CITY OF SUGAR LAND *Texas*

2014

WATER QUALITY REPORT

Sugar Land - Main System - PWS 0790005
Sugar Land - RiverPark System - PWS 0790354

CITY OF SUGAR LAND
Public Works

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

MISSION STATEMENT

The City of Sugar Land's Water Utilities Division takes pride in the superior quality of its water. Responsible environmental stewardship and compliance with all regulatory requirements is a priority, as is responsive and efficient customer-oriented service.

DIRECTOR'S MESSAGE

The City of Sugar Land's Public Works Department takes pride in providing top-quality drinking water that exceeds the water quality standards set by the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). The City of Sugar Land's 2014 Water Quality Report provides information on water quality standards as well as sampling results for our drinking water.

In addition to maintaining high water quality standards, the City continues its water planning efforts to assure ample water supplies and necessary infrastructure will supply the growing water demands of our community. In 2014, with public input, collaboration from City Council, and coordination between the Planning and Public Works Departments, the Water Master Plan Update was completed and adopted. The strategies for near- and long-term goals developed through the master planning process will guide policy development, capital improvement and regulatory compliance in the coming years.

As part of the Groundwater Reduction Plan, the City of Sugar Land seeks to gain alternative sources of water besides groundwater and surface water. The recently approved the Reuse Water Agreements with Fort Bend County Municipal Utility District 128 (Riverstone Development) and Fort Bend County Municipal Utility District 112 (New Territory) taps a new water supply from wastewater treatment plant effluent for non-potable use. Each MUD will construct a reclaimed water treatment plant and infrastructure to supply water for lake filling and rights-of-way irrigation in the Riverstone and New Territory developments. These projects support the Sugar Land Groundwater Reduction Plan and will contribute up to 4.5 million gallons per day of alternative water to meet the Fort Bend Subsidence District's regulatory requirement to reduce groundwater withdrawals.

We trust the information contained in our annual Water Quality Report renews your confidence in our ability to maintain high drinking water standards and provide the ample water that supports the quality of life in our vibrant community. Take a few moments to review the information. Call the Public Works Department with any questions at 281-275-2450.

—Robert Valenzuela, CFM, P.E.
Director of Public Works

WHAT IS A WATER QUALITY REPORT?

A Water Quality Report, also known as a Consumer Confidence Report, 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 uses both groundwater and surface water. The RiverPark System retrieves water from deep groundwater wells. The groundwater is treated at one of the City's groundwater plants.

The City's Main System draws groundwater from 16 permitted wells at seven separate groundwater plants. These wells, with an average depth of greater than 1,200 feet, extract water from the Chicot and Evangeline aquifers.

Surface water from the Brazos River is treated at the City's Surface Water Treatment Plant. The groundwater and surface water are blended together at the Main System.

SOURCE WATER ASSESSMENT REPORTS

The TCEQ completed an assessment of the City's source water, and the results indicate that some of the water sources for Sugar Land are susceptible to certain contaminants. The sampling requirements for each of the City's water systems are based on this susceptibility and previous sample data. No contaminants were detected. If there had been any detection of these contaminants, it would have been reported in this Consumer Confidence Report. Further details about water sources and source water assessments are available through the **Source Water Assessment Viewer** and **TCEQ's Drinking Water Watch**. The City's water quality staff is available to answer specific questions at 281-275-2450.

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.**

Neither *Cryptosporidium* nor *Giardia* is found in groundwater, but they can be found in surface water. Sugar Land's Surface Water Treatment Plant uses membrane filtration and post-filtration disinfection to remove waterborne organisms from surface water. The filter membranes remove microbes, including *Cryptosporidium* and *Giardia*, that may be present in the surface water.

Some people are more vulnerable than the general population to certain microbial contaminants in drinking water. Infants, some elderly and immune compromised 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. Seek advice about drinking water from your physician or health care provider if you fall into any of these categories. Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and *Giardia* are available from the Safe Drinking Water Hotline at 800-426-4791.

