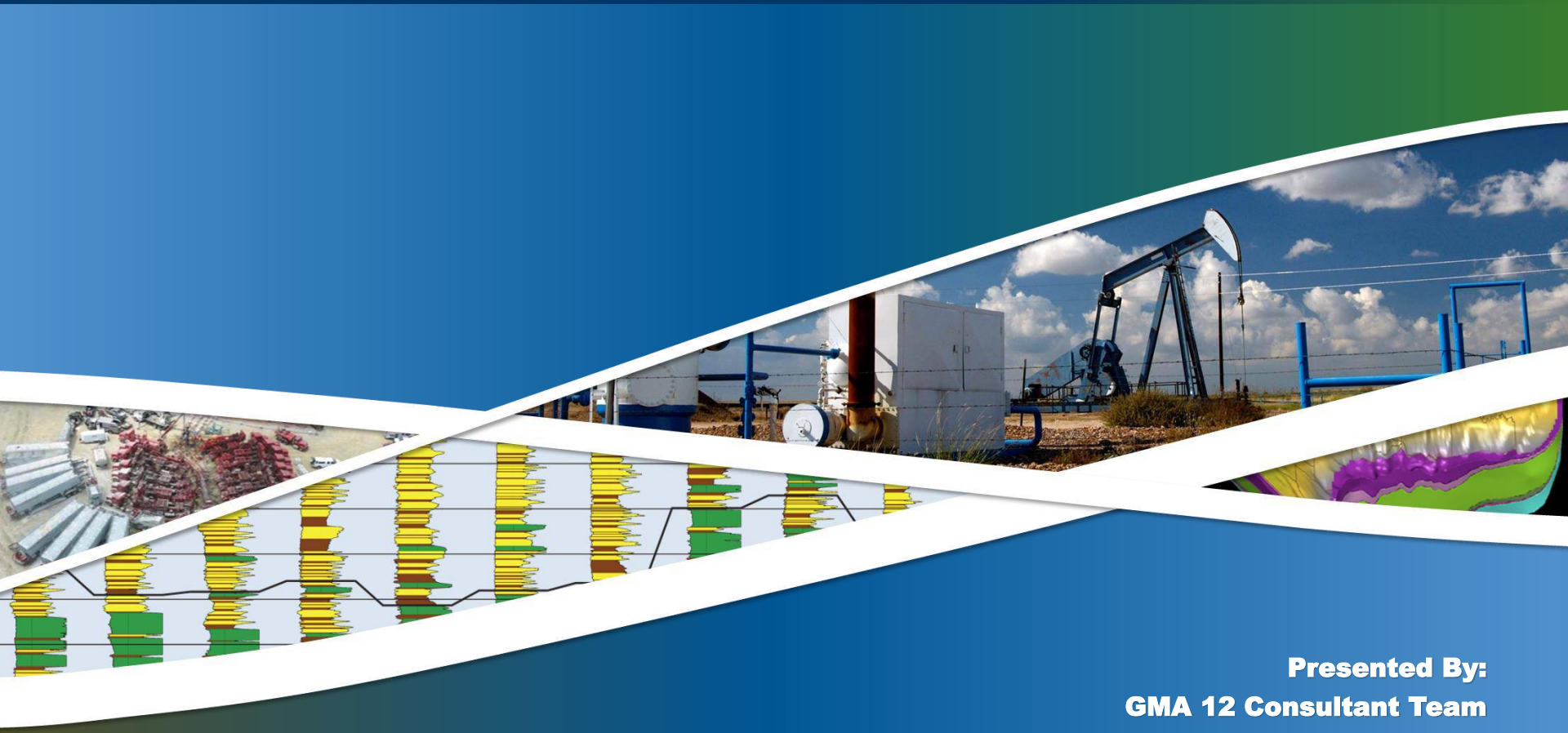
# Proposed Modification to the Central Portion of the Sparta/Queen City/Carrizo-Wilcox GAM



**Presented By:**
**GMA 12 Consultant Team**

**July 24, 2020**

# Checks on Calibration

- Nature of the Modification
- Information Regarding New Data
- Why it Should be Modified
- Checks on Calibration

