

# Annual Water Quality Report

## January 1-December 31, 2016

### About this Report

The Consumer Confidence Report is a summary of the quality of the water the City of Crandall provides to its customers. The report includes analysis results from the most current USEPA required water quality tests. The City of Crandall hopes this information helps you, the consumer, become more knowledgeable about your drinking water supply.

### Public Participation

City of Crandall Council Meetings are held on the first Monday of each month with adjustments made for holidays or other conflicts. Meetings are held at 400 W. Lewis St. Crandall Texas 75114 in the CISD Board Room and begin at 7:00 p.m., unless otherwise posted on the agenda. The public may sign in to address the council regarding this report at any meeting. Next Meeting will be July 10, 2017

### Contact Us

For more information regarding this report, contact: Joe Villarreal, Public Works Director at (972) 427-3771.

Este informe contiene información muy importante sobre el agua que usted bebe. Tradúzcalo ó hable con alguien que lo entienda bienzn.

## USEPA Safe Drinking Water Hotline

The U.S. Environmental Protection Agency (USEPA) Safe Drinking Water Hotline provides the general public, regulators, medical and water professionals, academia, and media, with information about drinking water and ground water programs authorized under the Safe

Drinking Water Act. The Hotline responds to factual questions in the following program areas:

- Local drinking water quality
- Drinking water standards
- Public drinking water systems
- Source water protection
- Large capacity residential septic systems
- Commercial and industrial septic systems
- Injection wells
- Drainage wells

## Our Drinking Water is Regulated

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. This report is intended to provide you with important information about your drinking water and the efforts made by the water system to provide safe drinking water. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

## Where We Get Our Water



The City of Crandall is a member of the North Texas Municipal Water District (NTMWD) which supplies water to over 35 cities across North Texas. The primary source for Crandall's water is Purchased Surface Water delivered from Lavon Lake and is supplemented by water from Lake Texoma, Jim Chapman Lake, Lake Tawakoni and the East Fork Raw Water Supply Project (Wetland). Crandall's water is treated at the NTMWD facility in Wylie, Texas and

is delivered to customers through the city's distribution system. The TCEQ has completed a Source Water Assessment for all drinking water systems that own their own sources. The report describes the susceptibility and types of constituents that may come into contact with your drinking water source based on human activities and natural conditions. The system(s) from which we purchase our water received the assessment report. For more information on source water as-

sessments and protection efforts at our system, Contact North Texas Municipal Water District. 972/442-5405 or follow this link directly.

[http://dww2.tceq.texas.gov/DWW/JSP/SWAP.jsp?tin-wsys\\_is\\_number=1021&tinwsys\\_st\\_code=TX&wsnumber=TX0430044%20%20%20&DWWState=TX](http://dww2.tceq.texas.gov/DWW/JSP/SWAP.jsp?tin-wsys_is_number=1021&tinwsys_st_code=TX&wsnumber=TX0430044%20%20%20&DWWState=TX)

## Sources of Drinking Water

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.

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.

Contaminants that may be present in source water include:

- 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, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants,

which 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, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which 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. For more information on taste, odor, or color of drinking water, please contact our office. 972-427-3771



## Water Loss Data

During the 2013 83rd Regular Legislative Session, House Bill (HB) 1461 was passed and became effective on September 1, 2013. HB 1461 requires any retail public utility that is required to file a water loss audit with Texas Water Develop-

ment Board to notify its customers of the most recent water loss reported in the water loss audit. In the water loss audit submitted to the Texas Water Development Board for the time period of January-December 2016, the

City of Crandall Water System lost an estimated 13,723,000 gallons of water. If you have any questions about the water loss audit, please contact Joe Villarreal (972) 472-3771.



## Special Notice

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; persons 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 providers. 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

## Secondary Constituents

Many constituents (such as calcium, sodium, or iron) which are often found in drinking water, can cause taste, color and odor problems. The taste and odor constituents are called secondary constituents and are regulated by the State of Texas, not the

EPA. These constituents are not necessarily causes for health concerns. For more information on taste, odor, or color of drinking water, please call 972-427-3771.

## Lead Statement

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. The NTMWD 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>

## Definitions

**Avg.:** Regulatory compliance with some MCLs are based on running annual average of monthly samples.

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs

allow for a margin of safety.

**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 contamination.

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

**Level 2 Assessment:** a very detailed study of the water system to identify 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.

