

2013 Consumer Confidence Report

(Year 2012 Data)

WHY HAVE I RECEIVED THIS REPORT?

In 1996, Congress amended the Safe Drinking Water Act to include a requirement that water utilities annually notify customers about their drinking water quality. This report is produced annually by the Department of Water Utilities to provide information about the San Angelo water system, source water, levels of minerals and any detected contaminants, and to ensure compliance with applicable TCEQ rules and regulations. We hope this report will also help answer any questions you may have about our water system and quality. The Department of Water Utilities is part of your city government. If you have questions about this report, you may contact us by telephone or mail:

Department of Water Utilities
72 W. College Ave.
San Angelo, Texas 76903
325.657.4209
<http://www.cosatx.us>

San Angelo Water System Facts

	2010	2011	2012
Total Year Pumpage (Billion Gallons)	4.87	5.75	4.53
Daily Treatment Capacity (Million Gallons)	42	42	42
Maximum Daily Usage (Million Gallons)	24	27	21
Average Daily Usage (Million Gallons)	15	17	14
Average Person Usage (Gallons Daily)	161	177	150
Distribution System (Miles)	655	656	672
Service Connections (Water Meters)	31,721	31,893	32,844
Population	93,000	93,200	94,544

Este reporte incluye información importante sobre el agua para tomar. Para asistencia en Español, favor de llamar al telefono (325) 657-4209.

WHERE DOES OUR WATER COME FROM?

San Angelo currently has six surface water sources: Twin Buttes Reservoir, O.C. Fisher Lake, Lake Nasworthy, O.H. Ivie Reservoir, E.V. Spence Reservoir, and the South Concho River. San Angelo currently gets its source water from O.H. Ivie Reservoir, Twin Buttes and/or the South Concho River. O.H. Ivie Reservoir is typically the primary source. However, on occasion Twin Buttes and the South Concho River are used as the primary source. Occasionally, the two source waters are blended. In July 2013, the Hickory Aquifer will also become an available source water.

HOW IS OUR WATER USED?

Residential	64%
Commercial	12%
System Operation	16%
Industrial	8%

SPECIAL HEALTH INFORMATION

The following information is not meant to alarm or scare you. It is meant to make you aware. The exact wording shown below is required by state regulations.

"You may be more vulnerable than the general population to certain microbial contaminants, such as *Cryptosporidium*, in drinking water. Infants, some elderly, or immunocompromised persons such as those undergoing chemotherapy for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care provider. Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline at (800) 426-4791."

TTHMs (Total Trihalomethanes). Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

CURRENT 2013 CAPITAL PROJECTS

- Replace approximately 20,000 feet of water mains; \$1.3 million.
- Replace large valves on transmission pipelines; \$0.5 million.
- Replace 3,500 feet of sewer mains in Sulfur Draw; \$4.5 million.
- Install 10,000 feet of sewer mains to Lake Nasworthy Red Bluff area; \$3.3 million.
- Hickory 30" Transmission Main Pipeline; \$39.0 million.
- Hickory Booster Pump Station and Well Field Pumps; \$12.8 million.
- Hickory Groundwater Treatment Facility; in bid phase, estimated \$25-30 million.
- Hickory Well Field Expansion, Phase I, in bid phase, estimated \$7.0-10.5 million.

PROJECTS PLANNED FOR 2014

- Replace approximately 20,000 feet of water mains; \$1.3 million.
- Replace 3,000 feet of sewer mains along Concho River; \$1.2 million.
- Replace 3,500 feet of water transmission mains in Ave. I; \$2.3 million.
- Hickory Well Field Expansion, Phase 2, in bid phase, estimated \$7.0-8.3 million.

WHY DO WE CHANGE OUR DISINFECTION PROCESS EACH YEAR FROM CHLORAMINES TO FREE CHLORINE?

Surface water sources, such as O.H. Ivie and the South Concho River, typically contain dissolved organic compounds that react with free chlorine during disinfection to form unwanted by-products called trihalomethanes (THM's). To reduce the production of THM's, liquid ammonium sulfate is added at the time of chlorination so it will combine with the chlorine to form chloramines. This is done specifically to reduce and control the production of THM's. As chloramine moves through the distribution system and provides disinfection of the water, it partially decays and releases ammonia. Over time, the ammonia can cause unwanted side effects such as nitrification and biofilm. Periodically the disinfectant must be changed back from chloramines to free chlorine to help control nitrification and reduce the biofilm. This typically takes about four weeks to accomplish. During this time, chlorine dosage levels at the treatment plant are not increased and are often reduced. Free chlorine has a much lower threshold of odor than chloramines so the water may smell like it has more chlorine in it when it actually doesn't.

