City of Terrell 2012 Annual Water Quality Report

For Period of January 1 to December 31, 2012

The City of Terrell is proud of the fine drinking water it provides. This report is intended to provide you with important information about your drinking water and the efforts made by our water system to provide safe drinking water.

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 immuncompromised persons such as those undergoing chemotherapy for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care provider. Additional guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at (800) 426-4791.

THE BOTTOM LINE: IS YOUR WATER SAFE TO DRINK? ABSOLUTELY.

Call us for information about the next opportunity for public participation in decisions about our drinking water. Find out more information about the City of Terrell on their website at www.cityofterrell.org.

EN ESPANOL

Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en espanol, favor de llamar al telefono (972) 551-6635.

OUR DRINKING WATER IS REGULATED

This report is a summary of the quality of the water we provide our customers. The analysis report has been compiled from recent U.S Environmental Protection Agency (EPA) required tests . The information is provided in this packet and will help you become more knowledgeable about your drinking water.

YOUR DRINKING WATER IS SAFE

Providing safe and reliable drinking water is the highest priority of our Water Quality Department. Our employees take pride in providing and delivering water to your home or business. It is our duty to inform you of the quality of your water so you can have confidence in the water we deliver.

SOURCE OF DRINKING WATER

The City of Terrell purchases treated water from North Texas Municipal Water District (NTMWD). NTMWD utilizes four reservoirs; Lavon Lake, Lake Jim Chapman, Lake Tawakoni, and Lake Texoma for their raw water supplies. The City of Terrell's Water Treatment Plant was decommissioned on June 19, 2007.

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and radioactive material and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may present in source water include: (a) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and water wildlife (b) inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming (c) pesticides and herbicides, which may come from a variety of sources such as agriculture, storm runoff, and residential uses (d) organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff and septic systems (e) radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and minin activities.

The TCEQ has completed a Source Water Assessment for all drinking water systems that own their 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 assesments and protection efforts at our system, contact Dick Boyd at (972) 551-6635.

The report showed a HIGH suspectibility for the following contaminants: Inorganics, regulated and unregulated; Volatile Organic Contaminant, regulated and unregulated; Synthetic Organic Contaminant, regulated and unregulated; Disinfection By-Product, regulated; and Microbial Organism, unregulated.

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 drinking 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.state.tx.us/DWW/.

ALL drinking water may contain contaminants

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, contact us at (972) 551-6635.

SECONDARY CONSTITUENTS AND CONTAMINANTS

Contaminants and 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 contaminants and constituents are not causes for health concern. Therefore, secondary constituents are not required to be reported in this document, but they may greatly effect the appearance and taste of your water. For more information on taste, odor, or color of drinking water, please contact us at (972) 551-6635.

LEAD IN DRINKING WATER

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 do 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 Water Hotline or at http://www.epa.gov/safewater/lead.

Regulated Contaminants Detected

Lead and Copper Results	Lead	Copper
Year Sampled	2010	2010
MCLG	0	1.3
Action Level (AL)	15	1.3
90th Precentile	3.41	0.655
# Sites Over AL	0	0
Units	ppb	ppm
Violation	No	No
Likely Source of Contamination	Corrosion of household plumbing systems; Erosion of natural deposits	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems

Disinfectant and Disinfection By-Products	Haloacetic Acids (HAA5)	Total Trihalomethanes (TTHM)
Year Sampled	2012	2012
Highest Level Detected	27.8	36.1
Range of Levels Detected	13.4 – 27.8	16.5 – 36.1
MCLG	NA	NA
MCL	60	80
Units	ppb	ppb
Violation	No	No
Likely Source of Contamination	By-product of drinking water disinfection	By-product of drinking water disinfection

Inorganic Contaminants	Fluoride	Nitrate (Nitrogen)
Year Sampled	2007	2012
Highest Level Detected	0.16	0.2
Range of Levels Detected	0.16 – 0.16	0.2 – 0.2
MCLG	4	10
MCL	4.0	10
Units	ppm	ppm
Violation	No	No
Likely Source of Contamination	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

WHAT DO THE TABLES MEAN?

The tables show the results of our water-quality analyses. Every regulated contaminant that we detected in the water, even in the most minute traces, is listed here. The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health, the amount detected, the usual sources of such contamination, footnotes explaining our findings, and a key to units of measurement. Definitions of MCL and MCLG are important.

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

Maximum Contaminant Level or MCL: The highest level that is allowed for drinking water. MCLs are set as close to 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 health risk. MCLGs are margins of safety.

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

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.

Treatment Technique or TT: A required process method intended to reduce the level of a contaminant in drinking water.

