



2012 CITY OF VACAVILLE

Water Quality Report to Consumers

City of Vacaville (the City) wants you, our customers to know that your water system has met all water quality standards and is a safe and reliable supply. These standards are established by the U.S. Environmental Protection Agency (USEPA) and the California State Department of Public Health (DPH). In 2012 the City distributed over 5.5 billion gallons of drinking water. This water was subjected to extensive testing, not only for regulated contaminants, but non-regulated. More than 7,000 analyses were performed on water samples in 2012.

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

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants doesn't necessarily indicate that 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 at (800) 426-4791, or visit the web site at <http://www.epa.gov/safewater/>. If you have further questions, please contact the City Water Quality Lab Supervisor, Mindy Boele, by phone at (707) 469-6400 or by email at mindy.boele@cityofvacaville.com.



Protect Your Water Supply

Polluted storm water potentially affects drinking water sources, which can affect public health and increase drinking water treatment costs. Please help protect your water supply by controlling household, landscaping and automotive products that contain toxic chemicals. Reduce the use of toxic chemicals wherever possible (including fertilizers and pesticides) and be sure to properly recycle or dispose of waste. Everything that goes down a storm drain or sewer may potentially affect your local water. Never dispose of household, landscaping or automotive products and chemicals down the storm drain or in the sewer.

Keep the Lead out of Drinking Water

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. City of Vacaville 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. 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 or at <http://www.epa.gov/safewater/lead>.

SOURCES OF WATER & CONTAMINANTS

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. Vacaville's water supply consists of two surface water sources and 12 deep groundwater wells. Lake Berryessa surface water, conveyed through Putah South Canal (PSC), provided 30% of the City's total consumption and Sacramento Delta surface water, from the North Bay Aqueduct (NBA), provided an additional 39% in the year 2012. Groundwater from the 12 deep wells made-up the balance (30%) of our water needs. Treatment for surface water is divided between the Vacaville Water Treatment Plant (VWTP), located on Allison Drive and the North Bay Regional Water Treatment Plant (NBR), located on Peabody Road. The VWTP treats PSC source water only, while the NBR plant, which is jointly-owned by the cities of Vacaville and Fairfield, treats both PSC and NBA source waters. The deep groundwater wells are located on or near Elmira Road, Orange Drive, and Vaca Valley Parkway.

ARSENIC IN DRINKING WATER

Vacaville Meets the Limit

While arsenic levels in your drinking water are less than the current USEPA standard of 10 ppb, the groundwater does contain low levels of arsenic. These results are from samples taken in 2011 and 2012. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The USEPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

HEALTH RELATED INFORMATION

Precautions for people with weakened immune systems:

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those with cancer undergoing chemotherapy, people 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 and Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling USEPA's Safe Drinking Water Hotline (800-426-4791) or visiting the web site at www.epa.gov/.

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

Let us Know What You Think!!

This is the first year that the Federal and State regulators have allowed us to send this report to our customers electronically. In so doing, we have been able to improve the content and cut the cost of keeping you informed!

1. There has been a real cost savings from the printing and mailing of over 25,000 copies.
2. Efficiency and timely-ness is increased, since we can get this posted to our site much more quickly than printing and mailing.
3. Ease of updating is increased, since sections can be added or removed much more quickly to get current information to you.
4. It is better for the environment in that we are not printing and expending the energy to create so many hard copies of this document.

So, what do you think? Would you prefer to receive the hard copy mailer version. These still are available and we can mail one to you at your request, or you can visit the Libraries, Civic Centers, or City Hall to pick one up.

SOURCE WATER ASSESSMENTS AND VULNERABILITY SUMMARIES

A Source Water Assessment evaluates the quality of water that is used in a community drinking water supply. It is also used to determine the Potential Contributing Activities (PCAs) that occur within and nearby a source water supply. The PCAs are then compiled into a Vulnerability Summary report.

The latest Summary report for the Sacramento Delta, including the Barker Slough North Bay Aqueduct (NBA), was updated in 2012. The source was considered to be most vulnerable to animal grazing activities, urban and agricultural runoff, recreational use and seawater intrusion.

