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SOQUEL CREEK WATER DISTRICT
PURE WATER SOQUEL PROJECT
SOURCE WATER SAMPLING PLAN
REVISED DRAFT
April 2017

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SOURCE WATER SAMPLING PLAN

1.0 GENERAL OVERVIEW

The Soquel Creek Water District (SqCWD) is continuing their investigation into potable reuse through groundwater replenishment. This project is now being referred to as Pure Water Soquel. One potential potable reuse project involves treating secondary disinfected effluent from Santa Cruz Wastewater Treatment Facility (WWTF) through a multi-barrier advanced water purification facility (AWPF) consisting of ultrafiltration (UF), reverse osmosis (RO), and ultraviolet advanced oxidation disinfection (UV AOP). The purified water would then be injected into the local groundwater basin to restore protective groundwater levels, replenish the basin, and prevent seawater intrusion from moving farther inland.

As part of SqCWD's thorough evaluation of potable water reuse, the SqCWD's Board of Directors has requested a detailed evaluation of Constituents of Emerging Concern (CECs) in water, both for conventional potable water and in purified water. CECs is a broad term that may encompass a wide range of trace level pollutants such as potential endocrine disrupting compounds (EDCs), pharmaceutically active compounds (PhACs), and personal care products (PCPs). An extensive literature review has been conducted and presented in the SqCWD Groundwater Replenishment Feasibility Study Technical Memorandum No. 2 - CEC Removal Through Advanced Treatment (CEC TM). To further understand CECs in source water (WWTF effluent), site-specific sampling of the WWTF effluent will be conducted as outlined in this sampling plan, with results compared to other water reuse databases.

In addition to what are classified as "CECs," a full-suite of chemical analysis will be completed, including analysis for regulated contaminants (MCLs), and unregulated contaminants including: secondary MCLs and Notification Levels (NLs). This suite is to include testing for over 200 chemicals, including all listed in the Title 22 potable reuse requirements for periodic monitoring. The suite tested within this project has been used repeatedly in industry research for potable reuse. These constituents also have well established methods of detection and have been used to monitor full scale potable reuse projects.

This sampling plan details the frequency, volume, analysis required, and quality assurance/quality control (QA/QC) measures that will be used in this analysis.

1.1 Contact List

Important contacts throughout the sampling process are listed in Table 1. This table, along with the task list defined below, establishes the responsible party and the chain of command for both day to day contact as well as future questions about this work.

Table 1 Contact List Pure Water Soquel Project Soquel Creek Water District		
Company/Agency	Responsible Person	Contact Information
Carollo	Primary	Andrew Salveson asalveson@carollo.com Desk: 925-788-9857
	Secondary	Austa Parker aparker@carollo.com Desk: 925-977-3066 Cell: 864-350-3730
Soquel Creek Water District	Primary	Melanie Schumacher melanies@soquelcreekwater.org Desk: 831-475-8501 x 153 Cell: 831-239-7960
	Secondary	Taj Dufour tajd@soquelcreekwater.org Desk: 831-475-8501 x123 Cell: 831-332-9699
Santa Cruz Wastewater Treatment Facility	Primary	Akin Babatola ababatola@cityofsantacruz.com Desk: 831-420-6045
	Secondary	Dan Seidel dseidel@cityofsantacruz.com Desk: 831-420-6044
Eurofins Lab	Primary	Debbie Frank DebbieFrank@EurofinsUS.com Desk: 626-386-1149

1.2 Project Definition and Objectives

The objectives of these sampling events detailed in this plan include:

1. Characterize the CECs and other constituents present in the potential source water (WWTF effluent) for the Pure Water Soquel Project.
2. Compare presence and concentrations of source water CECs to existing water reuse literature databases.
3. Analyze the anticipated removal efficiency, and purified water CEC concentrations based on established literature and compare to public health objectives.

2.0 TASK DESCRIPTION

2.1 Experimental Design

WWTF secondary effluent will be tested to determine the presence and concentrations of CECs in the water source. Four sampling events will be conducted throughout the course of a 30-day period. The sampling steps, responsible parties, and sample water volumes are detailed in Table 2.

Table 2 Scope of Work Pure Water Soquel Project Soquel Creek Water District			
What is being done?	Who is doing it?	Sampling Description	Delivery/Testing
Source Water Sampling #1	Santa Cruz WWTF Sampling	One 4-gallon grab sample will be taken at the effluent channel of the secondary clarifiers.	Secondary effluent sample sent to Eurofins for full contaminant suite analysis⁽¹⁾ .
Source Water Sampling #2, #3 and #4	Santa Cruz WWTF Sampling	One 4-gallon grab sample will be taken at the effluent channel of the secondary clarifiers.	Secondary effluent sample sent to Eurofins for analysis for CEC analysis only⁽²⁾
Notes:			
(1) Full contaminant suite detailed in Table 5 and includes CECs detailed in Table 6.			
(2) CECs to be tested detailed in Table 6.			

3.0 PROJECT ORGANIZATION

This project, commissioned by SqCWD, is managed and led by Carollo Engineers, and supported by City of Santa Cruz WWTF Staff and Eurofins Lab. Sampling at Santa Cruz WWTF will be conducted by WWTF staff. Secondary effluent samples will be shipped by WWTF staff directly to Eurofins, overnight following all protocols included in the appendices. Eurofins Lab will test the water samples for CECs and other regulated compounds, as listed in Table 3. Carollo will be responsible for analyzing sampling results.

Table 3 Organizational Responsibilities of the Project Pure Water Soquel Project Soquel Creek Water District		
Organization	Role	Responsibility
SqCWD	Client	<ul style="list-style-type: none"> Overall project supervision
Carollo Engineers	Management	<ul style="list-style-type: none"> Management of all testing and analysis of results
City of Santa Cruz	Sampling of Santa Cruz WWTF	<ul style="list-style-type: none"> Sampling of secondary effluent as outlined within this sampling plan.
Eurofins Lab	Laboratory analysis	<ul style="list-style-type: none"> Analysis of all constituents sampled for including MCLs, secondary MCLs, NLs, and CECs as listed in Tables 4, 5 and 6.
Carollo Engineers	Development of protocols, sample coordination and reporting	<ul style="list-style-type: none"> Development of sampling plan (this document) Analysis of results Development of technical memorandum.

4.0 SAMPLING PLAN

4.1 Sampling Parameters

Water quality and CEC analysis will include all regulated constituents (MCLs), secondary MCLs, Notification Levels (NLs), and a defined list of CECs (Table 4). Table 5 includes all MCLs, secondary MCLs, and NLs to be analyzed in the first round of sampling. Table 6 includes all of the CECs to be tested in all four weekly sampling events throughout the 30-day testing period. Tables 5 and 6 detail the constituents to be reported as defined in each of these regulated or recommended categories, along with their associated regulatory or health goals. Analytical methods, reporting limits and other details for each constituent are listed in Table 8.

