



SUGAR LAND 2021 WATER QUALITY REPORT



CITY OF SUGAR LAND
Public Works

Main System
PWS 0790005

RiverPark System
PWS 0790354

Greatwood System
PWS 0790296

New Territory System
PWS 0790253

The City of Sugar Land Public Works Water Utilities Division takes pride in maintaining a tradition of producing superior quality water, vigilantly maintaining water and wastewater infrastructure and providing responsive and efficient customer-oriented service in a cost-effective and innovative manner, emphasizing responsible environmental stewardship and compliance with all regulatory requirements.

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Este reporte incluye informacion importante sobre el agua para tomar.
 Para asistencia en español, favor de llamar al telefono **281-275-2450** o **311**.

Director's Message



Each year, the Sugar Land Public Works Department prepares a Water Quality Report to inform you, our customer, of water quality standards, sampling results, and information about the city's 4 drinking water systems. This report represents the commitment and determination of 77 water professionals, as well as city management and council to produce and deliver the safest drinking water to your home and business. As the Director of the Public Works Department, I am pleased to report the water we supply continues to meet all health-based drinking water criteria as well as primary and aesthetic standards and is well below any maximum contaminant level (MCL) set by the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). Our water quality team takes daily samples from many locations throughout the City's four water systems. These samples undergo testing for chemical, bacteriological and other possible contaminants to assure the water we deliver is safe and meets your expectations.

Assuring your drinking water is safe to drink is only one component of what we do. Our team routinely works early in the morning and into the night, helping customers, logging water wells and pumps, and maintaining and repairing our water infrastructure. In addition, staff collects and analyzes data for regulatory reporting and short and long-term infrastructure improvements.

As First Responders, we plan, train, and prepare for emergencies brought on by the inclement weather that affects our area. When winter storm Uri brought freezing temperatures and lengthy power outages in February 2021, our staff was well prepared and equipped to be on duty 24-hours a day to keep the water and wastewater plants operating and assist customers with frozen pipes to turn off water and minimize home damage.

We value the trust and confidence you have in us and pledge to continue to uphold high drinking water standards, maintain and improve our water infrastructure, increase operational efficiencies, and continue to provide exceptional customer service. Our team is available through the city's Customer Care Center, "311" or 281-275-2450 should you have questions or concerns about the information presented in this report or the services we provide.

We are Sugar Land Water and we work for you!

A handwritten signature in black ink, appearing to read "Brain Butscher".

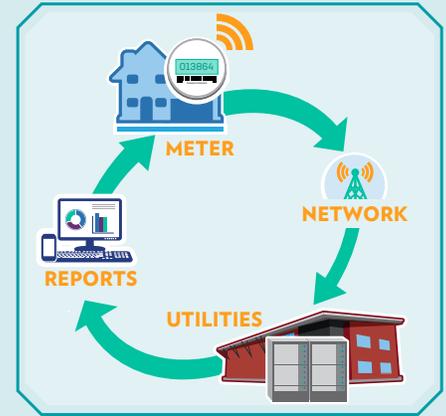
Brain Butscher, P.E.
Director of Public Works

A MESSAGE TO INDIVIDUALS WITH A COMPROMISED IMMUNE SYSTEM FROM THE EPA

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.

ADVANCED METERING INFRASTRUCTURE (AMI)

The City of Sugar Land is taking steps to maximize efficiencies in the water system and provide customers with detailed water use data through Advanced Meter Infrastructure (AMI). AMI is an integrated system of customer water meters, communication networks, and data management systems that provides real-time water use information to the City and its residents. The City's 40,000 water customers are currently billed utilizing a third party contractor to manually read each water meter on a monthly basis. AMI systems utilize technology to remotely communicate with and read water meters, making the data available for City billing purposes and provide customers with the ability to see real-time water use information.



AMI has become a regularly adopted solution by water utilities across the country for improving operational efficiencies and managing many common utility challenges. These challenges include aging infrastructure, system operational efficiency and management, integrity, customer service, and sustainability objectives. Customer benefits include improved meter accuracy, reduced billing errors and the ability to be more informed of daily water usage behaviors. Through this project, the City is committed to investing in our city infrastructure to save money for our residents and ensure sustainability of our water supply resources.

The AMI project is anticipated to begin construction in the fall of 2022.

TEXAS WATER 2022 – HYDRANT HYSTERIA COMPETITION

Four staff members proudly represented the City of Sugar Land in the “Hydrant Hysteria” competition at the Texas Section of the American Water Works Association’s (AWWA) 2022 Texas Water Convention in San Antonio on Wednesday, April 6th. Texas Water is the largest regional water conference in the United States and provides educational seminars, technology reviews, and the opportunity for fiercely friendly competition between water professionals.

Our water professionals look forward to Texas Water each year and this year was even more exciting as we watched John Combs (General Maintenance Worker II), Joseph Vargas (Crew Chief), Jennifer Garcia (Facilities Support Specialist), and Keisha Seals (Assistant Director of Environmental & Neighborhood Services) train and prepare for “Hydrant Hysteria”. This fiercely competitive event pits teams representing water utilities from across Texas against one another. The competition is a measure of the team’s skill at assembling a hydrant quickly, totally and accurately. All parts must be assembled in the proper manner and the reassembled hydrant is tested by the judges for its ability to operate correctly.

1st Place in the Women’s Division was awarded to Jennifer and Keisha; John and Joseph took third in the Men’s Division. Jennifer and Keisha will represent Texas at the national American Water Works Association’s (AWWA) Annual Conference and Exposition (ACE22) Convention in June 2022.

The American Water Works Association (AWWA) is the leading authority for water utilities in the United States. The Texas Section of AWWA (TAWWA) assists water professionals throughout Texas in protecting public health and water resources by promoting advancements in science, technology, education and management. Governmental policies are influenced by leveraging the expertise and collective leadership of over 50,000 members.



WHAT IS A WATER QUALITY REPORT?