# Nature of Modification

- Adjust Simsboro Transmissivity in Vicinity of Vista Ridge Well Field

- Transmissivity Adjustments based on Results of Aquifer Pumping Tests
  - Drawdown Values at Well
  - Calculated Transmissivity Values from Aquifer Pumping Test
- Transmissivity Adjustments
  - Primarily horizontal hydraulic conductivity in Simsboro Aquifer
  - Approximately 12 to 17 miles radius of change

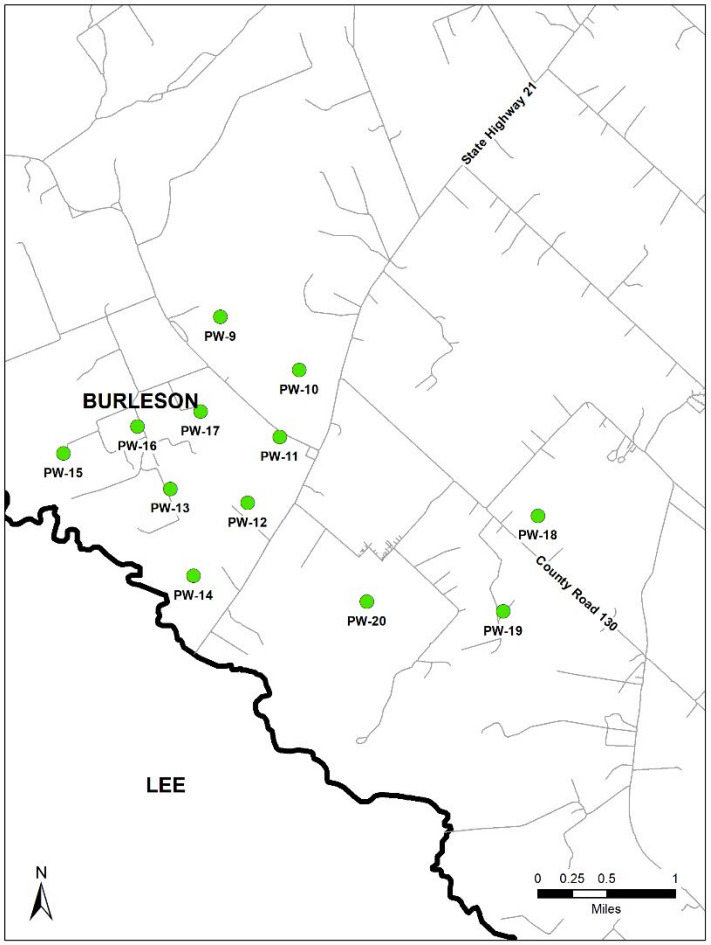
# Information of New Data

- 36-hour Aquifer Pumping Tests from Vista Ridge Well Field
  - Carrizo Wells (CW #1 through CW #9)
  - Simsboro Wells (PW#1 through PW#17)

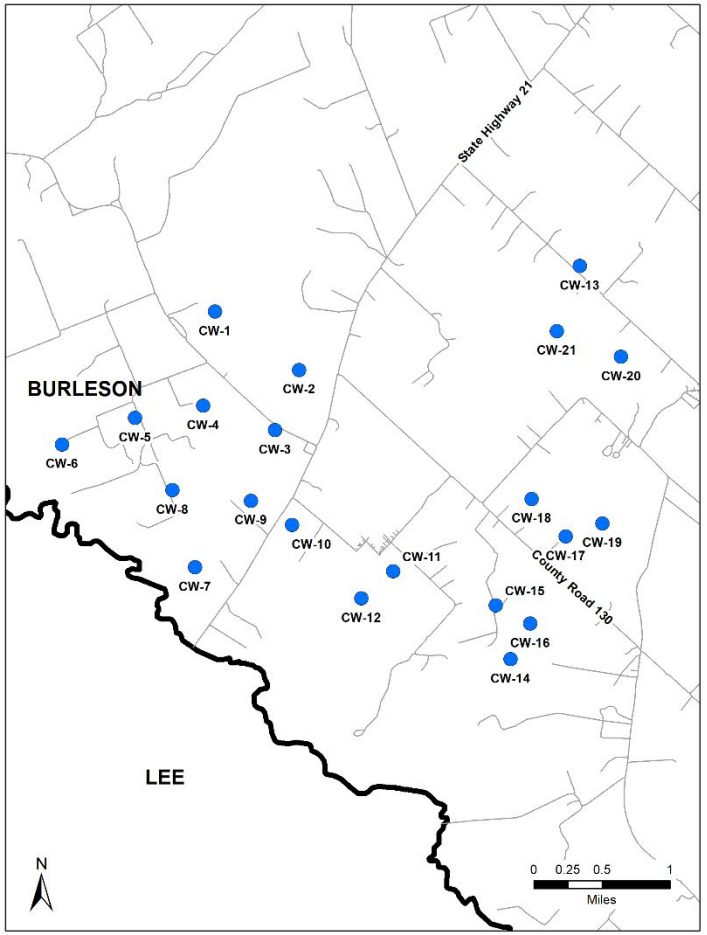
- Received by POSGCD
  - April 2020
  - Permit Amendment

