

Annual Water Quality Report for the period of January 1 to December 31, 2015

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.

For more information regarding this report contact:

Name Michael Tuley

Phone 512-272-5555

PUBLIC PARTICIPATION OPPORTUNITIES

City Council Meeting

Time: 7:00 P.M.

Location: 105 E. Eggleston Street

Manor, TX 78660

Phone No. (512) 272-5555

Este reporte incluye información importante sobre el agua para tomar.

Para asistencia en español, favor de llamar al telefono (512)-272-5555

CITY OF MANOR is Ground Water

Source Water Assessment

The TCEQ completed an assessment of your source water and results indicate that some of your sources are susceptible to certain contaminants. The sampling requirements for your water system are based on this susceptibility and previous sample data. Any detections of these contaminants may be found in this Consumer Confidence Report. For more information on source water assessments and protection efforts at our system, contact; Michael Tuley

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 the system's business office.

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 (800-426-4791).

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. We are responsible for providing high quality drinking water, but we 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>.

Information about Source Water Assessments

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.tceq.state.tx.us/swav/Controller/index.jsp?wtrsrc=>

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

Source Water Name		Type of Water
1 - 5211 GILBERT LN	FORMERLY G2270241A	GW
2 - 4905 GILBERT LN	FORMERLY G2270241B	GW
3 - 5313 GILBERT LN	FORMERLY G2270241C	GW
GW FROM MANVILLE TO TOWER LN TANK		GW
TREATED GW FROM CROSS COUNTY WSC		GW

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.	1		0	N	Naturally present in the environment.

Lead and Copper

Definitions:

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

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

Lead and Copper	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	04/16/2013	1.3	1.3	0.399	0	ppm	N	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	04/16/2013	0	15	2.64	0	ppb	N	Corrosion of household plumbing systems; Erosion of natural deposits.

Water Quality Test Results

Definitions:

The following tables contain scientific terms and measures, some of which may require explanation.

Avg:

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

Maximum Contaminant Level or 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 or MCLG:

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.

Maximum residual disinfectant level or 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.

Residual Disinfectant Level

Year	Disinfectant	Highest Level Detected	Range of Levels Detected	Average Level	MCL	MRDLG	Units	Violation	Source of Contaminant
2015	Free Chlorine	3.50	0.38 – 3.50	1.70	4.0	< 4.0	ppm	N	Disinfectant used to control microbes

Regulated Contaminants

Disinfectants and Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Haloacetic Acids (HAA5)*	2015	2	1.2 - 2.3	No goal for the total	60	ppb	N	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2015	14	14.1 - 14.5	No goal for the total	80	ppb	N	By-product of drinking water disinfection.

Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Barium	2015	0.0532	0.0532 - 0.0532	2	2	ppm	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Cyanide	08/07/2014	30	30 - 30	200	200	ppb	N	Discharge from plastic and fertilizer factories; Discharge from steel/metal factories.
Fluoride	2015	0.39	0.39 - 0.39	4	4.0	ppm	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate [measured as Nitrogen]	2015	0.28	0.05 - 0.28	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

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.

Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/photon emitters	2015	4.1	4.1 - 4.1	0	50	pCi/L*	N	Decay of natural and man-made deposits
Uranium	2015	1.9	1.9 - 1.9	0	30	ug/l	N	Erosion of natural deposits.

*EPA considers 50 pCi/L to be the level of concern for beta particles.

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	0.13	0.13 - 0.13	3	3	ppb	N	Runoff from herbicide used on row crops.
Simazine	2015	0.11	0.11 - 0.11	4	4	ppb	N	Herbicide runoff.

Unregulated Contaminants/ Proposed Standards

Bromoform, bromoform, dichlorobromomethane, and dibromochloromethane are disinfection byproducts. There is no maximum level for these chemicals at the entry point to distribution.

Year	Disinfectant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Source of Contaminant
2015	Chloroform	2.7	2.1 – 2.7	N/A	N/A	ppb	N	Byproduct of drinking water disinfection.
2015	Bromoform	2.5	2.4 – 2.5	N/A	N/A	ppb	N	Byproduct of drinking water disinfection.
2015	Bromodichloromethane	4.1	4.1 – 4.1	N/A	N/A	ppb	N	Byproduct of drinking water disinfection.
2015	Dibromochloromethane	5.4	5.3 – 5.4	N/A	N/A	ppb	N	Byproduct of drinking water disinfection.