A Water Quality Report, also known as a Consumer Confidence Report (CCR), is an annual report that presents the water quality of a city's drinking water. Water Quality Reports are required by the EPA and the TCEQ. The report summarizes data collected on drinking water during a calendar year. Water samples are taken daily and tested for chemical, bacteriological and disinfectant residual contaminants. The samples are taken from various locations throughout the water plant's production and distribution system. The report also documents any monitoring or testing violations of drinking water standards set by the EPA and the TCEQ.



SUGAR LAND'S WATER SOURCES

The City of Sugar Land operates four independent potable water systems. The Main System serves the 30,546 metered connections in the city limits east of the Brazos River, and the RiverPark System serves 1,389 metered connections in the RiverPark subdivision. Greatwood and New Territory are served by their own systems with 4,620 and 5,155 connections.

The City's Main System is supplied from both groundwater and surface water. Groundwater is supplied from 14 wells at six separate groundwater plants. These wells, with an average depth of greater than 1,200 feet, pump water from the Chicot and Evangeline aquifers. Surface water from the Brazos River through the Oyster Creek canal system supplies roughly 40 percent of the Main System's water demand. Raw surface water is treated at the City's Surface Water Treatment Plant then blended with groundwater at three groundwater plants before entering the distribution lines in the Main System.

The RiverPark System's two groundwater wells pull water from the Chicot and Evangeline aquifers. The groundwater is treated at the City's RiverPark groundwater plant and then distributed to customers. Greatwood and New Territory are supplied by water from wells in the Chicot and Evangeline aquifers. Greatwood has four wells and two groundwater plants, and New Territory has three wells and three groundwater plants.

SOURCE WATER ASSESSMENT REPORTS

The TCEQ completed an assessment of Sugar Land's source water and results indicate that some sources are susceptible to certain contaminants. The sampling requirements for the City's water systems are based on this susceptibility and previous sample data. Any detection of these contaminants may be found in this Consumer Confidence Report. Source water assessments are available through the [Source Water Assessment Viewer](#) and [Drinking Water Watch](#). Call **281-275-2450** or **311** for more information on the City's source water protection efforts.

OPPORTUNITIES FOR PUBLIC COMMENT ON WATER PLANNING AND WATER QUALITY

For more information about this report or participating in public meetings concerning the City of Sugar Land's drinking water, call **281-275-2450** or **311**.



DISINFECTING SUGAR LAND'S WATER

The City of Sugar Land takes every precaution to ensure Sugar Land residents have safe, clean drinking water. Disinfectants protect the water against microbial contaminants as it travels through the many miles of pipes and pumps. Chlorine is added to the RiverPark, Greatwood and New Territory Systems, and chloramine is added to the Main System.

POSSIBLE CONTAMINANTS

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. These constituents are called secondary constituents and are regulated by the State of Texas, not the EPA. Secondary constituents are not cause for health concern, but they may affect the appearance and taste of your water. Drinking water (both tap and bottled water) comes from rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over land or through the ground, it may pick up naturally occurring minerals, substances from animals or humans and even radioactive material.

Contaminants that may be present in drinking 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 might have 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems; and
- radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

