2016 Consumer Confidence Report

Water System Name: Naval Auxiliary Landing Field (NALF) San Clemente Island (SCI) Report Date: 08 May 2017

We test the drinking water quality for many constituents as required by state and federal regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2016 and may include earlier monitoring data.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Type of water source(s) in use: Blend of multiple sources from the Sweet Water Authority (SWA) and the City of San Diego. The Majority of the water for the calendar year was from SWA.

Name & general location of source(s): The Sweetwater Authority and City of San Diego receives their water from local sources, and the region's imported water system that is a blend of Colorado River and State Water Project. The source water assessments are available for each of these sources.

Drinking Water Source Assessment information: SWA: The Source Water Assessment identifies activities to which water sources are considered "most vulnerable." In 2002, source water assessments were completed for the Authority's water supplies. There were NO contaminants from the "possible contaminating activities" found in the Authority's water supplies. The City of San Diego's annual Drinking Water Quality Report includes details about where your water comes from, what it contains, and how it compares to state standards. In 2016, as in years past, your tap water met all state and federal drinking water health standards (primary standards for treating and monitoring water).To request a summary of the assessments, contact Mr. John Locke at (619) 545-7187.

Time and place of regularly scheduled board meetings for public participation: The Navy does not hold regularly scheduled meetings on water issues.

For more information, contact: John Locke Phone: (619) 545-7187

This remainder of this report is divided into three sections (A, B and C) and includes water quality testing conducted by the Navy at San Clemente Island and the two sources that provide water to San Clemente Island, including the Sweetwater Authority and the City of San Diego respectively.

Section A - 2016 U.S. Navy Water Quality Testing at San Clemente Island

TERMS USED IN THIS REPORT

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) as is economically and technologically feasible. Secondary MCLs 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 U.S. Environmental Protection Agency (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 highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

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

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

Variances and Exemptions: State Board permission to exceed an MCL or not comply with a treatment technique under certain conditions.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

ND: not detectable at testing limit

ppm: parts per million or milligrams per liter (mg/L)

ppb: parts per billion or micrograms per liter (µg/L)

ppt: parts per trillion or nanograms per liter (ng/L)

ppq: parts per quadrillion or picogram per liter (pg/L)

pCi/L: picocuries per liter (a measure of radiation)

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

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, that may come from a variety of sources such as agriculture, urban stormwater 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 stormwater runoff, agricultural application, and septic systems.

- *Radioactive contaminants*, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Tables 1, 2, and 3 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old. Any violation of an AL, MCL, MRDL, or TT is asterisked. Additional information regarding the violation is provided later in this report.

TABLE 1 – SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants (complete if bacteria detected)	**Highest No. of Detections**	**No. of months in violation**	**MCL**	**MCLG**	**Typical Source of Bacteria**
Total Coliform Bacteria (state Total Coliform Rule)	(In a mo.) 0	0	1 positive monthly sample	0	Naturally present in the environment
Fecal Coliform or *E. coli* (state Total Coliform Rule)	(In the year) 0	0	A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or *E. coli* positive		Human and animal fecal waste

TABLE 2 – SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper (complete if lead or copper detected in the last sample set)	**Sample Date**	**No. of samples collected**	**90th percentile level detected**	**No. sites exceeding AL**	**AL**	**PHG**	**Typical Source of Contaminant**
Lead (ppb)	4/13/2016	10	2.49	0	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm)	4/13/2016	10	0.104	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

TABLE 3 – DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL [MRDL]**	**PHG (MCLG) [MRDLG]**	**Typical Source of Contaminant**
Total Trihalomethanes (TTHM) (ppb)	5 samples/ quarter	41.0	6.0 – 110.0	80	N/A	By-product of drinking water disinfection
Haloacetic Acid (ppb)	5 samples/ quarter	24.0	1.0 – 46.0	60	N/A	By-product of drinking water chlorination
Chlorine (ppm)	2016	1.24	0.78 – 2.67	[4.0] as Cl_2	[4.0] as Cl_2	Drinking water disinfectant added for treatment

Additional General Information on Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the 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 (1-800-426-4791).

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 Safe Drinking Water Hotline (1-800-426-4791).

Lead-Specific Language for Community Water Systems: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. San Clemente Island is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. [Optional: If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants.] If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4701) or at http://www.epa.gov/lead.

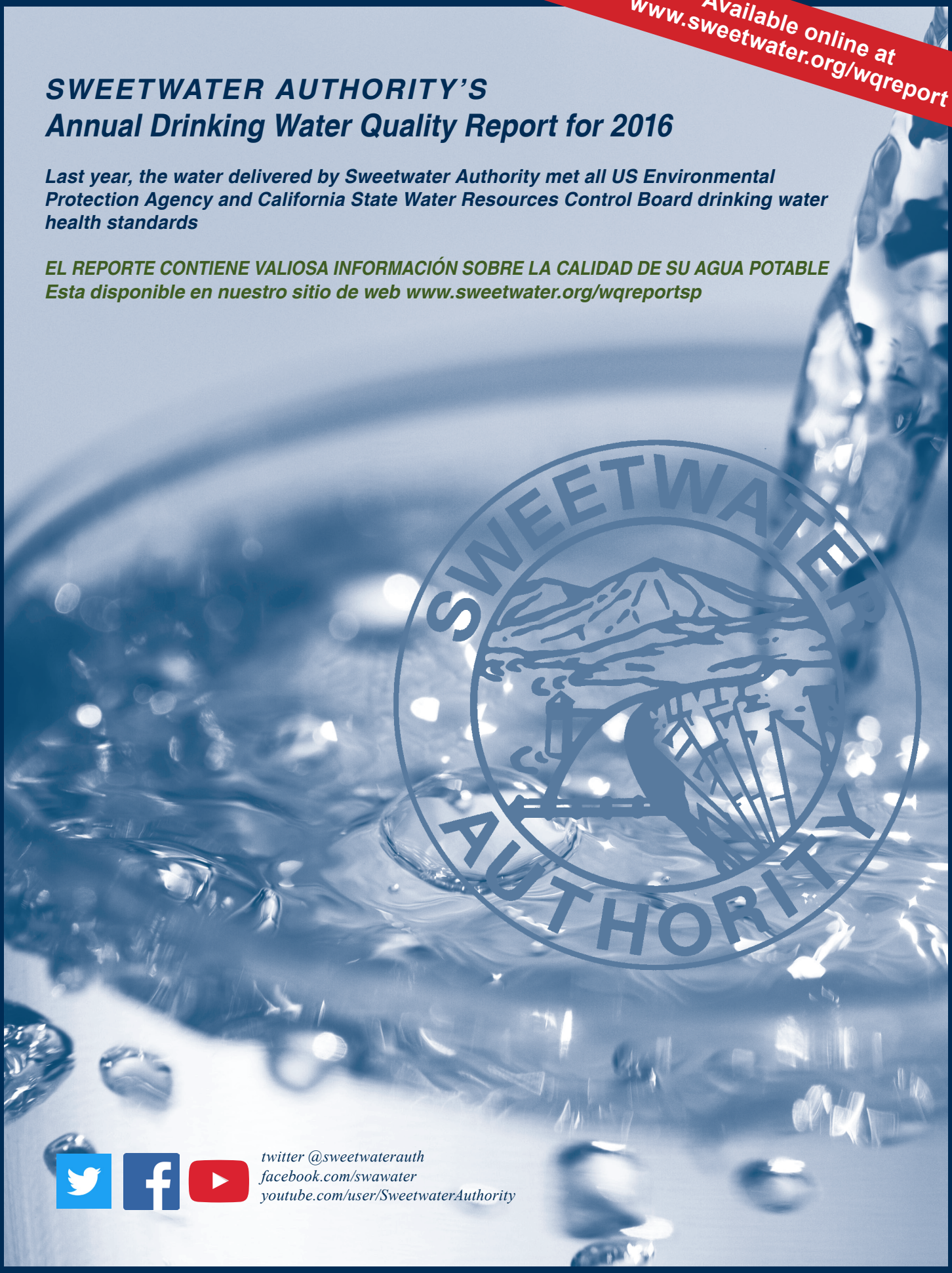
Section B – 2016 Sweetwater Authority Water Quality Test Results

Available online at
www.sweetwater.org/wqreport

SWEETWATER AUTHORITY'S
Annual Drinking Water Quality Report for 2016

Last year, the water delivered by Sweetwater Authority met all US Environmental Protection Agency and California State Water Resources Control Board drinking water health standards

EL REPORTE CONTIENE VALIOSA INFORMACIÓN SOBRE LA CALIDAD DE SU AGUA POTABLE
Esta disponible en nuestro sitio de web www.sweetwater.org/wqreportsp



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1 ABOUT YOUR DRINKING WATER AND THIS REPORT

WHAT IS SAFE DRINKING WATER?