# Vista Ridge Well Field

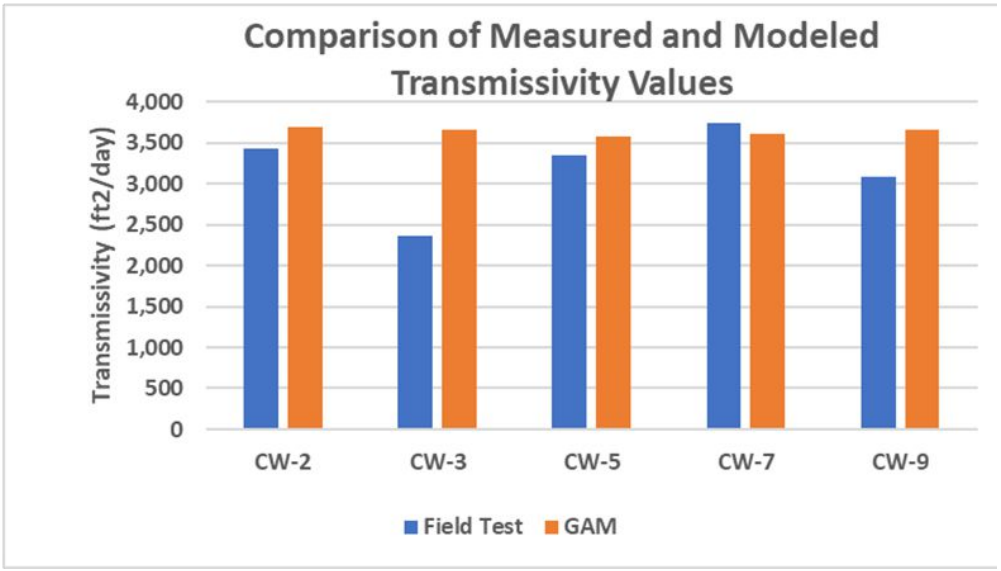
12 Simsboro Wells
Maximum Production: 35,993 AFY

