

Brian Limoges

1/15/23

My property: 204 acres between Lexington and Rockdale.

Existing Water Wells: 1 - 250 foot deep, exempt well by the house.

1 - 510 foot deep, non-exempt well near front gate.

The 250 ft well water level has dropped very little. The 510 ft well has dropped 62 ft since 2008, 26 foot since end of 2020. They seem to be in 2 different aquifers. The 510 ft well drop matches Simsboro wells.

My property is rectangular in shape with three sides bordering with the SLR property.

SLR has:

- 10 older active wells (F2 SIMS – F15 SIMS) just NW of my property line.
Nine of the 10 wells are within ½ mile of my property (one less than 500 foot).
The total pumping rate is 2,500 gpm.
- Drilled a new 1000 gpm well 500 foot east of my gate.
- Drilled another 1000 gpm well ½ mile SW of my property.
- Proposed to drill another 1000 gpm well just north of my property and another 1000 gpm well just west of my property line.

A total of 6,500 gpm of water well within ½ mile of my property on three sides.

Since the Simsboro aquifer is deeper toward the southeast, SLR has located all their new pumps as close to the southeast property line as POSGCD rules allow. This allows their wells to reach the deepest part of the Simsboro under their property; and extract as much water as possible. This strategy is good for SLR, but imposes the maximum possible negative impact on their southeast neighbors.

SLR owns 25,000 acres in Milam County.

Their east property line is about 12.5 miles long.

All new wells are less than 1 mile from that property line.

All new wells are within an area of 8,000 acres.

Maybe their maximum water rate should be 16,000 acre-ft/year for these wells.

In years past, Alcoa wells were distributed more evenly throughout their facility and a major part of the water was discharged down Allen Creek. The water flowed through my property and east to my neighbor Ronnie Crump, then on to East Yegua Creek and Lake Somerville. This helped keep a higher water table at my (and Ronnie's) property.

Urban areas and industry need water and it's good to satisfy that need.

However, local well owners should not suffer unreasonable impacts.