The U. S. Environmental Protection Agency (USEPA) and the California State Water Resources Control Board (State Board) regulate California's tap water. These agencies establish standards that define our current understanding of safe drinking water. Last year, the water delivered by Sweetwater Authority (Authority) met all USEPA and State Board drinking water health standards.

This report provides information about the ways that the Authority vigilantly safeguards and treats your drinking water supplies. In accordance with state and federal laws, it also provides a detailed listing of constituents found in your drinking water, and compares those levels to the maximum levels considered safe for the general public by the USEPA and the State Board. If you have questions about Authority operations or the contents of this report, please visit www.sweetwater.org or call Laboratory Supervisor Mark Hatcher at 619-409-6813, or Chemist Laura Homsey at 619-409-6826.

This report also includes information about the Authority's water sources and how those sources are protected, as well as people to contact for more details, and ways you can become more involved in protecting your water.

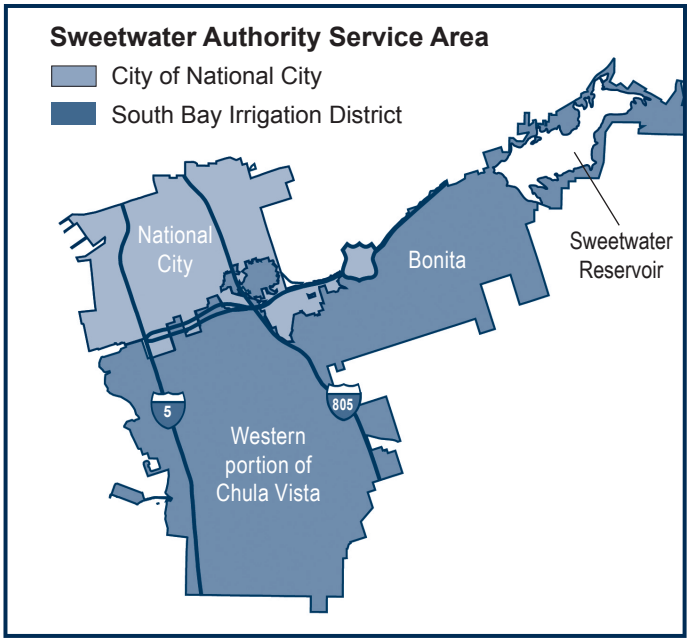
ABOUT SWEETWATER AUTHORITY

The Authority is a publicly-owned, joint powers water agency, with policies and procedures established by a seven-member Governing Board. Five directors are elected by the citizens of the South Bay Irrigation District. Two directors are appointed by the Mayor of National City, subject to City Council confirmation.

The Authority provides safe, reliable water service to approximately 190,000 people in National City, Bonita, and western portions of Chula Vista. Its customers include residential, business, government, industrial and agricultural water users in an area covering more than 20,480 acres in the South Bay region of San Diego County.

Wondering about the water we drink? Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline at 800-426-4791, or visiting the USEPA website at www.epa.gov/your-drinking-water.

Note to special populations: 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. To obtain USEPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants, please call the USEPA Safe Drinking Water Hotline at 800-426-4791.



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

Before water is treated, raw water may contain contaminants including:

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

Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.

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

To learn more about contaminants and health effects, call the USEPA Safe Drinking Water Hotline at 800-426-4791. Further information is available at www.sweetwater.org or www.mwdh2o.com.

In order to ensure that tap water is safe to drink, the USEPA and the State Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Water Sources: Authority customers receive water from four sources: the Sweetwater River (drawn at Sweetwater Reservoir in Spring Valley), deep freshwater wells in National City, brackish water wells in Chula Vista, and the region's imported supply, which is drawn from the Colorado River and/or the State Water Project in northern California. Source water assessments are available for each of these sources.

How is your water protected from contamination? The local water used by the Authority can be affected by activities within its watershed, a 230-square-mile area leading into the streams that feed the Sweetwater River. The Authority uses a multiple-barrier approach to ensure water quality. Education, stakeholder involve-

ment, and comments to local planners are part of Authority efforts, in addition to the "hardware" solutions described here:

1) An innovative diversion system captures urban runoff before it enters Sweetwater Reservoir and transports the runoff below Sweetwater Dam, reducing the buildup of mineral salts in the reservoir. The diversion system can also capture and hold runoff from a chemical spill or sewage system failure, allowing the contaminants to be removed and trucked away for proper disposal.

2) Well sites are closely monitored to assure that contaminants have not entered the well fields.

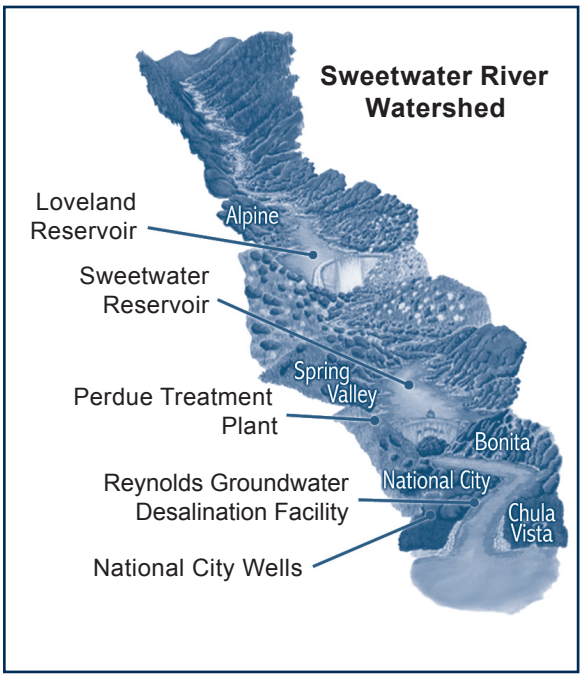
3) Surface water is treated and disinfected at the Robert A. Perdue Water Treatment Plant.

4) Potable groundwater is disinfected.

5) Brackish groundwater is treated with reverse osmosis and disinfected. (To learn more, visit www.sweetwater.org, click on "Our Water.")

Informational Statements: The Authority vigilantly safeguards its water supplies and has met all state and federal health standards. The following information describes potential health effects of drinking water that contain contaminants above federal maximum levels.

About Radon: Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water through showering, washing dishes, and other household activities. In most cases, the amount of radon entering a home from tap water will be much less than the amount of radon entering the home through soil. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call the State Radon Program (1-800-745-7236), the USEPA Safe Drinking Water Hotline (1-800-426-4791), or the National Radon Hotline (1-800-767-7236).



About Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. Lead in drinking water is primarily from materials and components associated with service lines and household plumbing. The Authority is responsible for providing high quality drinking water, but cannot control the variety of materials used in household plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the USEPA Safe Drinking Water Hotline (1-800-426-4791) or at http://www.epa.gov/lead.

Fluoride is found naturally in water delivered to the Authority's customers in levels below the amount recommended for preventing tooth decay. Customers concerned about fluoride use are urged to contact a doctor or dentist to discuss fluoride supplements. For more information about fluoridation, oral health, and current issues, visit the State Board website at http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

Consumer questions and answers about water quality, taste, color and odor, can be found at www.sweetwater.org, click on "Our Water," then "Water Quality."

The Source Water Assessment identifies activities to which water sources are considered "most vulnerable." In 2002, source water assessments were completed for the Authority's water supplies. There were NO contaminants from the "possible contaminating activities" found in the Authority's water supplies. To request a summary of the assessments, contact Water Quality Services Technician Cindy Pino at 619-409-6801, or cpino@sweetwater.org.

