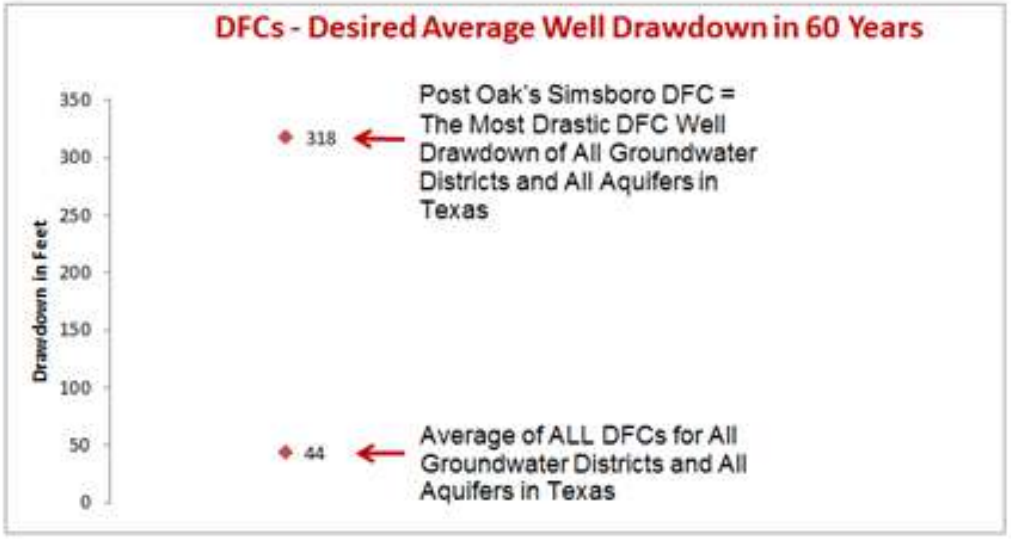
POST OAK HAS ALREADY MADE
TWO CRITICAL DECISIONS THAT
IMPACT OUR COUNTIES' FUTURES

The current Rules do not counteract the consequences of these two critical decisions.

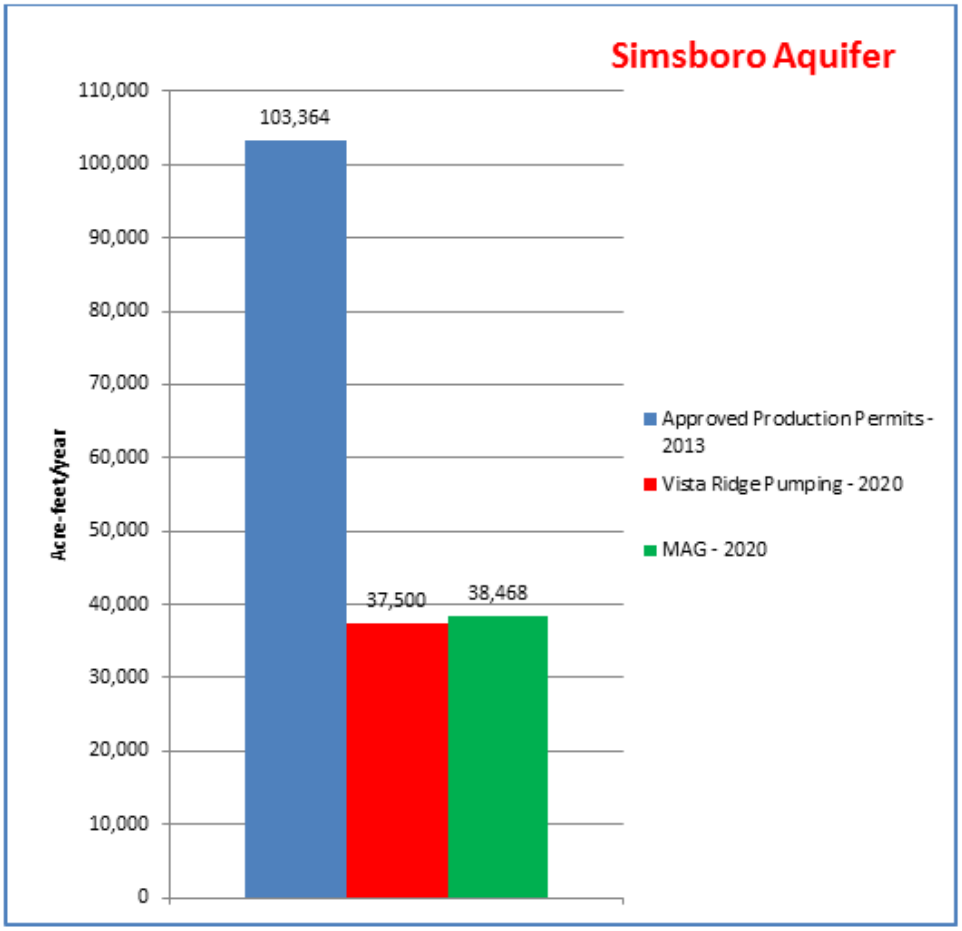
CRITICAL DECISION 1:

The Post Oak board's decision to adopt DFCs which are extreme drawdowns of our water wells.

