



BWA Drinking Water Quality Report

Year 2012 Data

BWA Receives TOP Award Recognition for 5th Consecutive Year

For the fifth consecutive year, the Benbrook Water Authority Water Treatment Plant has received recognition for participation in the Texas Optimization Program (TOP) from the Texas Commission on Environmental Quality (TCEQ). The TOP award recognizes water treatment plants that voluntarily work to exceed the minimum requirements set by the State of Texas for water clarity.

BWA voluntarily entered this program in March of 2007. The water treatment plant staff worked diligently for 8 months prior to entering the program to fine tune the treatment process, rewrite operating procedures, install state-of-the-art monitoring equipment and train plant personnel on TOP requirements. Since then, more than 6 billion gallons of water have been treated and not one gallon has exceeded the extremely low turbidity levels required for TOP recognition. Of the 425 water treatment plants in Texas, only 10 participate in the TOP program. Of those 10, only 6 have been in the program for over 5 years without a lapse in recognition. The BWA Water Treatment Plant has the honorable distinction of being in the top 2% of water treatment plants in Texas. It takes a very special team of water treatment plant operators, a dedicated water quality control specialist, a highly skilled chief plant operator, and a meticulous, hard working maintenance department to ensure that the citizens of Benbrook not only receive safe drinking water but the very best drinking water that is produced in Texas. BWA is proud to have such a committed staff and is pleased to recognize their accomplishment.

BWA Water is Safe

BWA is committed to providing residents with a safe and reliable supply of high quality drinking water. The water that is delivered to your tap meets or exceeds all state and federal water quality standards. The analysis was made by using the data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in these pages.

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.

Many constituents 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 causes for health concerns and are not required to be reported in this document, but may greatly affect the appearance and taste of your water. The Tarrant Regional Water District and BWA continually study the best way to remove these tastes and odors and treat the water.

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The Treatment Process



1. **Reservoirs:** Benbrook water comes primarily from Benbrook Lake.
2. **Raw Water Pump Station:** When high production is needed (over 8.0 MGD) pumps are used to bring water from Benbrook Lake to the treatment plant.
3. **Algae and Taste and Odor Control:** Chemicals are added to the raw water to help reduce algae and taste and odor causing compounds in the water.
4. **Primary Disinfection:** Chlorine Dioxide is added to the raw water to kill bacteria and viruses.
5. **Pre-Sedimentation:** Heavy solids such as sand settle out of the raw water.
6. **Rapid Mixing Chamber:** Chemicals called coagulants are added to the water and cause small particles in the water to adhere to each other.
7. **Flocculation Chambers:** These particles are slowly mixed in a series of chambers that cause them to become large and heavy enough to sink.
8. **Sedimentation Basin:** The large particles travel down a long basin and sink to the bottom in a process called clarification. The particles are collected by a scraper system at the bottom of the basin, then are removed and sent to the sanitary sewer collection system.
9. **Filtration:** The clarified water is treated with a small dose of chlorine then passes through filters which contain 24" of granular activated carbon and 12" of silica sand for ultra fine particle removal and additional taste and odor control.
10. **Final Disinfection:** Chlorine is added to the filtered water to provide final disinfection and residual disinfection that remains in the water all the way to our customers.
11. **Storage:** The finished water is then transferred into 2 storage tanks that can hold up to 3 million gallons. The water is then pumped into the distribution system and to the customer.

About the Following Pages

The pages that follow list all of the federally regulated or monitored constituents which have been found in your drinking water. U.S. EPA requires water systems to test for up to 97 constituents

Water Sources

The BWA obtains its drinking water from ground and surface water sources. It comes from the following Lake/River/Reservoir/Aquifer: Paluxy, Trinity, Clear Fork Trinity River, and Lake Benbrook. TCEQ completed an assessment of our source water and results indicate that some of our sources are susceptible to certain contaminants. The sampling requirements for our water system are based on this susceptibility and contaminants and previous sample data. Any detection of these contaminants will be found in this report. If we receive or purchase water from another system, their susceptibility is not included in this assessment. For more information on source water assessments and protection efforts at our system, please contact us.

Understanding the Tables

The following list explains the terms used in the tables:

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.

MCL (Maximum Contaminant Level)—the highest permissible level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL (Maximum Residual Disinfectant Level)—the highest level of 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 contamination.

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

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

Turbidity—a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

The water quality data table shows the results of our water quality analyses. Every regulated contaminant that we detected in the water, even in the minutest traces, is listed. The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, and a key to unit of measure.