The cities treating NBA water, in conjunction with the Solano County Water Agency, have implemented watershed management practices to improve water quality and reduce the significance of the potential contaminant sources.

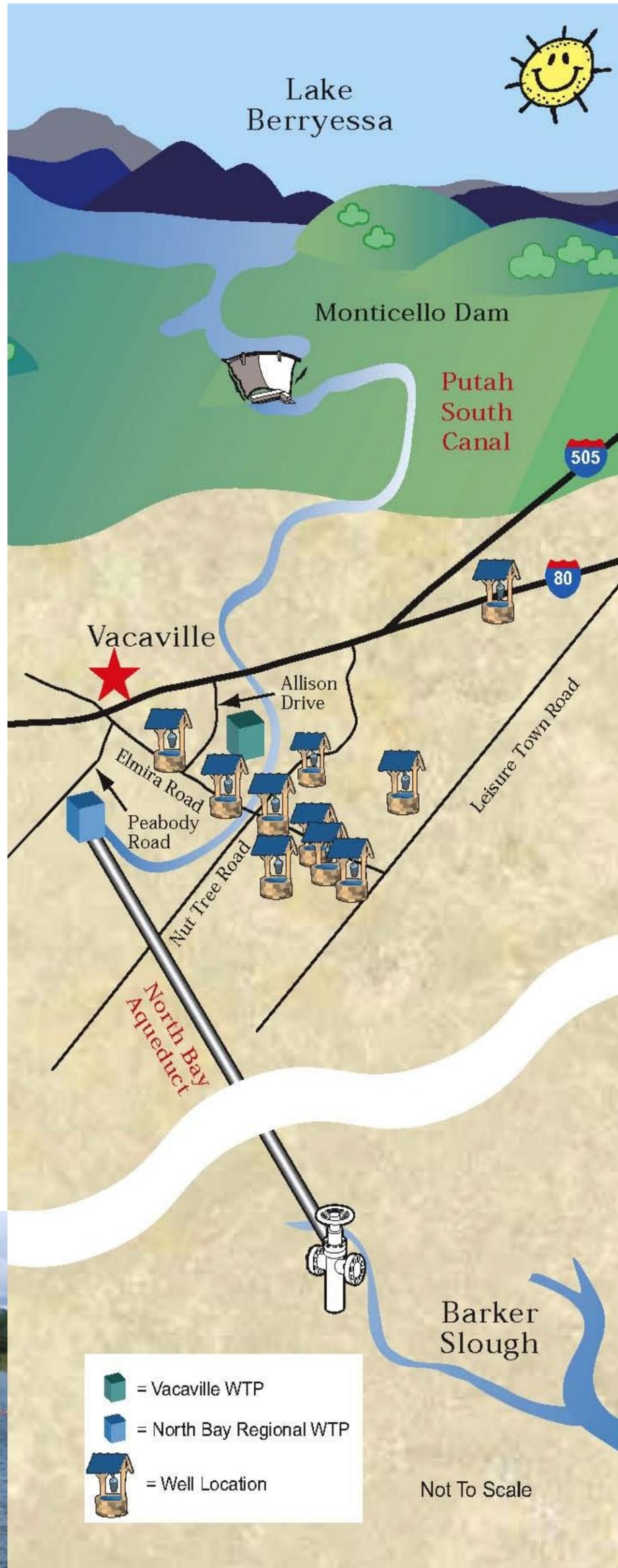
The latest Vulnerability Summary report for Putah South Canal (PSC) was updated in 2012. The results of the assessment survey indicated that PSC is most vulnerable to illegal activities/unauthorized dumping and herbicide application. Management measures along the canal have been implemented that mitigate the risk for each of these PCAs.

The Summaries for Vacaville’s groundwater wells were performed in 2002, 2003, and 2005. The wells are considered most vulnerable to automobile gas stations, chemical and petroleum processing and storage, dry cleaners, septic systems, sewer collection systems, agricultural drainage and agricultural and irrigation wells. The wells offer various levels of protection from PCAs due to factors such as the aquifer, deep water table intakes, well construction features and physical barriers.