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

KEYS TO TABLE

AL = Action Level
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
NTU = Nephelometric Turbidity Units (a measure of turbidity)
pCi/l = picocuries per liter (radioactivity measure)
MFL = million fibers per liter (a measure of asbestos)
NA = Not Applicable
ppm = parts per million, or milligrams per liter(mg/l)
ppt = parts per trillion, nanograms per liter (ng/l)
ppb = parts per billion micrograms per liter (µg/l)
ppq = parts per quadrillion, or pictograms per liter (pg/l)
TT = Treatment Technique

Turbidity

	Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1 NTU	0.22 NTU	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.

Total Organic Carbon

	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination
Source Water	2012	6.19	5.01-6.19	ppm	Naturally present in the environment.
Drinking Water	2012	3.39	2.19-3.39	ppm	Naturally present in the environment.
Removal Ratio	2012	62.4%	39.8%-62.4%	% 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.

Regulated Contaminants

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	2012	0.256	0.195-0.256	6	6	ppb	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; and test addition.
Arsenic	2012	1.1	0.951-1.1	0	10	ppb	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	2012	0.0389	0.0364-0.0389	2	2	ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Beryllium	2012	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	2012	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	2012	2.55	2.35-2.55	100	100	ppb	No	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2012	0.66	0.50-0.66	4	4	ppm	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Mercury	2012	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)	2012	1.04	0.08-1.04	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	2012	0.244	0.232-0.244	50	50	ppb	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Thallium	2012	Levels lower than detect level	0 - 0	0.5	2	ppb	No	Discharge from electronics, glass, and leaching from ore-processing sites; drug factories.

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)	2011	Levels lower than detect level	0 - 0	50	50	ppb	No	Residue of banned herbicide.
2, 4 - D	2011	Levels lower than detect level	0 - 0	70	70	ppb	No	Runoff from herbicide used on row crops.
Alachlor	2012	Levels lower than detect level	0 - 0	0	2	ppb	No	Runoff from herbicide used on row crops.
Atrazine	2012	0.71	0 - 0.71	3	3	ppb	No	Runoff from herbicide used on row crops.
Benzo (a) pyrene	2012	Levels lower than detect level	0 - 0	0	200	ppt	No	Leaching from linings of water storage tanks and distribution lines.
Carbofuran	2011	Levels lower than detect level	0 - 0	40	40	ppb	No	Leaching of soil fumigant used on rice and alfalfa.
Chlordane	2012	Levels lower than detect level	0 - 0	0	2	ppb	No	Residue of banned termiticide.
Dalapon	2011	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff from herbicide used on rights of way.
Di (2-ethylhexyl) adipate	2012	0.74	0 - 0.74	400	400	ppb	No	Discharge from chemical factories.
Di (2-ethylhexyl) phthalate	2012	Levels lower than detect level	0 - 0	0	6	ppb	No	Discharge from rubber and chemical factories.
Dibromochloropropane (DBCP)	2011	Levels lower than detect level	0 - 0	0	0	ppt	No	Runoff / leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
Dinoseb	2011	Levels lower than detect level	0 - 0	7	7	ppb	No	Runoff from herbicide used on soybeans and vegetables.
Endrin	2012	Levels lower than detect level	0 - 0	2	2	ppb	No	Residue of banned insecticide.
Ethylene dibromide	2011	Levels lower than detect level	0 - 0	0	50	ppt	No	Discharge from petroleum refineries.
Heptachlor	2012	Levels lower than detect level	0 - 0	0	400	ppt	No	Residue of banned termiticide.
Heptachlor epoxide	2012	Levels lower than detect level	0 - 0	0	200	ppt	No	Breakdown of heptachlor.
Hexachlorobenzene	2012	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from metal refineries and agricultural chemical factories.
Hexachlorocyclopentadiene	2012	Levels lower than detect level	0 - 0	50	50	ppb	No	Discharge from chemical factories.
Lindane	2012	Levels lower than detect level	0 - 0	200	200	ppt	No	Runoff / leaching from insecticide used on cattle, lumber, and gardens.
Methoxychlor	2012	Levels lower than detect level	0 - 0	40	40	ppb	No	Runoff / leaching from insecticide used on fruits, vegetables, alfalfa, and livestock.
Oxamyl [Vydate]	2011	Levels lower than detect level	0 - 0	200	200	ppb	No	Runoff / leaching from insecticide used on apples, potatoes, and tomatoes.
Pentachlorophenol	2012	Levels lower than detect level	0 - 0	0	1	ppb	No	Discharge from wood preserving factories.
Simazine	2012	0.38	0.11 - 0.38	4	4	ppb	No	Herbicide runoff.
Toxaphene	2012	Levels lower than detect level	0 - 0	0	3	ppb	No	Runoff / leaching from insecticide used on cotton and cattle.

Regulated Contaminants (continued)

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.
Gross alpha excluding radon and uranium	4/29/2010	Levels lower than detect level	0 - 0	0	15	pCi/L	No	Erosion of natural deposits.