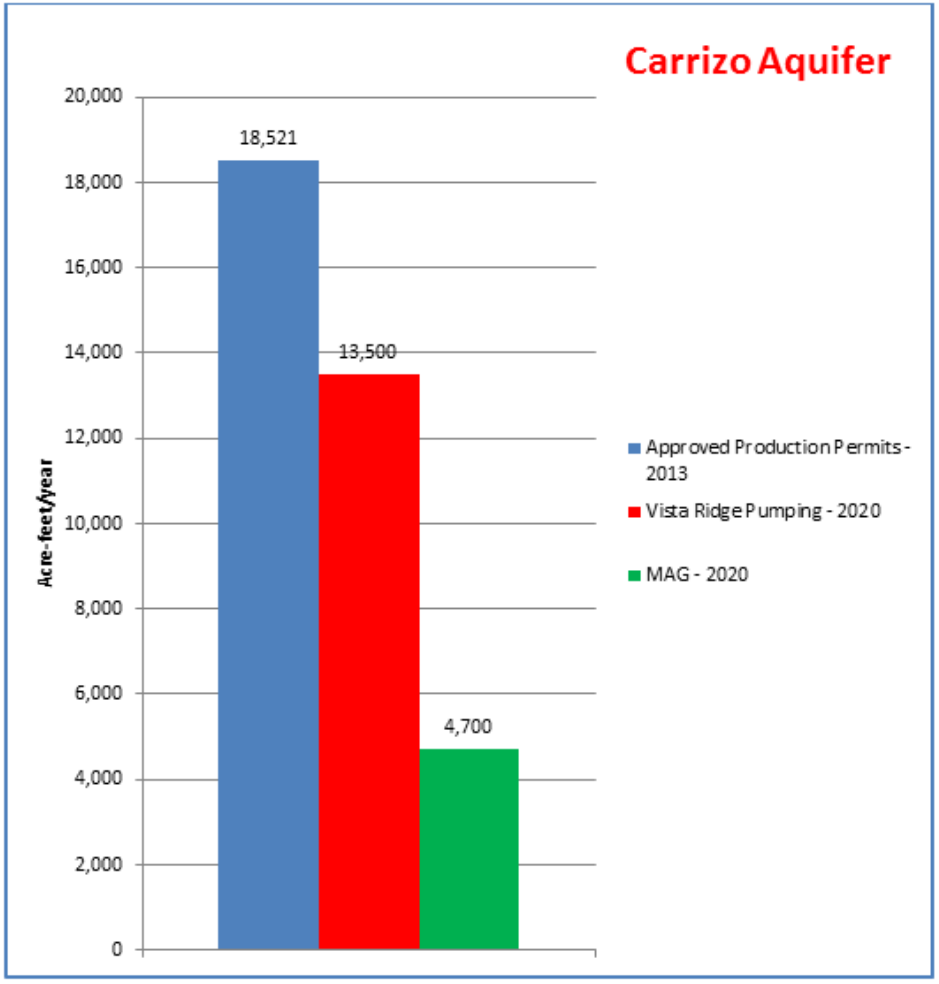


CRITICAL DECISION 2:

The Post Oak board's decision to approve extreme overpermitting of our aquifers including the Simsboro Aquifer (270% of MAG).



THE CARRIZO AQUIFER IS ALSO OVER PERMITTED (394% OF MAG).



How do the current Rules respond to
the consequences of these two critical decisions?

THE CURRENT RULES REQUIRE THE FOLLOWING ACTIONS WHEN THRESHOLD LEVELS ARE EXCEEDED

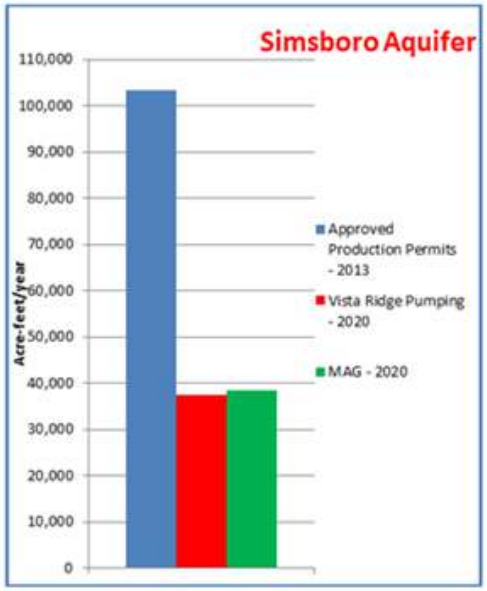
Threshold Level	Actions	Shallow Zone	District Wide
1	Study aquifer properties	✓	✓
	Study aquifer recharge	✓	✓
	Study aquifer-surface interactions	✓	✓
	Study aquifer pumping	✓	✓
	Hire hydrologist	✓	✓
2	Re-evaluate management plan and rules focusing on:	✓	✓
	• Management zones	✓	✓
	• Recharge estimates	✓	✓
	• Monitoring data collection	✓	✓
	• Monitoring data analysis	✓	✓
	Propose changes to DFCs	✓	✓
	Hold public meetings	✓	✓
3	Reduce "permitted amount" of groundwater production	**Not Applicable**	✓

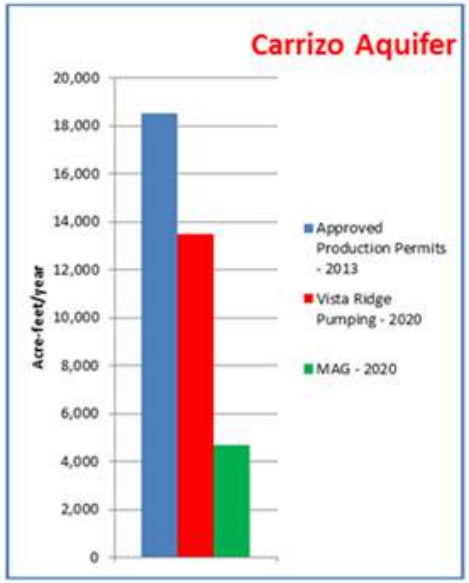
THE CURRENT RULES DEPEND ON THREE TYPES OF TRIGGERS TO ACTIVATE THE THRESHOLD LEVELS

Triggers	Threshold Level 1	Threshold Level 2	Threshold Level 3
Projected Drawdown	Greater than DFC in 15 years		
Total Annual Production Compared to MAG	Greater than 60%	Greater than 70%	
Average Drawdown of Water Levels Compared to DFC	Greater than 50%	Greater than 60%	Greater than 75%

