Prairielands eLine

The Newsletter of the Prairielands Groundwater Conservation District

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Prairielands GCD Adopts Management Plan

In March, Prairielands Groundwater Conservation District ("District") adopted a new groundwater management plan regarding the next five years, and in April received notification from the Executive Administrator of the Texas Water Development Board, notifying the District that its management plan had been approved as complete and in compliance in accordance with Texas Water Code § 36.1071(a) and (e).

The GCD's new management plan seeks to balance current needs with future sustainability, ensuring that groundwater resources remain viable for generations to come. The purpose of a groundwater conservation district's groundwater management plan is to identify the goals of the district and to document the management objectives and performance standards that will be used to accomplish those goals. The 75th Texas Legislature in 1997 enacted Senate Bill 1 to establish a comprehensive statewide water planning process and contained provisions that require each groundwater conservation district to prepare a management plan to identify the water supply resources and water demands that will shape the decisions of the district.

Following approval, the District has initiated outreach to regional water suppliers to begin discussion addressing the decline of groundwater availability within the District and encouraged exploration of alternative water sources. Other management objectives include raising awareness about groundwater conservation and promoting community involvement in sustainable water management practices. The plan involves setting up monitoring systems to collect data on groundwater levels, usage, and recharge rates. This data is crucial for informed decision-making and adjusting management strategies as needed.

The process the Texas Water Development Board uses for reviewing a groundwater district's management plan includes analyzing the District's estimates of annual amounts of groundwater usage, annual amounts of aquifer recharge, projected surface water supply, and projected total demand for water. After addressing these topics, the management plan must provide management goals, methodology for tracking progress, management objectives, and performance standards used to evaluate the effectiveness of district activities.

The Prairielands Groundwater Conservation District is committed to manage and protect the groundwater resources within Ellis, Hill, Johnson and Somervell Counties and to work with others to ensure a sustainable, adequate, high quality, and cost-effective supply of water, now and in the future. The District strives to develop, promote, and implement water conservation management strategies to protect water resources for the benefit of the citizens, economy, and environment of the District.

The next five-year management plan review will be due on April 12, 2029. A full copy of the management plan can be found online at www.prairielandsgcd.org.

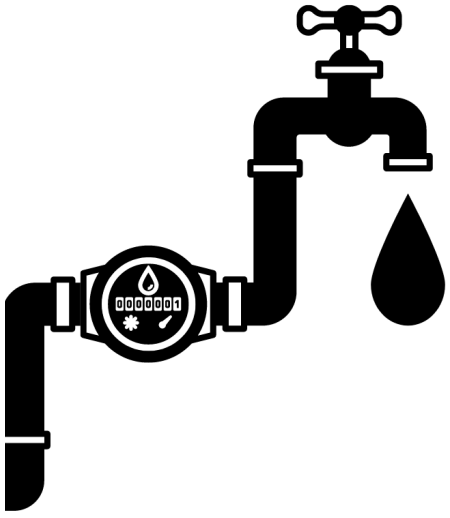
In This Issue:

Year in Review: 2023 Prairielands GCD Annual Report Now Available

The District's Annual Report is intended to give an annual update on Prairielands Groundwater Conservation District's progress on each of the objectives and standards included in the District's management plan. Topics covered in the annual report include well registrations, annual groundwater production amounts by county and user group, preventing waste of groundwater, monitoring drought conditions, regional water planning, and education initiatives. Printed copies are available at the District office, but for your convenience a digital copy is available on the District's website www.prairielandsgcd.org/about/management-plan/.

Meter Verification Certification for Replacement Meters

When adopting and implementing rules, the District's goal is to assist permittees in enhancing their conservation efforts. To help permittees comply with the rules the District has created a database allowing permitees to easily access their accounts and stay in compliance. A key update to this system now requires all meter replacement installations include a certification demonstrating the meter meets accuracy standards between 98.5% and 101.5%. This ensures the data collected is as accurate as possible. By ensuring the use of accurate meters, we collectively contribute to efficient resource management and conservation efforts within our District. Should you have any questions or require further information, please do not hesitate to contact our office.



The Vital Role of Texas Groundwater in Summer

Groundwater is an essential resource in Texas, supporting agriculture, industrial, municipalities, and rural areas. However, increasing demand, coupled with periodic droughts, has led to concerns about the sustainability of these vital aquifers. As summer temperatures soar across the Lone Star State, Texans swarm to the water for recreation. While Texas is well-known for its rivers, lakes, and coastal beaches, groundwater plays a crucial, often overlooked, role in supporting these summer pastimes. This unseen resource is the backbone of many beloved recreational activities, from swimming and fishing to tubing and boating, highlighting the connection between groundwater and outdoor enjoyment.