Volatile Organic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
1, 1, 1 - Trichloroethane	2012	Levels lower than detect level	0 - 0	200	200	ppb	No	Discharge from metal degreasing sites and other factories.
1, 1, 2 - Trichloroethane	2012	Levels lower than detect level	0 - 0	3	5	ppb	No	Discharge from industrial chemical factories.
1, 1 - Dichloroethylene	2012	Levels lower than detect level	0 - 0	7	7	ppb	No	Discharge from industrial chemical factories.
1, 2, 4 - Trichlorobenzene	2012	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from textile-finishing factories.
1, 2 - Dichloroethane	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
1, 2 - Dichloropropane	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from industrial chemical factories.
Benzene	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories; leaching from gas storage tanks and landfills.
Carbon Tetrachloride	2012	Levels lower than detect level	0 - 0	0	5	5	No	Discharge from chemical plants and other industrial activities.
Chlorobenzene	2011	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	2012	Levels lower than detect level	0 - 0	0	700	700	No	Discharge from petroleum refineries.
Styrene	2012	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from rubber and plastic factories; leaching from landfills.
Tetrachloroethylene	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from factories and dry cleaners.
Toluene	2012	Levels lower than detect level	0 - 0	1	1	ppm	No	Discharge from petroleum factories.
Trichloroethylene	2012	Levels lower than detect level	0 - 0	0	5	ppb	No	Discharge from metal degreasing sites and other factories.
Vinyl Chloride	2012	Levels lower than detect level	0 - 0	0	2	ppb	No	Leaching from PVC piping; discharge from plastics factories.
Xylenes	2012	Levels lower than detect level	0 - 0	10	10	ppm	No	Discharge from petroleum factories; discharge from chemical factories.
cis - 1, 2 - Dichloroethylene	2012	Levels lower than detect level	0 - 0	70	70	ppb	No	Discharge from industrial chemical factories.
o - Dichlorobenzene	2012	Levels lower than detect level	0 - 0	600	600	ppb	No	Discharge from industrial chemical factories.
p - Dichlorobenzene	2012	Levels lower than detect level	0 - 0	75	75	ppb	No	Discharge from industrial chemical factories.
trans - 1, 2 - Dicholoroethylene	2012	Levels lower than detect level	0 - 0	100	100	ppb	No	Discharge from industrial chemical factories.

Maximum Residual Disinfectant Level

Disinfectant Type	Year	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Units	Source of Chemical
Chlorine Residual (Chloramines)	2012	2.73	1.8	3.37	4.0	<4.0	ppm	Disinfectant used to control microbes.
Chlorine Dioxide	2012	0	0	0.1	0.8	0.8	ppm	Disinfectant.
Chlorite	2012	0.42	0.08	0.81	1.0	N/A	ppm	Disinfectant.

Unregulated Contaminants

Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination
Chloroform	2012	26.1	10.3 - 16.6	ppb	By-product of drinking water disinfection.
Bromoform	2012	1	1.0 - 1.0	ppb	By-product of drinking water disinfection.
Bromodichloromethane	2012	12.3	4.3 - 12.3	ppb	By-product of drinking water disinfection.
Dibromochloromethane	2012	5.7	1.9 - 5.7	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

Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	Likely Source of Contamination
Bicarbonate	2011	120	73 - 120	ppm	Corrosion of carbonate rocks such as limestone.
Calcium	2012	47.5	39.9 -47.5	ppm	Abundant naturally occurring element.
Chloride	2012	26	22.8-26	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
Hardness as Ca/Mg	2012	133	114-133	ppm	Naturally occurring calcium and magnesium.
Iron	2012	Levels lower than detect level	0.00-0.00	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities.
Magnesium	2012	3.54	3.5-3.54	ppm	Abundant naturally occurring element.
Manganese	2012	0.00125	.000525-.00125	ppm	Abundant naturally occurring element.
Nickel	2012	0.00609	.00563-.00609	ppm	Erosion of natural deposits.
pH	2012	8.0	7.7-8.0	units	Measure of corrosivity of water.
Sodium	2012	30.6	27.2-30.6	ppm	Erosion of natural deposits; by-product of oil field activity.
Sulfate	2012	75.7	59.9-75.7	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
Total Alkalinity as CaCO3	2012	92	74-92	ppm	Naturally occurring soluble mineral salts.
Total Dissolved Solids	2012	264	229-264	ppm	Total dissolved mineral constituents in water.
Total Hardness as CaCO3	2012	133	114-133	ppm	Naturally occurring calcium.
Zinc	2012	0.00617	.000874-.00617	ppm	Moderately abundant naturally occurring element used in the metal industry.

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	0	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. Maximum level of 5% Total Coliform.