How to Reach Us

Customer Service	619-420-1413
After Hours Emergency	619-420-1413
Water Quality Lab	619-409-6801
Water Efficiency Helpline	619-409-6779
Employment	619-409-6775
Fluoride Info Line	619-409-6780
Recreation/Fishing	
Sweetwater Reservoir	619-409-6777
Loveland Reservoir	619-409-6776
Construction Information	619-409-6850
School Programs	619-409-6876
Community Presentations	619-409-6723
Board Secretary	619-409-6703
Website	www.sweetwater.org

Public Participation

Public participation is welcome at all Sweetwater Authority Board meetings. Meetings are held at 505 Garrett Avenue, Chula Vista, the second and fourth Wednesday of each month, at 6:00 p.m. and 3:30 p.m., respectively. Agendas are posted at 505 Garrett Avenue, Chula Vista. Meeting agendas and minutes are published on the Authority's website at www.sweetwater.org.

PRIMARY STANDARDS **For the 2016 calendar year**				National City Wells (Disinfected with chloramine)		Treated at Reynolds Groundwater Desal Facility	Treated at Robert A. Perdue Water Treatment Plant		Treated[1] Sweetwater Authority Drinking Water	**If you do not see a contaminant listed here, it was not detected in 2016.** **Typical Source of Contaminant:**
Inorganic Contaminants	MCL [MRDL]	PHG (MCLG) [MRDLG]	Range and Average	**— BEFORE TREATMENT —**						
				National City Well 3	National City Well 4	SD Formation Wells 1 - 6	Lake Skinner Outlet (Aqueduct)	Sweetwater Reservoir		
Fluoride (ppm)	2.0	1	Range	0.4 - 0.4	0.3 - 0.4	0.1 - 0.3[2]	0.3 - 0.3	0.4 - 0.5	ND - 0.6	Erosion of natural deposits; discharge from fertilizer and aluminum factories
			Average	0.4	0.4	0.2	0.3	0.4	0.3	
Aluminum (ppb)	1000	600	Range	ND	ND	ND	93[2]	70 - 370[2]	ND	Erosion of natural deposits; residue from surface water treatment processes
			Average	ND	ND	ND	93	220	ND	
Arsenic (ppb)	10	0.004	Range	ND	ND	ND - 3.0[2]	ND	3.1 - 4.6[2]	ND - 1.8	Erosion of natural deposits; glass and electronics production wastes
			Average	ND	ND	2.0	ND	3.9	ND	
Barium (ppm)	1	2	Range	ND	0.1 - 0.1	ND - 0.2[2]	0.1[4]	0.1 - 0.1	ND - 0.1	Erosion of natural deposits; discharges of oil drilling wastes and from metal refineries
			Average	ND	0.1	0.1	0.1	0.1	0.1	
Selenium (ppb)	50	30	Range	ND	ND	ND - 9.5[2]	ND	ND	ND	Refineries, mines, and chemical waste discharges; erosion of natural deposits; runoff
			Average	ND	ND	5.1	ND	ND	ND	
Radionuclides (a)										
Gross Alpha (pCi/L)	15	(0)	Range	ND	ND	ND - 6.9[2,3]	ND - 5.9[2,3]	ND	NA	Erosion of natural deposits
			Average	ND	ND	3.9	ND	ND	NA	
Combined Radium - 226/228 (pCi/L)	5	(0)	Range	ND	ND	ND - 1.8[2,3]	ND	ND	NA	Erosion of natural deposits
			Average	ND	ND	ND	ND	ND	NA	
Gross Beta (pCi/L)	50	(0)	Range	NA	NA	NA	ND - 5.3[3]	4.5 - 13[3]	NA	Decay of natural and man-made deposits
			Average	NA	NA	NA	ND	7.6	NA	
Radium - 228 (pCi/L)	NA	0.019	Range	ND	ND	ND - 1.8[2,3]	ND	ND	NA	Erosion of natural deposits
			Average	ND	ND	ND	ND	ND	NA	
Uranium (pCi/L)	20	0.43	Range	1.4[3,4]	1.2[3,4]	0.8 - 8.1[2,3]	1.5 - 2.6[2,3]	5.1[2,3,4]	NA	Erosion of natural deposits
			Average	1.4	1.2	4.3	2.3	5.1	NA	
Turbidity (b)										
Combined Filter Effluent Turbidity (NTU)	TT	NA	Highest Single Measurement						0.15	Soil runoff
			Lowest Monthly Percent of Samples Meeting MCL						100.0%	
Unregulated Contaminants[5]										
Boron (ppm)	NL = 1.0	NA	Range	0.21 - 0.23	0.15 - 0.17	ND - 0.38	0.14[4]	0.20 - 0.26	0.15 - 0.34	Runoff/leaching from natural deposits; industrial wastes
			Average	0.22	0.16	0.26	0.14	0.23	0.23	
Vanadium (ppb)	NL = 50	NA	Range	ND	14 - 15	ND	ND	12 - 19	ND	Naturally occurring; industrial waste discharge
			Average	ND	15	ND	ND	16	ND	

PRIMARY STANDARDS CONTINUED				National City Wells (Disinfected with chloramine)		Treated at Reynolds Groundwater Desal Facility	Treated at Robert A. Perdue Water Treatment Plant		Treated[1] Sweetwater Authority Drinking Water	If you do not see a contaminant listed here, it was not detected in 2016. Typical Source of Contaminant:
Inorganic Contaminants	MCL [MRDL]	PHG (MCLG) [MRDLG]	Range and Average	— BEFORE TREATMENT —						
				National City Well 3	National City Well 4	SD Formation Wells 1 - 6	Lake Skinner Outlet (Aqueduct)	Sweetwater Reservoir		
Unregulated Contaminant Monitoring Rule 3 (UCMR3) (c)										
Chlorate (ppb)	NL = 800	NA	Combined Distribution System Range						43 - 700	By-product of drinking water disinfection when using chlorine dioxide; hypochlorite degradation
			Combined Distribution System Average						275	
Molybdenum (ppb)	NA	NA	Combined Distribution System Range						1.0 - 8.2	Naturally occuring; manufacturing process waste
			Combined Distribution System Average						4.4	
Strontium (ppb)	NA	NA	Combined Distribution System Range						320 - 1100	Erosion of natural deposits; atmospheric deposition; wastewater discharges
			Combined Distribution System Average						684	
Vanadium (ppb)	NL = 50	NA	Combined Distribution System Range						ND - 7.2	Naturally occuring; industrial waste discharge
			Combined Distribution System Average						2.2	
Disinfection and Byproduct Contaminants										
Total Trihalomethanes (TTHMs) (ppb)	80	NA	Highest Locational Running Annual Average (LRAA)						24.1	By-product of drinking water chlorination
			Range of All Distribution Sample Points						4.1 - 30.9[6]	
Haloacetic Acids (HAAs) (ppb)	60	NA	Highest Locational Running Annual Average (LRAA)						11.8	By-product of drinking water chlorination
			Range of All Distribution Sample Points						1.1 - 10.2[6]	
Chloramines (ppm)	[4.0]	[4]	Highest Running Annual Average (RAA)						2.7	Drinking water disinfectant added for treatment
			Combined Distribution System Range						0.3 - 4.0[6]	
Chlorine Dioxide (ppb)	[800]	[800]	Perdue Plant Clearwell Effluent Range						ND - 140[6]	Drinking water disinfectant added for treatment
			Perdue Plant Clearwell Effluent Average						ND	
Chlorite (ppm)	1.0	0.05	Combined Distribution System Range						0.08 - 0.50[6]	By-product of drinking water disinfection when using chlorine dioxide
			Combined Distribution System Average						0.34	
Chlorate (ppb)	NL = 800	NA	Combined Distribution System Range						160 - 300[6]	By-product of drinking water disinfection when using chlorine dioxide; hypochlorite degradation
			Combined Distribution System Average						240	
Lead and Copper Rule			Number of sites found above AL						90 percent of samples below	
Lead (ppb)	AL = 15	0.2	1 site above AL out of 67 sites sampled						ND[3]	Corrosion of household plumbing systems
Copper (ppm)	AL = 1.3	0.3	0 sites above AL out of 67 sites sampled						0.14[3]	
Microbiological (d)									Highest monthly percentage	
Total Coliform Bacteria	5.0% (TT)	(0)	Number of positive samples taken this year = 0						0%	Naturally present in the environment
E.coli Coliform Bacteria	(d)	(0)	Number of positive samples taken this year = 0						0%	Human and animal fecal waste
Cryptosporidium (Oocysts/10L)	TT	(0)	Range				ND[7]	NA[7]	NA	Naturally present in the environment
			Average				ND	NA	NA	