Groundwater is water located beneath the Earth's surface, stored within aquifers which are porous rock formations that hold significant amounts of water. In Texas, major aquifers like the Trinity, Edwards, Ogallala, and Gulf Coast aquifers are crucial sources of water for both municipal use and natural ecosystems. These aquifers not only supply drinking water to millions but also feed springs, rivers, and lakes that are central to summer recreation.

The state is home to numerous springs and rivers that owe their existence to groundwater. Many of Texas's iconic springs, such as San Marcos Springs and Barton Springs, are fed by groundwater. These springs create pristine, cool-water environments perfect for swimming and snorkeling. Barton Springs Pool in Austin, for example, is a natural spring-fed pool that remains a constant 68 degrees Fahrenheit, offering a refreshing escape from the heat.

Groundwater also sustains the flow of several Texas rivers. The Guadalupe, Frio, and San Marcos rivers, known for tubing and kayaking, are supported by springs that originate from aquifers. These rivers provide not only recreational opportunities but also critical habitats for wildlife.

Additionally, maintaining healthy groundwater levels is essential for preserving the quality and availability of recreational waters. Over-pumping of groundwater can lead to reduced spring flows and lower water levels in rivers and lakes, diminishing their recreational value. Sustainable groundwater management practices are therefore critical to balancing the demands.

Despite its importance, Texas's groundwater faces numerous challenges, including overuse and contamination. Over-extraction can deplete aquifers faster than they can recharge. Contaminants can reduce water quality, posing risks to both human health and the environment. Addressing these challenges requires comprehensive water management strategies, public awareness, and policies that promote conservation and sustainable use.

As you can see, groundwater plays a pivotal role in summer recreation, supporting the state's beloved springs, rivers, and lakes. Recognizing and addressing challenges faced by groundwater is crucial for ensuring future generations can continue to enjoy the natural beauty and recreational opportunities Texas's waters offer.

Understanding the Connection Between Rain and Groundwater in Water Management

Rain and groundwater are important elements of the water cycle, playing a key role in sustaining ecosystems, agriculture, and human life. Grasping the relationship between the two is crucial for effective groundwater resource management.

The water cycle is a continuous process involving the movement of water on, above, and below the Earth's surface. It encompasses evaporation, condensation, precipitation, and infiltration. Rain, a primary input in this cycle, is essential for replenishing groundwater.

Groundwater recharge happens when water from precipitation seeps through soil and rocks, replenishing aquifers. This process is influenced by factors like soil type, vegetation cover, land use, and topography. Sandy soils facilitate faster infiltration compared to clayey soils, while vegetation helps water penetrate deeper into the ground, reducing surface runoff. Natural recharge occurs when rainfall is sufficient and exceeds groundwater extraction rates. Recharge is essential for maintaining the balance of groundwater levels.

Recharge from precipitation can only occur where the aquifer is exposed at the surface, known as the outcrop. About 9% of all precipitation contributes to recharge. However, not all of this 9% becomes usable, as much of the water is lost during its lengthy journey through the aquifer. Within the District, there are two outcrop areas: one for the minor Woodbine aquifer and one for the major Trinity aquifer. These areas cover only a small portion of the District, further slowing the recharge process. As a result, recharging an aquifer is a very slow process, often taking several years.

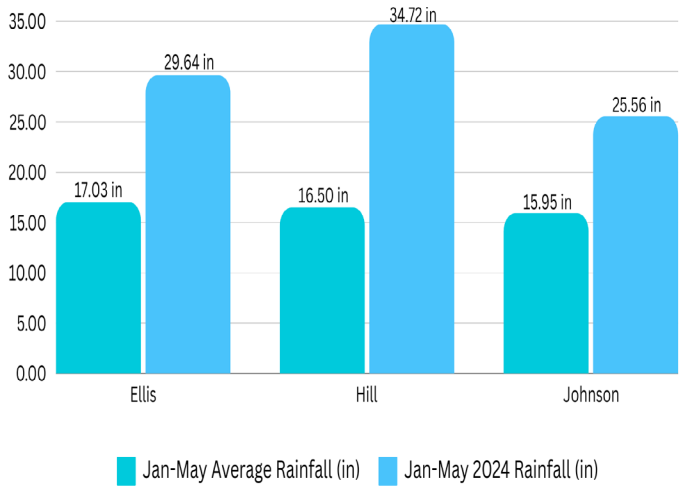
The District has experienced significant rainfall in 2024. To the right is a graph displaying the average rainfall for three of our four counties. In each county, the year-to-date rainfall is significantly higher than the average. Hill County, in particular, has the highest above-average rainfall, exceeding the norm by 34.72 inches. Unfortunately, much of this rainfall has resulted from severe thunderstorms and intense rain, leading to more flooding than infiltration, which hampers the recharge of groundwater levels.