A copy of the Source Water Assessments and Vulnerability Summaries can be obtained through the California DPH, Drinking Water Field Operations Branch, San Francisco District Office, 850 Marina Bay Parkway, Bldg P, 2nd Floor, Richmond, California 94804. You may request that a summary be sent to you by contacting Betty Graham, District Engineer, California Department of Public Health, at (510) 620-3474.



Everybody Needs good clean water!



Where your water comes from: Map is not to scale, but gives you a relative idea of the location of water sources for the City of Vacaville.

What are the three most common water concerns and what can you do about them?

1. Odor from one or more sinks: Turns out that the water isn't the culprit...usually it can be linked to a drain that needs good flushing. Adding a lemon or orange peel to your garbage disposal occasionally will help freshen the kitchen drain.
2. Chemical taste or odor: Most often, that taste and odor is related to Chlorine in the water. We use chlorine to disinfect the water but it can taste harsh. Letting water stand in the refrigerator for a while or adding lemon to it will remove that odor and taste.
3. Cloudy or “milky” water: This is due to tiny air bubbles in the water and occurs when the water is very cold. Letting the water stand will allow the air to come out of solution and the water will clear up.

HOW TO READ THE FOLLOWING TABLES The test results are divided into the following tables: Health-Based Primary Standards; Aesthetic-Based Secondary Standards; and Unregulated Constituents. Monitoring unregulated constituents helps USEPA and DPH to determine where contaminants occur and whether to regulate them. To read the tables, start with the far left column titled Substance and read across the row. Units express the amount measured. MCL shows the highest amount of the substance allowed. PHG (MCLG) is the goal amount for that substance, which may be a lower amount than the amount allowed. The Range reports the lowest and highest amounts detected and the Average is the annual average. Drinking Water Sources describes where the substance usually originates. To better understand the report, use the Legend that defines the terms used.

Primary Standards: Health-Related Standards	Substances Reported in Calendar Year 2012
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SUBSTANCE	UNITS	DATE OF LAST SAMPLE	MCL	PHG (MCLG)	GROUNDWATER		DRINKING WATER SOURCES
					Range	Average	
CLARITY Turbidity	ntu	2011	tt	na	0.09 - 0.5	0.16	Soil runoff.
INORGANIC CHEMICALS Aluminum	ppb	2011	1000	600	nd - 88	8	Erosion of natural deposits; residue from some surface water treatment processes.
Arsenic	ppb	2012	10	0.004	nd - 7.7	2.7	Erosion of natural deposits, glass and electronics production waste.
Barium	ppm	2011	1	2	0.07 - 0.14	0.10	Erosion of natural deposits.
Chromium	ppb	2011	50	100	1.7 - 22	10	Discharge from chrome plating and erosion of natural deposits.
Fluoride	ppm	2012	2	1	0.15 - 0.38	0.21	Erosion of natural deposits.
Lead	ppb	2011	al = 15	2	nd - 0.97	0.14	Erosion of natural deposits.
Nitrate (as N)	ppm	2012	10	10	0.4 - 5.2	2.0	Runoff and leaching from fertilizer use; leaching from septic tanks; erosion of natural
RADIOACTIVITY Gross Beta Activity	pCi/L	2011	50	0	nd - 5.0	nd	Decay of natural and man-made deposits.
Uranium	pCi/L	2011	20	0.43	1.1 - 3.2	1.7	Erosion of natural deposits.

SUBSTANCE	UNITS	DATE OF LAST SAMPLE	MCL	PHG (MCLG)	SURFACE WATER -NBR		DRINKING WATER SOURCES
					Highest Detection	Percent in Compliance (<0.5 ntu)	
CLARITY Turbidity (a)	ntu	2012	tt	na	0.08	100%	Soil runoff.