DON'T POUR IT DOWN THE DRAIN - FATS, OILS, GREASE, SOLIDS

These materials are generated during food preparation. They don't mix well with water. When flushed, these materials can build up and block the entire sewer pipeline and cause raw sewage overflows into your home, lawn, streets, parks and rivers. Never pour fats, oil, grease or food scraps into your sink, garbage disposal or toilet. It is best to place as much of these type wastes as you can into your garbage.

WATER CONSERVATION TIPS

- When filling your bathtub, plug the tub before turning the water on and then adjust the temperature as the tub fills up.
- Fix your leaky faucets as soon as they are discovered. It is simple and inexpensive.
- Install a rain shut-off device on your automatic sprinklers to eliminate unnecessary watering.
- Try and do at least one thing each day that saves water. Even if the savings are small, every drop counts.
- When watering your lawn, do not allow your water to run off property to a gutter, street, alley, or drainage for a distance of more than 150 feet.

CURRENT DROUGHT LEVEL AS OF THIS PRINTING - LEVEL II

- Watering your lawn is allowed only once every 7 days April 1 thru October 31 and once every 14 days November 1 thru March 31. No outside watering from noon to 6:00pm from April 1 thru October 31.
- No exceptions for more frequent watering of new landscapes, which can be sprinkled once every seven days.
- Higher “excessive usage fees.” For single-family homes, an additional fee of \$3.50 per 1,000 gallons is charged for all usage between 10,000-19,000 gallons, another \$5 per 1,000 gallons for all usage between 20,000-29,000 gallons, and \$8 per 1,000 gallons for all usage over 29,000 gallons. The surcharges will begin with water customers’ July billing, which reflects June usage.

WHAT EFFECT WILL THE HICKORY AQUIFER HAVE ON OUR WATER QUALITY?

The Hickory Aquifer water contains low levels of Radium²²⁶ and Radium²²⁸. An ion exchange system to remove radium is currently being built and is scheduled to be online in the second half of 2014. Once radium is removed, the groundwater will be blended with existing surface water sources. The Hickory Aquifer water has a much lower mineral and organic content than the city’s surface water sources. Utilizing this water will result in a lower overall total mineral content of the finished water. The lower levels of organic material in the water will also help lower the formation of trihalomethanes (THM's) during the disinfection process.

A WORD ABOUT LEAD AND COPPER

If present, elevated levels of lead can cause serious health problems, especially for young children and pregnant women. Lead in drinking water comes primarily from materials used in home plumbing, fixtures and service lines. This water supply is responsible for providing water with acceptable low levels of lead, however 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 elevated levels of lead by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

Water Quality Monitoring Results - Regulated Contaminants

Substance (units)	State and Federal Standards		Levels Measured in San Angelo Water			Possible Source
	MCLG	MCL	Average Level Detected	Minimum Level Detected	Maximum Level Detected	
Fluoride (ppm)	4	4	0.46	0.46	0.46	Erosion of natural deposits
Nitrate-N (ppm)	10	10	0.25	0.25	0.25	Fertilizer runoff, natural erosion, septic tank drainage
Turbidity (ntu)	0.3	TT 0.3	0.12	0.04	0.25	Soil runoff, clay, dissolved organic matter
Total Halo Acetic Acids (ppb)	NA	60	16.3	12.7	31.3	Water disinfection by-product
Total Trihalomethanes (ppb)	NA	80	32.5	4.7	140	Water disinfection by-product
Arsenic (ppb) ¹	0	10	4.9	4.9	4.9	Erosion of natural deposits
Barium (ppm) ¹	2	2	0.269	0.269	0.269	Erosion of natural deposits
Chloramines (ppm)	4 MRDLG	4 MRDL	2.9	0.2	6.3	Disinfectant used to control microbes
Total Coliform Bacteria	NA	5%	0	0	1% 1 Occurrence	Naturally present in the environment
Lead (ppb)	0	15	90th Percentile 10.9	ND	70	Corrosion of household plumbing systems 4 exceeded action level ² 0.0231 - 0.0733
Copper (ppm)	1.3	1.3	90th Percentile 0.711	.004	2.67	Corrosion of household plumbing systems 1 exceeded action level ²
Selenium (ppb) ¹	50	50	9.8	9.8	9.8	Erosion from natural deposits. Discharge from petroleum and metal refineries. Mining.
Beta/photon Emitters (pCi/L) ¹	0	50	12.6	12.6	12.6	Decay of natural and man-made deposits.