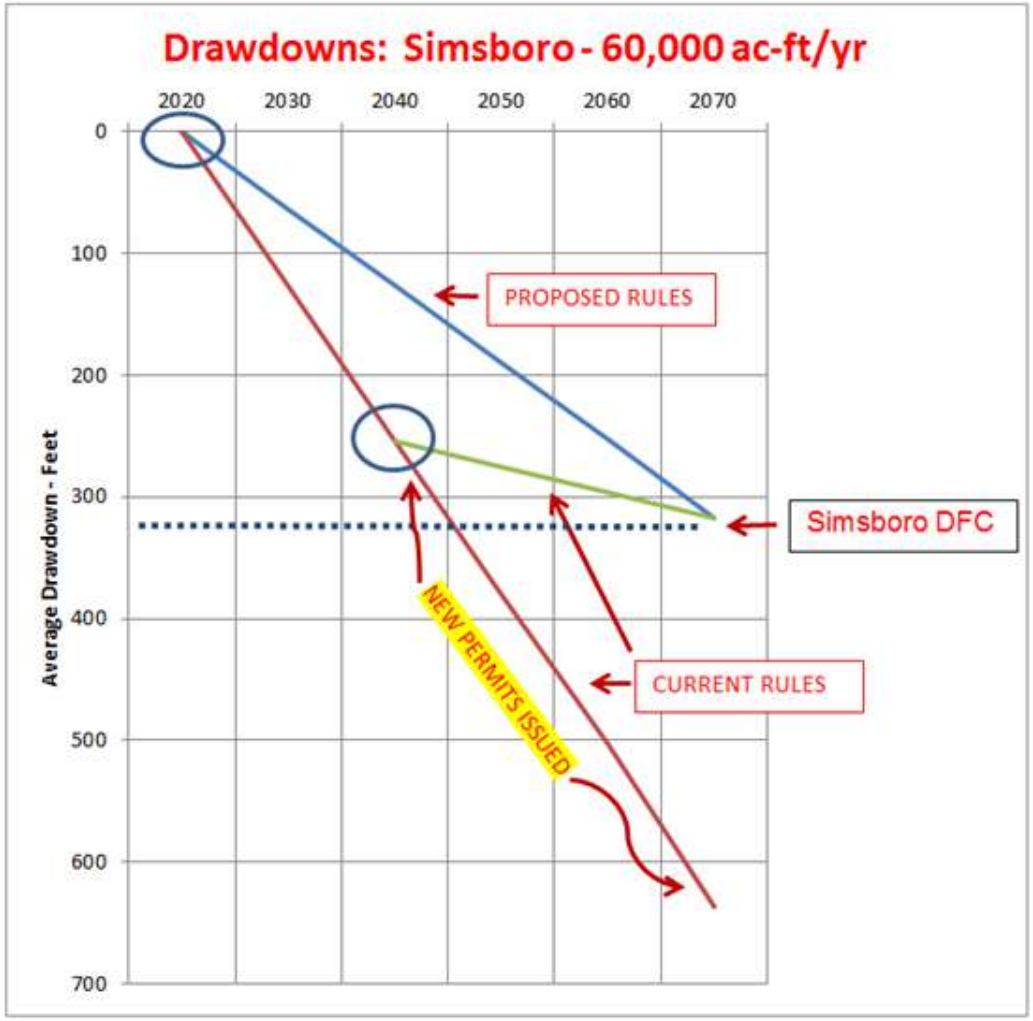
THRESHOLD LEVELS 1 AND 2 FOR TWO AQUIFERS WILL BE ACTIVATED BY THE FIRST DAY OF VISTA RIDGE PUMPING

Triggers	Threshold Level 1	Threshold Level 2	Threshold Level 3
Projected Drawdown	Greater than DFC in 15 years		
Total Annual Production Compared to MAG	Greater than 60%	Greater than 70%	
Average Drawdown of Water Levels Compared to DFC	Greater than 50%	Greater than 60%	Greater than 75%





A VISUAL COMPARISON:
THE CURRENT RULES VS. OUR PROPOSED RULES



IN SUMMARY:

THE CURRENT RULES HAVE ONLY
ONE TRIGGER FOR CONCRETE ACTION

Triggers	Threshold Level 1	Threshold Level 2	Threshold Level 3
Projected Drawdown	Greater than DFC in 15 years		
Total Annual Production Compared to MAG	Greater than 60%	Greater than 70%	
Average Drawdown of Water Levels Compared to DFC	Greater than 50%	Greater than 60%	Greater than 75%

UNDER THE CURRENT RULES,
THE PROTECTION OF OUR AQUIFERS
DEPENDS ON ONE MEASUREMENT -

THE WATER LEVELS IN MONITORING WELLS

PROBLEM #1:

- Post Oak doesn't follow its Management Plan and Rules.

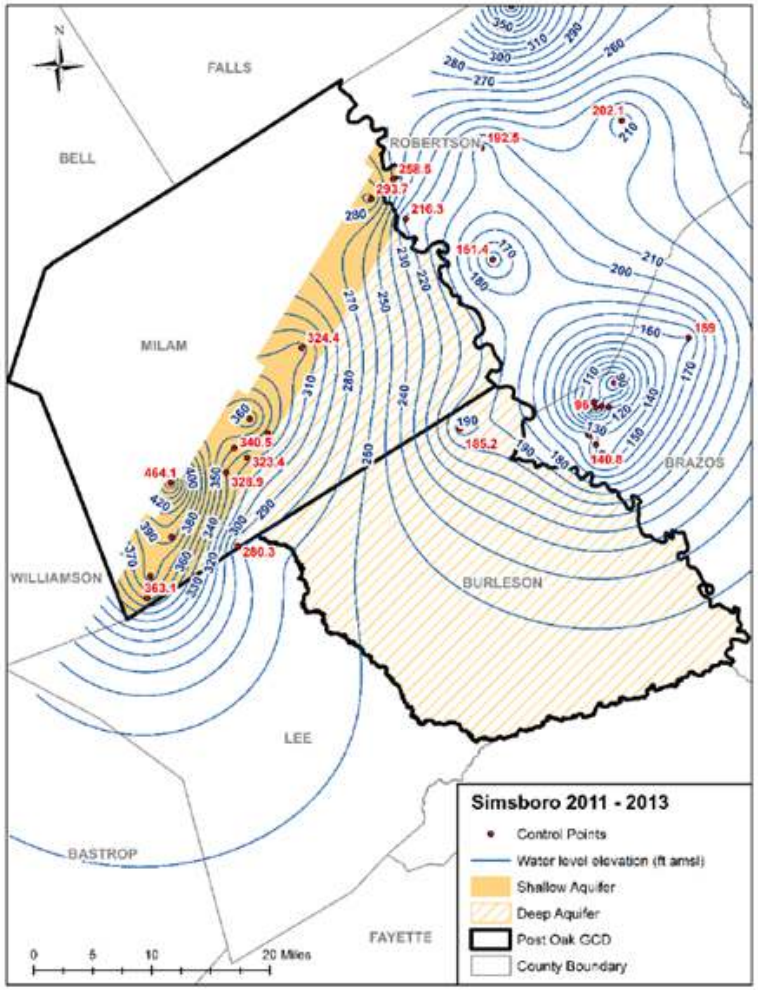
EXCERPT FROM POST OAK MANAGEMENT PLAN (16.10)

> *"At least once every three years, the general manager will report to the Board the measured water levels obtained from the monitoring wells within each Management Zone, the average measured drawdown for each Management Zone calculated from the measured water levels of the monitoring wells within the Management Zone, a comparison of the average measured drawdowns for each Management Zone with the DFCs for each Management Zone, and the District's progress in conforming with the DFCs."*

- Instead of using "measured water levels," Post Oak uses a "three-year moving average" of the measured water levels.
- Instead of using "measured water levels," Post Oak uses computer-generated "interpolated water levels" to determine the drawdowns.

