

Kerr County Groundwater Basics

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Groundwater Basics:

- What aquifers are in Kerr County?
- How are these aquifers different?
- What can we do to conserve water?
- How do we address new development & growth?

<u>What aquifers are in Texas</u>?





- Groundwater Conservation Districts are the State's preferred method for managing groundwater. They are classified as Local Government in the form of Special Purpose Districts.
- There are currently 98 Groundwater Conservation Districts in Texas. These are the colored areas on the GCD map.
- Areas in white have no groundwater pumping supervision. These areas are governed by the "Rule of Capture", which basically means that there are no regulations on groundwater pumping within these areas.
- Groundwater Districts provide local control, that can be adapted to local wants and needs through an elected Board of Directors.
- The authority of a Groundwater District is defined <u>and limited</u> by:

 the specific chapter of the Texas Water Code that they govern under, and
 their Enabling Legislation, which designates their specific chapter of the Texas Water Code and may also have additional limitations or abilities defined for the District.
- Headwaters GCD was established in 1991 and manages the groundwater in Kerr County under Texas Water Code, Chapter 36.

In the State of Texas:

- Surface water belongs to the State.
- Groundwater belongs to the landowner in the form of Groundwater Rights. These groundwater rights are considered to be real property, just like mineral rights, or oil and gas rights. All of which can be leased or severed from the surface estate of the property. If a property's groundwater rights are sold to another owner, they are essentially severed from the surface estate and the surface estate owner no longer has a right to any groundwater beneath their property.
- ALL groundwater right owners have a legal right to their water that cannot be denied, regardless of the type of use.

Groundwater Districts are tasked with balancing:

- The landowner's right to their groundwater, and
- Groundwater conservation through the regulation of our groundwater resources.

<u>Where Groundwater Districts exist, there are regulations for two types of groundwater</u> <u>wells:</u>

• Permitted Wells

And

• Exempt Wells

Exempt Wells-

- In counties where Groundwater Districts exists, all groundwater wells are required to be permitted and regulated by the District, <u>EXCEPT</u> when...
 - The well is only used for Domestic Household, Livestock, or Poultry; AND
 - The well is <u>not</u> capable of pumping more that 17.36 gallons per minute.
 - These wells are considered to be "Exempt" from the required permitting.
- This Exempt status is a State requirement, that no Groundwater District can circumvent, unless the District's Enabling Legislation decrees otherwise. In these instances, the District's Enabling Legislation has been voted on and passed by the Texas Senate and the House of Representatives.
- Exempt Wells are regulated by their type of use and pumping capacity, as stated above. Any type of use or pumping capacity outside of or in excess of these exemptions require the well(s) to be permitted by the District.

Permitted Wells-

- Any well that does not qualify as an Exempt Well must be permitted and regulated by the District.
- Permitted uses typically include:
 - Public Water Systems i.e. Aqua Texas, Southwest Water Utilities, Summer Camps, Mobile Home Parks, and RV Parks.
 - Commercial Use i.e. the use of water is essential to the operation of the business itself, such as gravel washing or a car wash that utilizes a groundwater well.
 - Agriculture Use i.e. For hay fields, deer food plots, or commercial orchard irrigation.

In Kerr County...

• The amount of water that can be pumped from a Permitted Well (or aggregate of Permitted Wells) is regulated and monitored by the District.

Permitted Wells (cont.)-

- All Permitted Wells are required to be equipped with a water meter at the well head. Meter readings are reported to and evaluated by the District at the end of each calendar year.
- The maximum permitted amount of water that can be pumped is limited to 80,000 gallons per acre (owned) per year, and 65,000 gallons per acre per year for new Production Permits issued in the East Kerr Management Zone. This may seem like a huge amount, but it is actually very conservative. Most GCDs permit anywhere from half an acre-foot to an acre-foot PER ACRE, per year. That's 163,000 gallons to 325,851 gallons PER ACRE, per year.
- Headwaters GCD does NOT permit to the maximum amount, by default. Instead, HGCD permits the annual amount of water based on beneficial need, up to the maximum, if applicable.
- In order to prevent interference with neighboring wells, the maximum pumping capacity of a permitted well is based on the distance between the well and the nearest neighboring property line. More distance equals a higher pumping capacity (gallons per minute). Less distance equals a lower pumping capacity.

<u>What aquifers are in Kerr County</u>?



- There are several aquifers located within Kerr County.
- The Edwards portion of the Edwards-Trinity Plateau is located primarily in the North and West area of Kerr County, <u>but</u> it can also be found south of Kerrville in the Upper Turtle Creek area. Where Edwards is available, the Trinity Aquifer will be located beneath it. In other words, the Trinity Aquifer is everywhere in Kerr County.
- In the East and Southeast areas of Kerr County, only the Trinity Aquifer is available. There is no Edwards aquifer available in this part of the county.
- <u>Note</u>: There are several layers within the Trinity Aquifer: The Upper Trinity (water is usually non-potable for humans), the Middle Trinity, and the Lower Trinity.
- There is a third aquifer in parts of the Kerr County, known as the Ellenberger. Where available, it will be located beneath the Trinity.