## Abbreviations

<b>MFL:</b>	Million fibers per liter (a measure of asbestos)
<b>na:</b>	not applicable.
<b>NTU:</b>	Nephelometric Turbidity Units (a measure of turbidity)
<b>pCi/L:</b>	Picocuries per liter (a measure of radioactivity)
<b>ppb:</b>	micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water
<b>ppm:</b>	milligrams per liter or parts per million - or one ounce in 7,350 gallons of water
<b>ppq:</b>	parts per quadrillion or picograms per liter (pg/L)
<b>ppt:</b>	parts per trillion or nanograms per liter (ng/L)
<b>Mrem:</b>	millirem per year (a measure of radiation absorbed by the body)
<b>Treatment Technique or TT:</b>	A required process intended to reduce the level of contaminant in drinking water

### Definitions:

**Action Level Goal (ALG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. ALG's allow for a margin of safety.

**Action Level:** The concentration of a contaminate which, if exceeded, triggers treatment or other requirements which a water system must follow.

Water Received From the Tawakoni Water Treatment Plant

Coliform Bacteria						
Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level	Total No. of Positive E. Coli or Fecal Coliform Samples	Violation	Likely Source of Contamination
0	5%	0	0	0	No	Naturally present in the environment.

NOTE: Reported monthly tests found no fecal coliform bacteria. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.

Regulated Contaminants								
Disinfectants and Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Total Haloacetic Acids (HAA5)	2016	16	8.2-27.2	No goal for the total	60	ppb	No	By-product of drinking water chlorination.
Total Trihalomethanes (TTHm)	2016	30	17.5-40.4	No goal for the total	80	ppb	No	By-product of drinking water chlorination.
Bromate	2016	6	0.0-6.0	5	10	ppb	No	By-product of drinking water ozonation.

NOTE: Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.

Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Antimony	2016	Levels lower than detect level	0 - 0	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2016	Levels lower than detect level	0 - 0	0	10	ppb	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2016	0.056	0.056 - 0.056	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2016	Levels lower than detect level	0 - 0	4	4	ppb	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Cadmium	2016	Levels lower than detect level	0 - 0	5	5	ppb	No	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.
Chromium	2016	0.89	0 - 0.89	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2016	0.36	0 - 0.36	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Mercury	2016	Levels lower than detect level	0 - 0	2	2	ppb	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland.
Nitrate (measured as Nitrogen)	2016	0.546	0.278 - 0.546	10	10	ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.

Nitrate Advisory: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels

may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Selenium	2016	Levels lower than detect level	0-0	50	50	ppb	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2016	Levels lower than detect level	0 - 0	0.5	2	ppb	No	Discharge from electronics, glass, and leaching from ore-processing sites; drug factories.
Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/Photon emitters	5/28/2015	Levels lower than detect level	0 - 0	0	4	mrem/yr	No	Decay of natural and man-made deposits.
Gross alpha excluding radon and uranium	5/28/2015	Levels lower than detect level	0 - 0	0	15	pCi/L	No	Erosion of natural deposits.
Radium-228	5/28/2015	Levels lower than detect level	0 - 0	0	5	pCi/L	No	Erosion of natural deposits.
Synthetic organic contaminants including pesticides and herbicides	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
2, 4, 5 - TP (Silvex)	2015	Levels lower than detect level	0 - 0	50	50	ppb	No	Residue of banned herbicide.
2, 4 - D	2015	Levels lower than detect level	0 - 0	70	70	ppb	No	Runoff from herbicide used on row crops.
Alachlor	2015	Levels lower than detect level	0 - 0	0	2	ppb	No	Runoff from herbicide used on row crops.
Atrazine	2015	Levels lower than detect level	.12-.12	3	3	ppb	No	Runoff from herbicide used on row crops.
Benzo (a) pyrene	2015	Levels lower than detect level	0 - 0	0	200	ppt	No	Leaching from linings of water storage tanks and distribution lines.
Carbofuran	2015	Levels lower than detect level	0 - 0	40	40	ppb	No	Leaching of soil fumigant used on rice and alfalfa.
Chlordane	2015	Levels lower than detect level	0 - 0	0	2	ppb	No	Residue of banned termiticide.
Dalapon	2015	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff from herbicide used on rights of way.
Di (2-ethylhexyl) adipate	2015	Levels lower than detect level	0 - 0	400	400	ppb	No	Discharge from chemical factories.