SUBSTANCE	UNITS	DATE OF LAST SAMPLE	MCL	PHG (MCLG)	Range	Average	DRINKING WATER SOURCES
INORGANIC CHEMICALS Aluminum	ppb	2012	1000	600	nd - 25	8	Erosion of natural deposits; residue from some surface water treatment processes.
Barium	ppm	2012	1	2	nd - 0.03	0.02	Erosion of natural deposits.
Fluoride	ppm	2012	2	1	nd - 0.2	0.12	Erosion of natural deposits.
Nitrate (as N)	ppm	2012	10	10	nd - 1.2	0.7	Runoff and leaching from fertilizer use; leaching from septic tanks; erosion of natural deposits.

SUBSTANCE	UNITS	DATE OF LAST SAMPLE	MCL	PHG (MCLG)	SURFACE WATER - VVTP		DRINKING WATER SOURCES
					Highest Detection	Percent in Compliance (<0.5 ntu)	
CLARITY Turbidity (a)	ntu	2012	tt	na	0.2	100%	Soil runoff.

SUBSTANCE	UNITS	DATE OF LAST SAMPLE	MCL	PHG (MCLG)	Range	Average	DRINKING WATER SOURCES
INORGANIC CHEMICALS Arsenic	ppb	2012	10	0.004	2	2	Erosion of natural deposits, glass and electronics production waste.
Barium	ppm	2012	1	2	0.04	0.04	Erosion of natural deposits.
Chromium	ppb	2012	50	100	3	3	Discharge from chrome plating and erosion of natural deposits.
Fluoride	ppm	2012	2	1	0.08	0.08	Erosion of natural deposits.

LEGEND AND DEFINITIONS:

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.

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.

PDWS (Primary Drinking Water Standard): MCLs and MRDLs are set 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.

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

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

Secondary Standards: Aesthetic-Related			GROUNDWATER		SURFACE WATER NBR		SURFACE WATER VWTP		DRINKING WATER SOURCES
SUBSTANCE	UNITS	MCL	Range	Average	Range	Average	Range	Average	
Aluminum	ppb	200	nd - 88	8	nd - 25	8	nd	nd	Erosion of natural deposits; residue from some surface water treatment processes Runoff/leaching from natural deposits; seawater influence. Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives Naturally-occurring organic materials. Municipal and industrial waste discharges. Leaching from natural deposits; industrial wastes. Leaching from natural deposits. Naturally-occurring organic materials. Industrial discharges. Runoff/leaching from natural deposits; seawater influence. Substances that form ions when in water; industrial wastes. Runoff/leaching from natural deposits. Runoff/leaching from natural deposits; industrial wastes.
Chloride	ppm	250	8 - 37	18	16 - 20	18	8	8	
Copper	ppb	1000	nd - 24	2	nd	nd	3	3	
Color	units	15	nd	nd	nd	nd	nd	nd	
Foaming Agents (MBAS)	ppb	500	nd	nd	nd	nd	nd	nd	
Iron	ppb	300	nd - 89	12	nd	nd	nd	nd	
Manganese	ppb	50	nd - 4.1	0.7	nd	nd	2	2	
Odor - Threshold	ton	3	nd - 1	0.3	1 - 2	2	1	1	
Silver	ppb	100	nd	nd	nd - 16	8	nd	nd	
Sulfate	ppm	250	25 - 68	41	32 - 56	43	24	24	
Specific Conductance	uS/cm	1600	460 - 820	596	270 - 410	328	370	370	
Total Dissolved Solids	ppm	1000	290 - 540	383	171 - 245	206	190	190	
Zinc	ppm	5	nd	nd	nd	nd	nd	nd	