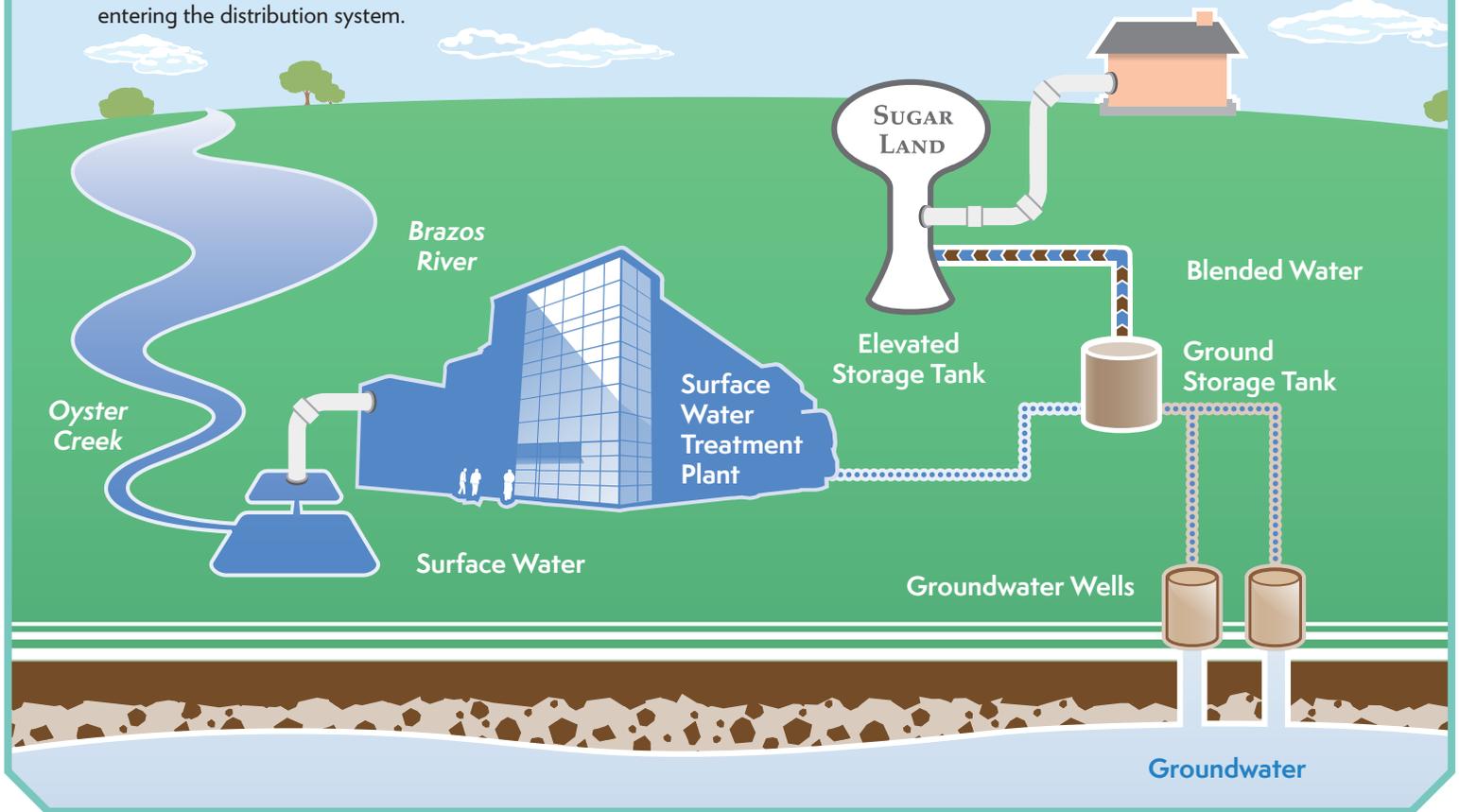
LEAD LEVEL CONCERNS

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 City of Sugar Land is responsible for providing high quality drinking water, but cannot control the variety of materials used in private 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 want 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 on the [EPA's website](#).

Main System Overview

In the Main System, treated surface water that comes from the Surface Water Treatment Plant is blended with groundwater before entering the distribution system.



CRYPTOSPORIDIUM AND GIARDIA

Cryptosporidium and *Giardia* are waterborne, pathogenic organisms. They can be passed into the environment through urban runoff or a sewage leak. Exposure to these organisms can lead to symptoms such as diarrhea, abdominal discomfort, fever, weight loss, malabsorption and anemia. Although not life-threatening to healthy adults, *Cryptosporidium* and *Giardia* can be fatal to infants, the elderly, pregnant women and people with a compromised immune system. (See the message from the EPA on page 2 if you may be at risk.)

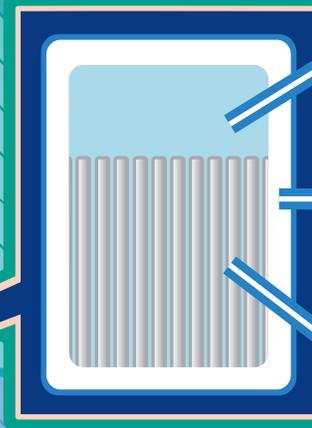
PRODUCTION AND DISTRIBUTION PROFILE

Two sources supply the City's Main System: surface water from Oyster Creek and the Brazos River treated at the City's Surface Water Treatment Plant and groundwater wells. The RiverPark, Greatwood and New Territory systems retrieve water from groundwater wells and treat it in one of the City's groundwater plants. Even though Sugar Land's water is excellent quality, chlorine is added to the RiverPark, Greatwood and New Territory systems, and chloramine is added to the Main System to protect the finished water against microbial contaminants as it travels through the many miles of pipes and pumps before being delivered to customers. Fluoride is added to the Main and RiverPark systems to help prevent tooth decay. Corrosion inhibitors may also be added to reduce corrosion of metal components in the private plumbing systems in homes and buildings.

After the water has been treated to meet federal and state standards, the water is delivered to homes and businesses. The City of Sugar Land is committed to providing high quality water. If you have any questions regarding the data in this report, contact the **Public Works Department** at **281-275-2450** or **311**.

Surface Water Filtration Process

WATER FLOW

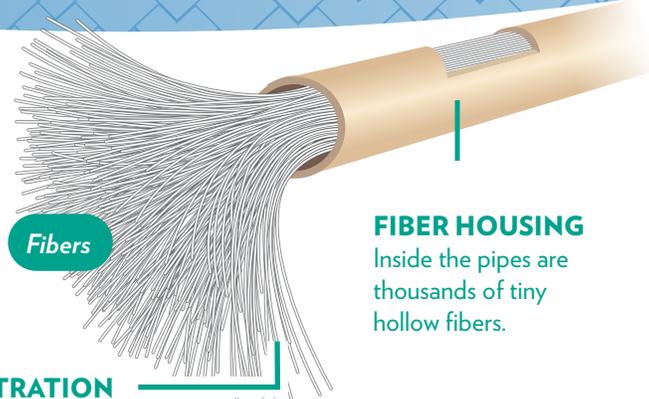
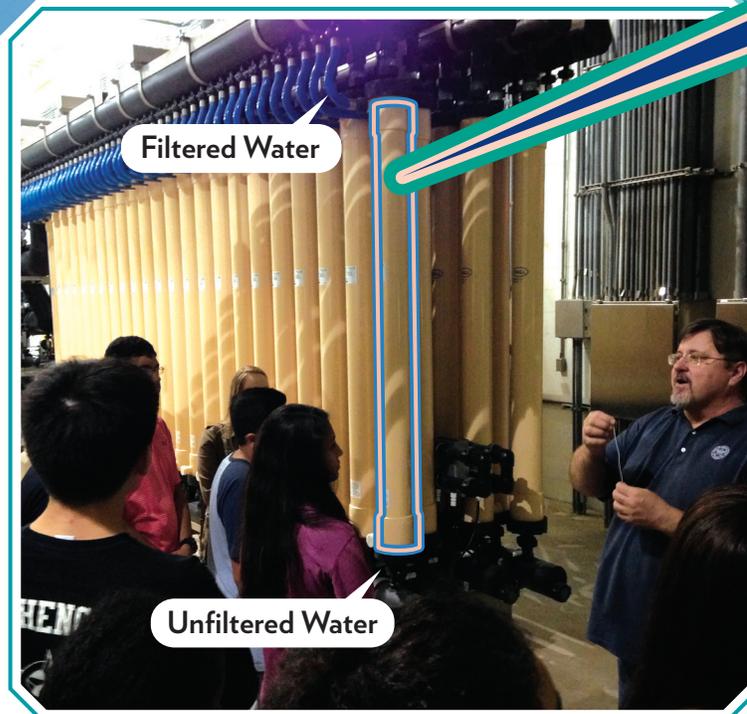


Filtered Water

Membrane Wall

Water passes through the fibers, and contaminants are filtered out.

