

To: Gary Westbrook
From: Brian H. Limoges
Subject: SLR Permits

12/28/22

I received a letter from SLR concerning the 15,000 and 9,000 acre-ft permits that they want to get approved. It appears that pumping under these permits will drop the water below the bottom of my front well, depressurize the Simsboro aquifer, begin to deplete the aquifer and set up a devastating tree kill along Allen Creek. This does not seem to meet the rules of POSGCD. Is this really acceptable? I am an "AFFECTED PERSON" because three side of my property are shared with SLR and my front well is at the top of the Simsboro. My neighbor Ronnie Crump is also an affected person since he raises cattle on 1380 acres right downstream on Allen Creek from me and requires surface water for his cattle.

The water level of my front well (your number PO-011547) was 40 foot when it was drilled in 2008 (according to the drillers report), 102 foot when local pump installer (Wayne Iselt) installed the pump in March 2020 and recently measured at 128 foot. Since installation, I've used that well water to irrigate my pastures, maintain water level in four tanks (containing game fish), water my garden and back up my house well water.

POSGCD currently records this well as being in the Calvert Bluff aquifer formation of the Carrizo-Wilcox aquifer. However, as Post Oak's Hydro Geologist, Steve Young, said in his review of the 25,000 acre-ft permit; my front well (500 foot deep) is likely in the Simsboro formation. The water is quite similar to other Simsboro water well levels (PO-008255 and PO-007365). The water level has dropped 26 foot in the last 2.5 years. Has Vista Ridge impacted my well more than expected? Where would my water level stop dropping if only Vista Ridge pumped?

The permit for the 15,000 acre-ft shows water level decline graph where they expect that combining the approved 25,000 acre-ft permit with proposed 15,000 acre-ft permit will cause the Simsboro water level to drop 330 foot by 2062 at my property (beginning in 2020). Levels dropped an average 57 ft drop from 2010 to 2020. Assuming Vista Ridge does not lower my water level further, the 25,000 and 15,000 permits would result in my well water level being at 458 foot (128+ 330). My well screen starts at 410 ft. This is scheduled to take 40 years, but my water pumping costs will double in the next 10-15 years.

The permit for the 9,000 acre-ft shows that they expect that the Simsboro water level will drop a total of 400 ft (starting from 2020). That is a total of 528 foot below the surface. This is 30 foot below the bottom of my well. Assuming my well is in the top of the Simsboro aquifer, as Steve Young stated, the water level will be at least 30 foot below the top of the aquifer.

Reviewing the SLR letter, several topics seem to require further review:

First, the SLR permit application appears to propose water decline rates that are lower than presented by Steve Young during the 25,000 acre-ft permit review. My well water level available data is 40 foot in 2008, 102 foot March 2020 and now 128 foot. SLR proposed at 57 ft drop from 2010 to 2020 (p14 of 22) which is close to my data (45 foot). However, SLR proposed a 61 foot decline from 2020 to 2030 (25,000 acre-ft starts in 2024 – page 14 or 22). My well has declined 26 ft in 2.5 years. That would be 104 foot over 10 years (2020 to 2030) without the additional 25,000 acre-ft permit pumping. Steve proposed 194 foot from 2010 to 2030. My data is 161 foot from 2010 (57 + 104) without the 25,000 pumping. That at least allows another 33 foot allowed for the 25,000 pumping). Are these water level declines included in Steve Youngs and SLR's studies? What is the base water level for my well? Is the Simsboro water level dropping faster than you think?

Second, reading the POSGCD rules there appears to be several rules that don't align with approval of these permits. I have noted these starting on page 3 and seek clarification.

Third, there is no Hydro Geologist report from the water district to verify or counter the proposed claims of SLR. Isn't there an independent report? Why is this not available before public discussions?

The shallow aquifer layer (surface water table level) is expected to drop 50 to 75 foot at my ranch. This is a huge change in the water table on my land. The current surface water table at my ranch is less than 10 ft. The drop to 60 to 85 foot will not allow the large number of trees in the Allen Creek and surrounding area to reach water during a drought. During a drought many trees, including my many Oak trees, are able to obtain a majority of their required water from their deep roots that are 10 to 30 foot below the surface, while during a "wet" year the majority of water utilized is from near surface roots. This logic may be contested by some, so I have attached 5 research papers that present serious scientific results to show this behavior. I believe they prove this to be "Best Available Science". I sent two such papers to you during the 25,000 acre-ft/yr permit review, but you verbally disagreed with this concept and otherwise did not respond. Drought is a threat to my trees, and lack of water has to be analyzed in the context of the contributory human interventions – heavy groundwater pumping in this case ---that exacerbate my trees' ability to respond to drought and thus hasten their demise.

The SLR permit application provides data showing that Alcoa pumped about 28,000 acre-foot of water for 14 years (1993-2006) and an average 20,000 acre-foot for 1992 and 2007. There were another 10 years that averaged 12,000 acre-ft. During those years the water was pumped mostly from the Simsboro in order to depressurize it so lignite could be safely mined. The water that was pumped out of the Simsboro was largely discharged down Allen Creek, through my property, flowed into the East Yegua Creek and finally into Lake Somerville. The historic use permit incorporated significant water discharge down Allen Creek, which maintained a shallow water table in the area.