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 System, and chloramine is added to the Main System. Corrosion inhibitors are also added to reduce the corrosion of metal components in the private plumbing systems in homes and buildings.

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. For more information on taste, odor or color of drinking water, please contact the Public Works Department at 281-275-2450.

The water we drink (both tap and bottled water) comes from a variety of sources such as 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 source water include:

- microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife;
- inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming;
- pesticides and herbicides, which 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 LEVELS

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 plumbing components. When water has been sitting for several hours, the potential for lead exposure can be minimized by flushing the tap for 30 seconds to two minutes before 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 and steps you can take to minimize exposure is available from the **Safe Drinking Water Hotline** at 800-426-4791 or www.epa.gov/safewater/lead.

The City of Sugar Land received a superior public drinking water system award from the Texas Commission on Environmental Quality in 2014. To be recognized, a city must go above and beyond the TCEQ's minimum standards in protecting public health and operating reliably. The City of Sugar Land operates as efficiently as possible to provide quality drinking water to its residents.

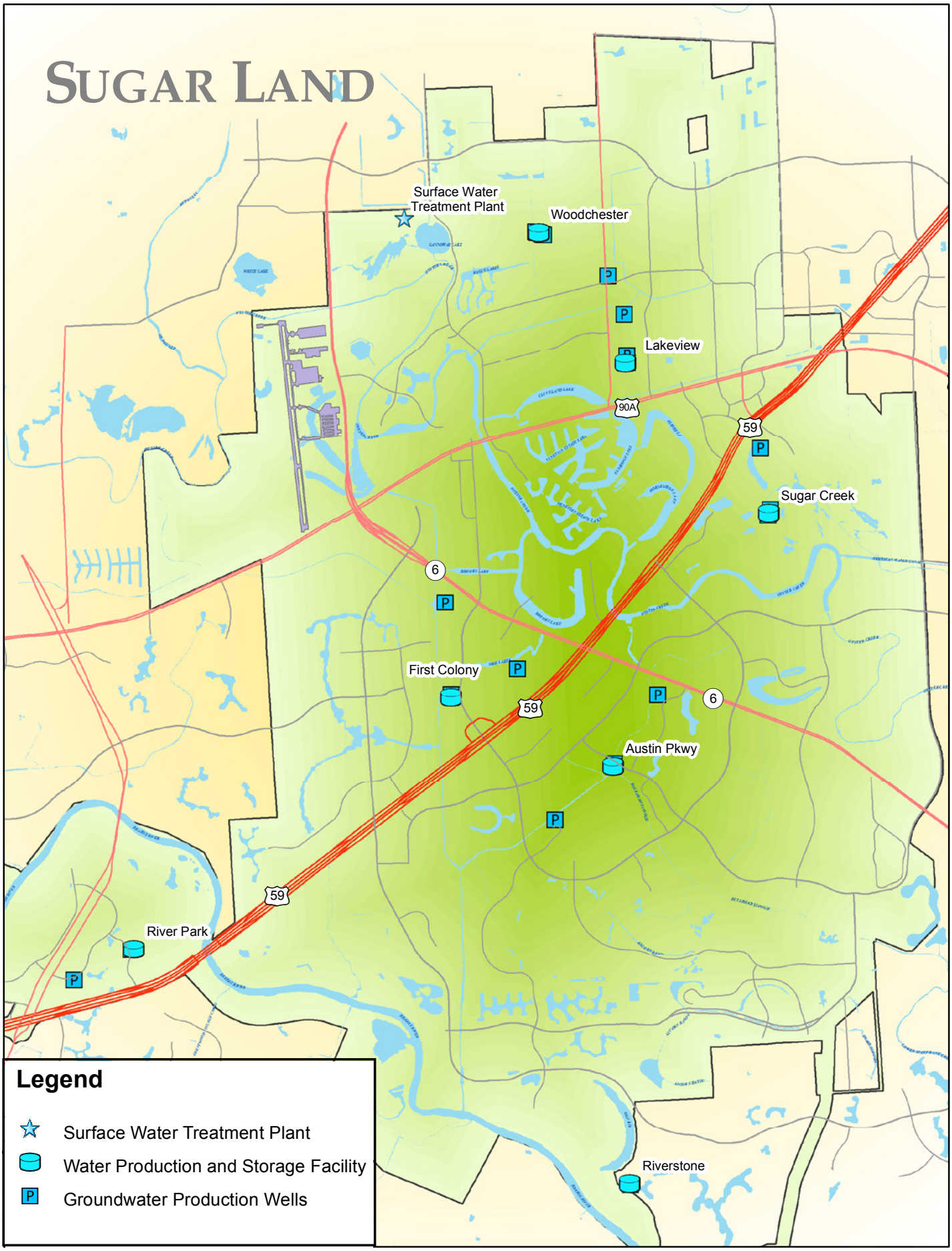
The City of Sugar Land's Surface Water Treatment Plant began production in November 2013. Today it generates 9 million gallons of drinking water per day. Sugar Land has more than 400 miles of pipelines that deliver water from production plants to homes.

