City of Crandall 2017

Annual Water Quality Report January 1-December 31, 2017

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 2, 2018

Contact Us

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

Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en espanol, favor de llamar at telephone (972) 427-3771.

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. A Source Water Susceptibility Assessment for your drinking water source(s) is currently being updated by the Texas Commission on Environmental Quality. This information 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 information contained in the assessment allows us to focus source water protection strategies. For more information about your sources of water, please refer to the Source Water Assessment Viewer available at the following URL:http://gis3.tecq.state.tx.us.swav/Controller/index.jsp?wtrsrc=

Further details about sources and source-water assessment are available in Drinking Water Watch at the following URL: http://dww.tceq.texas.gov/DWW

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 contaminates. The presence of contaminates does not necessarily indicate that water poses a health risk. More information about contaminates 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 contaminates 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.

Contaminates 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 Development 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 2017, the City of Crandall Water System lost an estimated 12,905,000 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 and Abbreviations: The following tales contain scientific terms and measures, some of which may require explanation.

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.

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

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

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	1 positive monthly sample	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)	2017	16	10.2-19.7	No goal for the total	60	ppb	No	By-product of drinking water chlorination.
Total Trihalomethanes (TThm)	2017	26	16.2-29.9	34.7	80	ppb	No	By-product of drinking water chlorination.
Bromate	2017	Levels lower than detect level	0-0	5	10	ppb	No	By-product of drinking water ozanation.

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	2017	Levels lower than detect level	0 - 0	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2017	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	2017	0.07	.070-.070	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2017	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	2017	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	2017	Levels lower than detect level	0-0	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2017	0.246	.246-.246	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Mercury	2017	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)	2017	0.219	.219-.219	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	2017	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	2017	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	12/12/2012	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	12/12/2012	Levels lower than detect level	0 - 0	0	15	pCi/L	No	Erosion of natural deposits.
Radium-228	12/12/2012	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.

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 petroleium 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.

Volatile Organic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
1, 1, 1 - Trichloroethane	2017	Levels lower than detect level	0 - 0	200	200	ppb	No	Discharge from metal degreasing sites and other factories.
1, 1, 2 - Trichloroethane	2017	Levels lower than detect level	0 - 0	3	5	ppb	No	Discharge from industrial chemical factories.
1, 1 - Dichloroethylene	2017	Levels lower than detect level	0 - 0	7	7	ppb	No	Discharge from industrial chemical factories.
1, 2, 4 - Trichlorobenzene	2017	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from textile-finishing factories.
1, 2 - Dichloroethane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
1, 2 - Dichloropropane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
Benzene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories; leaching from gas storage tanks and landfills.
Carbon Tetrachloride	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from chemical plants and other industrial activities.
Chlorobenzene	2017	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from chemical and agricultural chemical factories.
Dichloromethane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from pharmaceutical and chemical factories.
Ethylbenzene	2017	Levels lower than detect level	0 - 0	0	700	ppb	No	Discharge from petroleum refineries.
Styrene	2017	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from rubber and plastic factories; leaching from landfills.
Tetrachloroethylene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories and dry cleaners.
Toluene	2017	Levels lower than detect level	0 - 0	1	1	ppm	No	Discharge from petroleum factories.
Trichloroethylene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from metal degreasing sites and other factories.
Vinyl Chloride	2017	Levels lower than detect level	0 - 0	0	2	ppb	No	Leaching from PVC piping; discharge from plastics factories.
Xylenes	2017	Levels lower than detect level	0 - 0	10	10	ppm	No	Discharge from petroleum factories; discharge from chemical factories.
cis - 1, 2 - Dichloroethylene	2017	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from industrial chemical factories.
o - Dichlorobenzene	2017	Levels lower than detect level	0 - 0	600	600	ppb	No	Discharge from industrial chemical factories.
p - Dichlorobenzene	2017	Levels lower than detect level	0 - 0	75	75	ppb	No	Discharge from industrial chemical factories.
trans - 1, 2 - Dicholoroethylene	2017	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	0.18	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)	2017	1.48	1.40	1.70	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2017	0.01	0	0.09	0.8	0.8	ppm	Disinfectant.
Chlorite	2017	0.04	0	0.47	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	2017	518	4.65-5.18	ppm	Naturally present in the environment.
Drinking Water	2017	3.07	1.97-3.07	ppm	Naturally present in the environment.
Removal Ratio	2017	57.6%	37.0-57.6%	% 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	2017	Levels lower than detect level	Levels lower than detect level	1.3	0.015	ppm	Corrosion of customer plumbing. Action Level = .015
Copper	2017	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 http://www.epa.gov/safewater/lead.