Unfiltered Water



Fibers

FIBER HOUSING

Inside the pipes are thousands of tiny hollow fibers.

FILTRATION

The hollow fibers absorb water, but particles that are larger than 0.1 micron cannot pass through the pores. Bacteria, parasites, sand, silt, clay and other contaminants that are too big to pass through are filtered out.

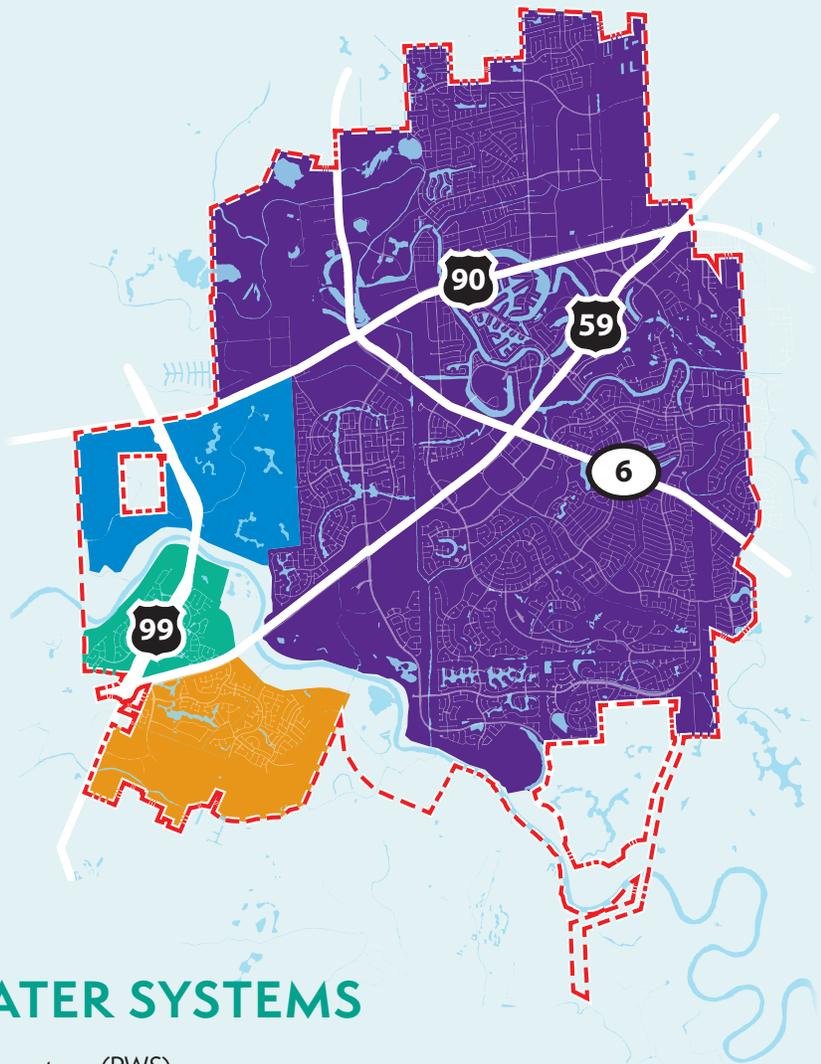
Potable Water Production and Distribution Profile

2021	Main System	RiverPark System	New Territory System	Greatwood System
Population	81,353	3,626	14,071	11,976
Groundwater Source	Chicot Aquifer and Evangeline Aquifer			
Surface Water Source (Main System)	Brazos River & Oyster Creek			
Annual Demands (billion gallons)	4,950	216	668	636
System Capacity (million gallons / day)	62.5	4.0	11.1	9.2
Daily Average Demands (million gallons)	13.5	0.6	1.8	1.7
Daily Average Demand per Capita (gallons)	166	163	130	145
Number of Groundwater Wells	14	2	3	4
Average Well Depth (feet)	1,250	1,342	1,000	1,600
Well Production Capacity (million gallons / day)	51.6	4.0	11.1	9.2
Surface Water Plant Capacity (million gallons / day)	10.85			
Ground Storage (# of Tanks)	15	2	6	5
Ground storage tank capacity (million gallons)	15.2	0.7	2.3	1.0
Elevated Storage Tanks	5			
Elevated Storage Tank Capacity (million gallons)	6.2			
Miles of Distribution Line	472	20.86	56.79	59.40
Number of Water Meters	30,546	1,389	5,155	4,620

Water Quality Data

The TCEQ's mission is to protect the public's health and Texas' natural resources. Like the TCEQ, the City's goal is to have clean air and water and to safely dispose of waste. The TCEQ monitors Sugar Land's water by collecting and analyzing water samples for metals, minerals, volatile and semi-volatile organic compounds, disinfectant byproduct compounds and radiological compounds. In addition to the tests that the TCEQ performs, the agency requires that the City of Sugar Land do testing in-house.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that 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 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**.



SUGAR LAND'S PUBLIC WATER SYSTEMS

The City of Sugar Land operates four independent public water systems (PWS) within the corporate limits of the city. The Main System (PWS 0790005) serves the City east of the Brazos River and the RiverPark System (PWS 0790354) serves the subdivision west of the Brazos River. Greatwood (PWS 0790296) and New Territory (PWS 0790253) Systems serve the Greatwood & New Territory neighborhoods. The four systems are not connected; therefore, water quality data for each system is presented separately in this report.





DEFINITIONS

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

ACTION LEVEL (AL)

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

AVERAGE LEVEL OF QUARTERLY DATA (AVG)

Regulatory compliance with some Maximum Contaminant Levels are based on running annual average of monthly samples.

CONSTITUENT

Federally regulated or monitored analyte.

INORGANIC CONTAMINANTS

Salts and metals which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

LEVEL 1 ASSESSMENT

A study of the water system to identify potential problems and determine, if possible, why total coliform bacteria were found.