SECONDARY STANDARDS				National City Wells (Disinfected with chloramine)		Treated at Reynolds Groundwater Desal Facility	Treated at Robert A. Perdue Water Treatment Plant		Treated[1] Sweetwater Authority Drinking Water	If you do not see a contaminant listed here, it was not detected in 2016. Typical Source of Contaminant:
				— BEFORE TREATMENT —						
Inorganic Contaminants	MCL [MRDL]	PHG (MCLG) [MRDLG]	Range and Average	National City Well 3	National City Well 4	SD Formation Wells 1- 6	Lake Skinner Outlet (Aqueduct)	Sweetwater Reservoir		
Aluminum[8] (ppb)	200	NA	Range	ND	ND	ND	93[2]	70 - 370[2]	ND	Erosion of natural deposits; residue from some surface water treatment processes
			Average	ND	ND	ND	93	220	ND	
Iron (ppb)	300	NA	Range	63 - 69	ND	ND - 240[2]	ND	83 - 580[2]	ND	Leaching from natural deposits; industrial wastes
			Average	66	ND	53	ND	332	ND	
Manganese (ppb)	50	NL = 500	Range	ND	ND	80 - 2600[2]	ND	83 - 150[2]	ND	Leaching from natural deposits
			Average	ND	ND	758	ND	117	ND	
Specific Conductance (microsiemens/centimeter)	1600	NA	Range	1100 - 1200	910 - 930	2100 - 6000[2]	934 - 993	1900 - 2100	550 - 940	Substances that form ions when in water; seawater influence
			Average	1150	920	3708	964	2000	810	
Total Dissolved Solids (ppm)	1000	NA	Range	620 - 640	500 - 510	1100 - 3600[2]	578 - 603	1100 - 1100	310 - 560	Runoff/leaching from natural deposits; seawater influence
			Average	630	505	1967	591	1100	460	
Chloride (ppm)	500	NA	Range	220 - 220	150 - 160	430 - 1800[2]	93 - 93	390 - 430	73 - 250	Runoff/leaching from natural deposits; seawater influence
			Average	220	155	913	93	410	158	
Sulfate (ppm)	500	NA	Range	59 - 59	38 - 38	126 - 310[2]	217 - 231	183 - 203	29 - 203	Runoff/leaching from natural deposits; industrial wastes
			Average	59	38	202	224	193	87	
Color (units)	15	NA	Range	1 - 1	1 - 1	1 - 1	3 - 4[2]	50 - 150[2]	1 - 1	Naturally occurring organic materials; iron and manganese
			Average	1	1	1	4	100	1	
Odor-Threshold (units)	3	NA	Range	ND	ND	ND	6[2,4]	4 - 4[2]	ND	Naturally occurring organic materials
			Average	ND	ND	ND	6	4	ND	
Turbidity[8] (NTU)	5	NA	Range	0.16 - 0.19	0.11 - 0.20	0.09 - 0.93	0.6 - 0.8[2]	3.8 - 16.0[2]	0.08 - 0.14	Soil runoff
			Average	0.17	0.16	0.23	0.7	9.9	0.10	
Foaming Agents (MBAS) (ppb)	500	NA	Range	ND	ND	ND	ND	ND	ND	Municipal and industrial waste discharges
			Average	ND	ND	ND	ND	ND	ND	
Other Parameters										
Sodium (ppm)	NA	NA	Range	140 - 160	120 - 130	230 - 860[2]	92 - 93	220 - 230	57 - 120	Runoff/leaching from natural deposits; seawater influence
			Average	150	125	426	92	225	91	
Hardness (Total Hardness as CaCO3) (ppm)	NA	NA	Range	181 - 199	157 - 165	332 - 1010[2]	257 - 278	409 - 415	105 - 243	Leaching from natural deposits
			Average	190	161	619	268	412	149	
Radon (pCi/L)[9]	NA	NA	Range	270[4]	374[4]	190 - 300[2]	ND	NA	NA	Decay of natural deposits
			Average	270	374	240	ND	NA	NA	
pH (Standard Units)	NA	NA	Range	7.8 - 8.0	7.9 - 8.0	7.3 - 7.9	8.0 - 8.2	8.6 - 8.7	7.9 - 8.5	Soil geology, water hardness, and alkalinity
			Average	7.9	8.0	7.8	8.1	8.6	8.3	
Total Organic Carbon (ppm)	TT	NA	Range	NA	NA	NA	3.2 - 3.4	12.2 - 20.4	2.3 - 2.6	Various natural and man-made sources
			Average	NA	NA	NA	3.3	15.1	2.5	

3 TABLE DEFINITIONS

TT = Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

AL = Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow (AL now applies only to lead and copper).

NL = Regulatory Notification Level: (previously known as Action Level). The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

ND = Not Detected

NA = Not Applicable (No standard specified or no monitoring required)

ppm = Parts per million or milligrams per liter.

ppb = Parts per billion or micrograms per liter.

ppt = Parts per trillion or nanograms per liter.

pCi/l = picoCuries per liter (a measure of radiation).

MCL = Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

MCLG = Maximum Contaminant Level Goal: 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.

PHG = Public Health Goal: 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 (CalEPA).

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

MRDL = Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG = Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

4 FOOTNOTES

1. Sweetwater Authority drinking water data is representative of water which has been processed through the Robert A. Perdue Water Treatment Plant (conventional treatment) or the Richard A. Reynolds Groundwater Desalination Facility (reverse osmosis treatment).

2. The contaminants listed are in the untreated waters. The water is processed through either a reverse osmosis filtration plant (Reynolds Groundwater Desalination Facility) or through a conventional water treatment plant (Perdue Water Treatment Plant). These water treatment applications typically remove these contaminants to concentrations below detectable levels.

3. The State Board allows the Authority to monitor for some contaminants less than once per year because the concentrations of the contaminants do not change frequently. Radiological data on untreated source waters was collected in 2006, 2007, 2010, 2013 and 2016. Lead and copper data was collected in July 2014. Compliance with the lead and copper action levels is determined at the 90th percentile.

4. Reported value represents a single measurement, therefore, the range and average are the same.

5. Unregulated contaminant monitoring helps USEPA and the State Board to determine where certain contaminants occur and whether the contaminants need to be regulated.

6. MRDL compliance for chloramines is determined on a system-wide basis by calculating a running annual average of all distribution sampling point averages. MCL compliance for TTHMs and HAAs is determined by calculating a quarterly locational running annual average at each Stage 2 DBP Rule monitoring location. MCL compliance for chlorine dioxide is based on daily samples at the entrance to the distribution system and follow-up distribution system monitoring following an MRDL exceedance. MCL compliance for chlorite is based on daily samples at the entrance to the distribution system, monthly distribution system monitoring, and follow-up/confirmation sampling following an MCL exceedance.

7. Cryptosporidium (Crypto) monitoring. As required by the USEPA Long Term 2 Surface Water Treatment Rule (LT2), a two-year monitoring program for Crypto was initiated in April 2015. The LT2 regulation requires the Authority to conduct monitoring for Crypto twice monthly in the raw source water being supplied to the Perdue Water Treatment Plant (WTP). In 2016, Crypto was not detected in the raw aqueduct water fed to the WTP. Sweetwater Reservoir was not used as a source of supply in 2016. The last detection for Crypto in Sweetwater Reservoir occurred in August of 2005 (1.0 oocyst in 10 liters).

8. Aluminum and Turbidity have both a primary and a secondary MCL.

9. Radon was sampled in 2000 for San Diego Formation Wells 1 - 5, in 2001 for the National City Wells 2 and 3, and in 2008 for San Diego Formation Well 6 and National City Well 4.

(a) Compliance with the radiological MCLs is typically based upon samples collected every three to nine years (depending on previous monitoring results), unless waived by the State Board. Compliance with the gross alpha MCL is determined by excluding the values for radon and uranium. The State Board considers 50 pCi/L to be the level of concern for beta particles.