Water Received From the Tawakoni Water Treatment Plant

Di (2-ethylhexyl) phthalate	2015	Levels lower than detect level	0 - 0	0	6	ppb	No	Discharge from rubber and chemical factories.
Dibromochloropropane (DBCP)	2015	Levels lower than detect level	0 - 0	0	0	ppt	No	Runoff / leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
Dinoseb	2015	Levels lower than detect level	0 - 0	7	7	ppb	No	Runoff from herbicide used on soybeans and vegetables.
Endrin	2015	Levels lower than detect level	0 - 0	2	2	ppb	No	Residue of banned insecticide.
Ethylene dibromide	2015	Levels lower than detect level	0 - 0	0	50	ppt	No	Discharge from petroleum refineries.
Heptachlor	2015	Levels lower than detect level	0 - 0	0	400	ppt	No	Residue of banned termiticide.
Heptachlor epoxide	2015	Levels lower than detect level	0 - 0	0	200	ppt	No	Breakdown of heptachlor.
Hexachlorobenzene	2015	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from metal refineries and agricultural chemical factories.
Hexachlorocyclopentadiene	2015	Levels lower than detect level	0 - 0	50	50	ppb	No	Discharge from chemical factories.
Lindane	2015	Levels lower than detect level	0 - 0	200	200	ppt	No	Runoff / leaching from insecticide used on cattle, lumber, and gardens.
Methoxychlor	2015	Levels lower than detect level	0 - 0	40	40	ppb	No	Runoff / leaching from insecticide used on fruits, vegetables, alfalfa, and livestock.
Oxamyl [Vydate]	2015	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff / leaching from insecticide used on apples, potatoes, and tomatoes.
Pentachlorophenol	2015	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from wood preserving factories.
Simazine	2015	Levels lower than detect level	0 - 0	4	4	ppb	No	Herbicide runoff.
Toxaphene	2015	Levels lower than detect level	0 - 0	0	3	ppb	No	Runoff / leaching from insecticide used on cotton and cattle.
<b>Volatile Organic Contaminants</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>	<b>MCLG</b>	<b>MCL</b>	<b>Units</b>	<b>Violation</b>	<b>Likely Source of Contamination</b>
1, 1, 1 - Trichloroethane	2016	Levels lower than detect level	0 - 0	200	200	ppb	No	Discharge from metal degreasing sites and other factories.
1, 1, 2 - Trichloroethane	2016	Levels lower than detect level	0 - 0	3	5	ppb	No	Discharge from industrial chemical factories.
1, 1 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	7	7	ppb	No	Discharge from industrial chemical factories.
1, 2, 4 - Trichlorobenzene	2016	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from textile-finishing factories.
1, 2 - Dichloroethane	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
1, 2 - Dichloropropane	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
Benzene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories; leaching from gas storage tanks and landfills.
Carbon Tetrachloride	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from chemical plants and other industrial activities.
Chlorobenzene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from chemical and agricultural chemical factories.
Dichloromethane	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from pharmaceutical and chemical factories.
Ethylbenzene	2016	Levels lower than detect level	0 - 0	0	700	ppb	No	Discharge from petroleum refineries.
Styrene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from rubber and plastic factories; leaching from landfills.
Tetrachloroethylene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories and dry cleaners.
Toluene	2016	Levels lower than detect level	0 - 0	1	1	ppm	No	Discharge from petroleum factories.
Trichloroethylene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from metal degreasing sites and other factories.
Vinyl Chloride	2016	Levels lower than detect level	0 - 0	0	2	ppb	No	Leaching from PVC piping; discharge from plastics factories.
Xylenes	2016	Levels lower than detect level	0 - 0	10	10	ppm	No	Discharge from petroleum factories; discharge from chemical factories.
cis - 1, 2 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from industrial chemical factories.
o - Dichlorobenzene	2016	Levels lower than detect level	0 - 0	600	600	ppb	No	Discharge from industrial chemical factories.
p - Dichlorobenzene	2016	Levels lower than detect level	0 - 0	75	75	ppb	No	Discharge from industrial chemical factories.
trans - 1, 2 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from industrial chemical factories.