LEVEL 2 ASSESSMENT

A very detailed study of the water system to identify potential problems and determine, if possible, why an Escherichia coli (E. coli) maximum contaminant level (MCL) violation has occurred and/or why total coliform bacteria were found on multiple occasions.

MAXIMUM CONTAMINANT LEVEL (MCL)

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.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)

The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL)

The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminant.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG)

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.

MICROBIAL CONTAMINANTS

Viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

ORGANIC CHEMICAL CONTAMINANTS

Synthetic and volatile organic chemicals which are by-products of industrial processes and petroleum production; can also come from gas stations, urban storm water runoff and septic systems.

PESTICIDES AND HERBICIDES

These may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

RADIOACTIVE CONTAMINANTS

Naturally occurring or the result of oil and gas production and mining activities.

TREATMENT TECHNIQUE (TT)

A required process intended to reduce the level of a contaminant in drinking water.

TTHM

Total Trihalomethanes

TURBIDITY

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.



DRINKING WATER TREATMENT: CHLORAMINE AND CHLORINE DISINFECTANTS

The treatment of water to eliminate waterborne diseases is one of the most significant public health advancements of the 20th Century. In the United States, easy access to water is often taken for granted with little thought to the infrastructure, processes, treatment, and people required to deliver drinkable water to convenient faucets located in our homes and throughout our communities. The city of Sugar Land, like other water providers, depends on a century of water science and engineering developments to treat and distribute safe, consumable water to our customers.

Water Distribution systems across the country use various strategies to protect drinking water from water-borne pathogens. The vast majority of systems use either free chlorine or chloramines to help protect the water as it flows through miles of pipe for delivery to customers. As a general rule, free chlorine is used in systems supplied from ground water wells, and chloramines are used in systems supplied from surface water. In Sugar Land, the Greatwood, New Territory, and River Park groundwater systems use free chlorine disinfection. Chloramine is used in the Main system because its source water is a mix of surface water and groundwater.

While chloramine is an excellent disinfectant, prolonged use of chloramine coupled with other factors such as high temperatures, may result in the growth and persistence of non-toxic organic matter within the pipes of the distribution system. Though harmless when consumed by humans, this organic matter can introduce unwanted taste and odor, and hinder the ability to maintain adequate disinfectant levels as water travels through many miles of pipe. Conversion to free chlorine disinfection for 30 days is a best management practice and is supported by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ).

In late March 2022, the city converted the Main system from chloramine to chlorine disinfections. During the initial 36-hour period, staff flushed water mains from 422 different fire hydrants and collected more than 1,500 water samples for analysis. Intense flushing combined with extensive water quality monitoring maintains Sugar Land's high standard for water quality during the conversion process. The Main system remained on chlorine disinfection for 30 days, then the process was repeated to return the system back to chloramine disinfection, once again with extensive flushing and sampling to maintain water quality.

Implementing proven water treatment protocols and water quality monitoring in each of the city's four water systems enables the delivery of safe, great tasting water to your tap. Our licensed water treatment experts, trained water distribution and customer service staff, and supporting personnel continue the legacy of water professionals in their commitment to protect and preserve public health through the delivery of safe drinking water. For more information on Sugar Land's water treatment and water quality monitoring, call Public Works at 281-275-2450 or 311.

For questions regarding City of Sugar Land's monitoring,
contact Ashley Kirkpatrick, Water Quality Manager at 281-275-2450 or 311.



WATER QUALITY DATA TABLES

An important component of water treatment and distribution is compliance with the many state and federal laws and regulations that govern public water systems. The City’s groundwater treatment plants and the SWTP are monitored daily, and monthly reports are submitted to the TCEQ. The data presented in this report is from the most recent testing done in accordance with the regulations. The EPA and the State of Texas require the City of Sugar Land to monitor for certain contaminants less than once per year because the concentrations do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. Unless otherwise noted, the data presented in this report is from testing done in 2021.

ABBREVIATIONS	
N/A:	Not Applicable
ND:	None Detected
NTU:	Nephelometric Turbidity Units (a measure of turbidity)
pCi/L:	pico Curies per Liter; measure of radioactivity
ppm:	parts per million or milligrams per liter (mg/L)
ppb:	parts per billion, or micrograms per liter (µg/L)

MAIN SYSTEM - 0790005

Bacteria

Contaminant	Year	MCLG	Total Coliform MCL	Highest # of Total Coliform Positive	Fecal Coliform or E Coli MCL	Total # of Positive E Coli or Fecal Coliform Samples	Violation (Yes/No)	Likely Source of Contamination
Coliform Bacteria	2021	0	TT	1	Routine and repeat samples are total coliform-positive and either is E. coli-positive	0	No	Naturally present in the environment.

Copper and Lead

Contaminant	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation (Yes/No)	Likely Source of Contamination
Copper	2020	1.3	1.3	0.1877	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2020	0	15	1.9	0	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.

Disinfectants and Disinfection By-Products

Contaminant	Year	Average Level of Quarterly Data	Lowest Result of a Single Sample	Highest Result of a Single Sample	MRDLG	MRDL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Chloramines (Chlorine Residual, Total)	2021	2.70	0.5	4.00	4	4	ppm	No	Water additive used to control microbes.
Chlorine Dioxide	2021	100	0	270	800	800	ppb	No	Water additive used to control microbes.
Contaminant	Year	Highest Average Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Haloacetic acids (HAA5)	2021	7.3	0.0	11.9	No Goal for the total	60	ppb	No	By-product of drinking water disinfection.
TTHMs (Total trihalomethanes)	2021	4.9	0.0	7.7	No Goal for the total	80	ppb	No	By-product of drinking water disinfection.
Chlorite	2021	0.72	0.0	0.82	0.8	1	ppm	No	By-product of drinking water disinfection.