(b) The turbidity level of the filtered water shall be less than or equal to 0.3 NTU (Nephelometric Turbidity Units) in 95 percent of the measurements taken each month and shall not exceed 1.0 NTU for more than eight consecutive hours or 1 NTU for more than one continuous hour and none of the 4-hour interval readings shall exceed 1 NTU.

Turbidity is a measure of the cloudiness of the water. The Authority monitors turbidity because it is a good indicator of the effectiveness of our filtration system.

(c) Quarterly UCMR3 monitoring was conducted in 2014 - 2015. UCMR3 monitoring consisted of 28 List 1 and List 2 chemicals. Of these, only chlorate, vanadium, molybdenum, and strontium were detected. In addition to UCMR3, the Authority routinely monitors for vanadium as an unregulated contaminant and for

FOOTNOTES CONTINUED

chlorate as part of the Disinfection By-products Rule.

(d) Please note in 2016, the State Board required California public water systems to be in simultaneous compliance with both the CA TCR and the Federal RTCR criteria listed below.

State of California Total Coliform Rule (CA TCR) - Total coliform MCL: No more than 5.0% of the monthly samples may be total coliform positive. Acute coliform (*E.coli*) MCL: A routine sample and a repeat sample are total coliform positive, and one of these is also *E. coli* positive. The Authority did not violate either MCL in 2016. Results are based on the distribution system's highest monthly percent positives. Compliance is based on the combined distribution system sampling from all treatment plants. In 2016, 1,872 samples were analyzed.

Federal Revised Total Coliform Rule (RTCR) - Total Coliform TT trigger, Level 1 assessments, and total coliform TT violations: More than 5.0% total coliform positive samples in a month trigger a Level 1 assessment. Failure to conduct an assessment and take corrective action within 30 days is a total coliform violation. In 2016, no triggers, Level 1 assessments, or violations occurred.

E.coli MCL and Level 2 TT triggers for assessments: Routine and repeat samples are total coliform positive and either sample is *E.coli* positive or the system fails to collect all repeat samples following an *E.coli* positive sample, or fails to test for *E.coli* when the repeat sample is total coliform positive. In 2016, no samples were *E. coli* positive and no MCL violations or assessments occurred.

5 WATER AGENCIES DELIVER MAJOR PUBLIC HEALTH BENEFIT

A clean water supply is the norm thanks to modern water treatment

Modern treatment techniques have improved water supplies to the point where people often take the safety of tap water for granted.

However, ensuring water quality is a big commitment. Local and regional water agencies work around-the-clock to make sure customers do not have to worry.

A century ago, however, many people did have to worry about their water. That was why filtration and chlorination systems were first installed in municipal water systems.

That seemingly basic service made a profound difference; U.S. life expectancy increased and child mortality decreased. Once-common diseases such as cholera and typhoid have been essentially wiped out.

Continuous advances in technology have allowed water agencies to adopt increasingly sophisticated ways of preventing harmful levels of bacteria and chemicals from fouling water supplies.

Federal and state agencies oversee the testing process, periodically setting more stringent safeguards. Over the past 30 years, the number of regulated contaminants in potable water has nearly quadrupled; and contaminant levels that once were measured in parts per million are now traced to parts per billion – giving consumers an even greater margin of safety.

The entire process has delivered a major public health benefit, a real value that customers help pay for a little at a time.

Public water providers just charge what it costs to deliver safe supplies

Every few months when corporations publicly announce their revenues, shareholders expect a big return. Some multi-national energy companies routinely post annual profits in the billions.

Not so for the public agencies which deliver another crucial resource – water – right to your home or business every day. They make $0 profit annually. In fact, agencies such as the Authority are legally required to charge only what it costs to treat and deliver drinking water.

All the money they collect is invested into the pumps, pipes, and other elements of the water system. The system is more complex than you might think. It includes securing supplies; pumping, moving, treating, and testing water; maintaining and financing infrastructure; and establishing financial reserves for emergencies and paying for environmental enhancements or mitigation.

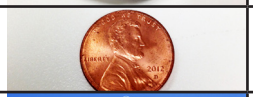
Related costs have grown over time due to a variety of factors, such as increases in the price of energy and treatment chemicals. Local water suppliers are also strategically increasing the use of local sources, such as recycled water and groundwater, to buffer our region from shortages.

In all those efforts, customers of public water agencies can be confident that they are paying the actual costs of providing safe and reliable water service – a real value day in and day out.

The Authority is committed to maintaining a safe and reliable supply of drinking water for current and future customers.

6 UNDERSTANDING WATER

You will notice that water quality standards are measured in "parts per million" or "parts per billion." But those terms can be difficult to relate to, and it's hard to know what they mean. Here is a handy chart that may help you visualize the proportions in terms of some ordinary items.

ITEM	PARTS PER MILLION	PARTS PER BILLION
Linear Measure 	1 inch in 15.78 miles	1 inch in 15,780 miles
Time 	1 minute in 1.9 years	1 minute in 1,902 years
Money 	1 cent in $10,000	1 cent in $10 million
1 drop of water 	1 drop in a half-full bathtub	1 drop in an Olympic-size swimming pool

Source: USEPA; Alaska Dept. of Environmental Conservation, Sweetwater Authority

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Section C – 2016 City of San Diego Annual Water Quality Report to Consecutive System Agencies

CITY OF SAN DIEGO

ENVIRONMENTAL MONITORING AND TECHNICAL SERVICES
CONSUMER CONFIDENCE REPORT DATA -- 2016

PRIMARY STANDARDS (MANDATORY HEALTH RELATED STANDARDS)

CHEMICAL PARAMETERS	UNITS	MCL	PHG	DDW DLR	CITY OF SAN DIEGO TREATMENT PLANTS ALVARADO AVERAGE	ALVARADO RANGE	MIRAMAR AVERAGE	MIRAMAR RANGE	OTAY AVERAGE	OTAY RANGE	MWD SKINNER TREATMENT PLANT AVERAGE	MWD SKINNER TREATMENT PLANT RANGE	MAJOR SOURCES IN DRINKING WATER
Fluoride (naturally occurring)	ppm	2	1	0.1	0.3	0.2 - 0.3	0.3	0.2 - 0.4	0.4	0.3 - 0.5	0.3	0.2 - 0.4	Erosion of natural deposits
Fluoride (treatment-related)	ppm	2	1	0.1	0.7	0.5 - 0.8	0.7	0.6 - 0.7	0.4	0.3 - 0.6	0.7	0.6 - 0.9	Water additive that promotes strong teeth
Barium	ppm	1	2	0.1	0.11	ND - 0.14	0.13	0.11 - 0.14	0.10	ND - 0.14	0.13	n/a	Erosion of natural deposits

Note: Optimal Fluoride Level as established by US Dept. of Health and Human Services and California Waterboards Division of Drinking Water is 0.7 ppm.

RADIOACTIVE PARAMETERS	UNITS	MCL	PHG (MCLG)	DDW DLR	CITY OF SAN DIEGO TREATMENT PLANTS ALVARADO AVERAGE	ALVARADO RANGE	MIRAMAR^ AVERAGE	MIRAMAR^ RANGE	OTAY^ AVERAGE	OTAY^ RANGE	MWD SKINNER TREATMENT PLANT AVERAGE	MWD SKINNER TREATMENT PLANT RANGE	MAJOR SOURCES IN DRINKING WATER
Gross Alpha Particle Activity	pCi/L	15	(0)	3	ND	n/a	3.3	n/a	6.4	n/a	ND	ND - 5	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	50*	(0)	4	ND	n/a	5.7	n/a	ND	n/a	5	5 - 5	Decay of natural and manmade deposits
Uranium	pCi/L	20	0.43	1	2.1	n/a	2.4	n/a	1.8	n/a	2	1 - 2	Erosion of natural deposits

* DDW considers 50 pCi/L to be the level of concern for beta particles. ^Monitoring required every three years (Gross Alpha and Beta data for Otay from 2015; Uranium data for Otay and Miramar from 2014)

MICROBIOLOGICAL	UNITS	MCL	MCLG	DDW DLR	CITY OF SAN DIEGO DISTRIBUTION SYSTEM AVERAGE	CITY OF SAN DIEGO DISTRIBUTION SYSTEM RANGE*	MAJOR SOURCES IN DRINKING WATER
Total Coliform Bacteria (b) State Total Coliform Rule	/100mL	< 5% Positive	0	n/a	0.3%	0 - 0.7%	Naturally present in the environment
Total Coliform Bacteria Federal Revised Total Coliform Rule	/100mL	TT	n/a	n/a	0.3%	0 - 0.7%	Naturally present in the environment