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 deep high quality groundwater wells. The RiverPark System uses water pumped from deep groundwater wells and is treated in one of the City's 16 groundwater plants. Chlorine is added to the RiverPark System and chloramine is added to the Main System to protect the finished water against microbial contaminants as it travels through sections of more than 400 miles of pipes and pumps. Fluoride is added to both systems to help prevent tooth decay. Corrosion inhibitors are also 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 your home or place of business. The City of Sugar Land is committed to providing you with high quality water. If you have any questions regarding the data in this report, contact the Public Works Department at 281-275-2450.

Annual System Demand	5.68 billion gallons
Maximum Peak Daily Demand	44.5 million gallons
Daily System Capacity	60.5 million gallons
Daily Average Demand	15.57 million gallons
Daily Average Demand per Capita	180 gallons
Number of Wells	16
Average Well Depth	1,250 feet
Ground Storage Capacity	14.5 million gallons (in 15 tanks)
Elevated Storage Facilities	6.2 million gallons (in 5 towers)
Miles of Distribution Line	428
Number of Water Meters	29,578
Number of Fire Hydrants	4,052
Number of Mainline Valves	5,436
Water Loss	9.95 percent


SUGAR LAND
Surface Water Treatment Plant
Woodchester
Lakeview
90A
59
Sugar Creek
6
First Colony
59
6
Austin Pkwy
59
River Park
Riverstone
Legend
Surface Water Treatment Plant
Water Production and Storage Facility
Groundwater Production Wells

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 water. 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 requiresthe City of Sugar Land to do additional testing in-house.

In 2014, water utilities staff performed 94 bacteriological tests each month from samples taken from the Main System as well as five tests from monthly samples from the RiverPark System. The City also collected quality assurance and quality control samples at least once per week at 12 locations representative of the water quality throughout the distribution system.

Drinking water and public 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.

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.

DEFINITIONS

The data tables on the following pages contain scientific terms and measures. The terms and abbreviations below should help to clarify the information.

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 an 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.

MAXIMUM CONTAMINANT LEVEL (MCL)
The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MAXIMUM CONTAMINANT LEVEL GOAL (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 the addition of a disinfectant is necessary for the control of microbial contaminants.

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 byproducts of industrial processes and petroleum production. They 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
A measure of the total trihalomethanes.

TURBIDITY
A measurement of the cloudiness of the water caused by suspended particles. Turbidity is monitored it because it is a good indicator of water quality and the effectiveness of filtration.

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 seven groundwater treatment plants and the SWTP are monitored daily, and monthly reports are submitted to the TCEQ.

Below is the summarized data for the calendar year 2014.

