# Water Management in Texas An Overview of State Law

#### PRESENTED BY

### Gary Westbrook, General Manager, Post Oak Savannah GCD



## Presentation Summary

Texas Water Resources & Management

**Historical Review** 

GCD Formation & Demographics

**GCD** Powers & Duties





# Texas Water Resources and Management



SURFACE WATER Owned by the State, Regulated by Texas **Commission on** Environmental Quality (TCEQ), & managed by River **Authorities** 













Groundwater in Texas aquifers is privately owned & regulated by 99 Groundwater Conservation Districts (GCDs)





# What is an aquifer? Merriam-Webster: An aquifer is a water bearing stratum of permeable rock, sand, or gravel.

From TWDB (Mace and others): An aquifer is geologic media (rock, sand, gravel, silts, clays) that can yield economically usable amounts (depends on location and needs) of water.



# Geology / Aquifers



# Historical Review of Groundwater Management



# We interrupt your previously scheduled program for this brief message!





### Who is TAGD?





### What does TAGD do?

- Conducts educational and technical training
- Tracks legislation, agency rulemaking, & policy discussions
- Serves as a resource for districts, the public, lawmakers, and state agencies
- Facilitates communication among GCDs
- Collects data on GCDs





#### What is a Groundwater Conservation District?

GCDs are political subdivisions of the state created to protect and balance private groundwater interests with the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and the control of subsidence caused by withdrawal.

#### What does a GCD do?

Establish rules for the spacing and drilling of all water wells Consider and permit non-exempt water wells Maintain records of non-exempt wells in a district Submit management plans to Texas Water Development Board for approval Collaborate regionally in joint planning for the establishment of DFCs Collect water level and water quality data on aquifers Educate stakeholders on water conservation Work to prevent harm to the aquifer due to pumping or contamination

#### How do GCDs allocate their budgets?



#### How many GCDs are there in Texas?

Currently, there are **9**<sup>(2)</sup> GCDs plus 2 subsidence districts.

#### What rules must a GCD follow?

GCDs are governed by Chapter 36 of the Texas Water Code. As political subdivisions of the state, they are also subject to Chapter 49 of the Texas Administrative Code. Based on the rules established by the State, each GCD creates policies to accomplish the goals of their District.

#### Do I have to register my well with my GCD?

Yes, state law requires all wells to be registered with the GCD. This does not mean that all wells require a permit. All domestic wells and livestock wells that produce less than 25,000 gallons per day are exempt from permits. A GCD has the ability to exempt others in their rules.

#### **More GCD FAQs**

#### What is a management plan?

A management plan outlines a GCD's goals and course of action to achieve those goals. The management plan is submitted to TWDB for approval, and rules necessary to implement the management plan are adopted by each district.

#### What is a Desired Future Condition?

The desired future condition is a metric that is established during the joint planning process by GCDs in a common Groundwater Management Area (GMA). The DFCs provide for consistency in groundwater management in the GMA and a balance between groundwater protection and production.

#### How are GCDs funded?

GCDs are funded through property taxes, permitting fees and/or usage fees.

#### **Groundwater Terms**

#### Aquifer

An underground geological formation able to store and yield water in useable amounts. Aquifers in Texas can consist of sand, gravel, limestone, granite, and many other rock types that have pores or spaces for water to pass through.

#### Aquitard

An aquitard, or confining layer, is a zone within the earth that restricts the flow of groundwater.

#### Total Dissolved Solids (TDS)

TDS refers to the total concentration of dissolved constituents in solution. A TDS level of less than 1000 ppm is often considered freshwater, although many Texans' drinking water has a higher TDS.

#### Cone of Depression

A cone of depression is a conically shaped area of decreased water level (or pressure) that occurs when water is withdrawn from an aquifer. If wells are too close to each other, these cones may overlap and cause interference resulting in abnormally low water levels in those wells. In areas that withdraw more water than is recharged or flows to that area, a semi-permanent regional cone of depression may occur.

#### **Abandoned Wells & Water Quality**

There is a high environmental risk associated with abandoned or deteriorated wells, as they are a direct conduit from the surface to our groundwater resources. Because of this risk, it is highly recommended to have abandoned or deteriorated wells plugged. Some GCDs have have established programs to assist landowners in plugging abandoned wells.