*Based on Monthly Percentages of Positive Total Coliform samples

TURBIDITY	UNITS	MCL	PHG		CITY OF SAN DIEGO TREATMENT PLANTS ALVARADO	MIRAMAR	OTAY	MWD SKINNER TREATMENT PLANT	MAJOR SOURCES IN DRINKING WATER
Turbidity	NTU	TT = 1 NTU	n/a	----	Max Level Found = 0.12	Max Level Found = 0.09	Max Level Found = 0.09	Max Level Found = 0.09	Soil runoff
Turbidity	NTU	TT = 95% of samples ≤ 0.3 NTU	n/a	----	100% of samples ≤ 0.3	100% of samples ≤ 0.3	100% of samples ≤ 0.3	100% of samples ≤ 0.3	Soil runoff

LEAD AND COPPER STUDY	UNITS	ACTION LEVEL	PHG	DDW DLR	SAMPLES TAKEN FROM CUSTOMER TAPS 90th PERCENTILE CONCENTRATION	SAMPLING SITES	NUMBER EXCEEDING AL	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Copper	ppm	1.3	0.3	0.05	0.49	54	1	NO	Internal corrosion of household plumbing systems
Lead	ppb	15	0.2	5	ND	54	1	NO	Internal corrosion of household plumbing systems

Note: Monitoring mandated every three years. Most recent monitoring conducted in 2014.
In addition to the EPA Lead and Copper study, the City of San Diego analyzed 64 samples from our three drinking water treatment plants in 2016. All results were below the DLR.

2016 SDCWA Special Lead and Copper Monitoring

LEAD AND COPPER STUDY	UNITS	ACTION LEVEL	PHG	DDW DLR	SAMPLES TAKEN FROM CUSTOMER TAPS Sampled: May/June 2016 AVERAGE	Sampled: May/June 2016 RANGE	Sampled: September 2016 AVERAGE	Sampled: September 2016 RANGE	SAMPLING SITES	NUMBER EXCEEDING AL	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Copper	ppm	1.3	0.3	0.05	0.29	ND -0.074	0.24	ND -0.52	21	0	NO	Internal corrosion of household plumbing systems
Lead	ppb	15	0.2	5	ND	ND - ND	ND	ND - ND	21	0	NO	Internal corrosion of household plumbing systems

DETECTED DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUAL AND DISINFECTION BYPRODUCT PRECURSORS

					CITY OF SAN DIEGO TREATMENT PLANTS						MWD SKINNER TREATMENT PLANT		MAJOR SOURCES IN DRINKING WATER
					ALVARADO		MIRAMAR		OTAY				
	UNITS	MCL	PHG	DDW DLR	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	
Bromate*	ppb	10	0.1	5 / 1***	ND	ND - 8.5	ND	ND - ND	n/a	n/a	4.2****	ND - 9.1	Byproduct of drinking water disinfection
Chlorate**	ppb	NL=800 PPB		20	n/a	n/a	n/a	n/a	126	71.8 - 201	51	n/a	Byproduct of drinking water disinfection
Chlorite**	ppm	1	0.05	0.02	n/a	n/a	n/a	n/a	0.26	0.07 - 0.46	n/a	n/a	Byproduct of drinking water disinfection
Total Organic Carbon [TOC]	ppm	TT	n/a	0.3	2.5	2.1 - 3.6	2.5	2.2 - 2.8	3.0	1.8 - 6.4	2.5	2.2 - 2.7	Various natural and manmade sources

*Required for Alvarado, Miramar, and Skinner **Required for Otay *** City of San Diego DLR = 5, Skinner DLR = 1 ****Highest Running Annual Average ^^Distribution System-wide

	UNITS	MCL [MRDL]	PHG [MRDLG]	CSD MDL (DLR)	CITY OF SAN DIEGO DISTRIBUTION SYSTEM			MAJOR SOURCES IN DRINKING WATER
Disinfectant Residual[Chloramines as Cl_2]	ppm	[4][A]	[4]	0.1	Distribution system average[2] = 2.0	Range[2] = ND - 3.8	----	Drinking water disinfectant added for treatment. CSD MDL= 0.2
Chlorite[1]	ppm	1	0.05	(-0.02)	Distribution system average[2] = 0.19	Range[2] = ND - 0.32	----	Byproduct of drinking water disinfection
Haloacetic acids [HAA5]	ppb	60[B]	n/a	----	Maximum LRAA = 13	Range[2] = 1.7- 16.8	Violation - NO	Byproduct of drinking water disinfection
Total Trihalomethanes [TTHMs]	ppb	80[B]	n/a	----	Maximum LRAA = 53	Range[2] = 6.4 - 68.3	Violation - NO	Byproduct of drinking water chlorination

[1] Chlorite monitoring required only in the Southern section of the distribution system.
[2] Range and average are based upon individual 2016 sample results.
[A] Compliance is determined by the distribution system average.
[B] Total Trihalomethane and HAA5 compliance is based on quarterly Locational Running Annual Averages (LRAA)

DETECTED REGULATED CCR PARAMETERS WITH SECONDARY MCLs

				CITY OF SAN DIEGO TREATMENT PLANTS						MWD SKINNER TREATMENT PLANT		MAJOR SOURCES IN DRINKING WATER
				ALVARADO		MIRAMAR		OTAY				
	UNITS	CA SMCL	CSD MDL (DLR)	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	
Chloride	ppm	500	0.5	106	94.2 - 110	106	99.3 - 108	127	96.8 - 166	103	102 - 104	Runoff/leaching from natural deposits; seawater influence
Color	CU	15	1	ND	ND - ND	ND	ND - 4	ND	ND - 2	2	1 - 2	Naturally - occurring organic materials
Odor - Threshold	OU	3	(1)	ND	ND - 1	ND	ND - 1	1	1 - 2	3	n/a	Naturally - occurring organic materials
Specific Conductance	µS/cm	1,600	n/a	975	907 - 1060	984	823 - 1070	1010	923 -1110	998	965 - 1030	Substances that form ions when in water; seawater influence
Sulfate	ppm	500	(0.5)	207	154 - 249	232	194 - 250	194	129 - 242	234	229 - 238	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	ppm	1000	10	597	538 - 667	624	544 - 668	618	590 - 650	624	615 - 632	Runoff/leaching from natural deposits

OTHER PARAMATERS THAT MAY BE OF INTEREST

					CITY OF SAN DIEGO TREATMENT PLANTS						MWD SKINNER TREATMENT PLANT	
					ALVARADO		MIRAMAR		OTAY			
	UNITS	MCL	PHG	CSD MDL	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE
Sodium	ppm	n/a	n/a	20	94.8	80.7 - 99.5	95.8	82.6 - 102	103	89.9 - 122	102	101 - 104
Total Hardness	ppm	n/a	n/a	10	272	245 - 311	284	248 - 308	273	259 - 299	284	274 - 294
Total Hardness	gr/Gal	n/a	n/a	0.6	15.9	14.3 - 18.2	16.6	14.5 - 18.0	15.9	15.1 - 17.5	16.6	16.0 - 17.2
Alkalinity - Total as $CaCO_3$	ppm	n/a	n/a	10	127	118 - 133	121	109 - 133	134	108 - 170	122	118 - 125
pH	pH	n/a	n/a	n/a	8.02	7.44 - 8.23	8.10	7.55 - 8.46	8.14	6.84 - 8.45	8.1	8.1 - 8.2
Ammonia as Nitrogen	ppm	n/a	n/a	0.03	0.75	0.17 - 1.2	0.74	0.18 - 1.8	0.81	0.28 - 1.9	n/a	n/a

DETECTED UNREGULATED PARAMETERS

				CITY OF SAN DIEGO TREATMENT PLANTS						MWD SKINNER TREATMENT PLANT	
				ALVARADO		MIRAMAR		OTAY			
	UNITS	NOTIFICATION LEVEL	DDW DLR	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE
Boron	ppm	1	0.1	0.14	0.11 - 0.15	0.15	0.14 - 0.16	0.16	0.15 - 0.17	0.14	n/a