SUGAR LAND MAIN SYSTEM - 0790005

Bacteria

CONTAMINANT	Year	MCLG	Total Coliform MCL	Highest % of 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	2014	0	5% of monthly samples are positive	1.1%	5% of monthly samples are 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	2012	1.3	1.3	0.495	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2012	0	15	1.86	0	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.

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 or mg/L: parts per million or milligrams per liter (mg/L) or one ounce in 7,350 gallons of water.
ppb or µg/L: parts per billion, or micrograms per liter (µg/L) or one ounce in 7,350,000 gallons of water.

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)	2014	2.10	0.45	3.44	4	4	ppm	No	Water additive used to control microbes.
Chlorine Dioxide	2014	30	0	770	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)	2014	6.8	1.0	9.1	No Goal for the total	60	ppb	No	By-product of drinking water disinfection.
TTHMs (Total trihalomethanes)	2014	7.5	0.0	11.3	No Goal for the total	80	ppb	No	By-product of drinking water disinfection.
Chlorite	2014	0.56	0.0	0.62	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 (Y/N)	Major Sources in Drinking Water
Arsenic	2014	3.4	0	3.4	0	10	ppb	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium	2014	0.236	0.11	0.236	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Cyanide	2014	160	20	160	200	200	ppb	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories.
Fluoride	2014	0.38	0.18	0.38	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (as Nitrogen)	2014	1.98	0	1.98	10	10	ppm	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium	2014	7.8	0	7.8	50	50	ppb	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.

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ppb or µg/L: parts per billion, or micrograms per liter (µg/L) or one ounce in 7,350,000 gallons of water.

Synthetic Organic Contaminants including Pesticides and Herbicides

CONTAMINANT	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	MCLG	MCL	Unit of Measure	Violation (Yes/No)	Likely Source of Contamination
Atrazine	2014	0.3	0	1.2	3	3	ppb	No	Runoff from herbicide used on row crops

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*	2014	6.9	6.9	6.9	0	50*	pCi/L	No	Decay of natural and man-made deposits
Gross Alpha Particle Activity	2014	13.3	10	13.3	0	15	pCi/L	No	Erosion of natural deposits
Combined Radium 226 /228	2014	2.26	2.26	2.26	0	5	pCi/L	No	Erosion of natural deposits
Uranium	2014	4.7	4.7	4.7	0	30	µg/L	No	Erosion of natural deposits

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

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**	0.19 NTU	N	Soil runoff
Lowest monthly % meeting limit	**0.3 NTU**	100%	N	Soil runoff

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Total Organic Carbon

Total Organic Carbon (TOC) has no adverse health effects. TOC 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 elsewhere in this report.

CONSTITUENT	Average	Minimum	Maximum	MCLG	MCL	Unit of Measure	Likely Source of Contamination
TOC - Source Water	5.4	4.1	6.7	N/A	TT	ppb	Naturally present in the environment
TOC - Drinking Water	3.1	2.6	3.9	N/A	TT	ppm	Naturally present in the environment
TOC % Removal	41.4	27.7	56.3	N/A	TT	%	N/A

Unregulated Contaminants

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. For additional information and data, visit http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr or call the Safe Drinking Water Hotline at 800 426-4791.

CONTAMINANT	Year	Average Level Detected	Minimum Level Detected	Maximum Level Detected	Unit of Measure	Likely Source of Contamination
Chloroform	2014	1.03	0.5	1.6	ppb	By-product of drinking water disinfection
Chlorate	2013	37.5	0	330	ppb	By-product of drinking water disinfection
Total Chromium	2013	1.1	0	11	ppb	Erosion of natural deposits
Hexavalent Chromium	2013	0.67	0	2.1	ppb	Erosion of natural deposits
Molybdenum	2013	4.1	0	13	ppb	Erosion of natural deposits
Strontium	2013	477.2	390	620	ppb	Naturally present in the environment
Vanadium	2013	11.8	0	58	ppb	Industrial sources