Who can disinfect my well water? It is recommend to contact a licensed water well driller or a pump installer to professionally disinfect your well.

texasgroundwater.org





# Historical Review of Groundwater Management



### Houston & TX Central RR v. East (1904)





## **The Rule of Capture**

### a/k/a law of the biggest pump



McDonald Irrigation Well, 1990 Gallens per Misule, Hersfard, Texas.

# Landowners have the right to capture an *unlimited amount* of groundwater beneath their property



## Why did Texas adopt the rule of capture?

"The existence , origin, movement, and course of such waters ... are so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to them would involve hopeless uncertainty and would be practically impossible"



### Limits on Rule of Capture

- Trespass
- Malicious or wanton conduct
- Waste
- Subsidence due to negligent over-pumping















### **1917 Conservation Amendment** Article 16, Section 59 Texas Constitution:

"The conservation and development of all of the natural resources of this State... and the preservation and conservation of all such natural resources of the State are each and all hereby declared public rights and duties; and the Legislature shall pass all such laws as may be appropriate thereto"



#### UNDERGROUND WATER CONSERVATION DISTRICTS Ch. 506



# Statutory framework for GCDs

An Act amending Chapter 25, Acts of the Regular Session, Thirty-ninth Legislature, 1925, by adding a Section thereto providing for the creation and organization of underground water conservation districts to provide for the conservation, preservation, protection and recharging and the prevention of waste of underground water; prescribing the powers, functions and limitations of such districts; defining terms and pre-cribing standards to govern the operation of such districts and the adoption, promulgation and enforcement of rules and regulations thereof; recomizing to Mee Degineer Operation of such districts, author of Stiff Baad degices underground water pattern of the Stiff Baad divisions thereto; providing for appeals from orders, rules, regulations and acts hereunder; containing a saving clause; and declaring an the Stiff Baad

Be it enacted by the Legislature of the State of Texas:

Section 1. That Chapter 25, Acts of the Regular Session of the Thirtyninth Legislature of the State of Texas, 1925, be and the same is hereby amended <sup>24</sup> by adding thereto Section 3c to provide as follows:



# Senate Bill 1 1997

- Establishes GCDs as the "State's preferred method of groundwater management"
- Source of much of current Chapter 36 of the Texas Water Code





# Groundwater Conservation Districts (GCDs) Formation & Demographics



### What is a GCD?

- Political subdivision of the State
- Creature of the Legislature with powers expressly granted
  - Chapter 36
  - Enabling Legislation
- Specific authority to manage groundwater
- Created to protect and balance private property interests in groundwater



### **Ownership of Groundwater**

TWC 36.002 states: The groundwater ownership and rights described by this section: (1) entitle the landowner,... to drill for and produce the groundwater below the surface of real property, subject to Subsection (d), without causing waste or malicious drainage of other property or negligently causing subsidence, but does not entitle a landowner,... to the right to capture a specific amount of groundwater below the surface of that landowner's land; and (2) do not affect the existence of **common law defenses** or other defenses to liability under the **rule of capture**.

Subsection (d), mentioned above, states:

This section does not... prohibit a district from limiting or prohibiting the drilling of a well by a landowner for failure or inability to comply with minimum well spacing or tract size requirements adopted by the district,... (or) affect the ability of a district to regulate groundwater production as authorized... under this chapter...



### How are GCDs created?





### **GCD Funding**





### **GCD Governance**

#### LOCAL BOARD OF DIRECTORS





### ADMINISTRATION

#### Section 36.051

### POSGCD Directors (appointed by Commissioner's Courts)

<u>Milam County</u>	<u>Interest</u>	<u>Burleson County</u>
Steven Wise	At Large	Becky Goetsch
Dana McClaren	Agriculture	Jay Wilder
Ward Roddam	Municipal	Tommy Tietjen
Sid Youngblood	Industrial	<b>Buster Evers</b>
Bob Wilson	Rural Water	Ed Savage



### **GCD Composition**





### **Groundwater Conservation Districts**



GCDs Cover 174 of 254 Counties







### **GCD Powers & Duties**


#### **The GCD Balancing Act**



Rights of Landowners and the highest practicable level of groundwater production Conservation, preservation, protection, recharging and prevention of waste of groundwater



#### Powers and Duties

**Develop & adopt a Management Plan** 

Participate in Joint Planning & establish Desired Future Conditions (DFC)

Develop Rules to implement Management Plan & achieve a DFC (20 day notice)

Use Chapter 36 Toolbox to determine well spacing, permitting structure, production limits on wells, etc.