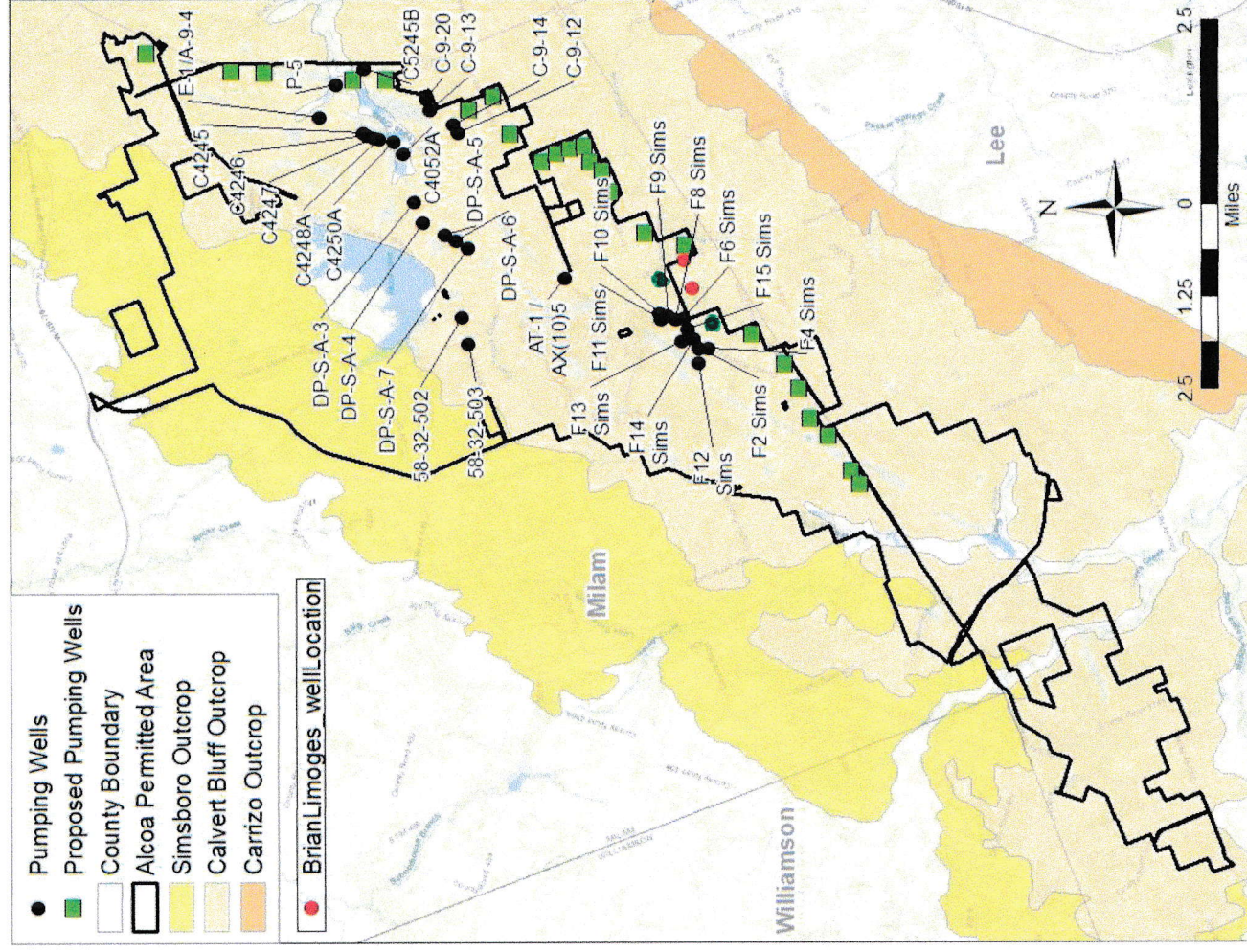
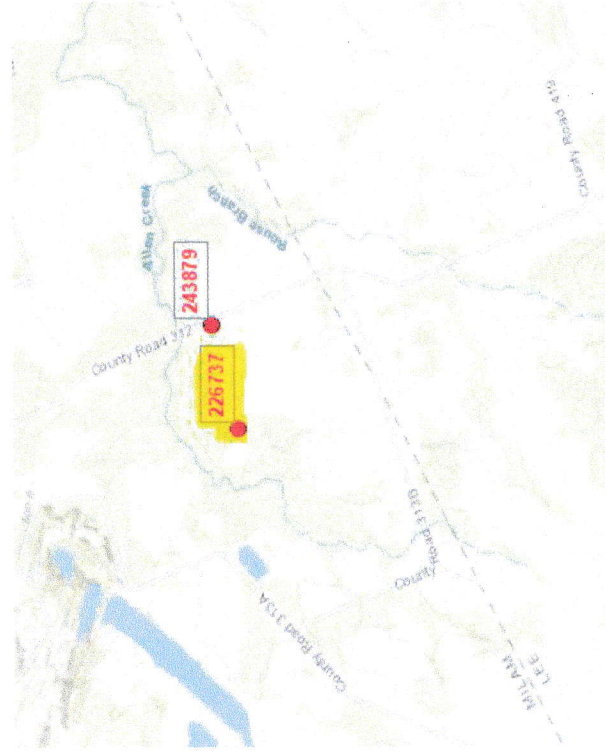
I have two concerns:

1 - Impacts on wells

2 - Impacts on shallow surface water

Location of Limoge's Wells

- Limoge's Well
 - Classified as screened Calvert Bluff Aquifer
 - May be screened in upper Simboro Aquifer



Impact on wells - -

From 9,000 acre-ft permit - - Draw down B-3 (49,000 acre-ft/yr) model layer 9 (confined portion) of the Simsboro Aquifer (feet)