Additional Substances Analyzed:									
Alkalinity	ppm	No Std	200 - 330	236	77 - 145	104	160	160	Naturally-occurring due to carbonates and bicarbonates dissolved in water.
Boron	ppb	al = 1000	110 - 280	190	120 - 140	127	160	160	Leaching from natural deposits.
Calcium	ppm	No Std	13 - 81	43	14 - 20	18	18	18	Contributes to hardness; leaching from natural deposits.
Hardness (g)	ppm	No Std	81 - 310	190	77 - 158	108	180	180	Measure of Calcium and Magnesium dissolved in water.
Magnesium	ppm	No Std	12 - 27	20	10 - 27	16	32	32	Contributes to hardness; leaching from natural deposits.
pH	units	No Std	7.3 - 8.1	7.7	8.1 - 8.4	8.2	8.5	8.5	Naturally occurring; range should be from 6.5 to 8.5 in drinking water.
Potassium	ppm	No Std	1.5 - 5.6	3.5	1.7 - 2.1	1.9	1.2	1.2	Leaching from natural deposits.
Sodium	ppm	No Std	41 - 75	55	20 - 39	30	11	11	Leaching from natural deposits.
Vanadium	ppb	al = 50	6 - 27	14	nd - 4.2	2.8	5	5	Leaching from natural deposits; industrial wastes.
Molybdenum	ppb	No Std	nd - 3	0.4	nd	nd	nd	nd	Leaching from natural deposits; industrial wastes.

DISTRIBUTION SYSTEM INFORMATION

SUBSTANCE	UNITS	MCL	PHG (MCLG)	RANGE	DRINKING WATER SOURCES
Lead (b) (c)	ppb	al = 15	0.2	2.5 ppb reflect the 90th percentile. Of the 31 samples analyzed, none exceeded the action level. Data is from the last required sampling of September of 2011.	Erosion of natural deposits; Internal corrosion of household water plumbing systems.
Copper (b) (c)	ppm	al = 1.3	0.30	0.20 ppm reflect the 90th percentile. Of the 31 samples analyzed, none exceeded the action level. Data is from the last required sampling of September of 2011.	
Fluoride (d) (e)	ppm	0.7 - 1.3	0.8	Distribution system-wide monthly average = 0.8 ppm with a minimum of 0.6 ppm and a maximum of 1.0 ppm.	Erosion of natural deposits; Water additive that promotes strong teeth.
Total Coliform Bacteria (Total Coliform Rule)	MPN/100 mL	5%	(0)	Distribution system-wide highest monthly value = 0 % (1352 samples taken in 2012.)	Naturally present in the environment.
SUBSTANCE	UNITS	MCL or MRDL	MCLG or MRDLG	LEVEL DETECTED	DRINKING WATER SOURCES
Chlorine	ppm	4	4	Average = 0.78 ppm Minimum = 0.02 Maximum = 1.4 ppm	Drinking water disinfectant added for treatment.
Control of DBP Precursors (TOC)	ppm	tt	-	Average = 2.0 ppm Minimum = 1.5 ppm Maximum = 2.6	Various natural and manmade sources.



Treatment Plant



McMurtry Reservoir



DISINFECTION BY-PRODUCTS

SUBSTANCE / Units	MCL	PHG (MCLG)	Average	Range	Sample Date	Violation	Drinking Water Sources
Total Trihalomethanes / ppb (d) (f)	80	na	21	5 - 54	2012	NO	By-product of drinking water chlorination.
Halo-Acetic Acids / ppb (d) (f)	60	na	9	1 - 33	2012	NO	

LEGEND AND DEFINITIONS (continued):

- na: Not applicable or Not available at this time.
 - nd: Not Detected.
 - ntu: Nephelometric Turbidity Units. This is the standard unit for turbidity measurement.
 - pCi/L: Pico Curies per Liter.
 - uS/cm: unit of measure of conductance.
 - ppm: Parts Per Million or Milligrams Per Liter (mg/L); (30 seconds in 1 year).
 - ppb: Parts per Billion or Micrograms Per Liter (ug/L); (3 seconds in 100 years).
 - ton: Total Odor Number.
- (a): Range is the maximum monthly value measured; 100% represents the lowest percentage of samples which meet monthly compliance limit of 0.5 ntu.
- (b): This is the State action level for samples collected from inside homes.
- (c): The 90th percentile reflects the concentration of lead or copper at which 90% of the samples tested were found to have not exceeded. Household lead and copper results are from 2011. The next sampling is scheduled for the summer of 2014.
- (d): Not possible to differentiate between groundwater and surface water source.
- (e): Added as required for dental health protection. Standard depends upon temperature.
- (f): Compliance is based on a running annual average of samples collected quarterly.