4.2 Sampling Location

Santa Cruz WWTF grab sampling will be conducted by Santa Cruz WWTF staff downstream of the secondary clarifier, upstream of the UV unit after a one minute flush of the sample port. A bulk sample of 5 gallons for the first sampling event and 3 gallons for the subsequent sampling events, will be sent directly to Eurofins overnight for analysis, following sampling protocols outlined in the Appendices of this document.

Table 4 Sampling Plan Schedule⁽¹⁾ Pure Water Soquel Project Soquel Creek Water District									
			Santa Cruz WWTF						
Week	Proposed Day of Week. Exact Dates TBD	Sampling Method	CECs ⁽²⁾	Inorganics (Table 64431-A, 64432-A) ⁽³⁾	Organic Chemicals (Table 64444-A) ⁽³⁾	Disinfection Byproducts (Table 64533-A) ⁽³⁾	Secondary MCLs (Table 64449-A) ⁽³⁾	Contaminants with Notification Levels ⁽³⁾	Radionuclides (Tables 64442 and 64443) ⁽³⁾
1	Tuesday	Grab Sampling	1	1	1	1	1	1	1
2	Tuesday	Grab Sampling	1						
3	Tuesday	Grab Sampling	1						
4	Tuesday	Grab Sampling	1						

Notes:
(1) Values in this table represent the number of samples that will be collected in that sampling period and analyzed for the corresponding constituents.
(2) CECs listed in Table 6.
(3) Each class of chemical defined in Table 5.

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
Primary MCLs (CDPH)			
Inorganics (Table 64431-A)			
Aluminum	MCL	1	mg/L
Antimony	MCL	0.006	mg/L
Arsenic	MCL	0.01	mg/L
Asbestos	MCL	7	MFL
Barium	MCL	1	mg/L
Beryllium	MCL	0.004	mg/L
Cadmium	MCL	0.005	mg/L
Chromium	MCL	0.05	mg/L
Copper	Action Level	1.3	mg/L
Cyanide	Federal MCL	0.2	mg/L
	MCL	0.15	mg/L

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
Fluoride	MCL	2	mg/L
Lead	Action Level	0.015	mg/L
Mercury	MCL	0.002	mg/L
Nickel	MCL	0.1	mg/L
Nitrate	PHG	(as NO ₃) 45	mg/L
Nitrite (as N)	MCL	1	mg/L
Total Nitrate + Nitrite (as N)	MCL	10	mg/L
Perchlorate	MCL	0.006	
Selenium	MCL	0.05	mg/L
Thallium	MCL	0.002	mg/L
<i>Radionuclides (Tables 64442 and 64443)</i>			
Uranium	MCL	20	pCi/L
Combined radium-226 & 228	MCL	5	pCi/L
Gross Alpha particle activity	MCL	15	pCi/L
Gross Beta particle activity	MCL	50	pCi/L
Strontium-90	MCL	8	pCi/L
Tritium	MCL	20,000	pCi/L
<i>Organic Chemicals (Table 64444-A)</i>			
<i>Volatile Organic Chemicals (VOCs)</i>			
Benzene	MCL	0.001	mg/L
Carbon Tetrachloride	MCL	0.0005	mg/L
1,2-Dichlorobenzene	MCL	0.6	mg/L
1,4-Dichlorobenzene	MCL	0.005	mg/L
1,1-Dichloroethane	MCL	0.005	mg/L
1,2-Dichloroethane	MCL	0.0005	mg/L
1,1-Dichloroethylene	MCL	0.006	mg/L
cis-1,2-Dichloroethylene	MCL	0.006	mg/L
trans-1,2-Dichloroethylene	MCL	0.01	mg/L
Dichloromethane	MCL	0.005	mg/L
1,3-Dichloropropene	MCL	0.0005	mg/L
1,2-Dichloropropane	MCL	0.005	mg/L

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
Ethylbenzene	MCL	0.3	mg/L
Methyl-tert-butyl ether (MTBE)	MCL	0.013	mg/L
Monochlorobenzene	MCL	0.07	mg/L
Styrene	MCL	0.1	mg/L
1,1,2,2-Tetrachloroethane	MCL	0.001	mg/L
Tetrachloroethylene	MCL	0.005	mg/L
Toluene	MCL	0.15	mg/L
1,2,4 Trichlorobenzene	MCL	0.07	mg/L
1,1,1-Trichloroethane	MCL	0.2	mg/L
1,1,2-Trichloroethane	MCL	0.032	mg/L
Trichloroethylene	MCL	0.005	mg/L
Trichlorofluoromethane	MCL	0.15	mg/L
1,1,2-Trichloro-1,2,2-Trifluoroethane	MCL	1.2	mg/L
Vinyl chloride	MCL	0.0005	mg/L
Xylenes	MCL	1.75	mg/L
<i>Non-Volatile Synthetic Organic Chemicals (SOCs)</i>			
Alachlor	MCL	0.002	mg/L
Atrazine	MCL	0.001	mg/L
Bentazon	MCL	0.018	mg/L
Benzo(a) Pyrene	MCL	0.0002	mg/L
Carbofuran	MCL	0.018	mg/L
Chlordane	MCL	0.0001	mg/L
Dalapon	MCL	0.2	mg/L
Dibromochloropropane	MCL	0.0002	mg/L
Di(2-ethylhexyl)adipate	MCL	0.4	mg/L
Di(2-ethylhexyl)phthalate	MCL	0.004	mg/L
2,4-Dichlorophenoxyacetic acid (2,4-D)	DLR	0.1	mg/L
	MCL	0.07	mg/L
Dinoseb	MCL	0.007	mg/L
Diquat	MCL	0.02	mg/L
Endothall	MCL	0.1	mg/L

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
Endrin	MCL	0.002	mg/L
Ethylene Dibromide	MCL	0.00005	mg/L
Glyphosate	MCL	0.7	mg/L
Heptachlor	MCL	0.00001	mg/L
Heptachlor Epoxide	MCL	0.00001	mg/L
Hexachlorobenzene	MCL	0.001	mg/L
Hexachlorocyclopentadiene	MCL	0.05	mg/L
Lindane	MCL	0.0002	mg/L
Methoxychlor	MCL	0.03	mg/L
Molinate	MCL	0.02	mg/L
Oxamyl	DLR	0.2	mg/L
	MCL	0.05	mg/L
Pentachlorophenol	MCL	0.001	mg/L
Picloram	MCL	0.5	mg/L
Polychlorinated Biphenyls	MCL	0.0005	mg/L
Simazine	MCL	0.004	mg/L
Thiobencarb	MCL	0.07	mg/L
	DLR	0.001 ⁽²⁾	mg/L
Toxaphene	MCL	0.005	mg/L
	DLR	0.003	mg/L
2,3,7,8-TCDD (Dioxin)	MCL	3x10 ⁻⁸	mg/L
2,4,5-TP (Silvex)	MCL	0.05	mg/L
<i>Disinfection Byproducts (Table 64533-A)</i>			
Total trihalomethanes	MCL	0.08	mg/L
Bromodichloromethane	DLR	0.001	mg/L
Bromoform	DLR	0.001	mg/L
Chloroform	DLR	0.001	mg/L
Dibromochloromethane	DLR	0.001	mg/L
Total haloacetic acids	MCL	0.06	mg/L
Monochloroacetic Acid	DLR	0.001	mg/L
Dichloroacetic Acid	DLR	0.001	mg/L
Trichloroacetic Acid	DLR	0.001	mg/L