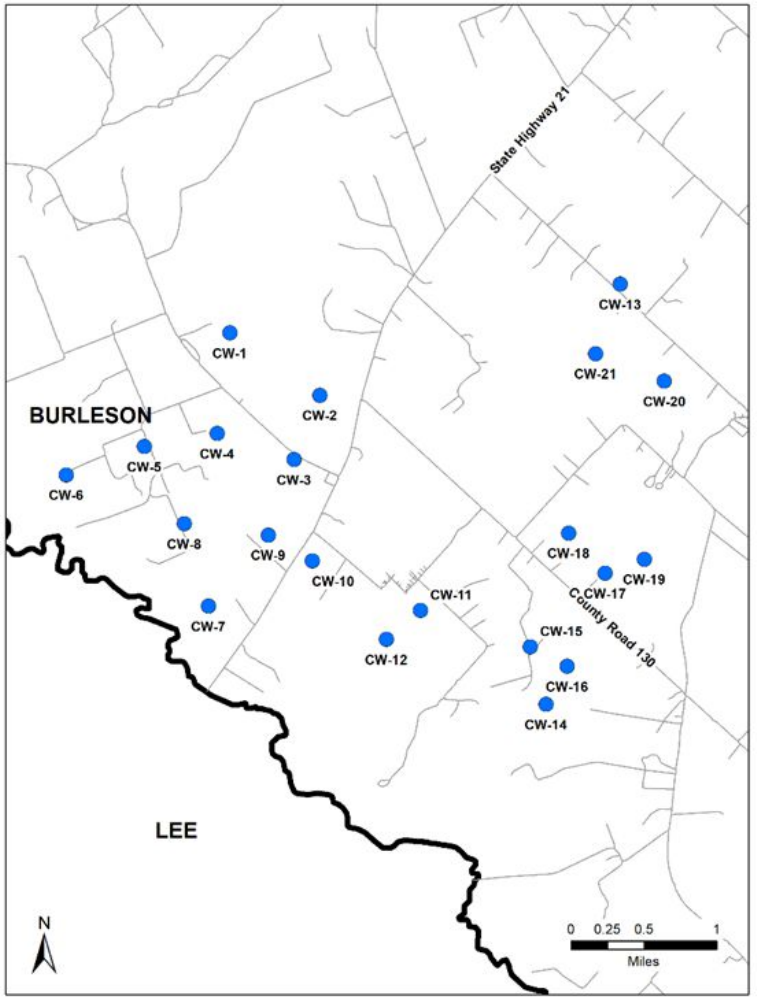



21 Carrizo Wells
Maximum Production: 15,000 AFY

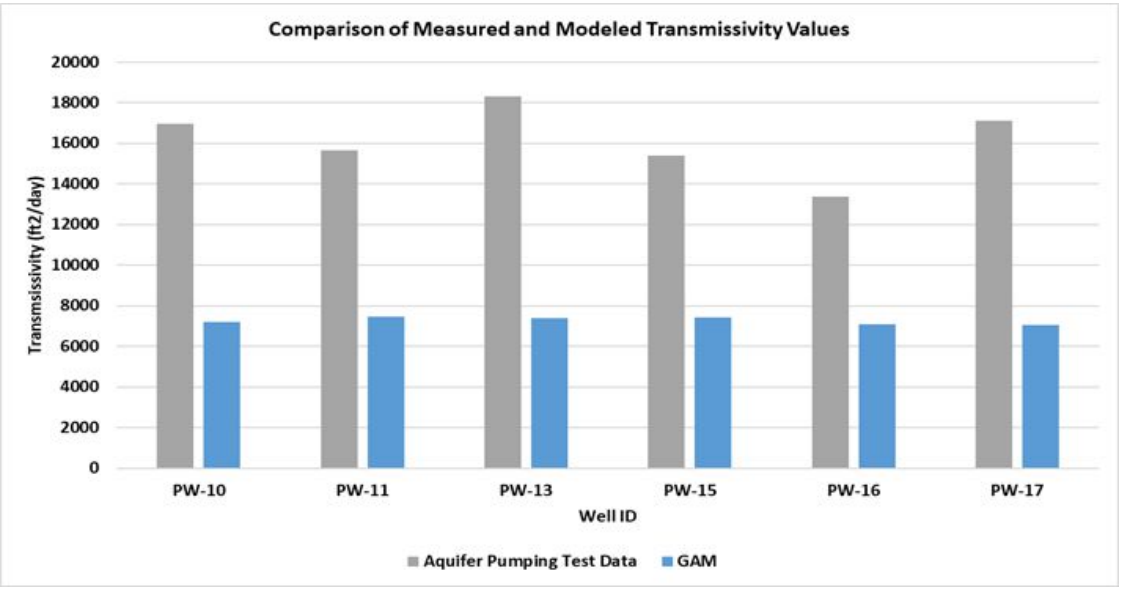