	Average Drop 49,000	drop Delta	Actual data drop Delta	Average (S Young, 25,000 permit) 40,000
2010 – 2020	57	57	62 (12.5 years) ^a	
2020 – 2022			26 (2.5 years)	
2020 – 2030	166	109	104 (26 X 4) ^b	194 ^c
2030 – 2040	224	58		263
2040 – 2050	265	41		309
2050 – 2060	294	29		342
2060 – 2070	321 ^d	27		373

a) – (5/30/08 to 11/25/2020) Well drillers report 5/30/2008 - - water level 40 foot
First well pump installed 11/25/2020 - - - water level 102 foot

b) – Straight line decline assuming no SLR pumping.
Is Vista Ridge (etc.) dropping Simsboro water level more than expected?

c) Actual data seems to show 166 foot decline (104+62) with no SLR pumping.
Steve at least has 30 foot or so available due to the SLR pumping.

d) – SLR results for drop at my property by 2062 is 400+ (Figure 4.3 – GAM run B-3)

12-31-2010 to 1/1/2070 - My property Simsboro drop is 320 foot? (Steve Young B-4, no historic, after 2038, so 25,000 acre-ft/yr). Report issued during 25,000 acre-ft permit.

A. Current well water level is 128 foot

- Pump is set at about 240 foot.
- SLR proposes water level drop of additional 109 foot by 2030 – 8 years (total 237 foot down, 128+109). my pump will likely not operate.
- Steve proposed a drop of additional 137+ foot in 8 years (194-57).
My pump will be 20 foot above the water.

B. The top of my screen is at 410 foot. The bottom of my well is 510 foot.

- SLR says my well will drop below the top of the screen in 2050s. Steve' data in 2040s.
- SLR says my well will drop 400+ (from 2020 level). That's 528 foot below the surface.
- If my well is at the top of the Simsboro the aquifer will be completely depressured and will start to be depleted. If it is officially in the bottom of the Calvert Bluff, it seems to be quite well connected to the Simsboro.

My Costs: Even if I have a new deeper well, a lift of 500+ feet will be required, 5 times Dec. 2020.

I spent over \$700 to pump water from this well last (not severe) year. The proposed permit will personally cost me \$2,500+/yr. even if all well and pump costs are taken care of by POSGCD.

Question - 15,000 permit table 2 page 9 of 22 seems to show rates for model run B-2 that are lower than the fully permitted amount. Do published result reflect an accurate future?

9,000 acre-ft/yr. permit table 6, page 13 of 32. Page 7 of 10 seems to quote POSGCD rules

5. Application for permits for wells that will have a maximum pumping rate that equals or exceeds 500 gpm shall include?

- a. Predictions of pumping impacts on water levels over then next 30 yeears within a radial distance of 5 miles of the newly permitted well.
- b. The prediction will be based on the newly permitted well pumping it's fully permitted amount and will be submitted in report form that describes the assumptions used in the model run.