Issue permits, register wells, and ensure proper drilling completion



## **Management Plans**

Section 36.1071

- Must be adopted within 3 years of creation or confirmation
- Must be approved by Texas Water Development Board
- Must contain estimates of groundwater resources, availabilities, demands, and uses
- Must contain District management strategies including Desired Future Conditions
- Must be developed by using the District's best available data
- Must be compatible with Groundwater Management Area Management Plan
- The district shall adopt rules necessary to implement the management plan



### **Joint Planning & DFC adoption**





# **Desired Future Conditions (DFCs)**

An expression of local groundwater management





### **Science & Policy**





## The MAG

#### Modeled Available Groundwater

- The amount of water that may be produced on an average annual basis to achieve a DFC
- GCDs, to the extent possible, shall issue permits up to the point that the total volume of groundwater production will achieve the DFC
- Expressed as a rate, generally acre-feet per year









# **Groundwater Ownership and GCD Rules**

- Landowners own groundwater below the surface
- Landowner entitled to drill for and produce groundwater, but not a specific amount
- GCDs may limit or prohibit drilling based on spacing or tract size and regulate production of groundwater
- GCDs can be liable for takings if their regulations go "too far"\*

\*(but we don't know how far too far is...)



# **GCD Rules**

• Chapter 36 of TWC serves as a blueprint for District Rules

SHALL VS MAY

- shall- (in laws, directives, etc.) must; is or are obliged to: A district shall require that accurate drillers' logs be kept.... (Ch. 36.112)
- may-used to express possibility, opportunity, permission, or contingency: A district may make and enforce rules.... (Ch. 36.101)



#### **GCD Rules**

- A district **shall require** a permit for the drilling, equipping, operating, or completing of wells or for substantially altering the size of wells or well pumps
- A district **may not require** a permit or a permit amendment for maintenance or repair of a well if the maintenance or repair does not increase the production capabilities of the well to more than its authorized or permitted production rate.
- A district **shall require** that an application for a permit or a permit amendment be in writing and sworn to.
- A district **may require** compliance with the district's well spacing rules for the drilling of any well that is not exempted



### MISCELLANEOUS

- Section 36.107 A district may carry out any research projects deemed necessary by the board
- Section 36.109 A district may collect any information the board deems necessary
- Section 36.158 A district may make or accept grants, gratuities, advances, or loans in any form to or from any source approved by the board, including any governmental entity, and may enter into contracts, agreements, and covenants in connection with grants, gratuities, advances, or loans that the board considers appropriate



# **GCDs Can Require**

	Registration	Construction	Spacing	Reporting	Permitting	Production Limits
Exempt Wells (Dom./Lvstck)	●	•	•			•
Exempt O&G Wells	•	•	•	•		
Exempt Mining Wells	●	•		●		
Other Exempt Wells	●	•	•	•		



#### EXEMPTIONS Section 36.117

A district may not require any permit issued by the district for:

• <u>a well used solely for domestic use or for providing water</u> <u>for livestock or poultry on a tract of land larger than 10</u> <u>acres that is either drilled, completed, or equipped so that it</u> <u>is incapable of producing more than 25,000 gallons of</u> <u>groundwater a day</u>



# **Well Spacing Requirements**

A district **may require** compliance with the district's well spacing rules for the drilling of any well that is not exempted

- From property lines
- From other wells
- Capacity and size-based
- Combination of the above

#### A cone of depression

Large water withdrawals from an aquifer can lower the water table and create a "cone of depression" that can result in shallow wells going dry.





## **Production Limitations – GCDs May**

- ✓ Set volumetric/rate limits on wells
- ✓ Be based on contiguous acreage, tract size, or assigned acres
- ✓ Implement limits to achieve DFCs



## **Production Limitations, GCDs May**

- ✓ Preserve historic use
- Consider the service area of a retail water utility in imposing limitations based on tract size
- ✓ Adopt different rules for different aquifers or geographic areas within the GCD