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
Monobromoacetic Acid	DLR	0.001	mg/L
Dibromoacetic Acid	DLR	0.001	mg/L
Bromate	MCL	0.01	mg/L
Chlorite	MCL	1	mg/L
Notification Levels			
Boron	NL	1,000	ug/L
n-Butylbenzene	NL	260	ug/L
sec-Butylbenzene	NL	260	ug/L
tert-Butylbenzene	NL	260	ug/L
Carbon disulfide	NL	160	ug/L
Chlorate	NL	800	ug/L
2-Chlorotoluene	NL	140	ug/L
4-Chlorotoluene	NL	140	ug/L
Diazinon	NL	1.2	ug/L
Dichlorodifluoromethane (Freon 12)	NL	1000	ug/L
1,4-Dioxane	NL	1	ug/L
Ethylene glycol	NL	14000	ug/L
Formaldehyde	NL	100	ug/L
HMX	NL	350	ug/L
Isopropylbenzene	NL	770	ug/L
Manganese	NL	500	ug/L
Methyl isobutyl ketone (MIBK)	NL	120	ug/L
Naphthalene	NL	17	ug/L
N-Nitrosodiethylamine (NDEA)	NL	0.01	ug/L
N-Nitrosodimethylamine (NDMA)	NL	0.01	ug/L
N-Nitrosodi-n-propylamine (NDPA)	NL	0.01	ug/L
Propachlor**	NL	90	ug/L
n-Propylbenzene	NL	260	ug/L
RDX	NL	3	ug/L
Tertiary butyl alcohol (TBA)	NL	12	ug/L
1,2,3-Trichloropropane (1,2,3-TCP)	NL	0.005	ug/L
1,2,4-Trimethylbenzene	NL	330	ug/L

Table 5 Regulated and Unregulated Constituents and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
Constituent	Limit Type	Limit	Units
1,3,5-Trimethylbenzene	NL	330	ug/L
2,4,6-Trinitrotoluene (TNT)	NL	1	ug/L
Vanadium	NL	50	ug/L
Secondary Maximum Contaminant Levels			
Aluminum	Secondary MCL	0.2	mg/L
Color	Secondary MCL	15	Color Units
Copper	Secondary MCL	1	mg/L
Foaming Agents	Secondary MCL	0.5	mg/L
Iron	Secondary MCL	0.3	mg/L
Manganese	Secondary MCL	0.05	mg/L
Methyl- <i>tert</i> -butyl ether (MTBE)	Secondary MCL	0.005	mg/L
Odor-Threshold	Secondary MCL	3	Threshold Odor Number
Silver	Secondary MCL	0.1	mg/L
Thiobencarb	Secondary MCL	0.001	mg/L
Turbidity	Secondary MCL	5	NTU
Zinc	Secondary MCL	5	mg/L
Total Dissolved Solids	Secondary MCL	500	mg/L
Specific Conductance	Secondary MCL	900	uS/cm
Chloride	Secondary MCL	250	mg/L
Sulfate	Secondary MCL	250	mg/L
Notes:			
<i>Legend: MCL = Maximum Contaminant Level; NL = Notification Level; PHG = Public Health Goal; DLR = Detection Limit for Purposes of Reporting.</i>			

Table 6 CECs and Health Goals/Limits Pure Water Soquel Project Soquel Creek Water District			
<i>Constituents of Emerging Concern (CECs)</i>			
Constituent	Limit Type	Limit⁽¹⁾	Units
Gemfibrozil	CECs	NA	ng/L
Naproxen	CECs	NA	ng/L
Triclosan	CECs	NA	ng/L
Ibuprofen	CECs	NA	ng/L
Acetaminophen	CECs	NA	ng/L
Sucralose	CECs	NA	ng/L
Triclocarban	CECs	NA	ng/L
Sulfamethoxazole	CECs	NA	ng/L
Atenolol	CECs	NA	ng/L
Trimethoprim	CECs	NA	ng/L
Caffeine	CECs	NA	ng/L
Fluoxetine	CECs	NA	ng/L
Meprobamate	CECs	NA	ng/L
Carbamazepine	CECs	NA	ng/L
Primidone	CECs	NA	ng/L
DEET	CECs	NA	ng/L
TCEP	CECs	NA	ng/L
PFOA	CECs	NA	ug/L
PFOS	CECs	NA	ug/L
Estrone	CECs	NA	ug/L
Estradiol	CECs	NA	ng/L
Ethinylestradiol	CECs	NA	ug/L
Testosterone	CECs	NA	ug/L
Progesterone	CECs	NA	ng/L
Notes:			
(1) There are currently no defined limits from DDW regarding CECs, however, literature values and values obtained from other similar potable reuse studies can be used to compare the data when analyzed.			
<i>Legend: MCL = Maximum Contaminant Level; NL = Notification Level; PHG = Public Health Goal; DLR = Detection Limit for Purposes of Reporting.</i>			

4.3 Sampling Frequency

Four grab sampling events will take place at Santa Cruz WWTF. The first sampling event will include analysis of all chemical constituents included in the "full suite" of contaminants, as listed in Tables 5 and 6. The remaining 3 grab sampling events will be conducted by WWTF staff, and shipped overnight to Eurofins, with analysis for CECs only (Table 6). Each sampling event will be followed by approximately 4 weeks of laboratory turnaround time, followed by data analysis and reporting. The sampling plan is outlined in Table 4.

Sampling will require low effort for plant operations staff, and each grab sampling event will be conducted in less than 1 day.

4.4 Sample Volumes

To analyze the full suite of contaminants (MCLs, secondary MCLs, NLs and CECs), a volume of 5.0 gallons will be sent to Eurofins for water quality analysis for sampling event 1, and 3 gallons is needed for sampling events 2, 3 and 4. (Table 7.)

Table 7 Sample Volumes for Santa Cruz WWTF Grab Sampling Pure Water Soquel Project Soquel Creek Water District		
Sample Type	Sampling Event	Volume to be Collected (gal)
Santa Cruz WWTF	Week 1	5.0
Santa Cruz WWTF	Week 2	3.0
	Week 3	
	Week 4	

5.0 QUALITY CONTROL OBJECTIVES

5.1 Method Detection Limit (MDL)

Known MDLs for all concentrations being measured are included in tables 8 and 9.

To determine the MDL, at least seven replicates of a laboratory fortified blank at a concentration of three to five times the estimated instrument detection limit is analyzed through the entire analytical method. The MDL for each constituent tested will be determined by the laboratory in accordance with the standard method listed for each constituent. It is important to show that the detection limit for each chemical parameter is sensitive enough such that it can measure below the regulatory limit, and show appropriate removal of each compound in question. The MDL is calculated using the following equation:

$$MDL = (t) \times (SD)$$

where, t = laboratory's t value for 99 percent (t for 7 replicates= 3.14) and SD = Standard deviation for the replicates samples.