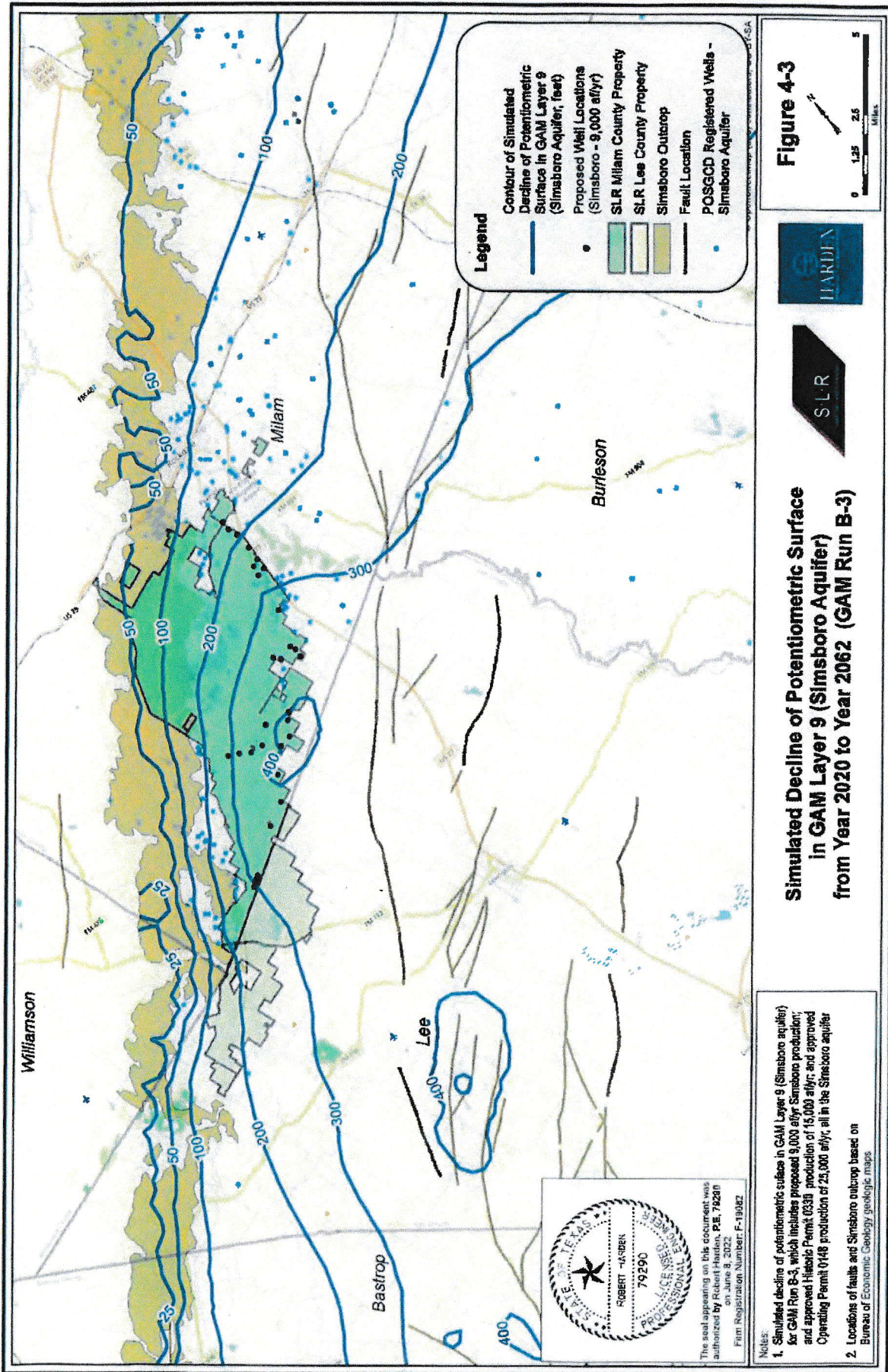


Figure 4-3
Simulated Decline of Potentiometric Surface
in GAM Layer 9 (Simsboro Aquifer)
from Year 2020 to Year 2062 (GAM Run B-3)

Notes:
 1. Simulated decline of potentiometric surface in GAM Layer 9 (Simsboro aquifer) for GAM Run B-3, which includes proposed 9,000 af/yr Simsboro production; and approved Hecate Permit 0338 production of 15,000 af/yr; and approved Operating Permit 0148 production of 25,000 af/yr, all in the Simsboro aquifer.
 2. Locations of faults and Simsboro outcrop based on Bureau of Economic Geology geologic maps.



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 Firm Registration Number F-19082

Surface effects

As mentioned above, in the past Alcoa pumped water from the Simsboro and discharged much of it down Allen creek, though my property and east through my neighbor Ronnie Crumps property. There was always plenty of water flowing down Allen Creek. In these proposed permits, water will be transferred away from the facility. Not down Allen Creek.

All pumping is to occur in the Simsboro and (lower) Hooper aquifers. As pumps pull water from the Simsboro aquifer sands near their pump, water is pulled from near-by sand and then from more distant Simsboro sands, yards and gradually miles away.