Secondary and Other Constituents Not Regulated (No associated adverse health effects)

Year	Contaminant	Range of Levels Detected	Highest Level Detected	Secondary	Units	Source of Contaminant
2015	Aluminum	< 0.00200 - < 0.00200	< 0.00200	0.05	ppm	Abundant naturally occurring element.
2015	Bicarbonate	259 – 259	259	N/A	ppm	Corrosion of carbonate rocks such as limestone
2015	Calcium	69 – 69	69	N/A	ppm	Abundant naturally occurring element.
2015	Chloride	18 -18	18	300	ppm	Abundant naturally occurring element; used in water; by-product of oil field activity.
2015	Iron	0 - 0010	0.010	0.3	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
2015	Magnesium	10 – 10	10	N/A	ppm	Abundant naturally occurring element.
2015	Manganese	0 – 0.0100	0.0100	0.05	ppm	Abundant naturally occurring element.
2015	Nickel	0.0017 – 0.0017	0.0017	N/A	ppm	Erosion of natural deposits.
2013	Sodium	20.3 – 56.1	56	N/A	ppm	Erosion of natural deposits; byproduct of oil field activity.
2015	Sulfate	23 – 23	23	300	ppm	Naturally occurring; common industrial byproduct; by-product of oil field activity.
2015	Total Dissolved Solids	283 – 283	283	1000	ppm	Total dissolved mineral constituents in water.
2015	Total Hardness as CaCO ₃	213 – 213	213	N/A	ppm	Naturally occurring calcium.
2015	Zinc	0.0062 -0.0062	0.0062	5	ppm	Moderately abundant naturally occurring element used in the metal industry

Violations Table

E. coli			
Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.			
Violation Type	Violation Begin	Violation End	Violation Explanation
MONITOR GWR TRIGGERED/ADDITIONAL, MAJOR	11/01/2015	11/30/2015	We failed to collect follow-up samples within 24 hours of learning of the total coliform-positive sample. These needed to be tested for fecal indicators from all sources that were being used at the time the positive sample was collected.

TCEQ has rejected the triggered source monitoring violation of November 2015 and no further action is required.

Manville WSC Consumer Confidence Report Data 2015

Inorganic

Year	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Violation	Units	Source of Contaminant
2013	Barium	0.138	0.0539 – 0.138	2	2	N	ppm	Discharge of drilling wastes ; Discharge from metal refineries; erosion of natural deposits.
2013	Chromium	4.16	2.35 – 4.16	100	100	N	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
2014	Cyanide	0.07	< 0.01 – 0.07	200	200	N	ppb	Discharge from steel / metal refineries; Discharge from plastic and fertilizer factories.
2014	Fluoride	1.88	0.16 - 1.88	4	4	N	ppm	Erosion of natural deposits; water additive which promote strong teeth; discharge from fertilizer and aluminum factories
2013	Selenium	0.135	<0.00100 – 0.135	50	50	N	ppb	Discharge from petroleum and metal refineries; erosion of natural deposit; discharge of mines
2015	Nitrate	2.04	0.02 – 2.04	10	10	N	ppm	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits.
2015	Nitrite	0.200	<0.01 – 0.200	1	1	N	ppm	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits.

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.

Disinfection Byproducts

Year	Disinfectant	Highest Level Detected	Range of Levels Detected	MRDLG	MCL	Units	Violation	Source of Contaminant
2015	Total Haloacetic Acids	17.8	1.2 – 17.8	No goal for the total	60	ppb	N	By-product of drinking water chlorination.
2015	Total Trihalomethanes	49.7	0 – 49.7	No goal for the total	80	ppb	N	By-product of drinking water chlorination.

Radioactive Contaminants

Year	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Violation	Units	Source of Contaminant
2014	Combined Radium 226 & 228	1.22	<1 – 1.22	0	5	N	pCi/L	Erosion of natural deposits
2014	Gross alpha excluding radon and uranium	4	4 - 4	0	5	N	pCi/L	Erosion of natural deposits, including pesticides.

Volatile Organic Contaminants

Year	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Violation	Units	Source of Contaminant
2015	Xylenes	161	0 - 161	10	10	N	ppm	Discharge from petroleum factories; Discharge from chemical factories.
2015	Ethylbenzene	30	0 - 30	700	700	N	ppb	Discharge from petroleum refineries; industrial chemical factories.

Manville WSC Consumer Confidence Report Data 2015

Synthetic Organic Contaminants – Pesticides and Herbicides

Year	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Violation	Units	Source of Contaminant
2015	Altazine	0.27	0 - .27	3	3	N	ppb	Runoff from herbicide used on row crops.
2015	Simazine	0.15	0 – 0.15	4	4	N	ppb	Herbicide runoffs..

Unregulated Contaminants/ Proposed Standards

Bromoform, bromoform, dichlorobromomethane, and dibromochloromethane are disinfection byproducts. There is no maximum level for these chemicals at the entry point to distribution.