Disinfectants & Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Haloacetic Acids (HAA5)	2012	12	0—29.2	No goal for the total	60	ppb	N	By-product of drinking water chlorination.
Total Trihalomethanes (TTHm)	2012	40	0—68.1	No goal for the total	80	ppb	N	By-product of drinking water chlorination.
Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Barium	10/12/2011	0.00349	0.00349—0.00349	2	2	ppm	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium	10/12/2011	4.18	4.18—4.18	100	100	Ppb	N	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	2012	0.2	0.19—0.19	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)	2012	0.4	0—0.4	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium	2012	0.947	0.947—0.947	50	50	Ppb	N	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.

Abbreviations

NTU—Nephelometric Turbidity Units

pCi/l—picocuries per liter (a measure of radioactivity)

ppb—parts per billion, or micrograms per liter (ug/l)

ppq—parts per quadrillion, or picograms per liter.

MFL—million fibers per liter (a measure of asbestos)

ppm—parts per million, or milligrams per liter (mg/l)

ppt—parts per trillion, or nanograms per liter

Radioactive Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/photon emitters*	2012	5.5	4.2—5.5	0	4	pCi/L	N	Decay of natural and man-made deposits.
Combined Radium 226/228	2012	1	.69—.69	0	5	pCi/L	N	Erosion of natural deposits
Gross alpha compliance	2012	4.2	0 – 4.2	0	15	pCi/L	N	Erosion of natural deposits.

*EPA Considers 50 to be the level of concern for beta particles.

Maximum Residual Disinfectant Level—Systems must complete and submit disinfection data on the Surface Water Monthly Operations Report . On the CCR report, the system must provide disinfectant type, minimum, maximum and average levels.

Year	Disinfectant	Avg. Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Chemical
2012	Free Cl2	.94	.20	2.02	4.0	<4.0	ppm	Disinfectant used to control microbes

Total Organic Carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection byproducts. Disinfection is necessary to ensure that the water does not have unacceptable levels of pathogens. Byproducts of disinfection include trihalomethanes (THMs) and haloacetic acids (HAA) which are reported elsewhere in this report.

Year	Contaminant	Average Level	Minimum Level	Maximum Level	Unit	Source of Constituent
2012	Source Water	5.16	4.8	6.3	ppm	Naturally present in the environment
2012	Drinking Water	3.08	2.6	3.6	ppm	Naturally present in the environment
2012	Removable Ratio	1.27	1.01	1.80	% removal	NA

Year 2012	Treated TOC mg/l	Source TOC mg/l	% Removed (1-a/b)x100	Source Water Alkalinity mg/l	Required TOC Removal (%)	C/E
January	3.1	4.8	35.42	104	35	1.01
February	3.2	5	36.00	99	35	1.03
March	3	4.8	37.50	112	35	1.07
April	2.9	5	42.00	125	25	1.68
May	3.1	5.1	39.22	131	25	1.57
June	2.7	4.9	44.90	121	25	1.80
July	2.6	5	48.00	104	35	1.37
August	2.6	4.5	42.22	96	35	1.21
September	3.5	6.3	44.44	100	35	1.27
October	3.3	5.4	38.89	95	35	1.11
November	3.4	5.5	38.18	102	35	1.09
December	3.6	5.7	36.84	107	35	41.05
					Sum	15.26
					Average	1.27

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	09/30/2010	1.3	1.3	.133	0	ppm	N	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	09/30/2010	0	15	2.46	0	ppb	N	Corrosion of household plumbing systems; Erosion of natural deposits.

Turbidity

	Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1 NTU	0.09 NTU	N	Soil runoff
Lowest monthly % meeting limit	0.3 NTU	100%	N	Soil runoff

Unregulated Compounds

Compound	Date Sampled	Level Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Chloroform	7/16/2012	5.39	70	80	ppb	N	By-product of drinking water chlorination
Bromodichloromethane	7/16/2012	15.42	0	80	ppb	N	By-product of drinking water chlorination
Dibromochloromethane	7/16/2012	16.88	60	80	ppb	N	By-product of drinking water chlorination
Bromoform	7/16/2012	4.38	0	80	ppb	N	By-product of drinking water chlorination

Health Information for Special Populations

The Texas Commission on Environmental Quality (TCEQ) requires the following statement be printed in all annual water quality reports.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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Only Tap Water **Delivers**SM

This is your annual report on drinking water quality. It details where your water comes from, what it contains, and how that compares with regulatory standards.

This report may seem complex and confusing. There are federal and state requirements on what information is provided and how it is presented. Benbrook water meets or is better than all state and federal water quality standards for protecting public health.