Water can also be pulled from the soil layers above and below the Simsboro sands. The soil above the Simsboro separates it from the poorly formed Calvert Bluff aquifer. The Simsboro is forecast to drop 400 feet of pressure at my property. The Calvert Bluff aquifer formation water level (pressure) is forecast to drop 50-100 feet on my property (figure 4-5). This seems to be due to something in the east (bigger drops east). **The difference in pressure between the Simsboro and the Calvert Bluff aquifers will increase the driving force for water to move from Calvert Bluff into the Simsboro.**

Figure 4.6 shows Simulated Decline of Potentiometric Surface in GAM layer 2 for Carrizo-Wilcox Outcrop. The decline is 50+ feet on my property and surrounding area. **This is NOT coming from the east. Rather seems to be a result of these permits.**

An article I read states:

The surface extent, or outcrop, of each aquifer is the area in which the host formations are exposed at the land surface. This area corresponds to the principal recharge zone for the aquifers. Ground water encountered within this area is normally under unconfined, water-table conditions and is most susceptible to contamination.

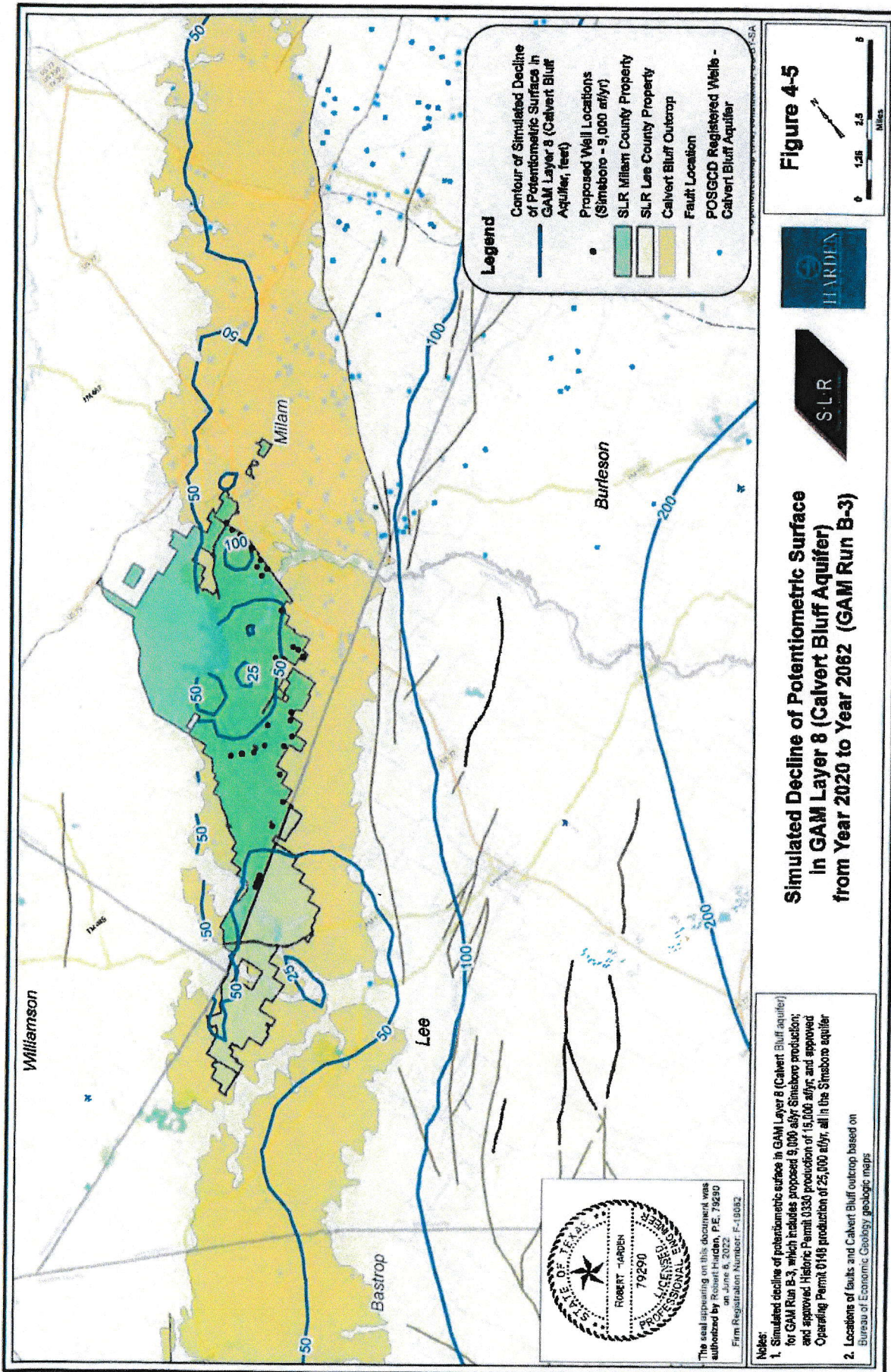
I think this says that a 50-foot drop in the "confined" part of Calvert Bluff will result in a 50-foot drop in the ground water at the outcrop (minus pressure drop - if pumping). I also read that for a nice "clean" aquifer, the outcrop ground water level is often used to determine the condition of the aquifer.

