2016 Water Quality Sampling Results



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TABLE OF DETECTED CHEMICALS OR CONSTITUENTS IN 2016

WATER AGENCY¹						SANTA ROSA²		
Substance (Parameter)	Public Health Goal (MCLG)	DLR	Maximum Contaminant Level	Range Detected	Reporting Value	Range Detected	Reporting Value	Major Source in Drinking Water
PRIMARY STANDARDS Regulated Contaminants with Primary MCLs or MRLs								
INORGANIC CONTAMINANTS								
Arsenic (ppb)³	0.004	2.0	10	ND-2.2	ND	ND	ND	Erosion of natural deposits
Fluoride (ppm)⁴	1	0.1	4.0	0.10-0.17	0.11	0.19-0.22	0.2	Erosion of natural deposits
DISTRIBUTION SYSTEM DETECTIONS 2016								
MICROBIOLOGICAL CONTAMINANTS								
Total Coliform Bacteria from Santa Rosa Distribution System	0		5% of monthly samples	NA	NA	0%-1.4%	0%	Naturally present in the environment
Total Trihalomethanes (ppb)	NS		80	NA	NA	20.6-30.8	26.3	By-product of drinking water chlorination
Haloacetic Acids (ppb)	NS		60	NA	NA	2.3-8.7	4.7	By-product of drinking water chlorination
Disinfectant-Free Chlorine (Cl₂) Residual (ppm)	MRDLG as Cl₂ 4.0		MRDLG as Cl₂ 4.0	NA	NA	0.04-1.75	0.71	Disinfectant to control microbes
pH (units) prior to pH adjustment	NS		NS	NA	NA	6.6-8.8	8.1	Sodium Hydroxide addition
LEAD/COPPER RULE 2016 DATA	Monitored at customer's tap in Santa Rosa. Number of sites exceeded Action Level = 0 Number of samples collected = 50							
Copper (ppm)	0.3	0.05	1.3 (AL)	ND	ND	ND-0.114	0.0679*	Internal corrosion of household plumbing; erosion of natural deposits
Lead (ppb)	0.2	5	15 (AL)	ND	ND	ND	ND	
SECONDARY STANDARDS Aesthetic Standards Established by the State Water Resources Control Board's Division of Drinking Water								
REGULATED CONTAMINANTS WITH SECONDARY MCLs	There are no adverse health effects from exceeding the secondary (aesthetic) standards.							
Threshold Odor Number (TON) at 50°C	NS	1	3	ND	ND	ND	ND	Naturally-occurring organic materials
Chloride (ppm)	NS		500	5.0-23	9.1	17.9-24.3	21.1	Run-off/leaching from natural deposits
Sulfate (ppm)	NS	0.5	500	2.2-14	9.8	1.2-1.4	1.3	Run-off/leaching from natural deposits
Specific Conductance (umhas/cm)	NS		1600	230-270	247	470-510	490	Substances from ions when in water
Total Dissolved Solids (ppm)	NS		1000	71-260	169	340-370	355	Run-off/leaching from natural deposits
Color (units)	NS		15	ND	ND	ND	ND	Naturally-occurring organic materials
Manganese (ppb)	NS	20	50	ND-72	ND	ND	ND	Run-off/leaching from natural deposits
ADDITIONAL CONSTITUENTS								
Sodium (ppm)	NS		NS	7.9-40	17.2	52-56.4	54.2	Sodium refers to the salt present in water. It is naturally occurring.
Total Hardness CaCO₃ (ppm)	NS		NS	40-112	101	141-150	145.5	Erosion of natural deposits
Total Alkalinity CaCO₃ (ppm)	NS		NS	95-110	100.2	230-240	235	Erosion of natural deposits
Calcium (ppm)	NS		NS	12-22	17.7	27.7-29.5	28.6	Erosion of natural deposits
Total Radon 222 (pCi/L)⁵	NS	100	NS	171-382	225.2	445-455	450	Found in the soil throughout the U.S.
Temperature °C (°F)	NS		NS	NA	NA	11(51)-28(83)	19(66)	Temperature of water in Distribution System

Santa Rosa's drinking water meets or exceeds all State and Federal drinking water health standards. Your water is tested weekly and the water system is carefully managed to be dependable and safe.

* 90th percentile detected

Note: Listed in the table above are substances detected in the City's drinking water. A full listing of sample results is on our website.

1 The Water Agency has 9 different groundwater sources that can be blended together. The range detected and the reporting value are the high, low, average and weighted average of the 9 sources.

2 Santa Rosa water data includes sampling taken in the distribution system and from source water

wells. Our two drinking water wells are sampled separately. The Manganese reporting value is after treatment.

3 Arsenic was detected in a single well that provides an insignificant flow to the Water Agency system (less than 0.03%). Also, the Santa Rosa taps are prior to the well's injection site and, most likely, did not receive any of the water from this well. The other 99.97% of water deliveries had no detections of arsenic.