Gross Alpha Compliance (pCi/L) ¹	0	15	3.1	3.1	3.1	Erosion of natural deposits.
<p>Data presented in this report is from the 2012 calendar year or from the most recent testing performed in accordance with State regulations. The 90th percentile value means 90% of the samples were at or below this value. EPA considers the 90th percentile value the same as an "average" value for other contaminants. Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. EPA considers 50 pCi/L to be the level of concern for beta particles.</p> <p>¹Tested in 2011</p> <p>²The samples that exceeded action levels were subsequently retested and were within regulatory limits.</p>						

Secondary and Other Unregulated Constituents						
Substance (units)	Year Tested	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Limit	Possible Source
Bicarbonate (ppm)	2012	143	143	143	NA	Erosion of natural deposits
Chloride (ppm)	2012	505	505	505	300	Erosion of natural deposits, natural occurring element, ancient oceanic deposits
pH (units)	2012	7.4	7.4	7.4	> 7.0	Measure of corrosivity of the water
Sulfate (ppm)	2012	419	419	419	300	Erosion of natural deposits, natural occurring
T Alkalinity as CaCO ₃ (ppm)	2012	117	117	117	NA	Erosion of natural deposits, natural occurring
Total Dissolved Solids (ppm)	2012	1550	1550	1550	1000	Erosion of natural deposits, total dissolved mineral constituents in 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. MCLG's allow for a margin of safety.

MCL (Maximum Contaminant Level)- The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to maximum contaminant level goals as feasible using the best available treatment technology.

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.

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.

mrem/year--millirems per year (a measure of radiation absorbed by the body)

NTU--nephelometric turbidity units (a measure of turbidity)

pCi/L--picocuries per liter (a measure of radioactivity)

ppb--parts per billion, or micrograms per liter (µ/L)

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

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

ppq--parts per quadrillion, or picograms per liter (pg/L)

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

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

ND - no detection

NA - not applicable

Note: Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

FACTS ABOUT TRIHALOMETHANE'S (THM's)

When chlorine is added to source water containing dissolved organics, undesirable by-products are often formed called trihalomethanes (THM's). THM's are a common problem with most all surface water treatment plants. In August 2012, San Angelo received its first ever treatment violation for elevated THM's. The violation period began 7/1/2012 and ended 9/30/2012. Violations are determined on the average of four running quarterly test results. The higher than normal THM level was attributed to the following factors:

1. Dissolved organics in the water are a major factor in THM production. Evaporation caused by the drought had caused O.H. Ivie to drop to near 10% capacity, which concentrated the organic content of the lake to higher levels.
2. Conservation measures implemented during the summer due to declining water resources resulted in the water residence time in the distribution system to increase substantially. Water age and hotter summer temperatures are major contributors to THM formation.

2012 THM Quarterly Testing - Results in ppb					
Sample Site	Q1	Q2	Q3	Q4	2012 Average
	3/6/12	5/23/12	8/13/12	12/17/12	
DBP2-01	123.0	41.3	140.0	7.8	78.0
DBP2-02	Na	Na	na	8.5	8.5
DBP2-03	Na	Na	na	4.7	4.7
DBP2-04	Na	Na	na	5.3	5.3
DBP2-05	Na	Na	na	5.6	5.6
DBP2-06	Na	Na	na	6.7	6.7
DBP2-07	Na	Na	na	7.4	7.4
DBP2-08	Na	Na	na	7.5	7.5

2012 THM Highest Running Annual Average - Results in ppb					
DBP2-01	12/6/11	3/6/12	5/23/12	8/13/12	Running Annual Average
		77.5	123.0	41.3	140.0

Following the treatment violation in late 2012, steps were taken at the water treatment plant to help control and reduce the formation of THM's. These steps, which included enhanced coagulation, pH control, distribution system flushing, close monitoring of organic carbon, along with the added rainfall to O.H. Ivie reservoir from the October 2012 rains, have resulted in a considerable lowering of THM's in our drinking water and brought the levels to well within the regulatory limit of 80 ppb. The following table summarizes the results of water samples collected this year to date.

2013 THM Quarterly Testing - Results in ppb					
Sample Site	Q1	Q2	Q3	Q4	2013 Average
	2/4/13	5/13/13	---	---	
DBP2-01	7.9	12.6	---	---	10.3
DBP2-02	27.1	13.3	---	---	20.2
DBP2-03	6.0	12.4	---	---	9.2
DBP2-04	6.2	27.9	---	---	17.1
DBP2-05	22.2	15.2	---	---	18.7
DBP2-06	17.0	19.5	---	---	18.3
DBP2-07	9.1	14.0	---	---	11.6
DBP2-08	42.2	12.7	---	---	27.5

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

The TCEQ completed an assessment of your source water and results indicate that some of your sources are susceptible to certain contaminants. The sampling requirements for your water system are based on this susceptibility and previous sample data. Any detections of these contaminants may be found in this Consumer Confident Report.

The sources of drinking water (both tap 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: (1) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; (2) inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; (3) pesticides and herbicides, which might have a variety of sources such as agriculture, urban storm water runoff, and residential uses; (4) organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; (5) radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Contaminants may be found in drinking water that may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791. For more information on source water assessments and protection efforts at our system, contact Kevin Krueger, Assistant Director of Water Utilities, 325.657.4209.