5.2 Method Reporting Limit (MRL)

Like the MDL, the MRL is a statistical determination of confidence based upon the test method. The MRL is always higher than the MDL. Computation of the MRL is as follows:

$$MRL = (MDL) \times (SF)$$

where, SF is a safety factor determined by labs depending on the method. In order to show that a composition meets regulatory limits, the MRL must be lower than the regulatory limit.

6.0 ANALYTICAL METHODS, SAMPLING CONTAINERS, HOLD TIME, AND REPORTING LIMITS FOR LABORATORIES

6.1 Laboratory Responsibility

Eurofins Laboratory will be responsible for all analytical analysis of samples in this study. Analytical methods, corresponding sample volume, preservative, and bottle to be used can be found in Table 8. As stated previously, City staff will ship large containers to Eurofins, and Eurofins staff will then parcel out the water into the different sample bottles. All constituents and their associated methods and MRLs are shown in Table 9.

**Table 8 Methods, Volume Requirement, Bottle Quantity, and Preservatives Needed.
Pure Water Soquel Project
Soquel Creek Water District**

Method	Minimum Volume			Recommended Volume			Type [preservative information]	Sampling Instructions Document	Document Listed in Appendix A-H
	Bottle Quantity	Volume per Bottle	Total Volume	Bottle Quantity	Volume per Bottle	Total Volume			
@DIOXANE C	1		125	3	125	375	3 - 125ml amber glass [6.25 Sulfite +125 mg Bisulfite]	UCMR3 522	H
Glyphosate	1		125	1	125	125	1 - 125ml amber glass [no preservative]	NonVolatile Analytes	D
Chlorate by IC	1	15	15	1	125	125	1 - 125ml poly [0.6 mL 1% EDA solution]	DBP Analysis	A
Hexavalent Chromium (Dissolved)	1	30	30	1	125	125	1 - 125ml poly [1.25 ml NH4SO4/NH4OH buffer]	Hexavalent Chromium	B
@ANIONS28, @ANIONS48	1	30	30	1	125	125	1 - 125ml poly [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
L-CLO4	1	15	15	1	125	125	1 - 125ml poly [no preservative]	Perchlorate Unfiltered	E
Ethylene Glycol by EPA8015M	1		1000	2	1000	2000	2 - 1L amber glass [1 ml Thio 8%]	NonVolatile Analytes	D
@525PLUS C	1		1000	2	1000	2000	2 - 1L amber glass [45mg Sulfite xls+1 vial 2 ml 6N HCl]	NonVolatile Analytes	D
@2378-TCDD_Dioxin	1		1000	2	1000	2000	2 - 1L amber glass [no preservative]	NonVolatile Analytes	D
Apparent Color, Odor at 60 C (TON), Turbidity	1		1000	1	1000	1000	1 - 1L amber glass [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Color, Odor, Turbidity)	C
@DIQUAT	1	600	600	1	1000	1000	1 - 1L amber poly [no preservative]	NonVolatile Analytes	D
@SR90EDD	1		1000	2	1000	2000	2 - 1L poly [4ml 18%HNO3+125ml poly/no pres]	Radiochemistry Analysis	G
@RA226 GA, @RA228 GA	3		3000	4	1000	4000	4 - 1L poly [4ml HNO3 (18%)]	Radiochemistry Analysis	G
Asbestos by TEM - >10 microns			0	1	1000	1000	1 - 1L poly sonicated [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
Cyanide, Cyanide by manual distillation	1	100	100	1	250	250	1 - 250 ml poly [2 ml NaOH (30%)+6 scoops AA]	Metals, Inorganics, Cyanide, Radiochemistry (Cyanide)	C
Fluoride	1	50	50	1	250	250	1 - 250 ml poly [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
Endothall	1	125	125	1	250	250	1 - 250ml amber glass [no preservative]	NonVolatile Analytes	D
Alkalinity in CaCO3 units, PH (H3=past HT not compliant), Specific Conductance	1	150	150	1	250	250	1 - 250ml poly [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
@537-PFOS-PFOA	1		275	2	275	550	2 - 275 ml polypro w polypro cap [1.4 g Trisma]	UCMR3 537	I
@VOA-TBA C	1		40	4	40	160	4 - 40 ml VOA vial [25 mg AA + drop 2ml 1:1 HCL]	VOC Sampling (524.2 - chlorinated)	J
Explosives by LCMS	1		40	2	40	80	2 - 40ml amber glass vial [0.25 ml Thio (8%)]	NonVolatile Analytes	D
@ML531.2	1		40	2	40	80	2 - 40ml amber glass vial [0.37g KH2Citate+6mg ThioSO4]	NonVolatile Analytes	D
@ML505	1		40	3	40	120	4 - 40ml amber glass vial [1 drop Thio (8%)]	NonVolatile Analytes	D
@DX_ABI_NEG, @DX_ABI_POS	2		80	2	40	80	2 - 40ml amber glass vial [2.56 mg NaOmadine + 5 mg Ascorbic Acid]	PPCP Sample Collection	F
@FORMAL556	1		40	3	40	120	3 - 40ml amber glass vial [20mg NH4Cl + 20 mg CuSO4]	DBP Analysis	A
@TCP-524 C	1		40	3	40	120	3 - 40ml amber glass vial [25 mg AA+drop 2ml HCL]	VOC Sampling (524.2 - chlorinated)	J

**Table 8 Methods, Volume Requirement, Bottle Quantity, and Preservatives Needed.
Pure Water Soquel Project
Soquel Creek Water District**

Method	Minimum Volume			Recommended Volume			Type [preservative information]	Sampling Instructions Document	Document Listed in Appendix A-H
	Bottle Quantity	Volume per Bottle	Total Volume	Bottle Quantity	Volume per Bottle	Total Volume			
@TCP-524 TBC			0	2	40		2 - 40ml amber glass vial [25mg AA+ H2O+10 d HCL]	VOC Sampling (524.2 - chlorinated) ⁽¹⁾	J ⁽¹⁾
@VOASDWA TB C, @VOA-TBA TB C			0	2	40		2 - 40ml amber glass vial [25mg AA+ H2O+10 drop 1:1 HCL]	VOC Sampling (524.2 - chlorinated) ⁽¹⁾	J ⁽¹⁾
@VOASDWA C	1		40	3	40	120	3 - 40ml amber glass vial [25mg Ascorbic+drop 2ml 1:1 HCL]	VOC Sampling (524.2 - chlorinated)	J
@HAA5	1		40	3	40	120	3 - 40ml amber glass vial [65 mg NH4Cl]	DBP Analysis	A
@ICP, @ICPMS, Mercury, @ICPMS, Uranium by ICPMS as pCi/L, Boron Total ICAP, Vanadium Total ICAP/MS	1	200	200	1	500	500	1 - 500ml acid poly [2ml HNO3 (18%)]	Metals, Inorganics, Cyanide, Radiochemistry (Metals)	C
@EPA 539	1		500	2	500	1000	2 - 500ml amber glass [40 mg NaThio+ 33 mg 2-mercaptopyr]	PPCP Sample Collection (Also refer to UCMR 522)	F
@ML521_SPE	1		500	3	500	1500	3 - 500ml amber glass [40-50 mg Na Thiosulfate]	NonVolatile Analytes	D
@H3EDD	1		500	1	500	500	1 - 500ml amber glass [no preservative]	Radiochemistry Analysis	G
@RAD	1	500	500	2	500	625	2 - 500ml poly [2ml 18%HNO3+125ml poly/no pres]	Radiochemistry Analysis	G
Surfactants	1	200	200	1	500	500	1 - 500ml poly [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
Total Dissolved Solid (TDS)	1		500	1	500	500	1 - 500ml poly [no preservative]	Metals, Inorganics, Cyanide, Radiochemistry (Inorganics)	C
@551_EDB_DBCP TB			0		60		2 - 60ml amber glass [1g(1%NaP/99%KP)+0.6%NH4CL+ H2O]	DBP Analysis ⁽¹⁾	A ⁽¹⁾
@ML515.4	1		60	4	60	240	4 - 60ml amber glass [3 mg NaSulfite]	NonVolatile Analytes	D
@551_EDB-DBCP	1		60	3	60	180	3 - 60ml amber glass [EDB1g(1%NaP/99%KP)+0.6%NH4CL]	DBP Analysis	A
Bromate by UV/VIS, Bromide by 300.0, Chlorite	1	30	30	1	60	60	1 - 60mL poly [0.6 mL 1% EDA solution]	DBP Analysis	A