4 Fluoridation to fight tooth decay has not been implemented in Santa Rosa. The optimal dose of fluoride in water to fight tooth decay is 0.7 ppm.

5 Radon is a radioactive gas that can get into indoor air when released from tap water from showering or running a faucet. Radon entering the home through tap water is a very small source of radon in indoor air. EPA is proposing to require community water suppliers to provide water with radon levels no higher than 4,000 pCi/L, which

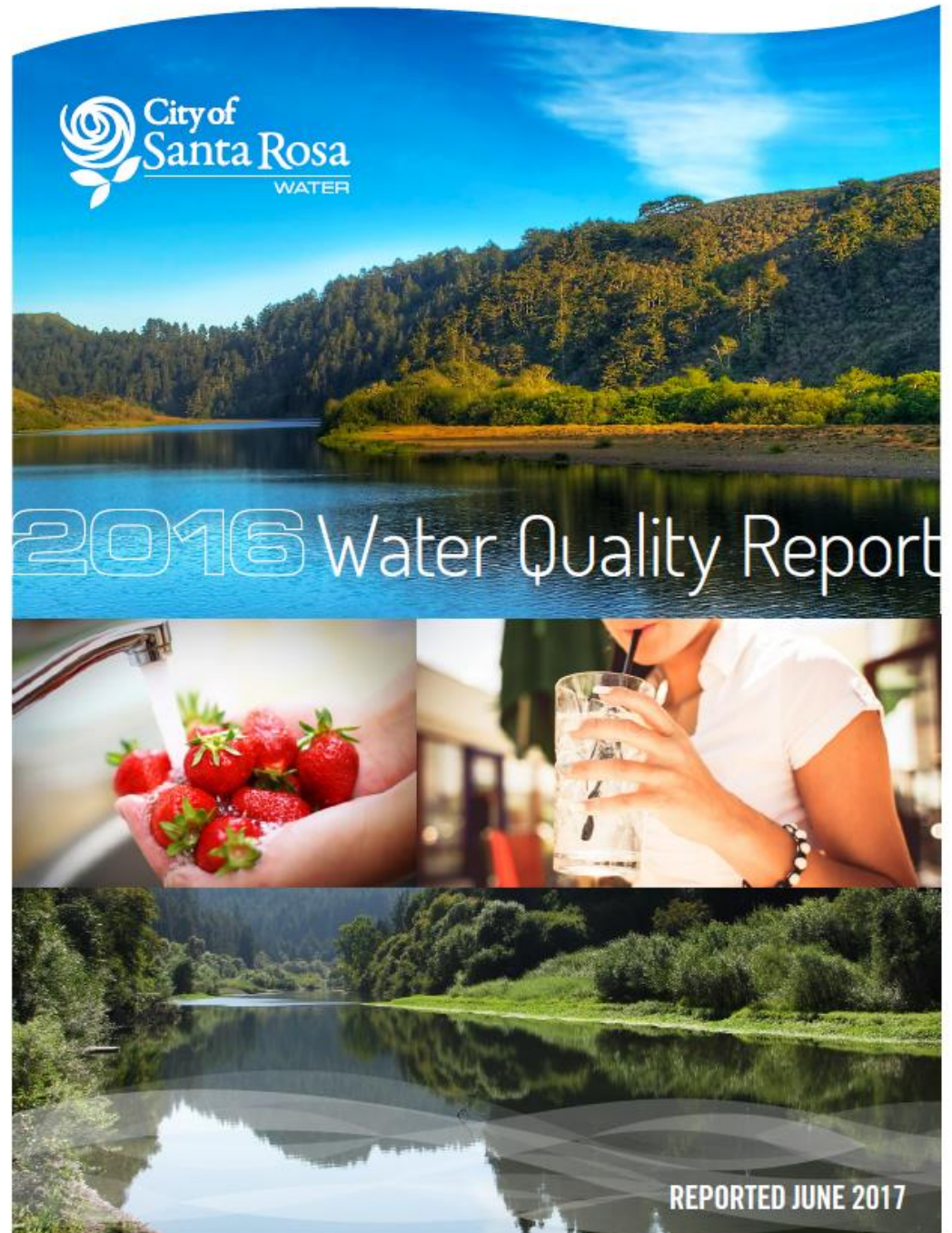
contributes about 0.4 pCi/L of radon to the air in your home. More information is available at EPA website: epa.gov/radon/rnwater.html. The State allows us to monitor for some contaminants less than once per year. Our radon data for Santa Rosa's source, though representative, was sampled in 2009.

Annual Water Quality Report provides:

- Water system information
- Sources of water
- Definitions
- How to Read Section
- Water Quality Results
- Exceedances



OUR FUTURE IN EVERY DROP



Questions?

