



2015

# Water Quality Report

In 1996, Congress amended the Safe Drinking Water Act requiring community systems to provide customers with an annual report of the quality of their drinking water. We are proud to present our annual Water Quality Report. This report covers all testing completed between January 1 and December 31, 2015.

Garland Water Utilities is a municipal water distribution and wastewater collection utility owned by the City of Garland. It stores purchased water and delivers it to its customers on demand. Garland Water Utilities tests the water to ensure quality, maintains the infrastructure (pipes and pumps) required to deliver water, and removes, treats and tests wastewater prior to releasing it back into the water source or selling it.

An electronic copy of this report is available at [GarlandWater.com](http://GarlandWater.com).

**Español:** Este informe incluye información importante sobre el agua potable. Si tiene preguntas o comentarios sobre este informe en español, favor de espal, favor de llamar al tel. 972-205-3213 para hablar con una persona bilingue en español.

## Where Does My Water Come From?

All of Garland's treated water is purchased from North Texas Municipal Water District (NTMWD), who pumps surface water from five sources: Lavon Lake, Jim Chapman Lake, Lake Tawakoni, Lake Texoma and the East Fork Raw Water Supply Project, commonly known as the 'wetland.' Lavon Lake is currently its primary source of raw water. NTMWD conducts daily tests on both the raw water in Lavon Lake and the treated water they deliver to the City of Garland. The treated water is stored in eight ground storage tanks and three elevated storage tanks. Garland Water Utilities distribution and collection system also includes approximately 2,100 miles of pipelines. A centralized water control system and customer call center with on-call maintenance assures that safe, high quality water is available to customers 24 hours a day, 7 days a week, 365 days a year.



## What Could Be In My Water

To ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (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 some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can acquire naturally occurring minerals, in some cases, radioactive material and substances resulting from the presence of animals or from human activity. Substances 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 or wildlife; **Inorganic Contaminants**,

such as salts and metals, which can be naturally occurring or may 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, which may also come from gas stations, urban storm water runoff, and septic systems; **Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

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, color, or odor of drinking water, please contact our business office. For more information about contaminants and potential health effects, call the EPA's Safe Drinking Hotline at 800-426-4791.



### *Cryptosporidium in Water*

Cryptosporidium is a protozoan that is so small it can be seen only with a microscope. It affects the digestive tract of humans and animals. At this time, there is no specific drug therapy proven to be effective, but people with healthy immune systems will usually recover within two weeks. Symptoms of infection include nausea, diarrhea and abdominal cramps. However, immuno-compromised people are at greater risk of developing a life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

The NTMWD has tested the lake and treated water for the presence of cryptosporidium for several years and it was absent in all of the samples tested.

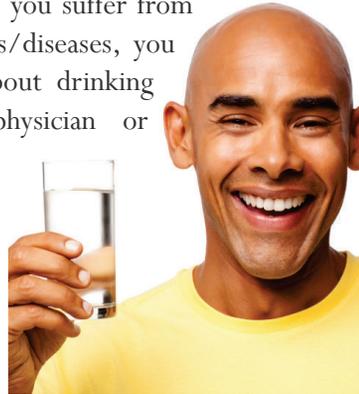
### *Lead in Water*

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Garland Water Utilities 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 [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### *Important Health Information*

Some people may be more vulnerable than the general population to certain microbial contaminants, such as cryptosporidium, in drinking water. Infants, as well as some elderly or immuno-compromised persons, such as those undergoing chemotherapy for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders, may be more vulnerable. If you suffer from one of these disorders/diseases, you should seek advice about drinking water from your physician or health care provider. Additional guidelines on appropriate means to lessen the risk of infection by cryptosporidium are available from the EPA's Safe Drinking Water Hotline at 800-426-4791.



### *Source Water Assessment*

The Texas Commission on Environmental Quality (TCEQ) has completed a Source Water Susceptibility Report for all drinking water systems that own their sources. This report describes the susceptibility and types of contaminants that may come into contact with the drinking water source based on human activities and natural conditions. NTMWD received the assessment report. For information on how you may obtain a copy of this report, contact Bobby Jacobs at 972-205-3218.

### *Community Participation*

Garland Water Utilities is part of the City government. The Garland City Council meets the first and third Tuesday of each month beginning at 7 p.m. in the City Hall Council Chamber, 200 North Fifth St. (Meetings are temporarily relocated to the Goldie Locke Room of the Duckworth Utility Services Building located at 217 N. Fifth St.) Meetings are broadcast live on CGTV, the City government access channel on cable.