Inorganic Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Major Sources in Drinking Water
Barium	2021	0.086	0.086	0.086	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Cyanide	2021	20	0	20	200	200	ppb	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories.
Fluoride	2021	0.13	0.13	0.13	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (as Nitrogen)	2021	1.87	0	1.87	10	10	ppm	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Synthetic Organic Contaminants including Pesticides and Herbicides

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Atrazine	2021	0.98	0	0.98	3	3	ppb	No	Runoff from herbicide used on row crops.
Simazine	2021	0.12	0	0.12	4	4	ppb	No	Runoff from herbicide use.



Radioactive Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Beta/photon emitters*	2021	4.7	4.7	4.7	0	50*	pCi/L	No	Decay of natural and man-made deposits.
Combined Radium 226 /228	2020	1.96	1.96	1.96	0	5	pCi/L	No	Erosion of natural deposits.

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

Volatile Organic Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Xylenes	2021	0.0005	0	0.0005	10	10	ppm	No	Discharge from petroleum factories; discharge from chemical factories.

Total Organic Carbon

Total organic carbon has no adverse health effects. Total organic carbon provides a medium for the formation of disinfection byproducts when water is disinfected. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. Byproducts of disinfection include trihalomethanes (THMs) and haloacetic acids (HAAs) which are reported on elsewhere in this report.

Constituent	Average	Minimum	Maximum	MCLG	MCL	Unit of Measure	Likely Source of Contamination
TOC- Source Water	6.15	4.17	10.4	n/a	TT	ppm	Naturally present in the environment.
TOC- Drinking Water	3.43	2.22	5.1	n/a	TT	ppm	Naturally present in the environment.
TOC % Removal	43.3	30.7	56.3	n/a	TT	%	n/a

Turbidity

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.	Limit (Treatment Technique)	Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1.0 NTU	0.06	N	Soil runoff
Lowest monthly % meeting limit	0.3 NTU	100%	N	Soil runoff

Secondary Constituents and Other Non-Regulated Contaminants

Contaminant	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Unit of Measure	Secondary MCL
Bromodichloromethane	2021	0.4	0	1	ppb	no MCL
Bromoform	2021	0.2	0	1.4	ppb	no MCL
Calcium	2021	44.2	28	64.6	ppm	no MCL
Chloride	2021	51.1	32.9	63.9	ppm	250
Chloroform	2021	0.4	0	1.4	ppb	no MCL
Chlorodibromomethane	2021	0.2	0	1.3	ppb	no MCL
Iron	2021	12.2	0	151	ppb	300
Magnesium	2021	8.4	8.3	8.5	ppm	no MCL
Manganese	2021	7.4	0	72.5	ppb	50
Nickel	2021	1.8	1.8	1.8	ppb	100
pH	2021	8.1	7.4	8.6	units	> 7
Potassium	2021	5.2	5.2	5.2	ppm	no MCL
Sodium	2021	56.4	36.9	97.9	ppm	no MCL
Sulfate	2021	21	15	27	ppm	300
Total Alkalinity	2021	175	131	225	ppm	no MCL
Total Dissolved Solids	2021	251	91	878	ppm	1000
Total Hardness as CaCO ₃	2021	148	101	213	ppm	no MCL
Zinc	2021	0.0049	0	0.0097	ppm	5

RIVERPARK SYSTEM - 0790354

Water System Interconnect: During the 2021 Winter Storm Uri, the water system interconnect between Sugar Land's RiverPark and Greatwood water systems was opened from approximately 4:10 pm on February 15 to midnight on February 16. During this time, water produced in Greatwood supplemented the supply to customers in RiverPark.

Copper and Lead

Contaminant	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation (Yes/No)	Likely Source of Contamination
Copper	2021	1.3	1.3	0.124	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2021	0	15	0.973	0	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.

Disinfectants and Disinfection By-Products

Contaminant	Year	Average Level of Quarterly Data	Lowest Result of a Single Sample	Highest Result of a Single Sample	MRDLG	MRDL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Chlorine Residual, Free	2021	1.60	0.84	2.03	4	4	ppm	No	Water additive used to control microbes.
TTHMs (Total trihalomethanes)	2021	1.1	1.1	1.1	No Goal for the total	80	ppb	No	By-product of drinking water disinfection.

Inorganic Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Major Sources in Drinking Water
Barium	2019	0.169	0.169	0.169	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride	2020	0.5	0.5	0.5	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Selenium	2019	3.5	3.5	3.5	50	50	ppb	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.

Radioactive Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Uranium	2020	1.2	1.2	1.2	0	30	ppb	No	Erosion of natural deposits.
Combined Radium 226/228	2020	1.5	1.5	1.5	0	5	pCi/L	No	Erosion of natural deposits.

Secondary and Non-Regulated Conaminants

Contaminant	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Unit of Measure	Secondary MCL
Bromoform	2021	1	1	1	ppb	no MCL
Calcium	2019	47.1	47.1	47.1	ppm	no MCL
Chloride	2020	42	42	42	ppm	250
Chlorodibromomethane	2021	1	1	1	ppb	no MCL
Iron	2019	13	13	13	ppb	300
Magnesium	2019	9.2	9.2	9.2	ppm	no MCL
pH	2021	7.9	7.8	8	units	> 7
Potassium	2019	1.87	1.87	1.87	ppm	no MCL
Sodium	2019	40.8	40.8	40.8	ppm	no MCL
Sulfate	2020	10	10	10	ppm	300
Total Alkalinity	2020	188	188	188	ppm	no MCL
Total Dissolved Solids	2020	366	366	366	ppm	1000
Total Hardness as CaCO ₃	2019	155	155	155	ppm	no MCL

NEW TERRITORY SYSTEM - 0790253

Bacteria

Contaminant	Year	MCLG	Total Coliform MCL	Highest # of Total Coliform Positive	Fecal Coliform or E Coli MCL	Total # of Positive E Coli or Fecal Coliform Samples	Violation (Y/N)	Likely Source of Contamination
Coliform Bacteria	2021	0	TT	1	Routine and repeat samples are total coliform-positive and either is E. coli-positive	0	No	Naturally present in the environment.