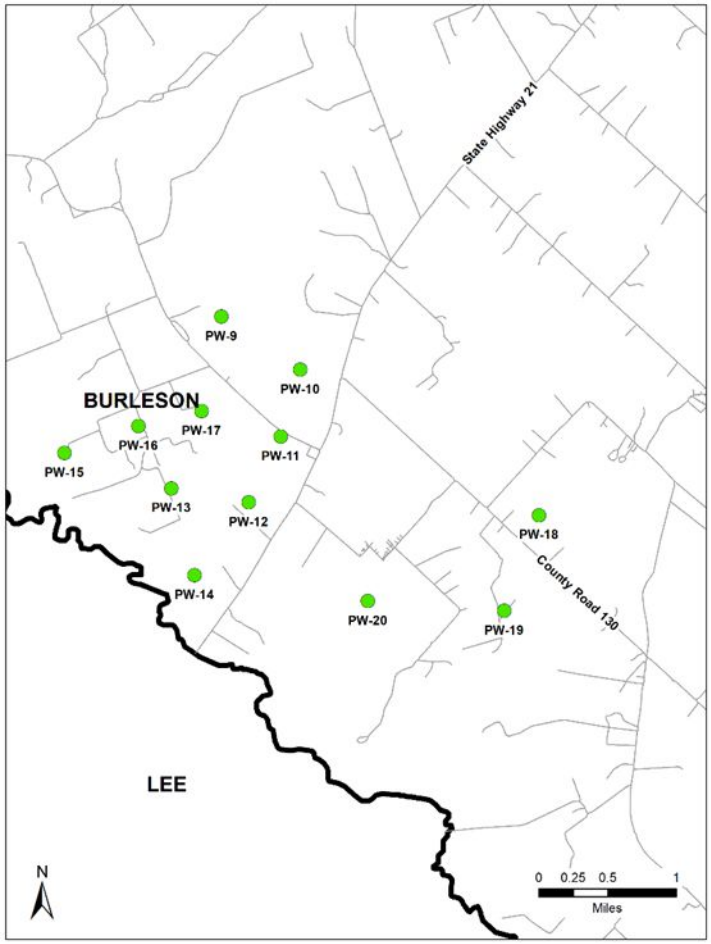
# Preliminary Comparison: GAM & Field Values for Carrizo