Unregulated Contaminants

Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination
Chloroform	2017	14.5	7.81-14.5	ppb	By-product of drinking water disinfection.
Bromoform	2017	2.53	1.19-2.53	ppb	By-product of drinking water disinfection.
Bromodichloromethane	2017	9.2	4.73-9.2	ppb	By-product of drinking water disinfection.
Dibromochloromethane	2017	7.14	2.84-7.14	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	2017	70.01	70.1-70.1	ppm	Corrosion of carbonate rocks such as limestone.
Calcium	2017	42.0	42.0-42.0	ppm	Abundant naturally occurring element.
Chloride	2017	12.4	12.4-12.4	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
Hardness as Ca/Mg	2017	67.6	42.1-67.6	ppm	Naturally occurring calcium and magnesium.
Iron	2017	Levels lover than detect level	0-0	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
Magnesium	2017	2.81	2.81-2.81	ppm	Abundant naturally occurring element.
Manganese	2017	0.093	0.93-0.93	ppm	Abundant naturally occurring element.
Nickel	2017	.004	.004-.004	ppm	Erosion of natural deposits.
pH	2017	8.10	8.10-8.10	units	Measure of corrosivity of water.
Sodium	2017	14.0	14.0-14.01	ppm	Erosion of natural deposits; by-product of oil field activity.
Sulfate	2017	55.9	55.9-55.9	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
Total Alkalinity as CaCO3	2017	70.1	70.1-70.1	ppm	Naturally occurring soluble mineral salts.
Total Dissolved Solids	2017	174	174	ppm	Total dissolved mineral constituents in water.
Total Hardness as CaCO3	2017	116	116-116	ppm	Naturally occurring calcium.
Zinc	2017	Levels lower than detect level	0-0	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
Crytosporidia	2017	0	0	(Oo)cysts/L	Naturally occurring in the environment
Giardia	2017	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 corrosively. 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.
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							

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)	2017	16	10.2-19.7	No goal for the total	60	ppb	No	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2017	26	16.2-29.9	No goal for the total	80	ppb	No	By-product of drinking water disinfection.
Bromate	2017	Level lower than detect level	0-0	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								
Inorganic Contaminants	**Collection Date**	**Highest Level Detected**	**Range of Levels Detected**	**MCLG**	**MCL**	**Units**	**Violation**	**Likely Source of Contamination**
Antimony	2017	Levels lower than detect level	0 - 0	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2017	Levels lower than detect level	0.060	0	10	ppb	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2017	0.061	0.059-0.060	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2017	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
Cadmium	2017	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
Chromium	2017	Levels lower than detect level	0.0-0.0	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural
Fluoride	2017	0.38	0.26-0.38	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and alumi-
Mercury	2017	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)	2017	0.97	0.09-0.97	10	10	ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.
Selenium	2017	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.

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.

Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/photon emitters	2017	6.2	6.2-6.2	0	50	pCi/L	No	Decay of natural and man-made deposits.
Gross alpha excluding radon and uranium	2017	Levels lower than detect level	0 - 0	0	15	pCi/L	No	Erosion of natural deposits.
Radium	201	1.27	1.27-1.27	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)	2017	Levels lower than detect level	0 - 0	50	50	ppb	No	Residue of banned herbicide.
2, 4 - D	2017	Levels lower than detect level	0 - 0	70	70	ppb	No	Runoff from herbicide used on row crops.
Alachlor	2017	Levels lower than detect level	0 - 0	0	2	ppb	No	Runoff from herbicide used on row crops.
Atrazine	2017	0.20	0.20-0.20	3	3	ppb	No	Runoff from herbicide used on row crops.
Benzo (a) pyrene	2017	Levels lower than detect level	0 - 0	0	200	ppt	No	Leaching from linings of water storage tanks and distribution lines.
Carbofuran	2017	Levels lower than detect level	0 - 0	40	40	ppb	No	Leaching of soil fumigant used on rice and alfalfa.
Chlordane	2017	Levels lower than detect level	0 - 0	0	2	ppb	No	Residue of banned termiticide.
Dalapon	2017	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff from herbicide used on rights of way.
Di (2-ethylhexyl) adipate	2017	Levels lower than detect level	0 - 0	400	400	ppb	No	Discharge from chemical factories.
Di (2-ethylhexyl) phthalate	2017	Levels lower than detect level	0 - 0	0	6	ppb	No	Discharge from rubber and chemical factories.
Dibromochloropropane (DBCP)	2017	Levels lower than detect level	0 - 0	0	0	ppt	No	Runoff / leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
Dinoseb	2017	Levels lower than detect level	0 - 0	7	7	ppb	No	Runoff from herbicide used on soybeans and vegetables.
Endrin	2017	Levels lower than detect level	0 - 0	2	2	ppb	No	Residue of banned insecticide.
Ethylene dibromide	2017	Levels lower than detect level	0 - 0	0	50	ppt	No	Discharge from petroleum refineries.
Heptachlor	2017	Levels lower than detect level	0 - 0	0	400	ppt	No	Residue of banned termiticide.
Heptachlor epoxide	2017	Levels lower than detect level	0 - 0	0	200	ppt	No	Breakdown of heptachlor.
Hexachlorobenzene	2017	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from metal refineries and agricultural chemical
Hexachlorocyclopentadiene	2017	Levels lower than detect level	0 - 0	50	50	ppb	No	Discharge from chemical factories.
Lindane	2017	Levels lower than detect level	0 - 0	200	200	ppt	No	Runoff / leaching from insecticide used on cattle, lumber, and gardens.
Methoxychlor	2017	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	2017	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from wood preserving factories.
Simazine	2017	Levels lower than detect level	0 - 0	4	4	ppb	No	Herbicide runoff.
Toxaphene	2017	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	2017	Levels lower than detect level	0 - 0	200	200	ppb	No	Discharge from metal degreasing sites and other
1, 1, 2 - Trichloroethane	2017	Levels lower than detect level	0 - 0	3	5	ppb	No	Discharge from industrial chemical factories.
1, 1 - Dichloroethylene	2017	Levels lower than detect level	0 - 0	7	7	ppb	No	Discharge from industrial chemical factories.
1, 2, 4 - Trichlorobenzene	2017	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from textile-finishing factories.
1, 2 - Dichloroethane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
1, 2 - Dichloropropane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.

Benzene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories; leaching from gas storage
Carbon Tetrachloride	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from chemical plants and other industrial
Chlorobenzene	2017	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from chemical and agricultural chemical
Dichloromethane	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from pharma-ceutical and chemical factories.
Ethylbenzene	2017	Levels lower than detect level	0 - 0	0	700	ppb	No	Discharge from petroleum refineries.
Styrene	2017	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from rubber and plastic factories;
Tetrachloroethylene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories and dry cleaners.
Toluene	2017	Levels lower than detect level	0 - 0	1	1	ppm	No	Discharge from petroleum factories.
Trichloroethylene	2017	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from metal degreasing sites and other
Vinyl Chloride	2017	Levels lower than detect level	0 - 0	0	2	ppb	No	Leaching from PVC piping; discharge from
Xylenes	2017	Levels lower than detect level	0 - 0	10	10	ppm	No	Discharge from petroleum factories; discharge from
cis - 1, 2 - Dichloroethylene	2017	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from industrial chemical factories.
o - Dichlorobenzene	2017	Levels lower than detect level	0 - 0	600	600	ppb	No	Discharge from industrial chemical factories.
p - Dichlorobenzene	2017	Levels lower than detect level	0 - 0	75	75	ppb	No	Discharge from industrial chemical factories.
trans - 1, 2 - Dicholoroethylene	2017	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from industrial chemical factories.