## Water Received From the Tawakoni Water Treatment Plant

Turbidity								
		Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination			
Highest single measurement		1 NTU	0.13	No	Soil runoff.			
Lowest monthly percentage (%) meeting limit		0.3 NTU	100.00%	No	Soil runoff.			
NOTE: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.								
Maximum Residual Disinfectant Level								
Disinfectant Type	Year	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Units	Source of Chemical
Chlorine Residual (Chloramines)	2016	1.40	1.30	1.40	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2016	0.005	0	0.23	0.8	0.8	ppm	Disinfectant.
Chlorite	2016	0.02	0	0.08	1.0	N/A	ppm	Disinfectant.
Total Organic Carbon								
	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination			
Source Water	2016	6.08	4.93-6.08	ppm	Naturally present in the environment.			
Drinking Water	2016	2.74	1.80-2.74	ppm	Naturally present in the environment.			
Removal Ratio	2016	69.0%	48.5-69.0%	% removal *	N/A			
NOTE: Total organic carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. By-products of disinfection include trihalomethanes (THMs) and haloacetic acids (HAA) which are reported elsewhere in this report.								
* Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.								
Lead and Copper								
Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Likely Source of Contamination	
Lead	2016	Levels lower than detect level	Levels lower than detect level	0.015	0.015	ppm	Corrosion of customer plumbing. Action Level = .015	
Copper	2016	0.059	0 - 0.059	1.3	1.3	ppm	By-product of drinking water disinfection. Action Level = 1.3	
ADDITIONAL HEALTH INFORMATION FOR LEAD: 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. The NTMWD 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 <a href="http://www.epa.gov/safewater/lead">http://www.epa.gov/safewater/lead</a> .								
Unregulated Contaminants								
Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination			
Chloroform	2016	14.4	14.4 - 14.4	ppb	By-product of drinking water disinfection.			
Bromoform	2016	Levels lower than detect level	Levels lower than detect level	ppb	By-product of drinking water disinfection.			
Bromodichloromethane	2016	6.42	6.42 - 6.42	ppb	By-product of drinking water disinfection.			
Dibromochloromethane	2016	2.98	2.98 - 2.98	ppb	By-product of drinking water disinfection.			
NOTE: Bromoform, chloroform, dichlorobromomethane, and dibromochloromethane are disinfection by-products. There is no maximum contaminant level for these chemicals at the entry point to distribution.								
Secondary and Other Constituents Not Regulated (No associated adverse health effects)								
Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination			
Bicarbonate	2016	62.9	62.9 - 62.9	ppm	Corrosion of carbonate rocks such as limestone.			
Calcium	2016	56.5	35.6 - 56.5	ppm	Abundant naturally occurring element.			
Chloride	2016	13.4	8.54 - 13.4	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.			
Hardness as Ca/Mg	2016	78.6	52.1 - 78.6	ppm	Naturally occurring calcium and magnesium.			
Iron	2016	0.0388	0.0388 - 0.0388	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.			
Magnesium	2016	3.17	2.21 - 3.17	ppm	Abundant naturally occurring element.			
Manganese	2016	0.023	0.004 - 0.023	ppm	Abundant naturally occurring element.			
Nickel	2016	0.004	0.002 - 0.004	ppm	Erosion of natural deposits.			
pH	2016	8.20	7.4 - 8.2	units	Measure of corrosivity of water.			
Sodium	2016	15.6	11.0 - 15.6	ppm	Erosion of natural deposits; by-product of oil field activity.			
Sulfate	2016	78.5	57.1 - 78.5	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.			
Total Alkalinity as CaCO3	2016	71	55.3 - 71.0	ppm	Naturally occurring soluble mineral salts.			
Total Dissolved Solids	2016	220	150 - 220	ppm	Total dissolved mineral constituents in water.			
Total Hardness as CaCO3	2016	149	97.9 - 149.0	ppm	Naturally occurring calcium.			
Zinc	2016	0.006	0 - 0.006	ppm	Moderately abundant naturally occurring element used in the metal industry.			
Crypto/Giardia								
Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination			
Cryptosporidia	2016	0	0	(Oo)cysts/L	Naturally occurring in the environment			
Giardia	2016	0	0	(Oo)cysts/L	Naturally occurring in the environment			
NOTE: Crypto/Giardia measured in the raw water.								

## Lead and Copper Rule

The Lead and Copper rule protects public health by minimizing lead and copper levels in drinking water, primarily by reducing water corrosivity. Lead and copper entering drinking water mainly from corrosion of lead and copper containing plumbing materials.