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SUGAR LAND RIVERPARK SYSTEM - 0790354

Copper and Lead

Contaminant	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation (Y/N)	Likely Source of Contamination
Copper	2012	1.3	1.3	0.156	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems
Lead	2012	0	15	1.31	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	2014	1.38	0.8	1.81	4	4	ppm	No	Water additive used to control microbes

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	**2010**	0.159	0.159	0.159	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride	**2014**	0.64	0.64	0.64	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen)	**2014**	0.03	0.03	0.03	10	10	ppm	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

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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 Particle Activity	2014	2.9	2	2.9	0	15	pCi/L	No	Erosion of natural deposits
Combined Radium 226 /228	2014	2.9	2.9	2.9	0	5	pCi/L	No	Erosion of natural deposits
Uranium	2014	1.2	1.2	1.2	0	30	µg/L	No	Erosion of natural deposits

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NOTICE OF SURFACE WATER MONITOR AND/OR REPORTING VIOLATION (MINOR)

The Texas Commission on Environmental Quality (TCEQ) requires public water systems to monitor drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not the City of Sugar Land's drinking water is safe from chemical contamination and meets health standards. To comply with state regulations, the City of Sugar Land submits monthly reports to the TCEQ. For the period of Nov. 1-30, 2014, the City failed to monitor or report the following constituents: chlorine, turbidity and chlorite. The City of Sugar Land did not complete all monitoring and/or reporting for chemical constituents. Therefore, TCEQ cannot be sure of the safety of Sugar Land's drinking water during that time.

The City of Sugar Land took the following actions to address this issue:

The City of Sugar Land resubmitted both the Surface Water and the Chlorine Dioxide Monthly Operating Reports (MORs) to the TCEQ via email and certified mail. Although the violation was for the monitoring and reporting of the constituents above, the City had completed all daily monitoring and testing as required by the TCEQ. However, the TCEQ did not receive the MORs by the required deadline (reports have to be postmarked and sent in by the tenth day of the following month). The violations have been resolved.

For more information about the nature and significance of this violation, contact Howard Christian, assistant director of Public Works, at 281-275-2450. Please share this information with everyone who drinks the City of Sugar Land's water, especially those who may not have received this notice directly.

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

WATER LOSS

Each year, the City is required to submit a Water Loss Audit to the Texas Water Development Board. In 2014, Sugar Land's water loss during the production and delivery of 5 billion gallons of drinkable water throughout the City was 9.95 percent. The City of Sugar Land is committed to maintaining a water loss of less than 10 percent by repairing leaks in a timely manner, replacing old meters, watching for unauthorized water users and measuring water used for system maintenance.

A water-loss audit is a tool used by water utilities to assess the volume of water produced compared to volumes of water sold to customers. Water loss cannot be avoided as line breaks and undetected leaks and line flushing occur throughout any water delivery system. Keeping losses to a minimum represents a utility's commitment to efficient water management and low water rates. A low water loss indicates delivery lines are maintained, metering equipment is accurate and the utility is proficiently accounting for water used for system maintenance.

REPORT WATER LEAKS

Hot and dry as well as extremely wet weather can cause water lines to break more easily. The City depends on the public to alert the Public Works Department if a leak is seen by calling 281-275-2450 at any time day or night. The public has a greater chance of seeing a water leak, as City employees are not able to monitor the entire city at all times.

"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 reported water leaks to determine the cause."

In addition to leaks, the City's customer service team responds to clogged sewer lines in homes and businesses. Reyes says, "Always call the City if your sewer line stops flowing and backs up. Our team will respond day or night to determine the location of the clog. If the blockage is in the City's line, a water utilities crew will make the repair. If the stoppage is in the house line, the homeowner will be advised to call a plumber."

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

- "flushable" wipes
- sanitary products
- diapers
- oil or grease
- egg shells
- fruit and vegetable peels

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. 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.