Turbidity

	Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1 NTU	0.74	No	Soil runoff.
Lowest monthly percentage (%) meeting limit	0.3 NTU	99.30%	No	Soil runoff.

NOTE: Turbidity is a measure-ment of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effective-ness of our filtration.

Maximum Residual Disinfectant Level

Chemical Used	Year	Average Level of Quarterly Data	Lowest Result of Single Sample	Highest Result of Single Sample	MRDL	MRDLG	Units	Source of Chemical
Chlorine Residual (Chloramines)	2017	1.48	1.40	1.70	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2017	0	0	0	0.8	0.8	ppm	Disinfectant.
Chlorite	2017	0	0	0.072	1.0	N/A	ppm	Disinfectant.

Total Organic Carbon

	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamina-tion
Source Water	2017	4.38	3.93-4.38	ppm	Naturally present in the environment.
Drinking Water	2017	3.24	2.20-3.24	ppm	Naturally present in the environment.
Removal Ratio	2017	47.2%	22.5-47.2	% 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

Lead and Copper	Date Sampled	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamina-tion
Copper	2017	1.3	0.6832	0	ppm	No	Erosion of natural deposits; leaching from wood preserva-tives; corrosion of household plumbing systems.
Lead	2017	15	1.83	0	ppb	No	Corrosion of household plumbing systems; erosion of natural deposits.

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. 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 http://www.epa.gov/safewater/lead.

Cryptosporidium And Giardia

Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamina-tion
Cryptosporidium	2017	0	0 - 0	(Oo) Cysts/L	Human and animal fecal waste.
Giardia	2017	0	0 - 0	(Oo) Cysts/L	Human and animal fecal waste.

Unregulated Contaminants

Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamina-tion
Chloroform	2017	14.5	7.81-14.5	ppb	By-product of drinking water disinfection.
Bromoform	2017	2.53	1.19-2.5	ppb	By-product of drinking water disinfection.
Bromodichloromethane	2017	9.2	4.73-9.2	ppb	By-product of drinking water disinfection.
Dibromochloromethane	2017	7.14	2.84-7.14	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**
Calcium	2017	78.5	47.0-78.5	ppm	Abundant naturally occurring element.
Chloride	2017	108	14-108	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
Hardness as Ca/Mg	2017	164	159-164	ppm	Naturally occurring calcium and magnesium.
Iron	2017	0.30	0-0.30	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
Magnesium	2017	11.6	4.41-11.6	ppm	Abundant naturally occurring element.
Manganese	2017	0.25	0.0019-0.025	ppm	Abundant naturally occurring element.
Nickel	2017	.0071	0.0047-0.0071	ppm	Erosion of natural deposits.
pH	2017	8.52	7.85-8.52	units	Measure of corrosivity of water.
Sodium	2017	123	46.1-123	ppm	Erosion of natural deposits; by-product of oil field activity.
Sulfate	2017	266	47.1-266	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
Total Alkalinity as CaCO3	2017	110	61-110	ppm	Naturally occurring soluble mineral salts.
Total Dissolved Solids	2017	562	292-562	ppm	Total dissolved mineral constituents in water.
Total Hardness as CaCO3	2017	236	124-236	ppm	Naturally occurring calcium.
Zinc	2017	0.020	0.0025-0.020	ppm	Moderately abundant naturally occurring element used in the metal industry.

Violation Tables

Chlorine

Some people who use water containing chlorine well in excess of the MRDL could experience irritation effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Violation Type	Violation Begin	Violation End	Violation Explanation
Disinfectant Level Quarterly Operating Report (DLQOR)	04/01/2017	06/30/2017	We failed to test our drinking water for the contaminant and period indicated. Because of this failure, we cannot be sure of the quality of our drinking water during the period indicated.