Garland City Council supports water conservation and encourages residents to do their part in conserving this limited natural resource by using water wisely.

### *Conserving Water*

Severe drought conditions and necessary water restrictions remind us just how precious water is and how much we tend to take it for granted. With less than 1% of the earth's fresh water source available, we need to learn to use water wisely. Water conservation is critical for meeting both local and the state's long-term water needs.

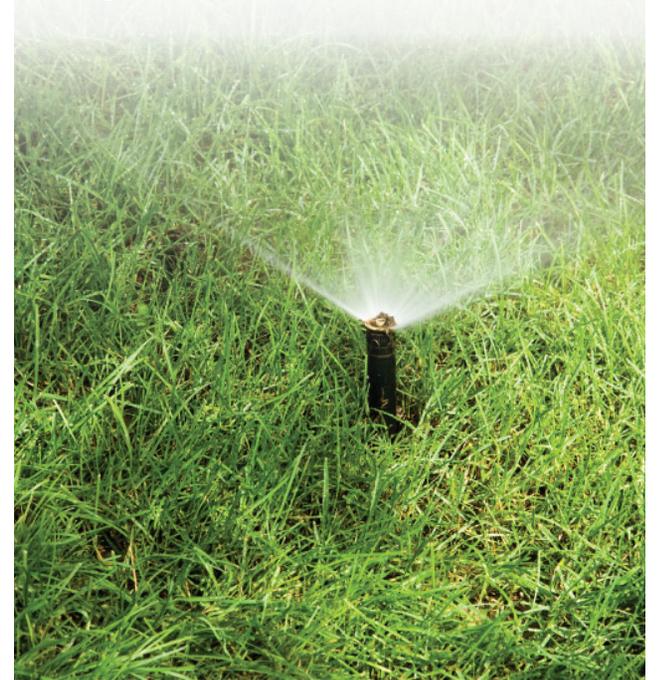
### *Sampling Results*

During the past year, several hundreds of water samples have been taken to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The results of this testing are displayed in the table on the next two pages. The state allows the City to monitor for certain substances less than once per year because the concentrations of those substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which it was taken. This report includes a list of all substances with level ranges that were greater than zero. For a complete list of tested substances, visit [GarlandWater.com](http://GarlandWater.com).

### *Lawn Watering*

Many homes and businesses in Garland are equipped with automatic sprinkler systems that can account for more than 50% of water use during the summer months. The Environmental Protection Agency (EPA) estimates that approximately 40% of outdoor water use is wasted due to the overwatering of lawns. Establishing a lawn watering schedule is effective in reducing water waste.

Lawn watering schedule may change throughout the year based on weather patterns, the presence of drought conditions or limited water supplies. To see current watering schedules, visit [GarlandWater.com](http://GarlandWater.com).



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% Positive Samples	4.7	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. Maximum level of 5% total Coliform

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)	2015	24	10.5 - 46.2	No goal for the total	60	ppb	No	By-product of drinking water chlorination
Total Trihalomethanes (TTHm)	2015	48	29.8 - 150.20	No goal for the total	80	ppb	No	By-product of drinking water chlorination
Bromate	2015	8.9	0.0 - 8.9	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	2015	0.2	0.00 - 0.2	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2015	0.7	0.00 - 0.7	0	10	ppb	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2015	0.055	0.039 - 0.055	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2015	Lower than detection level	0 - 0	4	4	ppb	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Cadmium	2015	Lower than detection 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	2015	0.92	0.53 - 0.92	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2015	0.86	0.25 - 0.86	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Mercury	2015	Lower than detection 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)	2015	1.79	0.05 - 1.79	10	10	ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.
Selenium	2015	2	0 - 2	50	50	ppb	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2015	Lower than detection 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	4/29/2010	4.4	4.4 - 4.4	0	50	pCi/L	No	Decay of natural and man-made 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
Atrazine	2015	0.19	0.13 - 0.19	3	3	ppb	No	Runoff from herbicide used on row crops.
Di (2-ethylhexyl) adipate	2015	Lower than detection level	0.00 - 0.00	400	400	ppb	No	Discharge from chemical factories.
Di (2-ethylhexyl) phthalate	2015	0.7	0.0 - 0.7	0	6	ppb	No	Discharge from rubber and chemical factories.
Simazine	2015	Lower than detection level	0 - 0	4	4	ppb	No	Herbicide runoff.