Notes:

(1) These samples are travel blanks (TB). The associated handling methods should be followed but the sample containers should not be opened.

6.2 All Compounds, MRLs, and Methods

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
1,1,1,2-Tetrachloroethane	EPA 524.2	0.5	ug/L
1,1,1-Trichloroethane	EPA 524.2	0.5	ug/L
1,1,2,2-Tetrachloroethane	EPA 524.2	0.5	ug/L
1,1,2-Trichloroethane	EPA 524.2	0.5	ug/L
1,1-Dichloroethane	EPA 524.2	0.5	ug/L
1,1-Dichloroethylene	EPA 524.2	0.5	ug/L
1,1-Dichloropropene	EPA 524.2	0.5	ug/L
1,2,3-Trichlorobenzene	EPA 524.2	0.5	ug/L
1,2,3-Trichloropropane	CASRL 524M-TCP	0.005	ug/L
1,2,3-Trichloropropane	EPA 524.2	0.5	ug/L
1,2,4-Trichlorobenzene	EPA 524.2	0.5	ug/L
1,2,4-Trimethylbenzene	EPA 524.2	0.5	ug/L
1,2-Dichloroethane	EPA 524.2	0.5	ug/L
1,2-Dichloropropane	EPA 524.2	0.5	ug/L
1,3,5-Trimethylbenzene	EPA 524.2	0.5	ug/L
1,3-Dichloropropane	EPA 524.2	0.5	ug/L
1,4-Dioxane	EPA 522	1	ug/L
1,7-Dimethylxanthine	LC-MS-MS	10	ng/L
17 alpha-ethynylestradiol	EPA 539	0.0009	ug/L
17-beta-Estradiol	EPA 539	0.0004	ug/L
2,2-Dichloropropane	EPA 524.2	0.5	ug/L
2,3,7,8-TCDD	EPA 1613B	5	pg/L
2,4,5-T	EPA 515.4	0.2	ug/L
2,4,5-TP (Silvex)	EPA 515.4	0.2	ug/L
2,4,6-Trinitrotoluene (TNT)	LC-MS-MS	0.1	ug/L
2,4-D	EPA 515.4	0.1	ug/L
2,4-D	LC-MS-MS	5	ng/L
2,4-DB	EPA 515.4	2	ug/L
2,4-DDD	EPA 525.2	0.1	ug/L
2,4-DDE	EPA 525.2	0.1	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
2,4-DDT	EPA 525.2	0.1	ug/L
2,4-Dinitrotoluene	EPA 525.2	0.1	ug/L
2,6-Dinitrotoluene	EPA 525.2	0.1	ug/L
2-Butanone (MEK)	EPA 524.2	5	ug/L
3,5-Dichlorobenzoic acid	EPA 515.4	0.5	ug/L
3-Hydroxycarbofuran	EPA 531.2	0.5	ug/L
4,4-DDD	EPA 525.2	0.1	ug/L
4,4-DDE	EPA 525.2	0.1	ug/L
4,4-DDT	EPA 525.2	0.1	ug/L
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	5	ug/L
4-nonylphenol - semi quantitative	LC-MS-MS	100	ng/L
4-tert-Octylphenol	LC-MS-MS	50	ng/L
Acenaphthene	EPA 525.2	0.1	ug/L
Acenaphthylene	EPA 525.2	0.1	ug/L
Acesulfame-K	LC-MS-MS	20	ng/L
Acetaldehyde	EPA 556	1	ug/L
Acetaminophen	LC-MS-MS	5	ng/L
Acetochlor	EPA 525.2	0.1	ug/L
Acifluorfen	EPA 515.4	0.2	ug/L
Alachlor	EPA 525.2	0.05	ug/L
Alachlor (Alanex)	EPA 505	0.1	ug/L
Albuterol	LC-MS-MS	5	ng/L
Aldicarb (Temik)	EPA 531.2	0.5	ug/L
Aldicarb sulfone	EPA 531.2	0.5	ug/L
Aldicarb sulfoxide	EPA 531.2	0.5	ug/L
Aldrin	EPA 505	0.01	ug/L
Aldrin	EPA 525.2	0.05	ug/L
Alkalinity in CaCO3 units	SM 2320B	2	mg/L
Alpha, Min Detectable Activity	SM7110C	Â	pCi/L
Alpha, Two Sigma Error	SM7110C	0	pCi/L
Alpha-BHC	EPA 525.2	0.1	ug/L
alpha-Chlordane	EPA 525.2	0.05	ug/L
Aluminum Total ICAP/MS	EPA 200.8	20	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Amoxicillin (semi-quantitative)	LC-MS-MS	20	ng/L
Androstenedione	EPA 539	0.0003	ug/L
Androstenedione	LC-MS-MS	5	ng/L
Anion Sum - Calculated	SM 1030E	0.001	meq/L
Anthracene	EPA 525.2	0.02	ug/L
Antimony Total ICAP/MS	EPA 200.8	1	ug/L
Apparent Color	SM 2120B	3	ACU
Arsenic Total ICAP/MS	EPA 200.8	1	ug/L
Asbestos by TEM - >10 microns	EPA 100.2	0.2	MFL
Atenolol	LC-MS-MS	5	ng/L
Atrazine	EPA 525.2	0.05	ug/L
Atrazine	LC-MS-MS	5	ng/L
Azithromycin	LC-MS-MS	20	ng/L
Barium Total ICAP/MS	EPA 200.8	2	ug/L
Baygon	EPA 531.2	0.5	ug/L
Bendroflumethiazide	LC-MS-MS	5	ng/L
Bentazon	EPA 515.4	0.5	ug/L
Benz(a)Anthracene	EPA 525.2	0.05	ug/L
Benzene	EPA 524.2	0.5	ug/L
Benzo(a)pyrene	EPA 525.2	0.02	ug/L
Benzo(b)Fluoranthene	EPA 525.2	0.02	ug/L
Benzo(g,h,i)Perylene	EPA 525.2	0.05	ug/L
Benzo(k)Fluoranthene	EPA 525.2	0.02	ug/L
Beryllium Total ICAP/MS	EPA 200.8	1	ug/L
Beta-BHC	EPA 525.2	0.1	ug/L
Bezafibrate	LC-MS-MS	5	ng/L
Bicarb.Alkalinity as HCO ₃ calc	SM2330B	2	mg/L
Boron Total ICAP	EPA 200.7	0.05	mg/L
BPA	LC-MS-MS	10	ng/L
Bromacil	EPA 525.2	0.2	ug/L
Bromacil	LC-MS-MS	5	ng/L
Bromate by UV/VIS	EPA 317	1	ug/L