Water Received From the Wylie Water Treatment Plant

Coliform Bacteria								
Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level		Highest No. of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level	Total No. of Positive E. Coli or Fecal Coliform Samples		Violation	Likely Source of Contamination
0	1 positive monthly sample		0	0	0		No	Naturally present in the environment.
<p><b>NOTE:</b> Reported monthly tests found no fecal coliform bacteria. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.</p>								
Regulated Contaminants								
Disinfectants and Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Total Haloacetic Acids (HAA5)	2016	16	8.2-27.2	No goal for the total	60	ppb	No	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2016	30	17.5-40.4	No goal for the total	80	ppb	No	By-product of drinking water disinfection.
Bromate	2016	6	0.0 - 6.0	5	10	ppb	No	By-product of drinking water ozonation.
<p><b>NOTE:</b> Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.</p>								
Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Antimony	2016	Levels lower than detect level	0 - 0	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2016	0.9	0.0 - 0.9	0	10	ppb	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2016	0.061	0.042 - 0.061	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2016	Levels lower than detect level	0 - 0	4	4	ppb	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Cadmium	2016	Levels lower than detect level	0 - 0	5	5	ppb	No	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints.
Chromium	2016	1.2	0.52 - 1.20	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2016	0.93	0.13 - 0.93	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Mercury	2016	Levels lower than detect level	0 - 0	2	2	ppb	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland.
Nitrate (measured as Nitrogen)	2016	0.79	0.05 - 0.79	10	10	ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.
Selenium	2016	3.4	1.4 - 3.4	50	50	ppb	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2016	Levels lower than detect level	0 - 0	0.5	2	ppb	No	Discharge from electronics, glass, and leaching from ore-processing sites; drug factories.
<p><b>NITRATE ADVISORY:</b> Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.</p>								

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Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/Photon emitters	5/2/2016	5.6	5.6 - 5.6	0	50	pCi/L	No	Decay of natural and man-made deposits.
Gross alpha excluding radon and uranium	5/2/2016	Levels lower than detect level	0 - 0	0	15	pCi/L	No	Erosion of natural deposits.
Radium	5/2/2016	Levels lower than detect level	0 - 0	0	5	pCi/L	No	Erosion of natural deposits.
Synthetic organic contaminants including pesticides and herbicides	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
2, 4, 5 - TP (Silvex)	2016	Levels lower than detect level	0 - 0	50	50	ppb	No	Residue of banned herbicide.
2, 4 - D	2016	Levels lower than detect level	0 - 0	70	70	ppb	No	Runoff from herbicide used on row crops.
Alachlor	2016	Levels lower than detect level	0 - 0	0	2	ppb	No	Runoff from herbicide used on row crops.
Atrazine	2016	0.61	0.31 - 0.61	3	3	ppb	No	Runoff from herbicide used on row crops.
Benzo (a) pyrene	2016	Levels lower than detect level	0 - 0	0	200	ppt	No	Leaching from linings of water storage tanks and distribution lines.
Carbofuran	2016	Levels lower than detect level	0 - 0	40	40	ppb	No	Leaching of soil fumigant used on rice and alfalfa.
Chlordane	2016	Levels lower than detect level	0 - 0	0	2	ppb	No	Residue of banned termiticide.
Dalapon	2016	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff from herbicide used on rights of way.
Di (2-ethylhexyl) adipate	2016	Levels lower than detect level	0 - 0	400	400	ppb	No	Discharge from chemical factories.
Di (2-ethylhexyl) phthalate	2016	Levels lower than detect level	0 - 0	0	6	ppb	No	Discharge from rubber and chemical factories.
Dibromochloropropane (DBCP)	2016	Levels lower than detect level	0 - 0	0	0	ppt	No	Runoff / leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
Dinoseb	2016	Levels lower than detect level	0 - 0	7	7	ppb	No	Runoff from herbicide used on soybeans and vegetables.
Endrin	2016	Levels lower than detect level	0 - 0	2	2	ppb	No	Residue of banned insecticide.
Ethylene dibromide	2016	Levels lower than detect level	0 - 0	0	50	ppt	No	Discharge from petroleum refineries.
Heptachlor	2016	Levels lower than detect level	0 - 0	0	400	ppt	No	Residue of banned termiticide.
Heptachlor epoxide	2016	Levels lower than detect level	0 - 0	0	200	ppt	No	Breakdown of heptachlor.
Hexachlorobenzene	2016	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from metal refineries and agricultural chemical
Hexachlorocyclopentadiene	2016	Levels lower than detect level	0 - 0	50	50	ppb	No	Discharge from chemical factories.
Lindane	2016	Levels lower than detect level	0 - 0	200	200	ppt	No	Runoff / leaching from insecticide used on cattle, lumber, and gardens.
Methoxychlor	2016	Levels lower than detect level	0 - 0	40	40	ppb	No	Runoff / leaching from insecticide used on fruits, vegetables, alfalfa, and livestock.
Oxamyl [Vydate]	2016	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff / leaching from insecticide used on apples, potatoes, and tomatoes.
Pentachlorophenol	2016	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from wood preserving factories.
Simazine	2016	Levels lower than detect level	0 - 0	4	4	ppb	No	Herbicide runoff.
Toxaphene	2016	Levels lower than detect level	0 - 0	0	3	ppb	No	Runoff / leaching from insecticide used on cotton and cattle.
Volatile Organic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
1, 1, 1 - Trichloroethane	2016	Levels lower than detect level	0 - 0	200	200	ppb	No	Discharge from metal degreasing sites and other factories.
1, 1, 2 - Trichloroethane	2016	Levels lower than detect level	0 - 0	3	5	ppb	No	Discharge from industrial chemical factories.
1, 1 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	7	7	ppb	No	Discharge from industrial chemical factories.
1, 2, 4 - Trichlorobenzene	2016	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from textile-finishing factories.
1, 2 - Dichloroethane	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
1, 2 - Dichloropropane	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.