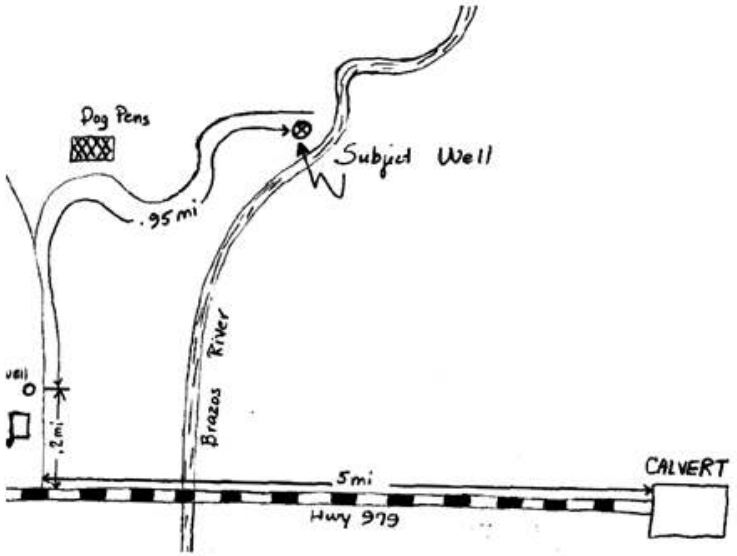
PROBLEM #2:

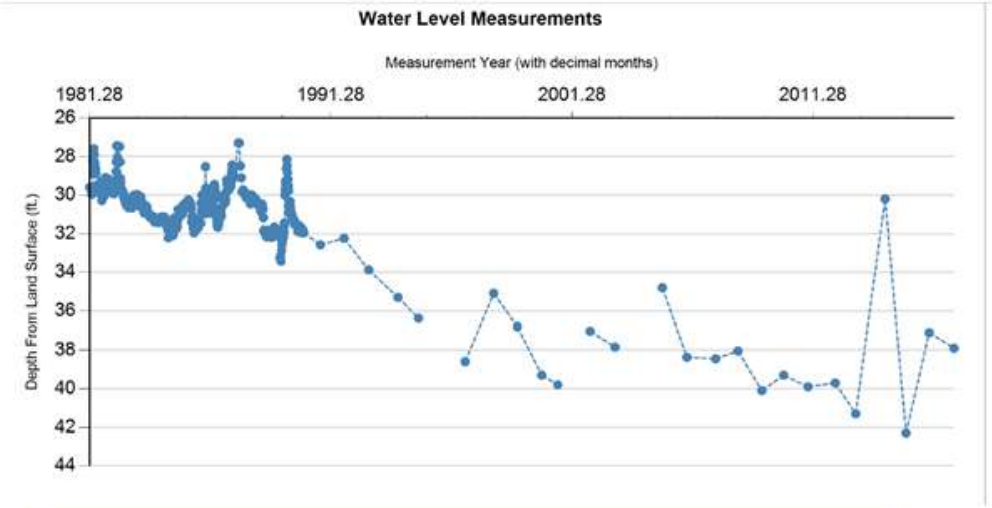
- No criteria for wells to be classified as "monitoring wells."



A Post Oak computer-generated contour map of the 2012 Simsboro water levels.

WELL #234 - *located near the Brazos River.*

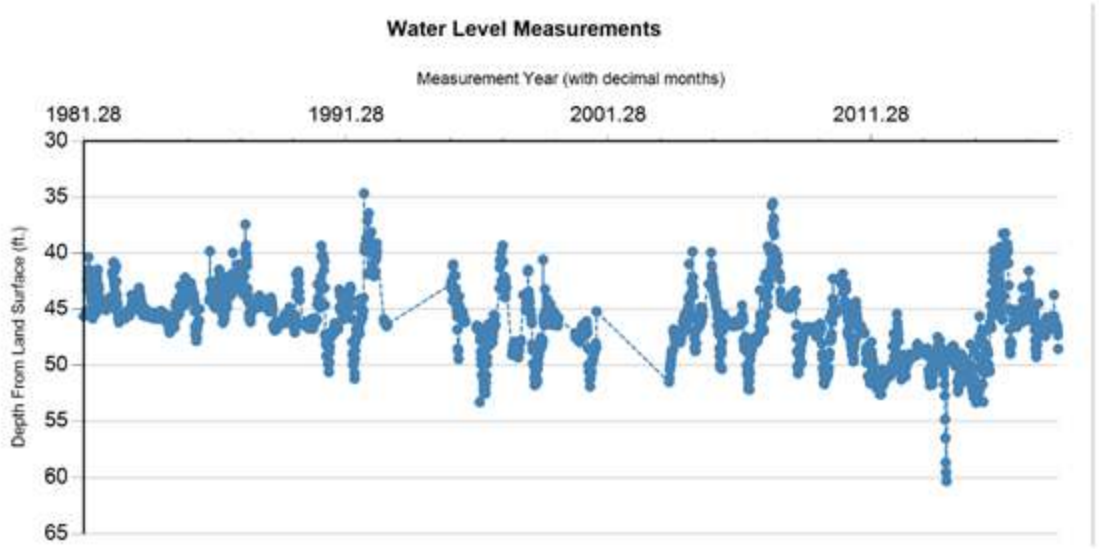




WELL #234 has only dropped 8 feet over the last 36 years.

State Well #5911621 - *located near the Brazos River and US 79.*

It has been used to check Carrizo levels for 36 years.