Bromide	EPA 300.0	5	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Bromobenzene	EPA 524.2	0.5	ug/L
Bromochloromethane	EPA 524.2	0.5	ug/L
Bromodichloromethane	EPA 524.2	0.5	ug/L
Bromoethane	EPA 524.2	0.5	ug/L
Bromoform	EPA 524.2	0.5	ug/L
Bromomethane (Methyl Bromide)	EPA 524.2	0.5	ug/L
Butachlor	EPA 525.2	0.05	ug/L
Butalbital	LC-MS-MS	5	ng/L
Butylbenzylphthalate	EPA 525.2	0.5	ug/L
Butylparaben	LC-MS-MS	5	ng/L
Cadmium Total ICAP/MS	EPA 200.8	0.5	ug/L
Caffeine	LC-MS-MS	5	ng/L
Caffeine by method 525mod	EPA 525.2	0.05	ug/L
Calcium Total ICAP	EPA 200.7	1	mg/L
Carbadox	LC-MS-MS	5	ng/L
Carbamazepine	LC-MS-MS	5	ng/L
Carbaryl	EPA 531.2	0.5	ug/L
Carbofuran (Furadan)	EPA 531.2	0.5	ug/L
Carbon Dioxide,Free(25C)-Calc.	SM4500-CO2-D	2	mg/L
Carbon disulfide	EPA 524.2	0.5	ug/L
Carbon Tetrachloride	EPA 524.2	0.5	ug/L
Carbonate as CO3, Calculated	SM2330B	2	mg/L
Carisoprodol	LC-MS-MS	5	ng/L
Cation Sum - Calculated	SM 1030E	0.001	meq/L
Chloramphenicol	LC-MS-MS	10	ng/L
Chlorate by IC	EPA 300.0	10	ug/L
Chlordane	EPA 505	0.1	ug/L
Chloridazon	LC-MS-MS	5	ng/L
Chloride	EPA 300.0	1	mg/L
Chlorite by IC	EPA 300.0	0.01	mg/L
Chlorobenzene	EPA 524.2	0.5	ug/L
Chlorobenzilate	EPA 525.2	0.1	ug/L
Chlorodibromomethane	EPA 524.2	0.5	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Chloroethane	EPA 524.2	0.5	ug/L
Chloroform (Trichloromethane)	EPA 524.2	0.5	ug/L
Chloromethane(Methyl Chloride)	EPA 524.2	0.5	ug/L
Chloroneb	EPA 525.2	0.1	ug/L
Chlorothalonil(Draconil,Bravo)	EPA 525.2	0.1	ug/L
Chlorotoluron	LC-MS-MS	5	ng/L
Chlorpyrifos (Dursban)	EPA 525.2	0.05	ug/L
Chromium Total ICAP/MS	EPA 200.8	1	ug/L
Chrysene	EPA 525.2	0.02	ug/L
Cimetidine	LC-MS-MS	5	ng/L
cis-1,2-Dichloroethylene	EPA 524.2	0.5	ug/L
cis-1,3-Dichloropropene	EPA 524.2	0.5	ug/L
Clofibric Acid	LC-MS-MS	5	ng/L
Copper Total ICAP/MS	EPA 200.8	2	ug/L
Cotinine	LC-MS-MS	10	ng/L
Cyanazine	LC-MS-MS	5	ng/L
Cyanide	SM4500CN-F	0.025	mg/L
DACT	LC-MS-MS	5	ng/L
Dalapon	EPA 515.4	1	ug/L
DEA	LC-MS-MS	5	ng/L
DEET	LC-MS-MS	10	ng/L
Dehydronifedipine	LC-MS-MS	5	ng/L
Delta-BHC	EPA 525.2	0.1	ug/L
Di-(2-Ethylhexyl)adipate	EPA 525.2	0.6	ug/L
Di(2-Ethylhexyl)phthalate	EPA 525.2	0.6	ug/L
DIA	LC-MS-MS	5	ng/L
Diazepam	LC-MS-MS	5	ng/L
Diazinon (Qualitative)	EPA 525.2	0.1	ug/L
Dibenz(a,h)Anthracene	EPA 525.2	0.05	ug/L
Dibromoacetic acid	SM 6251B	1	ug/L
Dibromochloropropane (DBCP)	EPA 551.1	0.01	ug/L
Dibromomethane	EPA 524.2	0.5	ug/L
Dicamba	EPA 515.4	0.1	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Dichloroacetic acid	SM 6251B	1	ug/L
Dichlorodifluoromethane	EPA 524.2	0.5	ug/L
Dichloromethane	EPA 524.2	0.5	ug/L
Dichlorprop	EPA 515.4	0.5	ug/L
Dichlorvos (DDVP)	EPA 525.2	0.05	ug/L
Diclofenac	LC-MS-MS	5	ng/L
Dieldrin	EPA 525.2	0.2	ug/L
Dieldrin	EPA 505	0.01	ug/L
Diethylphthalate	EPA 525.2	0.5	ug/L
Di-isopropyl ether	EPA 524.2	3	ug/L
Dilantin	LC-MS-MS	20	ng/L
Diltiazem	LC-MS-MS	5	ng/L
Dimethoate	EPA 525.2	0.1	ug/L
Dimethylphthalate	EPA 525.2	0.5	ug/L
Di-n-Butylphthalate	EPA 525.2	1	ug/L
Di-N-octylphthalate	EPA 525.2	0.1	ug/L
Dinoseb	EPA 515.4	0.2	ug/L
Diquat	EPA 549.2	0.4	ug/L
Diuron	LC-MS-MS	5	ng/L
E. Coli Bacteria	SM 9223B	1	MPN/100 mL
Endosulfan I (Alpha)	EPA 525.2	0.1	ug/L
Endosulfan II (Beta)	EPA 525.2	0.1	ug/L
Endosulfan Sulfate	EPA 525.2	0.1	ug/L
Endothall	EPA 548.1	5	ug/L
Endrin	EPA 505	0.01	ug/L
Endrin	EPA 525.2	0.2	ug/L
Endrin Aldehyde	EPA 525.2	0.1	ug/L
EPTC	EPA 525.2	0.1	ug/L
Equilin	EPA 539	0.004	ug/L
Erythromycin	LC-MS-MS	10	ng/L
Estradiol	LC-MS-MS	5	ng/L
Estriol	EPA 539	0.0008	ug/L
Estriol	LC-MS-MS	5	ng/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Estrone	EPA 539	0.002	ug/L
Estrone	LC-MS-MS	5	ng/L
Ethinyl Estradiol - 17 alpha	LC-MS-MS	5	ng/L
Ethyl benzene	EPA 524.2	0.5	ug/L
Ethylene Dibromide (EDB)	EPA 551.1	0.01	ug/L
Ethylene Glycol	EPA 8015M	10	mg/L
Ethylparaben	LC-MS-MS	20	ng/L