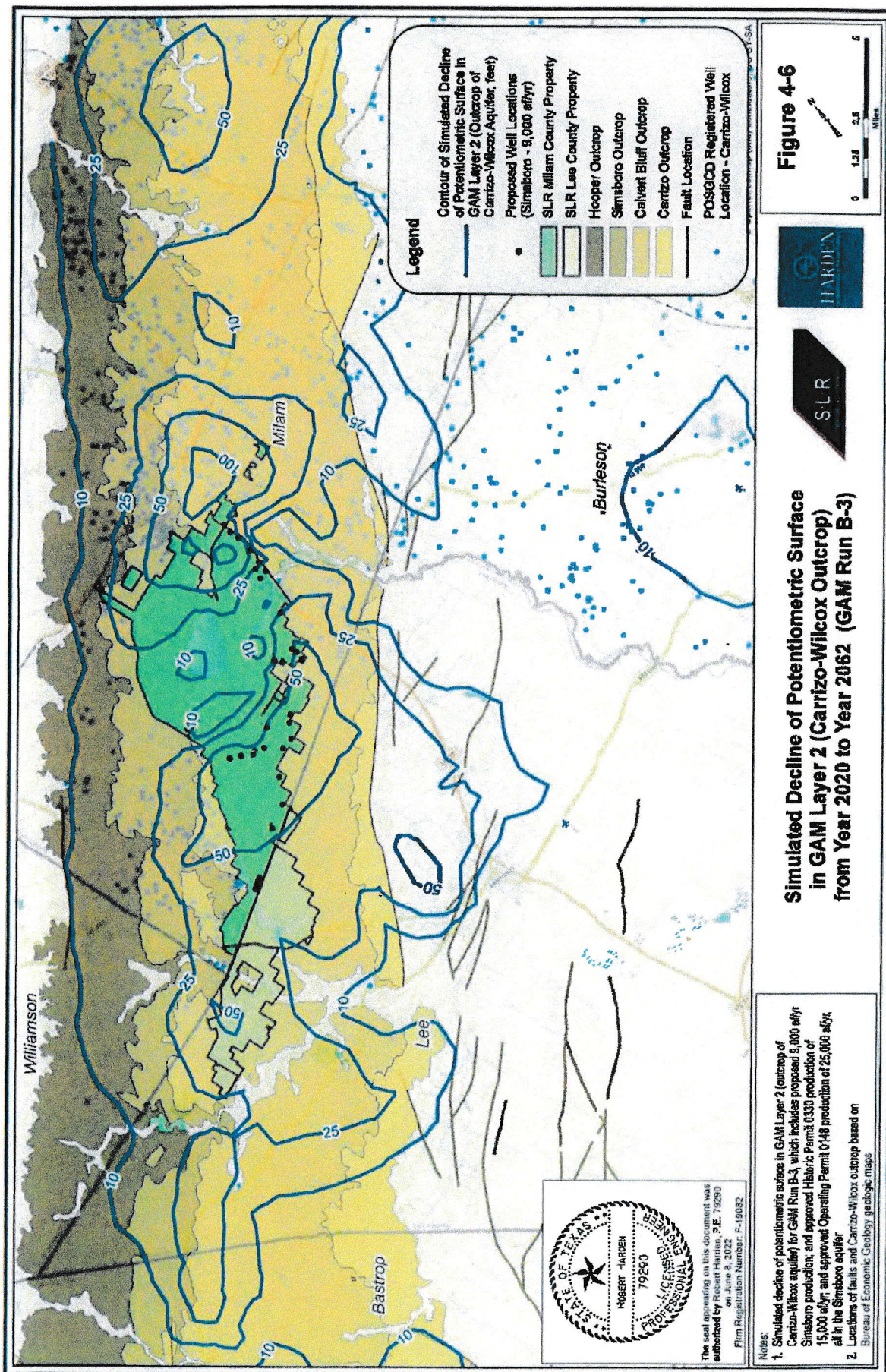
HOWEVER – I also read that -

Some water-bearing formations dip below the surface and are covered by other formations. Aquifers with this characteristic are common, although not exclusive, east and south of Interstate Highway 35. Aquifers covered by less permeable formations, such as clay, are confined under artesian pressure. Delineations of the downdip boundaries of such aquifers as the Edwards (BFZ), Trinity, and Carrizo-Wilcox are based on chemical quality criteria.

I hear that Calvert Bluff is a messy aquifer; clay, sandy clay and some sand zones. Then it seems there is low permeable clay-like soil above the aquifer outcrop. It seems that the 50 foot drop will occur in the saturated zone of the outcrop, but this will occur an undetermined distance below the surface. There will be an unsaturated zone above that, but below the surface.

How much impact this will have on the surface water level over time is uncertain.





Page 16 of 22 of the 9,000 permit states -

Future increases in pumping will cause regional effects that are primarily reductions in artesian pressure, and as these pressure reductions propagate to the shallower zones of the Simsboro outcrop, then subsequent reductions in the water table can occur. The degree and magnitude of these responses is largely dependent on the aquifer's vertical hydraulic conductivity, recharge rates, the amount of ground water that is naturally discharged via direct evaporation transpiration a by plants and seep and springs, and the degree of capture of the natural discharge that occurs in response to aquifer pumping. Each of these components of the groundwater system are difficult to measure directly. Nevertheless, the subsequent response of the capture of recharge will naturally occur, and this can reduce wasteful discharge to the extent it is occurring, and will naturally increase the sustainability of water supplies.

This is a rather broad overview of possible water levels, and after looking at other articles, this may be the most accurate way to state what will happen. **Accurate predictions just are not available.**