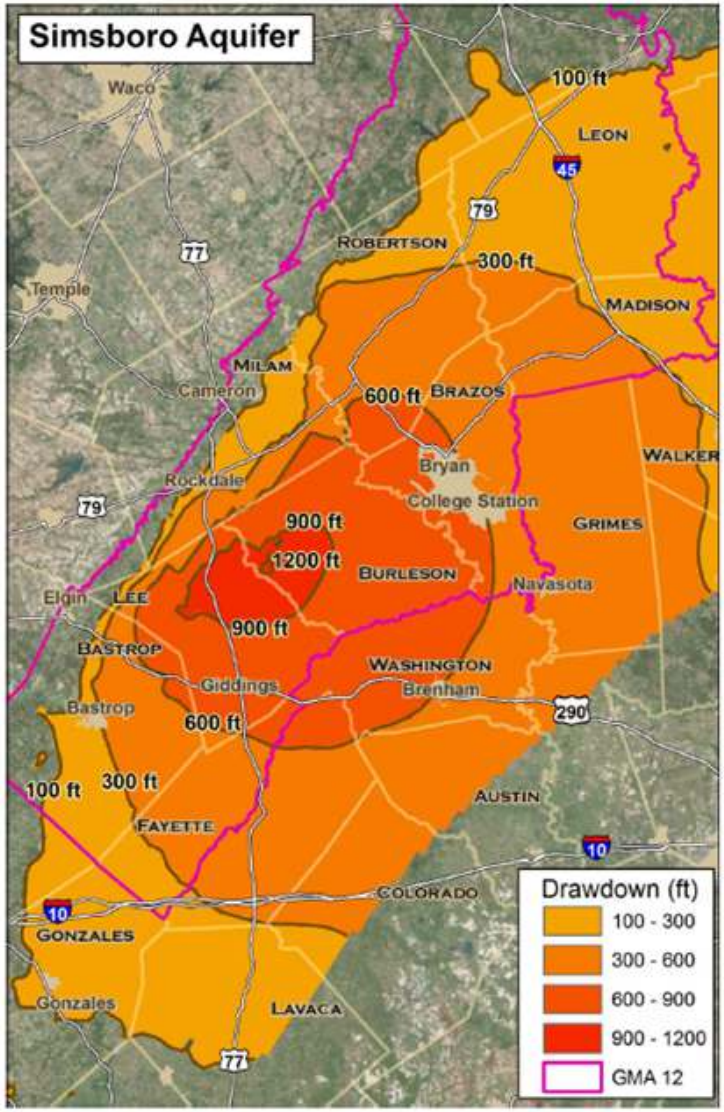


Similar to Well #234, it has only dropped 4 feet since 1981.

The data from these two wells support our conclusion that Well #234 should not be a part of the Post Oak monitoring network because it is too close to the Brazos River.

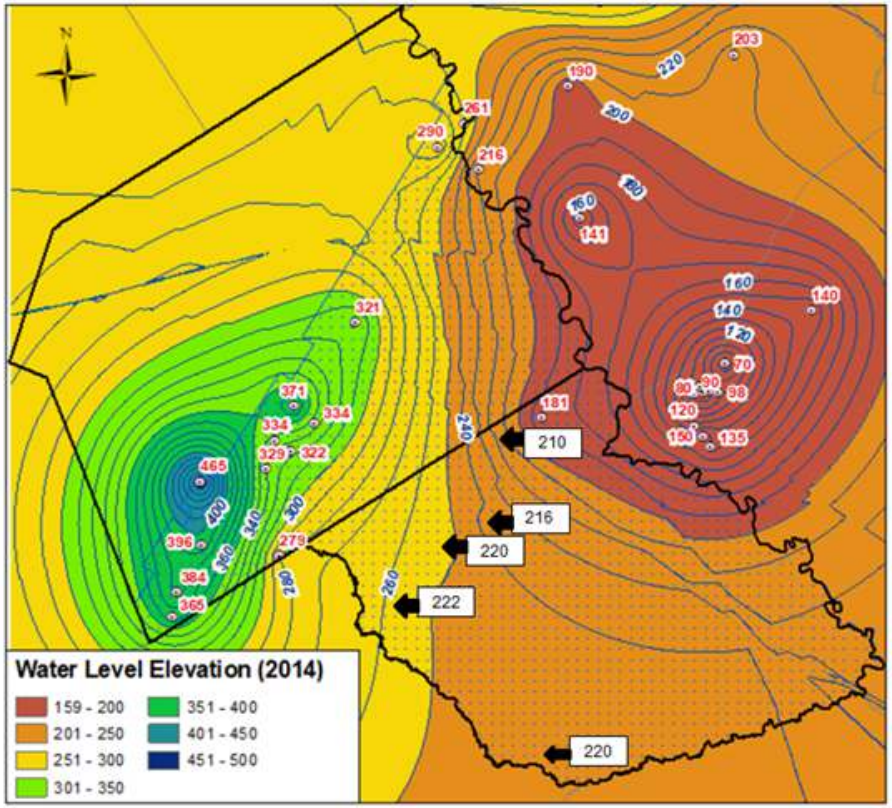
PROBLEM #3:

- The current Rules do not require monitoring wells to be drilled at the boundaries of high-production well fields.



PROBLEM #4:

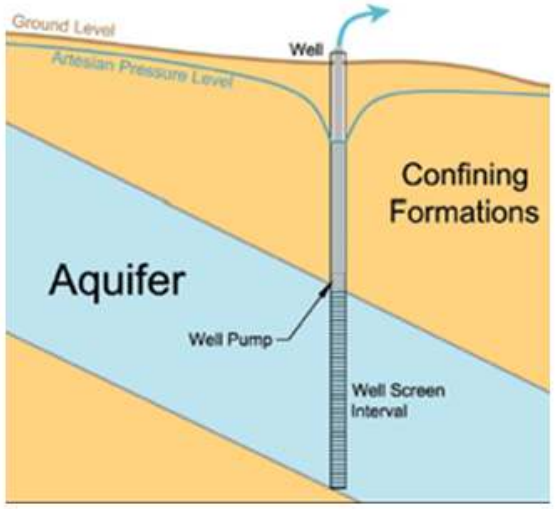
- The current rules provide no guidance about the minimum number of monitoring wells and their locations.



A Post Oak computer-generated contour map used to determine the average drawdown of Simsboro water levels for 2014.

PROBLEM #5:

- Post Oak doesn't know which aquifer is being monitored.