Year	Disinfectant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Violation	Units	Source of Contaminant
2015	Chloroform	11.8	1.0 – 11.8	N/A	N/A	N	ppb	Byproduct of drinking water disinfection.
2015	Bromoform	3.6	<1.0 – 3.6	N/A	N/A	N	ppb	Byproduct of drinking water disinfection
2015	Bromodichloromethane	17.5	<1.0 – 17.5	N/A	N/A	N	ppb	Byproduct of drinking water disinfection
2015	Dibromochloromethane	16.8	<1.0 – 16.8	N/A	N/A	N	ppb	Byproduct of drinking water disinfection

Secondary and Other Constituents Not Regulated (No associated adverse health effects)

Year	Contaminant	Range of Levels Detected	Highest Level Detected	Secondary	Units	Source of Contaminant
2013	Aluminum	<0.00400- 0.00474	0.00474	0.05	ppm	Abundant naturally occurring element.
2014	Bicarbonate	161 – 384	276	N/A	ppm	Corrosion of carbonate rocks such as limestone
2013	Calcium	49.4 – 96.5	96.5	N/A	ppm	Abundant naturally occurring element.
2014	Chloride	18 -104	104	300	ppm	Abundant naturally occurring element; used in water; by-product of oil field activity.
2013	Hardness as Ca/Mg	159 - 330	330	N/A	ppm	Naturally occurring calcium and magnesium.
2013	Iron	0 - 0.333	0.333	0.3	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
2013	Magnesium	8.7 – 21.6	21.6	N/A	ppm	Abundant naturally occurring element.
2013	Manganese	0 – 0.0244	0.0244	0.05	ppm	Abundant naturally occurring element.
2013	Nickel	0.000996 – 0.0028	0.0028	N/A	ppm	Erosion of natural deposits.
2011	pH	7 – 7.70	7.70	7	units	Measure of corrosivity of water.
2013	Sodium	20.3 – 56.1	56	N/A	ppm	Erosion of natural deposits; byproduct of oil field activity.
2013	Sulfate	24.6 – 38.5	38.5	300	ppm	Naturally occurring; common industrial byproduct; by-product of oil field activity.
2014	Total Alkalinity asCaCO3	132 –315	315	N/A	ppm	Naturally occurring soluble mineral salts
2013	Total Dissolved Solids	350 – 325	425	1000	ppm	Total dissolved mineral constituents in water.
2013	Total Hardness as CaCO 3	159 – 330	330	N/A	ppm	Naturally occurring calcium.
2013	Zinc	0.0140 -0.0170	0.0170	5	ppm	Moderately abundant naturally occurring element used in the metal industry

Cross County WSC Consumer Confidence Report Data 2015

Disinfection Byproducts

Year	Disinfectant	MCL	MCLG	AVG. Result	High	Low	Units
2015	Total Haloacetic Acids	60 AVG	na	1.0	1.0	1.0	ppb
2015	Total Trihalomethanes	80AVG	na	6.9	6.9	6.9	ppb

Inorganic

Year	Contaminant	High	Low	Average	MCL	MCLG	Units	Source of Contaminant
2012	Barium	0.130	0.130	0.130	2	2	ppm	Discharge of drilling wastes discharge; from metal refineries; erosion of natural deposits.
2012	Fluoride	0.24	0.24	0.24	4	4	ppm	Erosion of natural deposits; water additive which promote strong teeth; discharge from fertilizer and aluminum factories.
2015	Nitrate	0.04	0.04	0.04	10	10	ppm	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits.

Secondary and Other Constituents Not Regulated (No associated adverse health effects)

Year	Contaminant	High	Low	Average	Secondary	Units	Source of Contaminant
2012	Calcium	9.13	9.13	9.13	N/A	ppm	Abundant naturally occurring element.
2012	Chloride	23	23	23	300	ppm	Abundant naturally occurring element; used in water; by-product of oil field activity.
2012	Magnesium	3.25	3.25	3.25	N/A	ppm	Abundant naturally occurring element.
2012	Manganese	0.0125	0.125	0.125	0.05	ppm	Abundant naturally occurring element.
2012	pH	8.1	8.1	8.1	7	units	Measure of corrosivity of water.
2012	Sodium	83.4	83.4	83.4	N/A	ppm	Erosion of natural deposits; byproduct of oil field activity.
2012	Total Alkalinity asCaCO3	200	200	200	N/A	ppm	Naturally occurring soluble mineral salts
2012	Total Dissolved Solids	257	257	257	1000	ppm	Total dissolved mineral constituents in water.
2012	Total Hardness as CaCO 3	36.2	36.2	36.2	N/A	ppm	Naturally occurring calcium.