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 enter drinking water mainly from corrosion of lead and copper containing plumbing materials.

Violation Type	Violation Begin	Violation End	Violation Explanation
FOLLOW-UP OR TOUTINE TAP M/R (LCR)	10/01/2017	2017	We failed to test our drinking water for the contaminant and period indicated. Because of this failure, we cannot be sure of the quality of our drinking water during the period indicated.
LEAD CONSUMER NOTICE	12/30/2017	02/27/2018	We failed to provide the results of lead tap water monitoring to the consumers at the location water was tested. These were supposed to be provided no later than 30 days after learning the results.

Bromate

Some people who drink water containing bromate in excess of the MCL over many years my have an increased chance of getting cancer.

Violation Type	Violation Begin	Violation End	Violation Explanation
MONITORING, ROUTINE (DBP)	04/01/2017	04/30/2017	NTMWD failed to collect the required monthly samples for bromate of the water entering the distribution system during April 2017. This monitoring is required by the Texas Commission on Environmental Quality's Drink Water Standards and the Federal Safe Drinking Water Act Public Law 95-523. Failure to monitor inadequately makes it impossible to know if there is bromate in excess of the maximum contaminate level (MCL) requirement of 0.10 mg/l (ppm). Our water system is required to take one bromate sample once each month. Failure to collect all required bromate samples is a violation of the monitoring requirements and we are required to notify you of this violation.

Mandatory Language for Monitoring/Reporting Violation
Failure to Submit a Disinfectant Level Quarterly Operating Report (DLQOR)
MONITORING, ROUTINE (DBP), MAJOR/CHLORINE

The CITY OF CRANDALL water system PWS ID 1290007 has violated the monitoring/reporting requirements set by Texas Commission on Environmental Quality (TCEQ) in Title 30, Texas Administrative Code (30 TAC), Section 290, Subchapter F. Public water systems are required to properly disinfect water before distribution, maintain acceptable disinfection residuals within the distribution system, monitor the disinfectant residual at various locations throughout the distribution system, and report the results of that monitoring to the TCEQ on a quarterly basis.

Results of regular monitoring are an indicator of whether or not your drinking water is safe from microbial contamination.

This Violation occurred in the monitoring period of April 1, 2017.

We are taking the following actions to address the issue:
All samples are being taken monthly and reported to TCEQ on a quarterly basis.

If you have any questions regarding this matter , you may contact Joe Villarreal at 972-427-3771.

LEAD AND COPPER RULE MONITORING AND REPORTING VILATION
MANDATORY LANGUAGE-TIER III

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

The City of Crandall has violated the monitoring and reporting requirements set by the Texas Commission on Environmental Quality (TCEQ) in chapter 30, Section 290, Subchapter F. Even though these were not emergencies, as our customers, you have the right to know what happened and what we are doing (or did) to correct these situations.

We are required to monitor your drinking water for specific contaminates on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During 2017 we did not monitor or test or did not complete all monitoring or testing for contaminate(s) and therefor cannot be sure of the quality of your drinking water during that time.

The table below lists the contaminates we did not properly test for during the last year, how often we are supposed to sample for lead and copper , how many samples we are supped to take, how many samples we took, when samples should have been taken, and the date on which the follow-up samples were taken.

CONTAMINANT	REQUIRED SAMPLING FREQUENCY	NUMBER OF SAMPLES TAKEN	WHEN SAMPLES SHOULD HAVE BEEN TAKEN	WHEN SAMPLES WERE TAKEN
Lead and Copper	3 Years	10	June-September 2017	8.29.17

What is being done? We are working to correct the problem. For more information please contact Joe Villarreal at 972-427-3771. Samples were retested at the correct addresses and proper documentation has been mailed to TCEQ.

Please share this information with other people who drink this water, especially those who may not have received this notice directly. (ie.e people in apartments, nursing homes, schools and business). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by The City of Crandall Public Water System Number TX1290007

Date June 25, 2018