- **Screen = well intake.**
- **Simsboro wells should have screens in the Simsboro Aquifer.**

- **Drillers' log:**

DEPTH OF STRATA From	To	EACH STRATUM Feet	DESCRIPTION
0	25	25	Sandy surface and clay
25	100	75	Sand
100	312	212	Broken sand, clay
312	330	18	Clay
330	374	44	Broken sand
374	510	136	Hard clay
510	680	170	Good sand
680	1090	410	Clay, broken sand streaks
1090	1250	160	Broken sand and clay
1250	1490	240	Clay with sand streaks
1490	1680	190	Good sand - Simsboro
1680	1687	7	Clay

#	Aquifer in 2015	Aquifer in 2016	Drillers' Log - Screen Level
25	Simsboro	Hooper + Simsboro	Sand
53	Simsboro	Simsboro	No Log
59	Carrizo	Calvert Bluff	Sand
99	Carrizo	Calvert Bluff	Gray Sand
115	Simsboro	Simsboro	No Log
121	Simsboro	Hooper + Simsboro	Sand
138	Simsboro	Hooper + Simsboro	Sand + Shale
170	Simsboro	Hooper	Gray Sand
223	Hooper	Hooper	Sand
234	Simsboro	Simsboro	No Log
236	Simsboro	Simsboro	No Log
268	Simsboro	Simsboro	Yellow Clay + Sand
1066	Carrizo	Carrizo	No Log
1117	Simsboro	Simsboro	Sand + Shale
1118	Simsboro	Simsboro	Sand + Sandy Shale
1883	Simsboro	Simsboro	Coarse Sand
2423	Simsboro	Calvert Bluff	Sand + Sandy Shale
6243	Calvert Bluff	Calvert Bluff	Sand + Brown Shale
7364	Hooper	Hooper	Sand + Sandy Shale
9167	Carrizo	Calvert Bluff	Sand
77	Carrizo	Calvert Bluff	Sand
107	Simsboro	Hooper	No Log
256	Simsboro	Calvert Bluff	Sand
457	Simsboro	Simsboro	Sand
1062	Simsboro	Calvert Bluff	Sand
1063	Simsboro	Calvert Bluff	Sand + Rock + Sandy Shale
1064	Simsboro	Calvert Bluff	"Good Sand – Simsboro"
1082	Simsboro	Calvert Bluff	Sandy Shale+ Sand + Shale Breaks + Shale
1575	Carrizo	Calvert Bluff + Carrizo	Sand
6621	Simsboro	Simsboro	No Log
6910	Simsboro	Simsboro	No Log
7774	Simsboro	Simsboro	Sand + Shale
7793	Simsboro	Calvert Bluff	Sand
8388	Simsboro	Simsboro	No Log
8658	Simsboro	Simsboro	No Log
8767	Simsboro	Calvert Bluff + Simsboro	No Log
9095	Simsboro	Simsboro	Sand
9166	Simsboro	Simsboro	Sand

WHAT HAPPENED IN 2016 TO CHANGE THE NAME OF THE SOURCE AQUIFER FOR ALMOST 50% OF THE MONITORING WELLS ON THE PRECEDING LIST?

Draft: Groundwater Availability Model for the Central Portion of the Carrizo-Wilcox, Queen City, and Sparta Aquifers

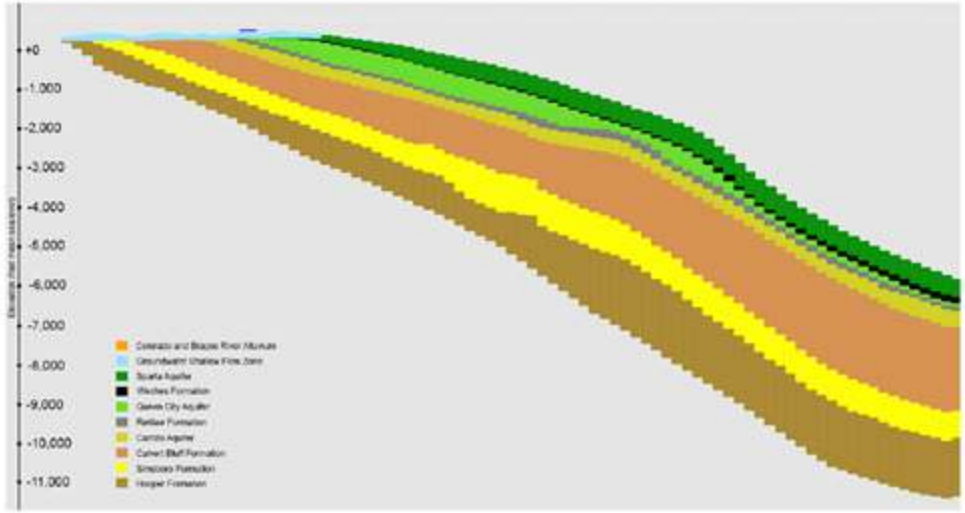
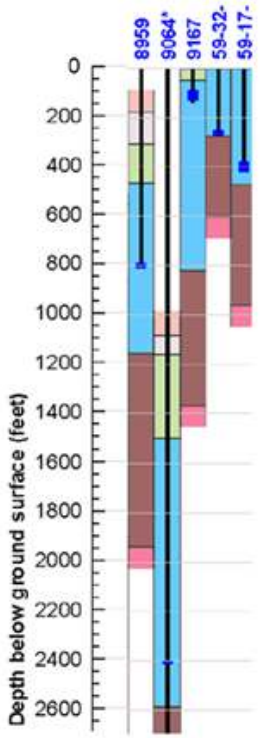


Figure 4.2.1a. Vertical cross-section showing the model layers along dip cross-section B-B'

Well #9167 - *located behind the Post Oak Office*

In 2016, Post Oak changed the source aquifer for this well from Carrizo to Calvert Bluff – even though the drillers' log documents that the screen is in "sand and sandy shale" – instead of the Calvert Bluff mud-and-shale.



Well use: Monitoring

County: Milam

District: Post Oak Savannah GCD
District ID: 9167

Driller: Brien Water Wells
Date Drilled: 3-9-2012
Aquifer: Carrizo
Depth: 140 feet

The Driller and State of Texas identified the aquifer as Carrizo – as did Post Oak before 2016.