<u>How are these aquifers different</u>? Edwards Aquifer

- Only located in the higher altitudes of Kerr County, at <u>surface elevations</u> of 1900+ ft above Mean Sea Level (MSL). In Kerr County, the bottom of the Edwards Aquifer is at 1800 ft MSL.
- Edwards wells are typically between 100-200 feet deep. There are some exceptions, though.
- The Edwards Aquifer is very rainwater reactive. Localized areas may become <u>temporarily</u> dry during times of drought, but will also recover very quickly from small and/or large showers.
- It is the aquifer that feeds the headwaters of the Guadalupe River.
- Natural water quality is very good, at 100-150 ppm. A Brita filter is around 147 ppm.
- The geology in the Edwards Aquifer is typically very porous and permeable, with lots of underground caves and voids.
- The Edwards Aquifer in Kerr County is not the same as the Edwards Balcones Fault Zone Aquifer.
- This Aquifer recharges locally in some areas of Kerr County, but it primarily recharges out west of us and then travels laterally through the aquifer to the Texas Hill Country area over time.

<u>How are these aquifers different</u>? Trinity Aquifer

- Located throughout Kerr County.
- Trinity wells are typically between 300-800 feet deep. There are some exceptions, though.
- Natural water quality is anywhere from 500-800 ppm. Public Water Systems are usually around 500 ppm, or less.
- The geology in the Trinity Aquifer is complex. It changes from one side of the county to the other.
- The Trinity Aquifer receives very little recharge here locally. Primarily, it recharges in other areas of Texas and then the water travels laterally through the aquifer to the Texas Hill Country area over time.

Cross Section of the Edwards-Trinity (Plateau) Aquifer (George and others, 2011).

Point A = Brewster County, TX (North of Big Bend National Park)

Point B = Midland County (Midland, TX)

Point C = Bexar County, TX





<u>What can we do to conserve water?</u>

• For Indoors:

- Take short showers, when possible.
- Run appliances only when they have a full load. For dishwashers, use the "top rack only" feature if available.
- Repair any plumbing or toilet leaks, quickly.
- When waiting for warm water from the tap, store the cold water in recycled plastic water bottles or gallon jugs, or in some sort of countertop filtration container (Brita, Zero Water, Etc.) This stored water can be uses for drinking water or for watering indoor/outdoor plants, as needed.

• For Yards:

- Minimize lawn watering... Lawn watering constitutes 40-60% of all domestic household use! Due to lawn irrigation, the average U.S. per household use is 442 gallons of water per day. In Australia, where drought is a standard, the per household use is a surprisingly sufficient 94 gallons of water per day.
- When replacing or adding outdoor plants, use drought tolerant varieties.
- If you have plants that need regular watering, consider connecting a water catchment system to catch condensation from your air-conditioning system's dripline. This is a continual source of water, even during a drought!

- For Pools:
 - Use a "Liquid Pool Cover", which will reduce evaporation. It is relatively inexpensive. Depending on the product used, one properly measured treatment of a Liquid Pool Cover can last between 1-4 months.
- For Livestock:
 - Instead of filling and refilling a large livestock pond, use troughs or stock tanks that self-regulate their water level.
 - When using a livestock pond, a pond liner will minimize ground re-absorption.

• For Water Wells:

- Check your well regularly.
- An over-active pump may indicate a water leak! This is due to the pump in the well having to overcompensate for the loss of water elsewhere in the plumbing.
- A sudden spike in your electric bill may also indicate a water leak, due to the increased activity of the pump.
- Install a meter on your well if you are curious about your water consumption. A water meter is another way to catch a water leak very quickly! Slow leaks can be detected with a meter over time, when compared to historical usage. Large leaks can be detected with a water meter almost immediately.

How can HGCD address new growth & development?

Tract Size Rules for New & <u>Existing</u> Exempt Wells

- 10 Acre minimum tract size requirement for NEWLY platted or subdivided properties (After August 2023).
- 5.0 Acre minimum tract size requirement still applies to tracts platted between January 2018 & August 2023.
- 7.0 Acre minimum tract size requirement in the East Kerr Management Zone still applies, in limited cases.
- No acreage requirement for tracts platted before January 2018 (i.e. Older, existing tracts will not be denied a well based on tract size).

Groundwater production is relational to acreage

- Exempt Wells Requires additional acreage for additional wells.
- Permitted Wells The Maximum Production Allowance for an Operating Permit is relational to the total acreage owned by or provided water services by the Permit Holder.

How can HGCD address new growth & development?

Established the East Kerr Management Zone

 Reduced the Production Cap for NEW Operating Permits in this Zone from 80,000 gallons per acre, per year to 65,000 gallons per acre, per year.

Established a <u>L</u>ivable <u>M</u>inimum <u>S</u>tandard for all NEW Public Water Systems, RV Parks, and Mobile Home Parks

 This "LMS" ensures that the related water demand does not exceed the respective Production Cap assigned to the new Operating Permit. To summarize, the LMS determines and assigns a maximum number of connections that can be supported by the new PWS, and subsequently, prevents over densification of the new project.

<u>What can you do to address new growth & development?</u>

- Get involved in your County Commissioner and City Council Regular Meetings.
- Communicate your concerns to your elected State leaders. They write the laws that GCDs have to follow!
- Understand the limits of their authority. What can they do? What can't they do?
- For New Subdivision Developments or other New Housing Projects:
- Ask your elected leaders to consider implementing rules or ordinances that require xeriscaping.
- Ask your elected leaders to consider implementing rules or ordinances that require rainwater collection and condensation collection systems.
- Ask your elected leaders to consider implementing rules or ordinances that limit the square footage of, or eliminate the use of, living lawns.
- Site other communities in the Texas Hill Country that have implemented these changes into their ordinances successfully.