I have not seen any hydro geologic model data for the above scenario, but I have spoken to my neighbors. The water table was about 6 foot deep in Allen Creek during the most recent severe droughts (2008 and 2011). My neighbor, Ronnie Crump with his late father Richard, his grandfather and great-grandfather have raised cattle on 1380 acres along Allen Creek, just downstream from my property, for many years. During recent dry years (and before 1990's) they would routinely dig a trench in Allen Creek, about 6 foot deep, to expose water. They also pump water from two hand dug wells. One well is 18 foot deep and was dug in the 1950's the second well is 30 foot deep and was dug on a hill in the late 1800's. Both wells had about 7 foot of water in the bottom during dry years. They would pump the water out each day and it would refill during the night. They also utilize water from a small spring on their family property that is on the north side of CR 419 going from CR 312 (LEE County CR 320) to Tanglewood. Even during the most difficult drought they were able to get water from that spring.

This information shows that today and for many decades past there has been water available fairly close to the surface for cattle and for trees along Allen Creek during drought years. However, when SLR pumps water out of the Simsboro and transports that water away from the area via pipeline, the water table will apparently drop from 6 to 60 foot on my and my neighbors property. This will dry up Allen Creek and all shallow (hand dug) wells as well as remove the availability of water just below ground for tree roots to reach. This will allow a great many trees to die during a deep drought (like in 2008 and 2011). I believe this can be classified as Surface Damage and I don't believe that is allowed under Texas water law.

Attached are 5 articles and research papers that show that trees do utilize deep roots during dry years, but there is a limit to how deep tree roots travel; often limited to about 25 foot. Also attached are several screen shots of your well monitoring program that show Simsboro wells that compare to my front well.

There is a benefit gained by many Texans by providing water to various urban areas. However, "UNREASONABLE IMPACTS" to local land owners needs to be mitigated.

Well use costs are lifting the water to the surface, then adding pressure to send to equipment. My two irrigation systems use 20 and 61 psig pressure (which is 46 and 138 foot of head). Adding the well water level of 128 feet it is required to develop 174 and 268 foot of pump head. As the water level drops, that required head goes up causing higher power usage. In 8 years (2030), Steve Young' data says the water level will be 239 foot down (194 + 45). My pump will have to be lowered, the flow rate will be reduced and my pumping requirements will go up to 285 and 423 foot (64 and 58% higher). By about 2040 my well water level will be at the screen. A new, deeper well will be needed. Lift costs will be significantly higher. It seems like a gradual failure.

A possible action would be to require SLR to provide water to the above ground piping of my well at my current use rate and pressure at their lift utility costs. This would require running about 1200 foot of PVC pipe, but would be far less expensive than drilling a new well. Since they will operate on a large scale, their water lift power costs will likely be about what mine are today.

The POSGCD website shows that it was created after **HB 1784, 77th Legislature** in 2001, and a local confirmation election in November 2002.

The purpose of this bill is to **provide a locally controlled groundwater district to conserve and preserve groundwater, protect groundwater users, protect and recharge groundwater, prevent pollution or waste of groundwater in the central Carrizo-Wilcox area**, control subsidence caused by the withdrawal of water from the groundwater reservoirs in that area, and regulate the transport of water out of the boundaries of the districts.

In Rules of the Post Oak Savannah Groundwater Conservation District Page 20
SECTION 4. SPACING AND MONITORING REQUIREMENTS. [Amended May 12, 2020]

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 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; [Amended November 5, 2019] 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: [Amended November 5, 2019]

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

Rules of the Post Oak Savannah Groundwater Conservation District Page 100
SECTION 16. MANAGEMENT OF WATER AVAILABILITY AND PRODUCTION

6. Unreasonable Impacts: In order to evaluate the balance between production and conservation of groundwater resources, the District will consider the impacts from an aggregate of wells associated with one or more operating permits to be unreasonable if pumping from the aggregate wells, by themselves and without contribution from other pumping wells, cause any of the following:

- a. Land subsidence that: threatens the structural integrity of existing pipelines, building, or other infrastructure; (b) causes land from being used for its potential use; or c) creates a problem associated with flooding or poor drainage;
- b. Intrusion of surface water or groundwater from another aquifer into the aquifer, which is pumped by the aggregate wells, that degrades groundwater quality in the pumped aquifer so it would not be suitable for its intended use or its potential use;
- c. More than a 30-foot reduction and more than a 25% reduction in the saturated thickness of the aquifer being pumped by the aggregate wells at any well location outside of one or more operating permits' property or along any part of the boundary of the operating permits' property;
- d. More than a 100-foot reduction and more than a 40% reduction in the pressure head above the top of the aquifer at any well location outside of one or more operating permits' property or along any part of the boundary of the operating permits' property; and
- e. The District has the authority to set the baseline value for a saturated thickness and an artesian pressure on a case by case basis for a baseline year that is not before 2010.

[Amended February 15, 2022]