Drillers' Log:

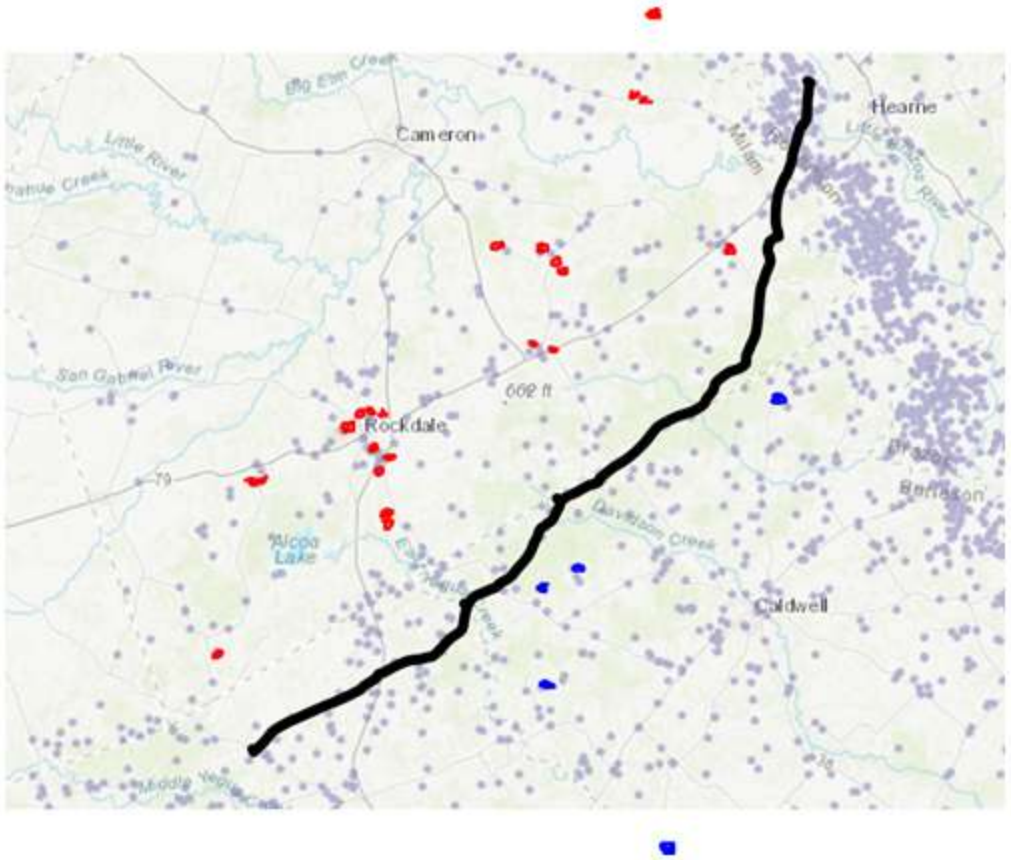
DESC. & COLOR OF FORMATION MATERIAL	CASING, BLANK PIPE & WELL SCREEN DATA
From (ft) To (ft) Description	Dia. New/Used Type Setting From/To
0 - 62 Pink Sand	4" New PVC Casing +1 - 90
62 - 74 Sandy Clay	4" New PVC Screen 90 - 130 .032
74 - 126 Sand	4" New PVC Casing 130 - 135
126 - 129 Sand and Sandy Shale	
129 - 140 Sandy Shale and Shale	

UNDER THE CURRENT RULES,
THE PROTECTION OF OUR AQUIFERS
DEPENDS ON ONE MEASUREMENT:

THE WATER LEVELS IN MONITORING WELLS

AT PRESENT, THIS MEASUREMENT IS ARBITRARY AND NOT CREDIBLE.

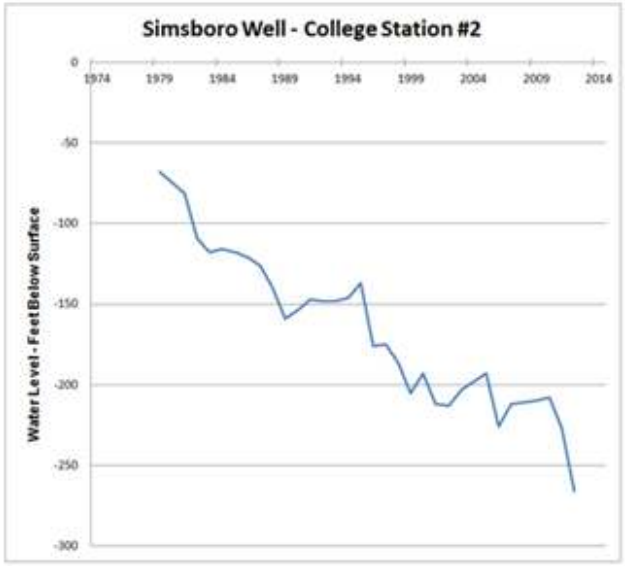
THE CURRENT RULES NEED TO BE REPLACED WITH OUR PROPOSED RULES.



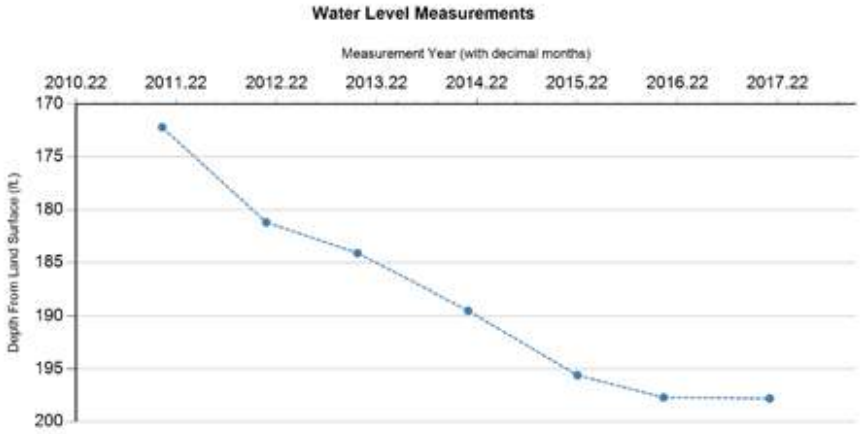
Red wells (n=17) = 1.3 feet/year drawdown (range = 0 – 3.4)

Blue wells (n=5) = 4.7 feet/year drawdown (range = 4.2 - 5.7)

Black line = Milano Fault Zone



Average drawdown rate = 6.18 feet/year



Simsboro monitoring Well #8767 – four miles north of Vista Ridge well field

Average drawdown rate = 4.3 feet/year (Terry Ausley's well)

RULE 4.1. REQUIRED SPACING. [Amended February 20, 2014]

1. Except for a well exempted under Rules 4.2(6), Rule 7.10(1)(b) or 7.10(2)(c), a new well may not be drilled within 50 feet of an existing well, or the property line of any abutting land that is not owned or controlled by the owner of the new well. *[Amended August 12, 2014]*

2. In the Simsboro formation the spacing of a new well shall be as provided in (a) or (b), at the election of the owner exercised when the application for a new well permit is filed:

a. the spacing of a new well from any well existing in that formation shall be a distance of not less than one foot per one gallon per minute of production capacity and not less than one-half foot per gallon per minute from the property line of each adjoining landowner; or

b. the spacing of the new well shall be based on engineering studies and drawdown criteria derived from GAM simulations which have been appropriately modified to: (i) represent the aquifer properties near the new well based on publicly available information; and (ii) to represent current and probable future groundwater development in the District, to meet the following performance standards:

i. no more than 8% drawdown of hydraulic head [using GAM (2000) levels and referenced from top of the aquifer] at the property boundary;

ii. no more than 25% drawdown of hydraulic head anywhere within the property from which the well will produce water; and

iii. the applicant must provide for a minimum of one monitoring well for every 1,000 acre/feet/year of permitted production capacity, to demonstrate continuing compliance with these standards.