UCMR3 STUDY

				CITY OF SAN DIEGO TREATMENT PLANTS						CITY OF SAN DIEGO DISTRIBUTION SYSTEM		MAJOR SOURCES IN DRINKING WATER
				ALVARADO		MIRAMAR		OTAY				
UCMR3 PARAMETERS	UNITS		UCMR3 MRL	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	AVERAGE	RANGE	
Bromochloromethane	ppb	----	0.06	ND	ND - ND	ND	ND - ND	ND	ND - 0.07	n/a	n/a	Fire extinguishers; pesticide solvent
Chlorodifluoromethane (HCFC-22)	ppb	----	0.08	ND	ND - 0.16	ND	ND - ND	ND	ND - ND	n/a	n/a	Refrigerant
Chlorate	ppb	----	20	ND	ND - ND	ND	ND - 25	165	140 - 200	81	0 - 160	Byproduct of drinking water disinfection
Chromium-6	ppb	----	0.03	0.09	0.08 - 0.11	0.16	0.03 - 0.36	0.04	ND - 0.09	0.06	ND - 0.11	Naturally-occurring metal;steel; chrome plating
Molybdenum	ppb	----	1	3.6	3.2 - 4.0	3.9	3.4 - 4.2	3.0	2.8 - 3.3	3.7	2.7 - 4.7	Naturally-occurring element; in ores and plants
Strontium	ppb	----	0.3	630	550 - 710	843	750 - 920	548	500 - 660	749	490 - 940	Naturally-occurring element
Vanadium	ppb	----	0.2	ND	ND - 0.25	ND	ND - 0.26	ND	ND - ND	0.29	ND - 0.84	Naturally-occurring metal; used as a catalyst

Note: UCMR3 samples were collected in 2013 and 2014

ADDITIONAL PHYSICAL, MINERAL, AND METAL CHARACTERISTICS

PARAMETER	Units	CITY OF SAN DIEGO TREATMENT PLANTS								
		ALVARADO			MIRAMAR			OTAY		
		MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX
2-Methylisoborneol	ppt (ng/L)	ND	ND	ND	ND	ND	8.3	ND	ND	ND
Aggressiveness Index	----	12.0	12.3	12.4	12.0	12.3	12.5	12.0	12.4	12.7
Bicarbonate (as HCO3)	ppm	143	154	161	132	147	161	131	161	204
Bromide	ppm	ND	ND	ND	ND	ND	ND	ND	0.0	0.17
Calcium (Ca)	ppm	52.4	63.8	74.8	52.5	67.9	74.4	47.6	61.7	74.0
Calcium Hardness (CaCO3)	ppm	131	159	187	146	173	186	119	154	185
Carbonate (as CO3)	ppm	0	0.23	2.0	0	0.18	1.5	0	0.84	2.8
Dissolved Organic Carbon*	ppm	2.2	2.6	4.1	2.2	2.5	3.0	2.0	3.2	6.1
Langelier Index at Source Temp.	----	0.23	0.46	0.61	0.25	0.51	0.67	0.23	0.59	0.93
Magnesium (Mg)	ppm	21.0	23.7	27.9	21.0	23.5	26.6	19.5	24.5	31.0
Phosphorus, Total	ppm	ND	0.019	0.046	ND	0.037	0.194	ND	0.019	0.058
Potassium (K)	ppm	4.63	5.05	5.47	4.58	4.81	5.05	4.32	4.98	5.98
Ryzner Aggressive Index	----	6.86	7.09	7.37	6.79	7.02	7.39	6.54	6.95	7.31
Silica	ppm	6.79	8.26	9.60	6.77	7.68	8.44	4.73	7.50	10.0
SUVA*	L/mg-m	1.0	1.3	1.5	0.9	1.2	1.4	0.9	1.2	1.4
Total Nitrogen	ppm	0.31	0.77	0.92	0.55	0.73	0.88	0.72	0.90	1.13