REDUCING WATER USE

The Home Water Works calculator is a helpful tool for determining how much water is being used in a home. The calculator compares a family's water use to homes of a similar size that use water conservation methods. The water calculator provides tips on water conserving practices that can help a household to reduce its water use.

A link to the calculator can be found on the City's website at www.sugarlandtx.gov/sugarlandconserves.

homewaterworks

LANDSCAPE IRRIGATION EFFICIENCY

Significant water conservation can be achieved through conscientious landscape management. Consider the following water-saving recommendations to reduce water consumption and maintain a beautiful yard.

- Water lawns only when needed. Watering once every four days is sufficient.
- Turn off automatic sprinkler systems when rain is predicted. Leave the system off until soil dries, and the turf needs water.
- Set lawn mower blades to cut grass no shorter than 2-3 inches tall.
- Water landscape areas that need more water than other areas by hand. Use a spray nozzle with a shutoff handle to stop water flow.
- Use a broom to sweep pavement.
- Choose drought-resistant and native plants.
- Apply mulch.
- Schedule an irrigation system evaluation at www.sugarlandtx.gov/wiseguys.

OVER WATERING

Watering lawns and plants should be done only when needed. When the spring season begins, refrain from irrigating established lawns and plantings. Watering less as the spring growth cycle begins will encourage the plant's root system to dig deeper for water and nutrients.

Deeper roots mean heartier plants. Watering too frequently will prevent grass from establishing deep roots that are essential for preventing diseases, deterring insect damage and enduring periods of low rainfall. In addition, if not using the **cycle and soak method**, excessive water runs off without benefitting plant material.

Applying too much water attracts unwanted pests and promotes algae and fungus growth on plants, soil and buildings. Mosquitos, snails and snakes are attracted to moist habitats. This, in turn, attracts the wildlife that preys on them.

CYCLE AND SOAK METHOD

1	**Cycle:**	Water for five minutes
	Soak:	Wait one hour or longer
2	**Cycle:**	Water again for only five minutes
	Soak:	Wait another hour or more
3	**Cycle:**	Water again, if necessary, for five minutes

APPLY MULCH

Applying mulch to landscape beds conserves water, reduces evaporation, prevents erosion, controls weeds, enriches the soil and promotes healthy plant growth. Mulch also helps maintain a consistent soil temperature during hot summers and cold winters. Examples of organic mulch are leaves, bark, pine needles, straw and compost. Inorganic mulch includes non-plant materials such as rocks and synthetic fabrics.

AVOID FERTILIZERS

When too much fertilizer is applied to lawns and gardens, the excess can run off lawns and contaminate neighborhood lakes and water ways. Instead of fertilizers, enrich soils with nutrients such as animal manure, compost and mulch. Natural soil amendments promote growth of beneficial microorganisms that support a plant's ability to utilize nutrients and provide a natural defense against unwanted lawn and garden pests.

AVOID PESTICIDES

Most of the insects commonly seen in yards are harmless and benefit the ecosystem. Improper or over use of pesticides is detrimental to many beneficial insects. Insects work as decomposers, pollinators, predators and parasitoids to keep ecosystems balanced and healthy. Integrated pest management is a non-chemical approach to protect beneficial insects, people and waterways from harmful chemicals. Learn about this approach at the EarthKind website.

OPPORTUNITIES FOR PUBLIC COMMENT ON WATER PLANNING AND WATER QUALITY

The City of Sugar Land takes pride in the water that is delivered to its customers. The Water Utilities Division is continually striving to improve its service. Feedback on a customer's experience with service can be provided by calling 281-275-2450.

For more information about this report or participating in future public meetings concerning the City of Sugar Land's drinking water, call 281-275-2450. In addition, residents are encouraged to attend Sugar Land City Council meetings, held regularly at 5:30 p.m. on the first, third and fourth Tuesdays of the month.

Public Works • 111 Gillingham Lane • Sugar Land, TX 77478