My property is blessed with 100 acres of forest as well as 100 acres of pasture. The trees are mostly located around the Allen Creek flow path. In years past the surface water table during the worst drought was 6 foot below the creek bed. My neighbor (Ronnie Crump and ancestors) has raised cattle on their property east of my property for many decades. They would dig a trench in Allen Creek as well as pump water from their hand dug wells to water their cattle. During the worst droughts there was always water available within 10 feet from the bottom of their hand dug well and 6 foot below Allen creek. Will the proposed pumping of the Simsboro (and transferring out of the area) drop the surface water table?

It has been well established (provided studies) that many trees (including oaks) have roots that go down 20+ foot in the ground. During wet weather most required water comes from rain at the surface. However, during sustained (multi-month) drought surface water is not longer available and trees pull water from their deeper roots. If the water table drops 15+ foot, it is likely that the trees along Allen Creek will not have water available to them and will face conditions that they have never faced and many will not survive.

The killing of many trees will have an environmental impact on my property. It will also probably have an impact on the deer and other animal life in the area and certainly impact the value of my property. Ronnie and other neighbors raise cattle and count on surface water to water their cattle.

The permits show that Alcoa pumped an average of less than 30,000 acre-ft/yr max from 1993-2006 (14 years). The proposed permits are to pump 49,000 acre-ft/yr (63% higher) for 40 years with spare wells to assure maximum production (after Vista Ridge wells) and there will be no continuous water flowing down Allen Creek. Alcoa lowered pumps on 360 wells and drilled 125 wells. My wells and (I presume) many other have been added since then. That experience is valuable, but we are about to go where we have not gone before.

I have two concerns: It appears that my property is right in the middle of the impacts that will result from these permits. I believe I am an "affected" person.