Turbidity				
	Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1 NTU	0.65 NTU	No	Soil runoff.
Lowest monthly percentage (%) meeting limit	0.3 NTU	99.00%	No	Soil runoff.

**NOTE:** 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.

## Water Loss

The State of Texas requires retail public utilities to report its annual water loss to its customers. Water loss is usually the result of line leaks, water main breaks, line flushes and inaccurate meters. In 2015, Garland Water Utilities reported a water loss of 6.1% to the Texas Water Development Board.

## Table Definitions

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

**MCL (Maximum Contaminant Level)** 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.

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

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

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

**ND (Not Detected)** Indicated that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units)** Measurement of the clarity or turbidity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

**PPM (Parts Per Million)** One part substance per million parts water or milligrams per liter - mg/L

**PPB (Parts Per Billion)** One part substance per billion parts water or micrograms per liter - ug/L

### Maximum Residual Disinfectant Level

Disinfectant Type	Year	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Units	Source of Chemical
Chlorine Residual (Chloramines)	2015	2.45	0.3	5	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2015	0	0	0.03	0.8	0.8	ppm	Disinfectant.
Chlorite	2015	0.03	0	0.33	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	2015	7.6	3.82 - 7.60	ppm	Naturally present in the environment.
Drinking Water	2015	6.32	1.45 - 6.32	ppm	Naturally present in the environment.
Removal Ratio	2015	62.0%	21.9% - 62.0%	% 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. 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	Number of Sites Over AL	90th Percentile	MCLG	MCL	Units	Likely Source of Contamination
Copper	2013	0	0.454	1.3	1.3	ppm	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems.
Lead	2013	0	1.12	0	15	ppb	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. 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 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 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	2015	15	2.6 - 118.9	ppb	By-product of drinking water disinfection.
Bromoform	2015	5	1.0 - 27.5	ppb	By-product of drinking water disinfection.
Bromodichloromethane	2015	17	5.7 - 30.9	ppb	By-product of drinking water disinfection.
Dibromochloromethane	2015	11	4.01 - 19.1	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.

N-nitrosodimethylamine (NDMA)	2009	0.0023	0 - 0.0023	ppb	By-product of manufacturing process.
-------------------------------	------	--------	------------	-----	--------------------------------------

**NOTE:** Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Any unregulated contaminants detected are reported in this report. For additional information and data visit <http://www.epa.gov/safewater/ucmr/ucmr2/index.html>, or call the Safe Water Hotline at 800-426-4791.

### 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	2014	92.3	90.9 - 92.3	ppm	Corrosion of carbonate rocks such as limestone.
Calcium	2015	113	45.3 - 113	ppm	Abundant naturally occurring element.
Chloride	2015	142	16.1 - 142	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
Hardness as Ca/Mg	2015	190	106 - 190	ppm	Naturally occurring calcium and magnesium.
Iron	2015	Level lower than detect level	0 - 0	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
Magnesium	2015	9.36	3.22 - 9.36	ppm	Abundant naturally occurring element.
Manganese	2015	0.0011	0.0014 - 0.011	ppm	Abundant naturally occurring element.
Nickel	2015	0.0065	0.0028 - 0.0065	ppm	Erosion of natural deposits.
pH	2015	9.88	6.75 - 9.88	units	Measure of corrosivity of water.
Sodium	2015	76.7	53.2 - 76.7	ppm	Erosion of natural deposits; by-product of oil field activity.
Sulfate	2015	117	110 - 117	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
Total Alkalinity as CaCO3	2015	154	38 - 154	ppm	Naturally occurring soluble mineral salts.
Total Dissolved Solids	2015	620	158 - 620	ppm	Total dissolved mineral constituents in water.
Total Hardness as CaCO3	2015	300	100 - 300	ppm	Naturally occurring calcium.
Zinc	2015	0.004	0.000 - 0.004	ppm	Moderately abundant naturally occurring element used in the metal industry.

### Unregulated Contaminants

Unregulated contaminants are those FOR which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Any unregulated contaminants detected are reported in the table above. For additional information and data visit <http://www.epa.gov/safewater/ucmr/ucmr2/index.html>, or call the Safe Drinking Water Hotline at 800-426-4791. **Tap water samples were collected for lead and copper analysis from sample sites throughout the community.**