Post Oak's board approved the current rules which allow one water marketer to drill 18 high-volume wells in a 4 square-mile area and pump the entire Simsboro and Carrizo MAGs

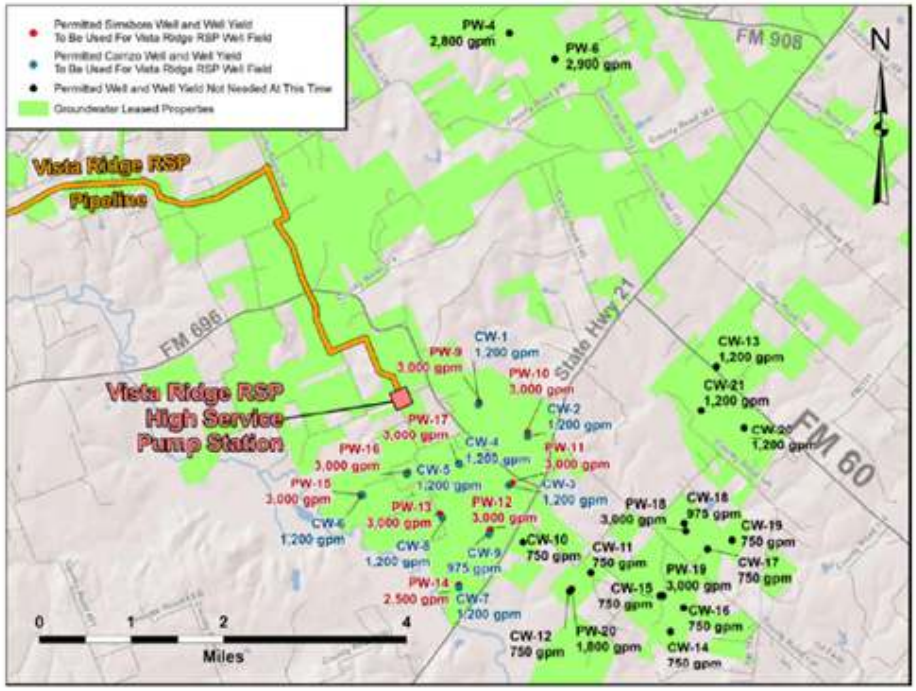
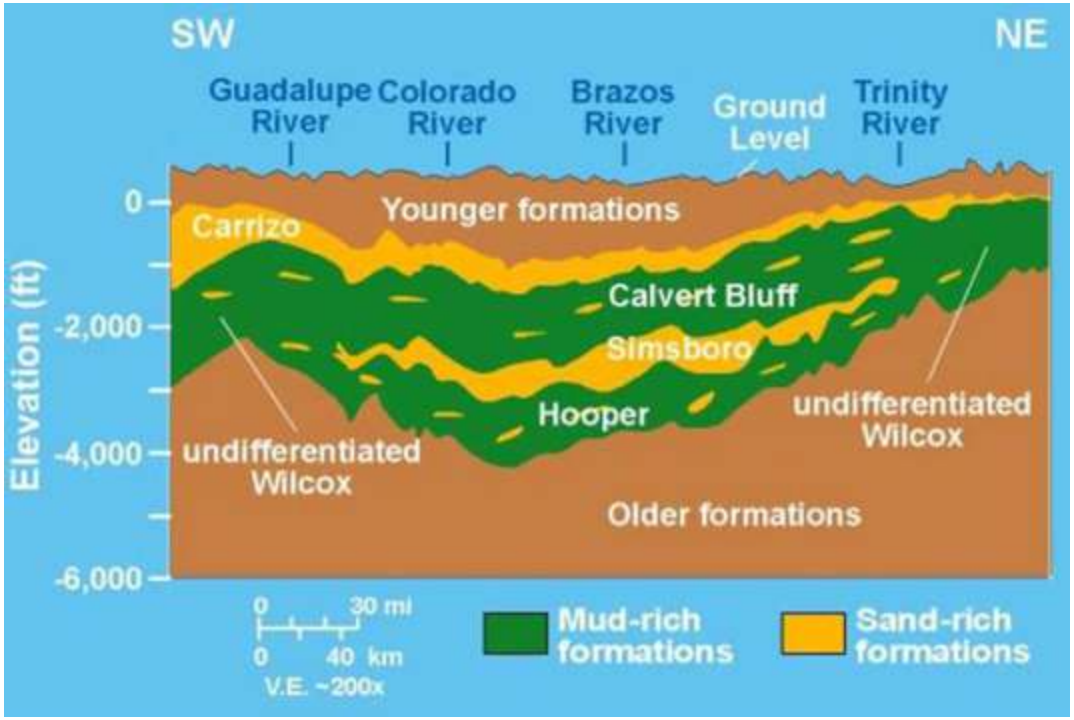


Figure 2-1 Well Field Location

MY NOTES:

- In effect, this decision could leave the owners of the other 1,100 square miles of land above the Carrizo and Simsboro aquifers in our two counties without access to their groundwater.
  - 9 miles southwest of Caldwell – 18 miles south of Rockdale
  - 600-hp for the Simsboro and 200-hp for the Carrizo


SW
NE
Guadalupe River
Colorado River
Brazos River
Ground Level
Trinity River
0
-2,000
-4,000
-6,000
Elevation (ft)
Younger formations
Carrizo
Calvert Bluff
Simsboro
Hooper
undifferentiated Wilcox
undifferentiated Wilcox
Older formations
0 30 mi
0 40 km
V.E. ~200x
Mud-rich formations
Sand-rich formations