Flumequine	LC-MS-MS	10	ng/L
Fluoranthene	EPA 525.2	0.1	ug/L
Fluorene	EPA 525.2	0.05	ug/L
Fluoride	SM 4500F-C	0.05	mg/L
Fluoxetine	LC-MS-MS	10	ng/L
Formaldehyde	EPA 556	5	ug/L
gamma-Chlordane	EPA 525.2	0.05	ug/L
Gemfibrozil	LC-MS-MS	5	ng/L
Glyphosate	EPA 547	6	ug/L
Gross Alpha by Coprecipitation	SM7110C	1.9	pCi/L
Gross Beta (Subbed)	SM7110B	3.59	pCi/L
Gross Beta, Min Detectable Activity	SM7110B	Â	pCi/L
Gross Beta, Two Sigma Error	SM7110B	Â	pCi/L
Heptachlor	EPA 505	0.01	ug/L
Heptachlor	EPA 525.2	0.03	ug/L
Heptachlor Epoxide	EPA 505	0.01	ug/L
Heptachlor Epoxide (isomer B)	EPA 525.2	0.05	ug/L
Hexachlorobenzene	EPA 525.2	0.05	ug/L
Hexachlorobutadiene	EPA 524.2	0.5	ug/L
Hexachlorocyclopentadiene	EPA 525.2	0.05	ug/L
HMX	LC-MS-MS	0.1	ug/L
Hydroxide as OH Calculated	SM2330B	2	mg/L
Ibuprofen	LC-MS-MS	10	ng/L
Indeno(1,2,3,c,d)Pyrene	EPA 525.2	0.05	ug/L
Iohexal	LC-MS-MS	10	ng/L
Iopromide	LC-MS-MS	5	ng/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Iron Total ICAP	EPA 200.7	0.02	mg/L
Isobutylparaben	LC-MS-MS	5	ng/L
Isophorone	EPA 525.2	0.5	ug/L
Isopropylbenzene	EPA 524.2	0.5	ug/L
Isoproturon	LC-MS-MS	100	ng/L
Ketoprofen	LC-MS-MS	5	ng/L
Ketorolac	LC-MS-MS	5	ng/L
Lead Total ICAP/MS	EPA 200.8	0.5	ug/L
Lidocaine	LC-MS-MS	5	ng/L
Lincomycin	LC-MS-MS	10	ng/L
Lindane	EPA 525.2	0.04	ug/L
Lindane (gamma-BHC)	EPA 505	0.01	ug/L
Linuron	LC-MS-MS	5	ng/L
Lopressor	LC-MS-MS	20	ng/L
m,p-Xylenes	EPA 524.2	0.5	ug/L
Magnesium Total ICAP	EPA 200.7	0.1	mg/L
Malathion	EPA 525.2	0.1	ug/L
Manganese Total ICAP/MS	EPA 200.8	2	ug/L
m-Dichlorobenzene (1,3-DCB)	EPA 524.2	0.5	ug/L
Meclofenamic Acid	LC-MS-MS	5	ng/L
Meprobamate	LC-MS-MS	5	ng/L
Mercury	EPA 245.1	0.2	ug/L
Metazachlor	LC-MS-MS	5	ng/L
Methiocarb	EPA 531.2	0.5	ug/L
Methomyl	EPA 531.2	0.5	ug/L
Methoxychlor	EPA 505	0.05	ug/L
Methoxychlor	EPA 525.2	0.1	ug/L
Methyl Tert-butyl ether (MTBE)	EPA 524.2	0.5	ug/L
Methylparaben	LC-MS-MS	20	ng/L
Metolachlor	EPA 525.2	0.05	ug/L
Metolachlor	LC-MS-MS	5	ng/L
Metribuzin	EPA 525.2	0.05	ug/L
Molinate	EPA 525.2	0.1	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Monobromoacetic acid	SM 6251B	1	ug/L
Monochloroacetic acid	SM 6251B	2	ug/L
Naphthalene	EPA 524.2	0.5	ug/L
Naphthalene	EPA 525.2	0.3	ug/L
Naproxen	LC-MS-MS	10	ng/L
n-Butylbenzene	EPA 524.2	0.5	ug/L
Nickel Total ICAP/MS	EPA 200.8	5	ug/L
Nifedipine	LC-MS-MS	20	ng/L
Nitrate as Nitrogen by IC	EPA 300.0	0.013	mg/L
Nitrate as NO3 (calc)	EPA 300.0	0.055	mg/L
Nitrite Nitrogen by IC	EPA 300.0	0.013	mg/L
N-Nitrosodibutylamine (NDBA)	EPA 521	2	ng/L
N-Nitrosodiethylamine (NDEA)	EPA 521	2	ng/L
N-Nitroso-dimethylamine (NDMA)	EPA 521	2	ng/L
N-Nitrosodi-n-propylamine (NDPA)	EPA 521	2	ng/L
N-Nitrosomethylethylamine (NMEA)	EPA 521	2	ng/L
N-Nitrosopyrrolidine (NPYR)	EPA 521	2	ng/L
Norethisterone	LC-MS-MS	5	ng/L
n-Propylbenzene	EPA 524.2	0.5	ug/L
o-Chlorotoluene	EPA 524.2	0.5	ug/L
o-Dichlorobenzene (1,2-DCB)	EPA 524.2	0.5	ug/L
Odor at 60 C (TON)	SM 2150B	1	TON
OUST (Sulfameturon,methyl)	LC-MS-MS	5	ng/L
Oxamyl (Vydate)	EPA 531.2	0.5	ug/L
Oxolinic acid	LC-MS-MS	10	ng/L
o-Xylene	EPA 524.2	0.5	ug/L
Paraquat	EPA 549.2	2	ug/L
Parathion	EPA 525.2	0.1	ug/L
PCB 1016 Aroclor	EPA 505	0.08	ug/L
PCB 1221 Aroclor	EPA 505	0.1	ug/L
PCB 1232 Aroclor	EPA 505	0.1	ug/L
PCB 1242 Aroclor	EPA 505	0.1	ug/L
PCB 1248 Aroclor	EPA 505	0.1	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
PCB 1254 Aroclor	EPA 505	0.1	ug/L
PCB 1260 Aroclor	EPA 505	0.1	ug/L
p-Chlorotoluene	EPA 524.2	0.5	ug/L
p-Dichlorobenzene (1,4-DCB)	EPA 524.2	0.5	ug/L
Pendimethalin	EPA 525.2	0.1	ug/L
Pentachlorophenol	EPA 515.4	0.04	ug/L
Pentachlorophenol	EPA 525.2	1	ug/L
Pentoxifylline	LC-MS-MS	5	ng/L
Perchlorate- Low Level	EPA 314.0	2	ug/L
Perfluorooctanesulfonic acid	EPA 537	0.0025	ug/L
Perfluorooctanoic acid	EPA 537	0.0025	ug/L