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Benzene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories; leaching from gas storage tanks and landfills.
Carbon Tetrachloride	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from chemical plants and other industrial activities.
Chlorobenzene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from chemical and agricultural chemical factories.
Dichloromethane	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from pharmaceutical and chemical factories.
Ethylbenzene	2016	Levels lower than detect level	0 - 0	0	700	ppb	No	Discharge from petroleum refineries.
Styrene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from rubber and plastic factories; leaching from landfills.
Tetrachloroethylene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories and dry cleaners.
Toluene	2016	Levels lower than detect level	0 - 0	1	1	ppm	No	Discharge from petroleum factories.
Trichloroethylene	2016	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from metal degreasing sites and other factories.
Vinyl Chloride	2016	Levels lower than detect level	0 - 0	0	2	ppb	No	Leaching from PVC piping; discharge from plastics factories.
Xylenes	2016	Levels lower than detect level	0 - 0	10	10	ppm	No	Discharge from petroleum factories; discharge from chemical factories.
cis - 1, 2 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from industrial chemical factories.
o - Dichlorobenzene	2016	Levels lower than detect level	0 - 0	600	600	ppb	No	Discharge from industrial chemical factories.
p - Dichlorobenzene	2016	Levels lower than detect level	0 - 0	75	75	ppb	No	Discharge from industrial chemical factories.
trans - 1, 2 - Dichloroethylene	2016	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from industrial chemical factories.
<b>Turbidity</b>								
			<b>Limit (Treatment Technique)</b>		<b>Level Detected</b>		<b>Violation</b>	<b>Likely Source of Contamination</b>
<b>Highest single measurement</b>			1 NTU		0.78		No	Soil runoff.
<b>Lowest monthly percentage (%) meeting limit</b>			0.3 NTU		96.20%		No	Soil runoff.
<p><b>NOTE:</b> Turbidity is a measurement of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration.</p>								
<b>Maximum Residual Disinfectant Level</b>								
<b>Chemical Used</b>	<b>Year</b>	<b>Average Level of Quarterly Data</b>	<b>Lowest Result of Single Sample</b>	<b>Highest Result of Single Sample</b>	<b>MRDL</b>	<b>MRDLG</b>	<b>Units</b>	<b>Source of Chemical</b>
Chlorine Residual (Chloramines)	2016	1.40	1.30	1.40	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2016	0	0	0	0.8	0.8	ppm	Disinfectant.
Chlorite	2016	0	0	0.115	1.0	N/A	ppm	Disinfectant.
<b>Total Organic Carbon</b>								
	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>		<b>Units</b>		<b>Likely Source of Contamination</b>	
Source Water	2016	4.23	3.14 - 4.23		ppm		Naturally present in the environment.	
Drinking Water	2016	2.8	1.37 - 2.80		ppm		Naturally present in the environment.	
Removal Ratio	2016	63.9%	25.7 - 63.9		% removal *		N/A	
<p><b>NOTE:</b> Total organic carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. By-products of disinfection include trihalomethanes (THMs) and haloacetic acids (HAA) which are reported elsewhere in this report.</p>								
<p>* Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.</p>								
<b>Lead and Copper</b>								
<b>Lead and Copper</b>	<b>Date Sampled</b>	<b>Action Level (AL)</b>	<b>90th Percentile</b>	<b># Sites Over AL</b>	<b>Units</b>	<b>Violation</b>		<b>Likely Source of Contamination</b>
Copper	2016	1.3	0.2958	0	ppm	No		Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems.
Lead	2016	15	1.51	0	ppb	No		Corrosion of household plumbing systems; erosion of natural deposits.
<p><b>ADDITIONAL HEALTH INFORMATION FOR LEAD:</b> 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. Crandall 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 <a href="http://www.epa.gov/safewater/lead">http://www.epa.gov/safewater/lead</a>.</p>								
<b>Cryptosporidium And Giardia</b>								
<b>Contaminants</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>		<b>Units</b>		<b>Likely Source of Contamination</b>	
Cryptosporidium	2016	0	0 - 0		(Oo) Cysts/L		Human and animal fecal waste.	
Giardia	2016	0	0 - 0		(Oo) Cysts/L		Human and animal fecal waste.	
<b>Unregulated Contaminants</b>								
<b>Contaminants</b>	<b>Collection Date</b>	<b>Highest Level Detected</b>	<b>Range of Levels Detected</b>		<b>Units</b>		<b>Likely Source of Contamination</b>	
Chloroform	2016	22.9	8.99-22.9		ppb		By-product of drinking water disinfection.	
Bromoform	2016	<1.00	<1.00		ppb		By-product of drinking water disinfection.	
Bromodichloromethane	2016	12.2	5.67-12.2		ppb		By-product of drinking water disinfection.	
Dibromochloromethane	2016	5.28	2.87-5.28		ppb		By-product of drinking water disinfection.	