Copper and Lead

Contaminant	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation (Y/N)	Likely Source of Contamination
Copper	2020	1.3	1.3	0.2426	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2020	0	15	0	0	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.

Inorganic Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Major Sources in Drinking Water
Barium	2021	0.203	0.187	0.203	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride	2020	0.59	0.25	0.59	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (as Nitrogen)	2021	0.12	0	0.12	10	10	ppm	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Disinfectants and Disinfection By-Products

Contaminant	Year	Average Level of Quarterly Data	Lowest Result of a Single Sample	Highest Result of a Single Sample	MRDLG	MRDL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Chlorine Residual, Free	2021	1.65	0.98	2.34	4	4	ppm	No	Water additive used to control microbes.
Contaminant	Year	Highest Average Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Haloacetic acids (HAA5)	2021	3.3	0.0	0.0	No Goal for the total	60	ppb	No	By-product of drinking water disinfection.
TTHMs (Total trihalomethanes)	2021	40.3	0.0	2.8	No Goal for the total	80	ppb	No	By-product of drinking water disinfection.

Radioactive Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Beta/photon emitters*	2021	4.5	0	4.5	0	50*	pCi/L	No	Decay of natural and man-made deposits.
Gross Alpha (excluding Radon & Uranium)	2021	4.7	3	4.7	0	15	pCi/L	No	Erosion of natural deposits.
Combined Radium 226 /228	2021	1.5	0	1.5	0	5	pCi/L	No	Erosion of natural deposits.
Uranium	2021	2.8	0	2.8	0	30	ppb	No	Erosion of natural deposits.

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

Secondary Constituents and Other Non-Regulated Contaminants

Contaminant	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Unit of Measure	Secondary MCL
Calcium	2021	51.2	49.6	54.3	ppm	no MCL
Chloride	2020	40.1	40	42	ppm	250
Chlorodibromomethane	2021	0.3	0	1.2	ppb	no MCL
Iron	2021	37.5	25	50	ppb	300
Magnesium	2021	9	8.4	9.6	ppm	no MCL
Manganese	2021	0.75	0	1.5	ppb	50
Nickel	2021	1	1	1	ppb	100
pH	2021	7.9	7.6	8.2	units	> 7
Potassium	2021	3	2.7	3.2	ppm	no MCL
Sodium	2021	38.9	36.6	41.1	ppm	no MCL
Sulfate	2020	15	14	16	ppm	300
Total Alkalinity	2020	187	177	196	ppm	no MCL
Total Dissolved Solids	2020	301	288	308	ppm	1000
Total Hardness as CaCO₃	2021	167	159	175	ppm	no MCL

GREATWOOD SYSTEM - 0790296

Copper and Lead

Contaminant	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation (Yes/No)	Likely Source of Contamination
Copper	2019	1.3	1.3	0.14	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2019	0	15	0.5	0	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.

Disinfectants and Disinfection By-Products

Contaminant	Year	Average Level of Quarterly Data	Lowest Result of a Single Sample	Highest Result of a Single Sample	MRDLG	MRDL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Chlorine Residual, Free	2021	1.63	0.77	3.11	4	4	ppm	No	Water additive used to control microbes.
Haloacetic acids (HAA5)	2021	0.9	0.0	1.3	No Goal for the total	60	ppb	No	By-product of drinking water disinfection.
TTHMs (Total trihalomethanes)	2021	3.1	0.0	3.3	No Goal for the total	80	ppb	No	By-product of drinking water disinfection.

Inorganic Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Major Sources in Drinking Water
Arsenic	2021	4.7	0	4.7	0	10	ppb	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium	2021	0.182	0.108	0.182	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride	2019	0.58	0.56	0.58	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.

Radioactive Contaminants

Contaminant	Year	Highest Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Gross Alpha (excluding Radon & Uranium)	2021	4	0	4	0	15	pCi/L	No	Erosion of natural deposits.
Combined Radium 226/228	2021	1.68	0	1.68	0	5	pCi/L	No	Erosion of natural deposits.
Uranium	2021	4.6	0	4.6	0	30	ppb	No	Erosion of natural deposits.

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

Secondary and Other Non-Regulated Contaminants

Contaminant	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Unit of Measure	Secondary MCL
Bromoform	2021	0.65	0	1.3	ppb	no MCL
Calcium	2021	28.9	12.7	45.1	ppm	no MCL
Chloride	2019	52	51	53	ppm	250
Iron	2021	51.5	16	87	ppb	300
Magnesium	2021	5.8	3.2	8.4	ppm	no MCL
Manganese	2021	5.1	4	6.2	ppb	50
pH	2021	8	7.8	8.3	units	> 7
Potassium	2021	1.9	1.9	1.9	ppm	no MCL
Sodium	2021	107.3	45.6	169	ppm	no MCL
Sulfate	2019	11	10	11	ppm	300
Total Alkalinity	2019	209	207	211	ppm	no MCL
Total Dissolved Solids	2019	336	334	338	ppm	1000
Total Hardness as CaCO₃	2021	95.9	44.8	147	ppm	no MCL



WATER LOSS

Each year the City is required to prepare and submit a water-loss audit to the Texas Water Development Board and report the system's water loss to our customers. A water-loss audit is a tool used by water utilities to assess the volume of water produced compared to the volumes of water sold to customers and used to maintain water quality. Water loss cannot be avoided, as line breaks, undetected leaks and line flushing occur throughout any water delivery system.

“We encourage Sugar Land citizens to contact us when they see a water leak,” said Joe Reyes, Public Works field operations manager. “Our customer service team investigates all water leak calls received by the Public Works Department at 281-275-2450 or 311.”



In addition to the percentage of water loss, the City uses the Infrastructure Leakage Index (ILI) as a benchmark of leakage in the Main System. The ILI is a methodology developed by the International Water Association and adopted in 2002 by the American Water Works Association as a performance indicator for systems with more than 3,300 connections. The ILI is the ratio of real (actual) water loss versus unavoidable leakage or unavoidable real losses (UARL).