Permethrin (mixed isomers)	EPA 525.2	0.1	ug/L
PH (H3=past HT not compliant)	SM4500-HB	0.1	Units
pH of CaCO ₃ saturation(25C)	SM 2330B	0.1	Units
pH of CaCO ₃ saturation(60C)	SM 2330B	0.1	Units
Phenanthrene	EPA 525.2	0.04	ug/L
Phenazone	LC-MS-MS	5	ng/L
Picloram	EPA 515.4	0.1	ug/L
p-Isopropyltoluene	EPA 524.2	0.5	ug/L
Potassium Total ICAP	EPA 200.7	1	mg/L
Primidone	LC-MS-MS	5	ng/L
Progesterone	LC-MS-MS	5	ng/L
Propachlor	EPA 525.2	0.05	ug/L
Propazine	LC-MS-MS	5	ng/L
Propylparaben	LC-MS-MS	5	ng/L
Pyrene	EPA 525.2	0.05	ug/L
Quinoline	LC-MS-MS	5	ng/L
Radium 226	EPA 903.1	0.889	pCi/L
Radium 226 Minimal Detectable	EPA 903.1	0	pCi/L
Radium 226 Two Sigma Error	EPA 903.1	0	pCi/L
Radium 228	EPA 904.0	0.661	pCi/L
Radium 228 Minimum Detectable	EPA 904.0	0	pCi/L
Radium 228 Two Sigma Error	EPA 904.0	0	pCi/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
RDX	LC-MS-MS	0.1	ug/L
Salicylic Acid	LC-MS-MS	100	ng/L
sec-Butylbenzene	EPA 524.2	0.5	ug/L
Selenium Total ICAP/MS	EPA 200.8	5	ug/L
Silver Total ICAP/MS	EPA 200.8	0.5	ug/L
Simazine	EPA 525.2	0.05	ug/L
Simazine	LC-MS-MS	5	ng/L
Sodium Total ICAP	EPA 200.7	1	mg/L
Specific Conductance, 25 C	SM2510B	2	umho/cm
Strontium 90 (sub)	EPA 905.0	0.968	pCi/L
Strontium-90, MDA	EPA 905.0	0	pCi/L
Strontium-90, Two Sigma Error	EPA 905.0	0	pCi/L
Styrene	EPA 524.2	0.5	ug/L
Sucralose	LC-MS-MS	100	ng/L
Sulfachloropyridazine	LC-MS-MS	5	ng/L
Sulfadiazine	LC-MS-MS	5	ng/L
Sulfadimethoxine	LC-MS-MS	5	ng/L
Sulfamerazine	LC-MS-MS	5	ng/L
Sulfamethazine	LC-MS-MS	5	ng/L
Sulfamethizole	LC-MS-MS	5	ng/L
Sulfamethoxazole	LC-MS-MS	5	ng/L
Sulfate	EPA 300.0	0.5	mg/L
Sulfathiazole	LC-MS-MS	5	ng/L
Surfactants	SM 5540C/EPA 425.1	0.1	mg/L
t-Butyl Alcohol	EPA 524.2 SIM	2	ug/L
TCEP	LC-MS-MS	10	ng/L
T CPP	LC-MS-MS	100	ng/L
TDCPP	LC-MS-MS	100	ng/L
Terbacil	EPA 525.2	0.1	ug/L
Terbutylazine	EPA 525.2	0.1	ug/L
tert-amyl Methyl Ether	EPA 524.2	3	ug/L
tert-Butyl Ethyl Ether	EPA 524.2	3	ug/L
tert-Butylbenzene	EPA 524.2	0.5	ug/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Testosterone	EPA 539	0.0001	ug/L
Testosterone	LC-MS-MS	5	ng/L
Tetrachloroethylene (PCE)	EPA 524.2	0.5	ug/L
Thallium Total ICAP/MS	EPA 200.8	1	ug/L
Theobromine	LC-MS-MS	10	ng/L
Theophylline	LC-MS-MS	20	ng/L
Thiabendazole	LC-MS-MS	5	ng/L
Thiobencarb (ELAP)	EPA 525.2	0.2	ug/L
Toluene	EPA 524.2	0.5	ug/L
Tot DCPA Mono&Diacid Degradate	EPA 515.4	0.1	ug/L
Total 1,3-Dichloropropene	EPA 524.2	0.5	ug/L
Total Dissolved Solids (TDS)	E160.1/SM2540C	10	mg/L
Total Haloacetic Acids (HAA5)	SM 6251B	2	ug/L
Total Hardness as CaCO3 by ICP (calc)	SM 2340B	3	mg/L
Total Nitrate, Nitrite-N, CALC	EPA 300.0	0.1	mg/L
Total PCBs	EPA 505	0.1	ug/L
Total THM	EPA 524.2	0.5	ug/L
Total xylenes	EPA 524.2	0.5	ug/L
Toxaphene	EPA 505	0.5	ug/L
trans-1,2-Dichloroethylene	EPA 524.2	0.5	ug/L
trans-1,3-Dichloropropene	EPA 524.2	0.5	ug/L
trans-Nonachlor	EPA 525.2	0.05	ug/L
Trichloroacetic acid	SM 6251B	1	ug/L
Trichloroethylene (TCE)	EPA 524.2	0.5	ug/L
Trichlorofluoromethane	EPA 524.2	0.5	ug/L
Trichlorotrifluoroethane(Freon 113)	EPA 524.2	0.5	ug/L
Triclocarban	LC-MS-MS	5	ng/L
Triclosan	LC-MS-MS	10	ng/L
Trifluralin	EPA 525.2	0.1	ug/L
Trimethoprim	LC-MS-MS	5	ng/L
Tritium	EPA 906.0	248	pCi/L
Tritium, MDA	EPA 906.0	0	pCi/L

Table 9 Analytes, Method Number, and MRL for all Analysis Pure Water Soquel Project Soquel Creek Water District			
Analyte	Method⁽¹⁾	MRL	Units
Tritium, Two Sigma Error	EPA 906.0	0	pCi/L
Turbidity	EPA 180.1	0.1	NTU
Uranium by ICPMS as pCi/L	EPA 200.8	0.7	pCi/L
Uranium ICAP/MS	EPA 200.8	1	ug/L
Vanadium Total ICAP/MS	EPA 200.8	3	ug/L
Vinyl chloride (VC)	EPA 524.2	0.3	ug/L
Warfarin	LC-MS-MS	5	ng/L
Zinc Total ICAP/MS	EPA 200.8	20	ug/L

Notes:
(1) Compounds with multiple associated methods will use the lower MRL first, and if ND, the higher MRL using the second method.