# **Regional Planning**





### **Joint & Regional Planning**













# **Oversight of GCDs**





## What Else do GCDs Do?



# Water Well Basics I own/need a water well, now what?

PRESENTED BY

BOBBY BAZAN, WATER RESOURCES SPECIALIST, POST OAK SAVANNAH GCD



# **Presentation Summary**





# GCDs in Texas



#### 98 GCDs Cover 174 of 254 Counties

Manage groundwater from **9 Major** and

21 Minor Aquifers

#### TAGD's GCD Index





# Exempt vs. Non-Exempt

#### Exempt Well {TWC Ch. 36 Sec. 36.117}

- Drilling or operating a well used solely for domestic or livestock/poultry use if the well is:
  - a) Located on a tract larger than 10 acres
  - b) Incapable of producing 25,000 gallons/day
- 2) Drilling a well used solely for rig supply that is actively engaged in drilling or exploration of oil or gas well permitted by RRC
- 3) Drilling a well authorized under a permit issued by RRC required for mining activities

#### **Non-Exempt Well** {*TWC Ch. 36 Sec. 36.113*}

Except as provided by Sec. 36.117, as district shall require a permit for the drilling, equipping, operating, or completing of wells or for substantially altering the size of wells or well pumps.

# Well Siting

TAC Ch. 76.100(a)



# How much acreage is required?

According to Rule §285.4 of TAC Title 30 Chapter 285 Subchapter A, residential lot sizing of a platted or unplatted property must be **one (1) acre** if it is to have an On-Site Septic Facility (OSSF) and <u>NOT</u> be served by a public water supply.

Existing small lots that do not meet minimum acreage and were subdivided before January 1, 1988, may operate an OSSF, but must comply with all other requirements.



# Well Construction

TAC Ch. 76.100(c) – (f)



# Well Construction

**Drillers Well Report** 

Owner: Pos	t Oak Sa					
Address: PO	Box 92					
Mila	ano, TX			Strata Depth (ft.)	Water Type	
Well Location: CR 144 & FI Deanville. T		Water Quality:		280 - 395	Sparta	
Mall Occurs Brow					Chemical Analysis Made:	No
Well County. Bur	leson			Did the driller knowi	naly penetrate any strata which	
Type of Work: New	/ Well			c	ontained injurious constituents?:	No
Drilling Start Date: 1/	12/2015	Certific	ation Data:	The driller certified that the driller's direct supervision) correct. The driller unders the report(s) being returned	e driller drilled this well (or the well and that each and all of the state tood that failure to complete the r d for completion and resubmittal.	was drilled under the ments herein are true and equired items will result in
Borehole:		Compa	ny Informatio	n: Brien Water Wells		
				5214 South Hwy 6 Hearne, TX 77859		
Dhilling Method:	IVIUG	Driller N	lame:	Pete Brien	License N	lumber: 1750
Borehole Completion:	Filter	Comme	onte:	No Data		
	Top I	oomine		No Bulu		
Filter Pack Intervals:		-		1.20 million Restaures		
	Top	DESCRIP	TION & COL	LITNOIOGY: OR OF FORMATION MATER	IAL BLANK PIPE & V	Jasing: WELL SCREEN DATA
Annular Seal Data:		Top (ft.)	Bottom (ft.)	Description	Dia. (in.) New/Used Type	Setting From/To (ft.)
		0	24	Clay & Sand	4" New PVC Casing +1 -	280
Seal Method: 0	Grout an	24	210	Shale	4" New PVC Screen 280	- 320 .020
Sealed By:	Driller	210	219	Sandy Shale	4" New PVC Casing 320	- 365
		219	256	Shale	4" New PVC Screen 365	- 395 .020
		256	272	Sandy Shale and Sand	4" New PVC Casing 395	- 400
Surface Completion:	on: Surfa	272	318	Sand		
eanabe completion.		318	350	Shale		
Water Level:	60 fi	350	361	Sandy Shale		
Packers	Not	361	384	Sand		
T 401010.	NO L	384	448	Shale and Sandy Shale		
Type of Pump:	NO P	448	500	Shale		
Well Tests:	Jette					
2/4/2016 9:11:46 AM						

#### Drillers Well Report Database

For wells drilled after 2003





Connect with us: f

Home Board Financial Assistance Water Planning Groundwater Surface Water Flood Conservation Innovative Water Data & Apps

#### Submitted Drillers Reports (SDR) Database

The Submitted Drillers Report (SDR) Database is populated from the online Texas Well Report Submission and Retrieval System (TWRSRS) which is a cooperative Texas Department of Licensing and Regulation (TDLR) and Texas Water Development Board (TWDB) application that registered water-well drillers use to submit their required reports. This system was started 2/5/2001 and began collecting all reports in 2003. Be aware that the locations of the wells in this database are not verified by State staff and may be inaccurate. Added Proposed Use: Fracking Supply in February 2011.