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Secondary and Other Constituents Not Regulated (No associated adverse health effects)					
Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination
Calcium	2016	85.2	30.7 - 85.2	ppm	Abundant naturally occurring element.
Chloride	2016	70.3	15.2 - 70.3	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
Hardness as Ca/Mg	2016	238	159 - 238	ppm	Naturally occurring calcium and magnesium.
Iron	2016	0.02	0.00 - 0.02	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
Magnesium	2016	6.65	5.85 - 6.65	ppm	Abundant naturally occurring element.
Manganese	2016	0.017	0.0005 - 0.017	ppm	Abundant naturally occurring element.
Nickel	2016	0.0041	0.0025 - 0.0041	ppm	Erosion of natural deposits.
pH	2016	9.00	7.1 - 9.0	units	Measure of corrosivity of water.
Sodium	2016	77.4	26.8 - 77.4	ppm	Erosion of natural deposits; by-product of oil field activity.
Sulfate	2016	144	69 - 144	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
Total Alkalinity as CaCO <sub>3</sub>	2016	117	60 - 117	ppm	Naturally occurring soluble mineral salts.
Total Dissolved Solids	2016	556	194 - 556	ppm	Total dissolved mineral constituents in water.
Total Hardness as CaCO <sub>3</sub>	2016	268	80 - 268	ppm	Naturally occurring calcium.
Zinc	2016	0.013	0.000 - 0.013	ppm	Moderately abundant naturally occurring element used in the metal industry.

## Clean Rivers Program

### Mission Statement

*Working together for clean water and science-based decisions.*

### Objectives

- Provide quality-assured data to the TCEQ for use in decision-making
- Identify and evaluate water quality issues
- Promote cooperative watershed planning
- Recommend management strategies
- Inform and engage stakeholders (any individual or group who has in interest in the water quality of the basin)
- Maintain efficient use of public funds

### Program Overview

Established in 1991, the Texas Clean Rivers Program (CRP) is a state fee-funded, non-regulatory program that was created to provide a framework and forum for managing water quality issues in a more holistic manner. The focus of the program is to work at the watershed level, within each river basin, by coordinating the efforts of diverse organizations.

The TCEQ and its regional water quality partners work together to implement the program as laid out in [Texas Water Code, Section 26.0135](#) and in the [Clean Rivers Program Rule, Texas Administrative Code, Chapter 220](#).

### Funding

The majority of the fee funds allocated to the program (approximately \$4.5 million annually) are used to conduct the monitoring, quality assurance, and data management functions of the program.