***** Results from untreated water

NON-DETECTECTED PARAMETERS IN THE DRINKING WATER

PARAMETER	UNITS	MCL	PHG (MCLG)	DDW DLR	PARAMETER	UNITS	MCL	PHG (MCLG)	DDW DLR
1,1,1,2-Tetrachloroethane	ppb	n/a	n/a	0.5	Endrin*	ppb	2	0.3	0.1
1,1,1-Trichloroethane (1,1,1-TCA)*	ppb	200	1000	0.5	Escherichia Coli	/100 ml	n/a	0	0.1
1,1,2,2-Tetrachloroethane*	ppb	1	0.1	0.5	Equilin#	ppb	n/a	n/a	n/a
1,1,2-Trichloroethane (1,1,2-TCA)*	ppb	5	0.3	0.5	Estrone#	ppb	n/a	n/a	n/a
1,1-Dichloroethane (1,1-DCA)*#	ppb	5	3	0.5	Ethyl Benzene*	ppb	300	300	0.5
1,1-Dichloroethylene (1,1-DCE)*	ppb	6	10	0.5	Ethylene Dibromide (EDB)*	ppt	50	10	20
1,1-Dichloropropene	ppb	n/a	n/a	0.5	Ethyl-tert-Butyl Ether (ETBE)	ppb	n/a	n/a	3
1,2,3-Trichlorobenzene	ppb	n/a	n/a	0.5	Fluorene	ppb	n/a	n/a	5
1,2,3-Trichloropropane(TCP)#	ppb	n/a	n/a	0.005	Geosmin	ppt	n/a	n/a	n/a
1,2,4-Trichlorobenzene*	ppb	5	5	0.5	Giardia	Cysts/L	n/a	n/a	n/a
1,2,4-Trimethylbenzene	ppb	n/a	n/a	0.5	Glyphosate*	ppb	700	900	25
1,2-Dichlorobenzene (o-DCB)*	ppb	600	600	0.5	Heptachlor*	ppt	10	8	10
1,2-Dichloroethane (1,2-DCA)*	ppt	500	400	500	Heptachlor Epoxide*	ppt	10	6	10
1,2-Dichloropropane*	ppb	5	0.5	0.5	Hexachlorobenzene*	ppb	1	0.03	0.5
1,3,5-Trimethylbenzene	ppb	n/a	n/a	0.5	Hexachlorobutadiene	ppb	n/a	n/a	0.5
1,3-Butadiene#	ppb	n/a	n/a	0.1	Hexachlorocyclopentadiene*	ppb	50	2	1
1,3-Dichlorobenzene (m-DCB)	ppb	n/a	n/a	0.5	Hexavalent Chromium	ppb	10	0.02	1
1,3-Dichloropropane	ppb	n/a	n/a	0.5	Indeno (1,2,3-cd) Pyrene	ppb	n/a	n/a	10
1,4-Dichlorobenzene (p-DCB)*	ppb	5	6	0.5	Iron	ppb	300	n/a	100
1,4-Dioxane#	ppb	n/a	n/a	1	Isopropylbenzene (Cumene)	ppb	n/a	n/a	0.5
16-alpha-hydroxyestradiol (estriol)#	ppb	n/a	n/a	n/a	Lead(Pb)*	ppb	15^	0.2	5
17-alpha-ethynylestradiol (ethinyl estradiol)#	ppb	n/a	n/a	n/a	Lindane (gamma-BHC)*	ppt	200	32	200
17-beta-estradiol#	ppb	n/a	n/a	n/a	Manganese+	ppb	50	n/a	20
2,2-Dichloropropane	ppb	n/a	n/a	0.5	MBAS (Foaming Agents)+	ppb	500	n/a	n/a
2,3,7,8-tetra CDD (Dioxin)	ppq	30	0.05	5	MCPA	ppb	n/a	n/a	n/a
2,4,5-T	ppb	n/a	n/a	n/a	MCPP	ppb	n/a	n/a	n/a
2,4,5-TP (SILVEX)*	ppb	50	3	1	Mercury*	ppb	2	1.2	1
2,4-D*	ppb	70	20	10	meta,para xylenes	ppb	n/a	n/a	0.5
2,4-DB	ppb	n/a	n/a	n/a	Methiocarb	ppb	n/a	n/a	n/a
2-Chlorotoluene	ppb	n/a	n/a	0.5	Methomyl	ppb	n/a	n/a	2
3,5-Dichlorobenzoic Acid	ppb	n/a	n/a	n/a	Methoxychlor*	ppb	30	0.09	10
3-Hydroxycarbofuran	ppb	n/a	n/a	3	Methyl tert-Butyl Ether (MTBE)*+	ppb	13	13	3
4-androstene-3,17-dione#	ppb	n/a	n/a	n/a	Molinate (ORDRAM)*	ppb	20	1	2
4-Chlorotoluene	ppb	n/a	n/a	0.5	Monochlorobenzene (Chlorobenzene)*	ppb	70	70	0.5
4-Nitrophenol	ppb	n/a	n/a	5	Naphthalene	ppb	n/a	n/a	0.5
Acenaphthylene	ppb	n/a	n/a	5	n-Butylbenzene	ppb	n/a	n/a	0.5
Acifluorfen	ppb	n/a	n/a	n/a	Nickel*	ppb	100	12	10
Alachlor (ALANEX)*	ppb	2	4	1	Nitrate (as Nitrate)*	ppm	45	45	2
Aldicarb (TEMIK)	ppb	n/a	n/a	3	Nitrate (as Nitrogen)*	ppm	10	10	0.4
Aldicarb Sulfone	ppb	n/a	n/a	4	Nitrite (as Nitrogen)*	ppm	1	1	0.4
Aldicarb Sulfoxide	ppb	n/a	n/a	3	n-Propylbenzene	ppb	n/a	n/a	0.5
Aldrin	ppb	n/a	n/a	0.075	Oxamyl (Vydate)*	ppb	50	26	20
Aluminum	ppb	1000	600	50	o-Xylene	ppb	n/a	n/a	0.5
Anthracene	ppb	n/a	n/a	5	Paraquat	ppb	n/a	n/a	20
Antimony*	ppb	6	1	6	PCB-1016 (as DCB)	ppb	0.5	n/a	0.5
Arsenic*	ppb	10	0.004	2	PCB-1221 (as DCB)	ppb	0.5	n/a	0.5
Atrazine (AATREX)*	ppb	1	0.15	0.5	PCB-1232 (as DCB)	ppb	0.5	n/a	0.5
Baygon	ppb	n/a	n/a	n/a	PCB-1242 (as DCB)	ppb	0.5	n/a	0.5
Bentazon (BASAGRAN)*	ppb	18	200	2	PCB-1248 (as DCB)	ppb	0.5	n/a	0.5
Benzene*	ppb	1	0.15	0.5	PCB-1254 (as DCB)	ppb	0.5	n/a	0.5
Benzo (a) Anthracene	ppb	n/a	n/a	10	PCB-1260 (as DCB)	ppb	0.5	n/a	0.5
Benzo (b) Fluoranthene	ppb	n/a	n/a	10	Pentachlorophenol (PCP)*	ppb	1	0.3	0.2
Benzo (ghi) Perylene	ppb	n/a	n/a	10	Perchlorate*	ppb	6	1	4
Benzo (k) Fluoranthene	ppb	n/a	n/a	10	Perfluorobutanesulfonic Acid (PFBS)#	ppb	n/a	n/a	n/a
Benzo(a)pyrene*	ppt	200	7	100	Perfluoroheptanoic Acid (PFHpA)#	ppb	n/a	n/a	n/a
Benzyl Butyl Phthalate	ppb	n/a	n/a	10	Perfluorohexandsulfonic Acid (PFHxS)#	ppb	n/a	n/a	n/a
Beryllium*	ppb	4	1	1	Perfluorononanoic Acid (PFNA)#	ppb	n/a	n/a	n/a
Bromobenzene	ppb	n/a	n/a	0.5	Perfluorooctanesulfonic Acid (PFOS)#	ppb	n/a	n/a	n/a
Bromomethane (Methyl Bromide)#	ppb	n/a	n/a	0.5	Perfluorooctanoic Acid (PFOA)#	ppb	n/a	n/a	n/a
Cadmium*	ppb	5	0.04	1	Phenanthrene	ppb	n/a	n/a	5
Carbaryl (Sevin)	ppb	n/a	n/a	5	Phosphate, Ortho (as PO4)	ppm	n/a	n/a	n/a
Carbofuran (FURADAN)*	ppb	18	0.7	5	Picloram*	ppb	500	166	1
Carbon Tetrachloride*	ppt	500	100	500	p-Isopropyltoluene	ppb	n/a	n/a	n/a
Chloramben	ppb	n/a	n/a	n/a	Propachlor	ppb	n/a	n/a	0.5
Chlordane*	ppt	100	30	100	Pyrene	ppb	n/a	n/a	5
Chloroethane	ppb	n/a	n/a	0.5	Combined Radium (226+228)	pCi/L	5	(0)	n/a
Chloromethane#	ppb	n/a	na	0.5	sec-Butylbenzene	ppb	n/a	n/a	0.5
Chromium (total)	ppb	50	(100)	10	Selenium*	ppb	50	30	5
Chrysene	ppb	n/a	n/a	5	Silver+	ppb	100	n/a	10
cis-1,2-Dichloroethylene (c-1,2-DCE)*	ppb	6	100	0.5	Simazine (PRINCEP)*	ppb	4	4	1
cis-1,3-dichloropropene	ppb	n/a	n/a	0.5	Styrene*	ppb	100	0.5	0.5
Cobalt#	ppb	n/a	n/a	1	tert-Amyl Methyl Ether (TAME)	ppb	n/a	n/a	3
Copper*+	ppm	1.3^	0.3	0.05	tert-Butyl Alcohol (TBA)	ppb	n/a	n/a	2

Cryptosporidium (untreated water)	ooCysts/L	n/a	n/a	n/a	tert-Butylbenzene	ppb	n/a	n/a	0.5
Cyanide*	ppb	150	150	100	Testosterone#	ppb	n/a	n/a	n/a
Dalapon*	ppb	200	790	10	Tetrachloroethylene (PCE)*	ppb	5	0.06	0.5
Di(2-ethylhexyl) Adipate*	ppb	400	200	5	Thallium*	ppb	2	0.1	1
Di(2-ethylhexyl)phthalate (DEHP)*	ppb	4	12	3	Thiobencarb (BOLERO)*+	ppb	70	42	1
Dibenzo (a,h) anthracene	ppb	n/a	n/a	5	Toluene*	ppb	150	150	0.5
Dibromochloropropane (DBCP)*	ppt	200	1.7	10	Total 1,3-Dichloropropene*	ppt	500	200	500
Dibromomethane	ppb	n/a	n/a	0.5	Total PCBs*	ppt	500	90	500
Dicamba (BANVEL)	ppb	n/a	n/a	1.5	Total Suspended Solids (TSS)	ppm	n/a	n/a	n/a
Dichlorodifluoromethane (Freon 12)	ppb	n/a	n/a	0.5	Total Xylenes (m,p and o)*	ppm	1.75	1.8	n/a
Dichloromethane (Methylene Chloride)*	ppb	5	4	0.5	Toxaphene*	ppb	3	0.03	1
Dichlorprop	ppb	n/a	n/a	n/a	trans-1,2-Dichloroethylene (t-1,2-DCE)*	ppb	10	60	0.5
Dieldrin	ppb	n/a	n/a	0.02	trans-1,3-Dichloropropene	ppb	n/a	n/a	n/a
Diethylphthalate	ppb	n/a	n/a	5	Trichloroethylene (TCE)*	ppb	5	1.7	0.5
Diisopropyl Ether (DIPE)	ppb	n/a	n/a	3	Trichlorofluoromethane (FREON 11)*	ppb	150	1300	5
Dimethyl phthalate	ppb	n/a	n/a	5	Trichlorotrifluoroethane (FREON 113)*	ppb	1200	4000	10
di-n-Butylphthalate	ppb	n/a	n/a	5	Trifluralin	ppb	n/a	n/a	n/a
Dinoseb (DNBP)*	ppb	7	14	2	Vanadium	ppb	n/a	n/a	3
Diquat*	ppb	20	6	4	Vinyl Chloride (VC)*	ppt	500	50	500
Endothall*	ppb	100	94	45	Zinc+	ppm	5	n/a	0

Note: All of the contaminants listed in this table were analyzed for, but not detected, in the drinking water in 2016.

Primary (*) or Secondary Contaminants (+)

(#) EPA UCMR3 samples collected in 2013 and 2014