In 2021, water loss in the Main System was 11.37% of the 4.950 billion gallons produced, which translates to an ILI of 2.87. Water Loss and ILI for Greatwood was 14.17% and 3.99; New Territory experienced a loss of 17.29% and ILI of 4.79. In RiverPark water loss was 3.68%; because RiverPark is a smaller system the ILI is not a valid indicator.

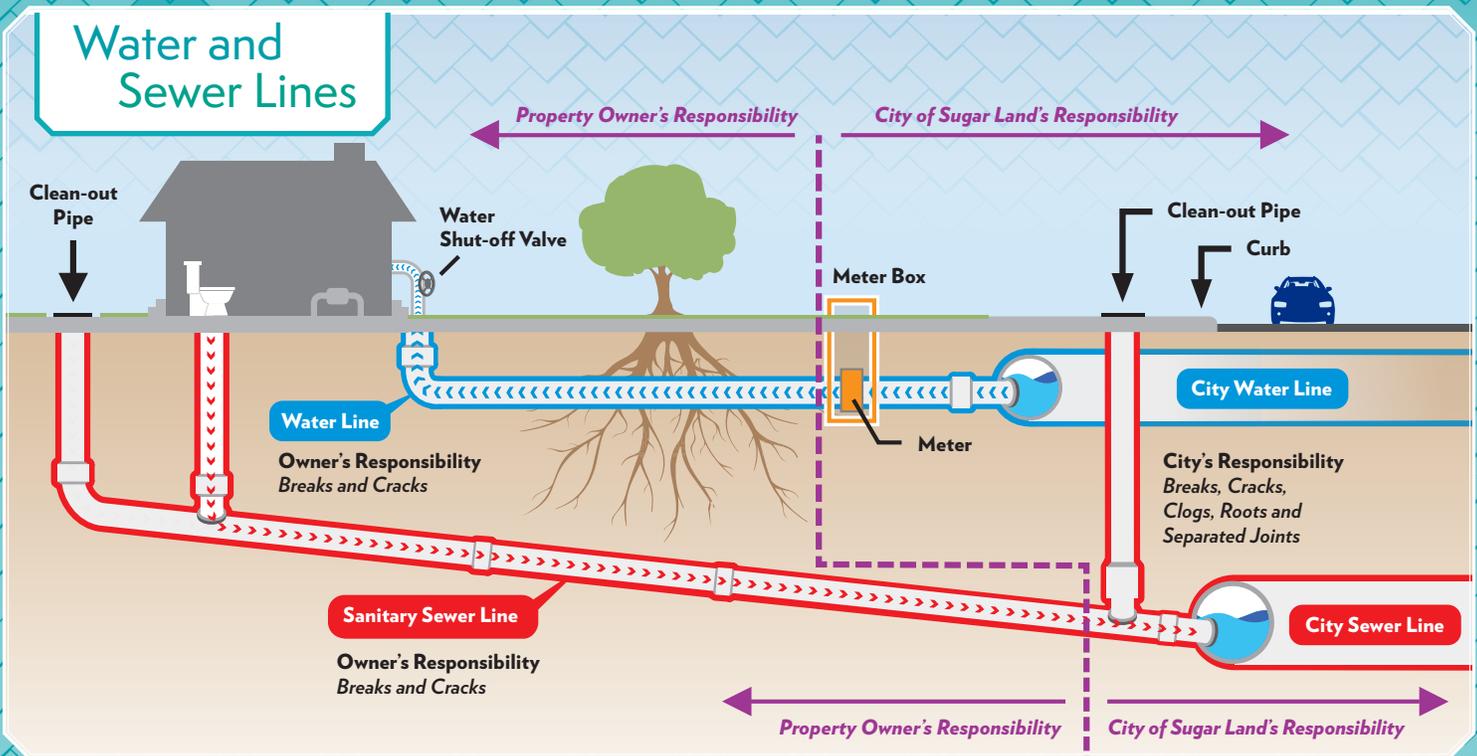
City staff strives to minimize water losses through timely response to all water calls, short time leak repair protocols, routine system maintenance, a robust meter replacement program and documenting water used for system maintenance and water quality.



REPORT WATER LEAKS

If you see a water leak along a roadway or in a yard, please report it to the **Public Works Department**.

CALL 24/7: 281-275-2450 or 311



AVOID SANITARY SEWER BACK-UPS

In addition to leaks in the City’s water lines, leaks can occur in clogged sewer lines in homes and businesses. The City repairs stoppages in its collection system. Household clogs may require the resident to hire a plumber. Reyes says: “It is always good to call the City first. Hiring a plumber can be costly, and we do not reimburse homeowners for a plumber if the City was not called first.”

Sewer lines can become clogged by fat, oil, grease and feminine hygiene products, among other things. To prevent sewer line stoppages, dispose of the following items in the trash, not in the drain, disposal or toilet.

- egg shells
- “flushable” wipes
- diapers
- fruit and vegetable peels
- hygiene products
- oil or grease

If water is flowing down a drain more slowly than usual or water backs up, report the problem to the City’s **24-hour customer service line** at **281-275-2450 or 311**. If necessary, a city employee will come to a home or business to investigate the problem and determine whether the clog is in the home’s wastewater line or the City’s collection pipe.



AVOIDANCE STRATEGIES

- Scrape grease and fatty food scraps into the trash.
- Collect cooking oil in container; then either recycle the oil or place the container in the garbage.
- Never pour sauces down the drain, dispose in the trash.
- Potato, vegetable, and egg shell peels belong in the trash or compost bin.
- Only toilet tissue down the toilet; no “flushable” wipes or personal hygiene products.

COOKING OIL DROP-OFF CENTER

Public Works Service Center • 101-A Gillingham Lane
Monday-Friday, 8 a.m.-5 p.m.

City residents may dispose of up to 10 gallons of liquid cooking oil per day at no charge at the Public Works Service Center. The cooking oil recycling center is for residential customers only and includes only liquid cooking grade fats, oils and grease, and not petroleum products. For more information, call 311.

