ANNUAL WATER QUALITY REPORT

Reporting Year 2021

Presented By

CITY OF MURPHY

LIFE LIVED AT YOUR PACE

PWS ID#: 0430042

We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

Lead in Home Plumbing

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. This water supply is 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 two 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

> "When the well is dry, we know the worth of water."
>
> —*Benjamin Franklin*

Source Water Assessment

The Texas Commission on Environmental Quality has completed a source water susceptibility assessment for all drinking water systems that own their sources. This report describes the susceptibility and types of constituents that may come into contact with the drinking water source based on human activities and natural conditions. NTWD, the system from which we purchase our water, received the assessment report. For more information on source water assessments and protection efforts at our system, contact North Texas Municipal Water District, 501 East Brown Street, Wylie, Texas 75098, or call (972) 442-5405.

Water Loss Audit

In the water loss audit submitted to the Texas Water Development Board during the year covered by this report, our system lost an estimated 299,961,489 gallons of water. If you have any questions about the water loss audit, please call (972) 468-4100.

Where Does My Water Come From?

The City of Murphy and 60 other Texas communities receive drinking water from the North Texas Municipal Water District (NTMWD). More than 1.6 million citizens rely on the treated water supply provided by the NTMWD. Murphy's water is mainly from Lake Lavon. The NTMWD water treatment plants are in Wylie, Texas. These treatment facilities provide billions of gallons of clean drinking water every year to their area customers, like the City of Murphy. Lavon Lake serves as the NTMWD's main raw water supply source, and the NTMWD holds water rights to the reservoir. Lavon Lake also serves as a terminal reservoir to augment supplies from Lake Texoma, Jim Chapman Lake, Lake Bonham, and the East Fork Wetland Project. Additional supplies are available through a contract with the Sabine River Authority, providing for water transfer to Lavon Lake from Lake Tawakoni, and a contract with the Greater Texoma Utility Authority for additional supplies from Lake Texoma.

Important Health Information

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; 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.

Think Before You Flush!

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of our waterways by disposing responsibly. To find a convenient drop-off location near you, please visit https://bit.ly/3IeRyXy.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Public Services, Bryce Gullatt at (972) 468-4378

Este reporte incluye información importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (972) 468-4100.

How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria prior to filling up with the tap water the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

Community Participation

You are invited to participate in our regular public forums and voice your concerns about your drinking water. The city council meets the first and third Tuesday of each month at 6:00 p.m. at City Hall, Council Chambers, 206 North Murphy Road, Murphy.

Water Conservation Tips

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 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 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 stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater 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, odor, or color of drinking water, please contact our business office. For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

The percentage of total organic carbon (TOC) removal was measured each month, and the system met all TOC removal requirements set.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2021	3	3	0.3	0.2–0.3	No	Runoff from herbicide used on row crops
Barium (ppm)	2021	2	2	0.038	0.037–0.038	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Bromate (ppb)	2021	10	0	69.2	5.27–69.2	No	By-product of drinking water ozonation
Chloramines (ppm)	2021	[4]	[4]	3.8	0.7–3.8	No	Water additive used to control microbes
Chlorite (ppm)	2021	1	0.8	0.97	ND–0.97	No	By-product of drinking water disinfection
Cyanide (ppb)	2021	200	200	86.9	86.9	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Fluoride (ppm)	2021	4	4	0.480	0.306–0.480	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2021	60	NA	26.8	19.8–26.8	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	0.802	0.110–0.802	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radium (pCi/L)	2021	5	0	ND	NA	No	Erosion of natural deposits
Simazine (ppb)	2021	4	4	0.12	0.08–0.12	No	Herbicide runoff
Total Organic Carbon (% removal)	2021	TT[1]	NA	46	1.9–46	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 1 (ppb)	2021	80	NA	41.9	20.8–41.9	No	By-product of drinking water disinfection
Turbidity[2] (NTU)	2021	TT	NA	1	0.3–1	No	Soil runoff

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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.

NA: Not applicable.

ND (Not detected): Indicates 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.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SCL (Secondary Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

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

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2020	1.3	1.3	0.6	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	1.3	0/30	No	Lead service lines; Corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2021	300	NA	73.5	4.78–73.5	No	Naturally occurring; Water purification; By-product of oilfield activity
Manganese (ppb)	2021	50	NA	38	ND–38	No	Naturally occurring
pH (units)	2021	>7	NA	9.12	7.56–9.12	No	NA
Sulfate (ppm)	2021	300	NA	153	22.4–153	No	Naturally occurring; Industrial by-product; By-product of oilfield activity
Total Dissolved Solids [TDS][3] (ppm)	2021	1,000	NA	444	186–444	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES[4]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2021	16	6.78–16	By-product of drinking water disinfection
Bromoform (ppb)	2021	2.76	1.02–2.76	By-product of drinking water disinfection
Chloroform (ppb)	2021	18.4	8.34–18.4	By-product of drinking water disinfection
Dibromochloromethane (ppb)	2021	9.57	4.68–9.57	By-product of drinking water disinfection
Nickel (ppm)	2021	0.0060	0.004–0.0060	Erosion of natural deposits
Sodium (ppm)	2021	81.1	33–81.1	Erosion of natural deposits; By-product of oilfield activity

OTHER UNREGULATED SUBSTANCES[4]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Calcium (ppm)	2021	77.5	34.5–77.5	Naturally occurring
HAA6Br (ppb)	2020	21.202	13.385–21.202	By-product of drinking water disinfection
HAA9 (ppb)	2020	43.762	21.825–43.762	By-product of drinking water disinfection
Magnesium (ppm)	2021	4.43	3.40–4.43	Naturally occurring
Total Alkalinity [as CaCO3] (ppm)	2021	128	65–128	Naturally occurring
Total Hardness [as CaCO3] (ppm)	2021	192	96–192	Naturally occurring

[1] TOC has no health effects. Disinfectant can combine with TOC to form disinfection by-products including TTHMs and HAAs, which are listed in the table. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of water quality and the effectiveness of disinfectants.

[3] Total dissolved mineral constituents in water.

[4] Unregulated contaminants are those for which U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.