Intense rainfall events can increase surface runoff and reduce infiltration, thereby decreasing groundwater recharge. On the other hand, prolonged and extreme droughts can deplete aquifers, increasing water scarcity issues. Factors including over-extraction and impermeable surfaces can lead to declining groundwater levels and aquifer depletion.

When discussing the impact of intense rainfall versus extreme drought on groundwater, it's always preferable to receive excessive rain rather than endure a drought. During extensive droughts, the primary response is to cut back on water usage. In contrast, excessive rain can be beneficial through rainwater harvesting, a sustainable practice that captures and stores rainwater for future use. This approach addresses water scarcity and promotes environmental sustainability by reducing surface runoff and minimizing soil erosion. Rainwater harvesting systems, such as rooftop collection and rain gardens, effectively absorb and store excess rainwater.

Harvested rainwater can be used for various non-potable purposes such as irrigation, flushing toilets, and washing cars, reducing demand on treated municipal water supplies. With proper treatment, it can also be used for drinking and cooking, providing a reliable water source during dry periods. Utilizing harvested rainwater reduces extraction pressure on natural water bodies during extreme droughts.

Implementing rainwater harvesting involves



several steps and considerations, including catchment areas (rooftops or open spaces), gutters and downspouts for directing water, storage tanks or cisterns, and filtration systems to ensure water quality. Regular maintenance is crucial for system efficiency and longevity, involving tasks like cleaning gutters, checking for leaks, and ensuring storage tanks are contaminant-free.

The District actively promotes rainwater harvesting through various initiatives. Residents are encouraged to install their own systems and apply for a rebate program, potentially receiving $1 per gallon installed up to 500 gallons. The District also hosts workshops where participants learn about rainwater harvesting and build their own barrels. Additionally, the District has installed two rainwater harvesting systems at its office facilities.

An 11-foot tall, six-foot diameter, 2,300-gallon cistern located in front between the office and the shop buildings, captures approximately 18,700 gallons of rainwater annually for landscape irrigation. In 2022 the District expanded the system adding a 2,100-gallon metal cistern located on the backside also collects an additional 18,700 gallons per year. These cisterns eliminate erosion from downspouts and improve water infiltration by 80%, reducing parking lot flooding and mosquito breeding. Included in the rainwater harvesting system is a rain garden that captures approximately an average of 34,750 gallons of rainwater per year from the downspouts off the overhang above the breezeway between the main office building and the shop building. The irrigated landscape areas support bees, butterflies, and hummingbirds.

Recently, the District completed the installation of a second system with the addition of three 1,500-gallon poly tanks connected to covered parking, helping irrigate garden beds. Installing the three tanks enables the District to harvest approximately 65,000 additional gallons annually. The system includes two self-sustaining, self-watering hybrid hydroponic gardening systems utilizing rainwater.

The relationship between rain and groundwater highlights the importance of sustainable groundwater management practices. Rainwater harvesting emerges as a sustainable solution to increase groundwater recharge, reduce surface runoff, and when needed provide an alternative water source.

About Prairielands GCD

The Prairielands Groundwater Conservation District was created in response to a finding by the Texas Commission on Environmental Quality that groundwater shortages were expected in Ellis, Hill, Johnson, and Somervell counties over the next 25 years. The TCEQ finding required local residents to create a groundwater conservation district, or else TCEQ would mandate one. Enabling legislation for the Prairielands GCD was passed in 2009.

The Mission of the Prairielands Groundwater Conservation District is to develop rules to provide protection to existing wells, prevent waste, promote conservation, provide a framework that will allow availability and accessibility of groundwater for future generations, protect the quality of the groundwater in the recharge zone of the aquifer, insure that the residents of Ellis, Hill, Johnson, and Somervell Counties maintain local control over their groundwater, and operate the District in a fair and equitable manner for all residents of the District.

Upcoming Events and Meetings

June

24 **Water Education Trailer**
Cleburne Library Summer Reading Club
302 W Henderson St
Cleburne, TX 76033

July

4 **Independance Day**
PGCD Office Closed

15 **PGCD Board Meeting**
9:00 a.m.
208 Kimberly Dr
Cleburne, TX 76031

August

19 **PGCD Board Meeting**
9:00 a.m.
208 Kimberly Dr
Cleburne, TX 76031

20-22 **TAGD Summit**
San Antonio, TX

September

2 **Labor Day**
PGCD Office Closed

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