Reports that drillers submitted by mail before the inception date are not included in this database, but are available for access at the Texas Commission on Environmental Quality (TCEQ) Water Well Report Viewer.

★ Licensed Water Well Drillers - see bottom of page

#### Reports and Downloads

Reports are designed to view a select set of information in the SDR database, not for viewing all records in the database. Reports allow the user to select or enter certain information to obtain well records for that specific criteria. There is an option to export the reports to several different formats. To get the entire SDR database, go to the Downloads section below.

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Groundwater Management Areas

Desired Future Conditions

Groundwater Conservation Districts

Groundwater Data

- Groundwater Reports
- Automated Groundwater Level Wells
- Springs Monitoring Program
- How to Submit Data
- Groundwater Database (GWDB)
- Submitted Drillers Reports (SDR) Database
- Water Data Interactive (WDI) Groundwater Data Viewer

Groundwater Models

Brackish Resources Aquifer Characterization

#### Submitted Drillers Reports Database | Groundwater Data | TWDB

#### Local Data

Post Oak Savannah GCD Public Map

posgcd.org/public-interface/



#### Public Web Map | POSGCD

#### Data for Existing Wells

#### Useful Information to Know/Gather:

- >Address
- Previous landowner(s)
- Year well was drilled
- > Type & size of casing
- > Oil & Gas well name or API (for rig supply)
# VA or FHA Loan Water Well Requirements

What matters for the VA/FHA and lenders is that the well water meets local health requirements for safe drinking water. When there isn't a local authority with set requirements, the water will need to meet either state guidelines or federal standards set by the Environmental Protection Agency.

A formal list of contaminants and requirements for private well water doesn't exist. Generally, well tests look for the presence of nitrates, nitrites, coliform and lead, but guidelines can vary based on where you're buying.



# Programs & Grants

# SNAPSHOT OF PROGRAMS AND GRANTS THAT ARE PROVIDED TO THE CITIZENS OF BURLESON & MILAM COUNTIES



District Education Programs Public presentations (Master Gardeners, groups, service clubs, Co. Extension events, Big Spring Clean, etc.)

Milam and Burleson Counties Groundwater Summit

Commissioners Court Annual Updates

Website- WWW.posgcd.org

Social Media

Newspapers

Newsletters

- Quarterly Paper
- Monthly Email

Schools- Public and private

- Water Wise- 4<sup>th</sup> and 5<sup>th</sup> grades
- In person presentations- 6<sup>th</sup> & 7<sup>th</sup> grade science
- Additional resources- Water IQ for all levels
- Extension Service

District Groundwater Conservation Grants

## >>Local Water Utilities in District

Must be used for conservation of groundwater or recharge of aquifer(s)

## History (since 2006)

- Awarded more than 100 grants
- 25 different Local Water Utilities (All in District)
- Approximately \$17.3 Million
- 2022 Budgeted amount of \$1 Million

#### **Recent Improvements to Central Carrizo-Wilcox GAM**

>\$800K total, POSGCD contributed \$325K

>Additional localized improvements in areas of focus

## Groundwater Well Assistance Program (GWAP)

Purposes-

-Increase # of monitoring wells (Current 380+)

-Predict and correct issues with water supply

## Aquifer Conservancy Program (ACP)

*Conserve water for future generations by compensating landowners for not producing or leasing their rights (nearly 48,000 acres to date)* 



## Aquifer Conservancy Program (ACP)

-Conserve water for future generations by compensating landowners for not producing or leasing their rights (nearly 48,000 acres to date)

-Exempt Wells allowed (domestic and livestock use)

- -Terms and compensation vary
- -up to \$25/acre/year for 50 year commitment
- -Commitment to not allow non-exempt production
- -Makes contiguous acreage more difficult
- -Reduces availability of acreage for large projects
- -Funded by fees collected from producers
- -Increased awareness on landowners in District



# Aquifer Conservancy Enrollments





## This is not enough!

Future Concerns for Texas- water resources must be managed better to achieve true sustainability.

This includes a focus on development of the following strategies:

- **1**. Better science to guide aquifer management
- 2. True conjunctive use with incentives/penalties
- *3. Flexibility of surface water availability*
- 4. Aquifer storage and recovery
- **5**. Aquifer recharge projects
- 6. Requirements of the above to obtain long term use of groundwater



# Get to know your local GCD





# Questions?

Contact info:

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Serving the Citizens of Milam and Burleson Counties

