



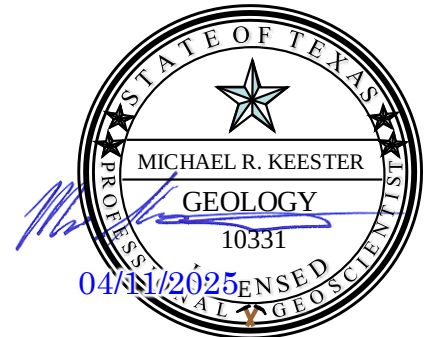
Technical Memorandum

To: Dr. Quinn McColly
Managing Director – Water Resources
Conservation Equity Management, LP

From: Michael R. Keester, P.G.

Date: April 11, 2025

Subject: Groundwater flow modeling and simulated effects of pumping from the proposed Pine Bliss LLC and Redtown Ranch Holdings LLC well fields



To support your permitting efforts with the Neches & Trinity Valleys Groundwater Conservation District (“NTVGCD”), we conducted modeling of the proposed Pine Bliss LLC (“Pine Bliss”) and Redtown Ranch Holdings LLC (“Redtown Ranch”) well fields. For details regarding the results of those simulations, please refer to the respective technical memorandum for each well field. In addition to modeling each well field individually, we also conducted simulations with both well fields pumping.

As stated in the technical memorandum for each well field, the results with the closer to typical specific yield show much less drawdown with production rates nearer to the target annual volumes. For evaluation of the effects of the combined pumping, we focused on the average water level decline during the 50-year pumping period within Anderson and Henderson counties due to the proposed pumping. We calculated the average drawdown as the simulated water level at the end of stress period 12 minus the simulated water level at the end of stress period 62 divided by the number of nodes in the county without consideration to the area the cell represents.

The Redtown Ranch Well Field is located in the Anderson County with proposed production from the Carrizo, Upper Wilcox, and Middle Wilcox. Table 1 summarizes

the average drawdown after 50 years of the proposed combined production. As shown in the table, Pine Bliss pumping adds about 4 feet, 5 feet, and 27 feet of average drawdown in the Carrizo, Upper Wilcox, and Middle Wilcox, respectively, in Anderson County when combined with the Redtown Ranch predicted average drawdown.

Table 1. Summary of calculated average drawdown in Anderson County, where the Redtown Ranch well field is located, at the end of the 50-year pumping period.

Aquifer*	GAM (Sy = 0.07)	GAM (Sy = 0.07) w/Redtown	GAM (Sy = 0.07) w/Pine Bliss	GAM (Sy = 0.07) w/Combined
Alluvium	6	7	6	8
Sparta	7	7	7	7
Weches	10	11	10	11
Queen City	8	9	9	9
Reklaw	12	24	14	26
Carrizo Sand	29	63	34	67
Upper Wilcox	33	70	39	75
Middle Wilcox	28	140	56	167
Lower Wilcox	28	141	61	172

*highlighted aquifers are where the Redtown Ranch wells will produce

The Pine Bliss Well Field is located in the Henderson County with proposed production from the Queen City and Middle Wilcox. Table 2 summarizes the average drawdown after 50 years of the proposed combined production. As shown in the table, Redtown Ranch pumping adds about one foot of average drawdown in the Queen City and Middle Wilcox aquifers in Henderson County when combined with the Pine Bliss predicted average drawdown.

Table 2. Summary of average drawdown in Henderson County, where the Pine Bliss well field is located, at the end of the 50-year pumping period.

Aquifer*	GAM ($S_y = 0.07$)	GAM ($S_y = 0.07$) w/Redtown	GAM ($S_y = 0.07$) w/Pine Bliss	GAM ($S_y = 0.07$) w/Combined
Alluvium	2	2	3	3
Sparta	9	9	10	10
Weches	5	5	12	12
Queen City	10	11	19	20
Reklaw	22	24	40	41
Carrizo Sand	14	15	26	26
Upper Wilcox	10	12	59	61
Middle Wilcox	9	11	48	49
Lower Wilcox	28	141	61	172

*highlighted aquifers are where the Pine Bliss wells will produce

Overall, there is a minimal simulated effect of the combined Pine Bliss and Redtown Ranch well fields. Due to the distance between the well fields (more than 40 miles), the effects of production from one well field on the other are mitigated. The combined effect on additional average drawdown are greater in Anderson County simply due to the Pine Bliss Well Field being less than five miles from the Anderson County boundary.

While the model simulates these effects due to production, the model is a simplified representation of our understanding of the physical hydrogeologic system. Model results must be understood to be uncertain and an indication of the potential effects of production. Despite the model uncertainty, the results show that based on our current understanding of the system, the proposed production is feasible for many years. As stated elsewhere, most of the additional drawdown associated with the proposed Pine Bliss and Redtown Ranch pumping occurs in and near the proposed well fields with the greatest effect being on the proposed pumping wells. While we do expect water level decline in the aquifers, we do not expect the proposed pumping will inhibit the ability of other property owners to use the groundwater resources beneath their land.

We appreciate the opportunity to provide you with this technical memorandum. Please let us know if you have any questions.