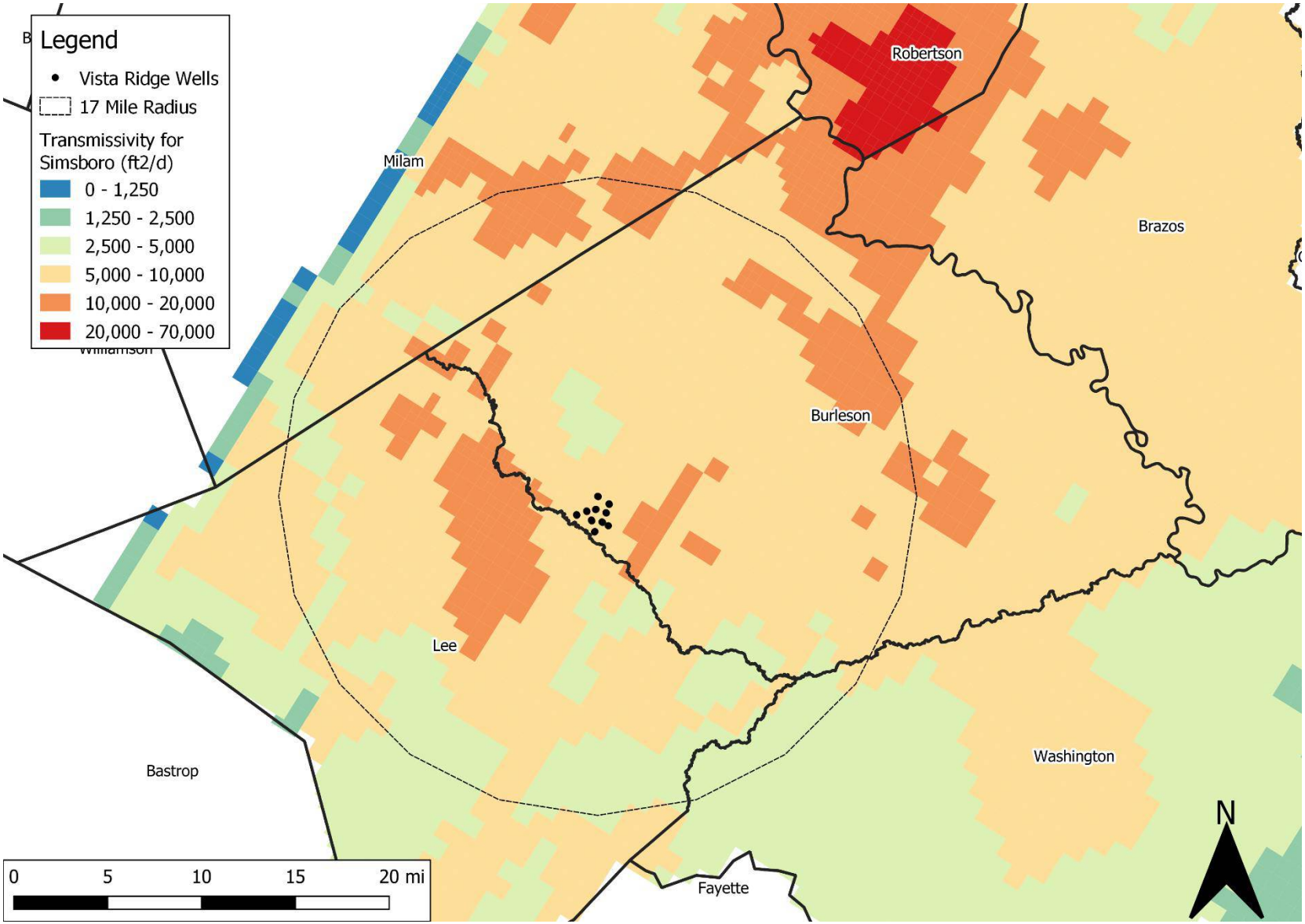



# Preliminary Comparison: GAM & Field Values For Simsboro

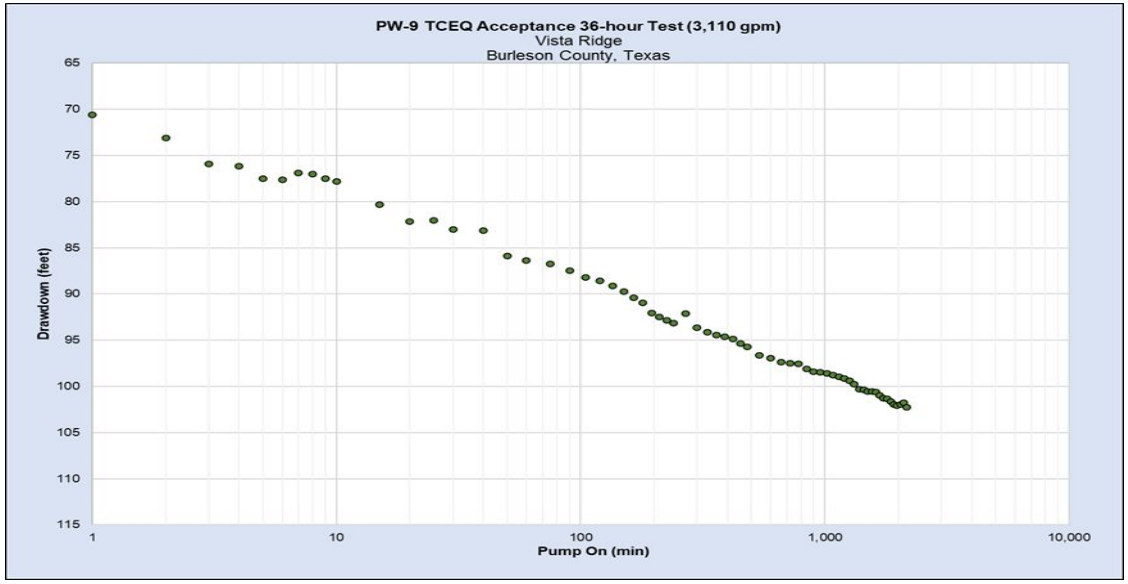


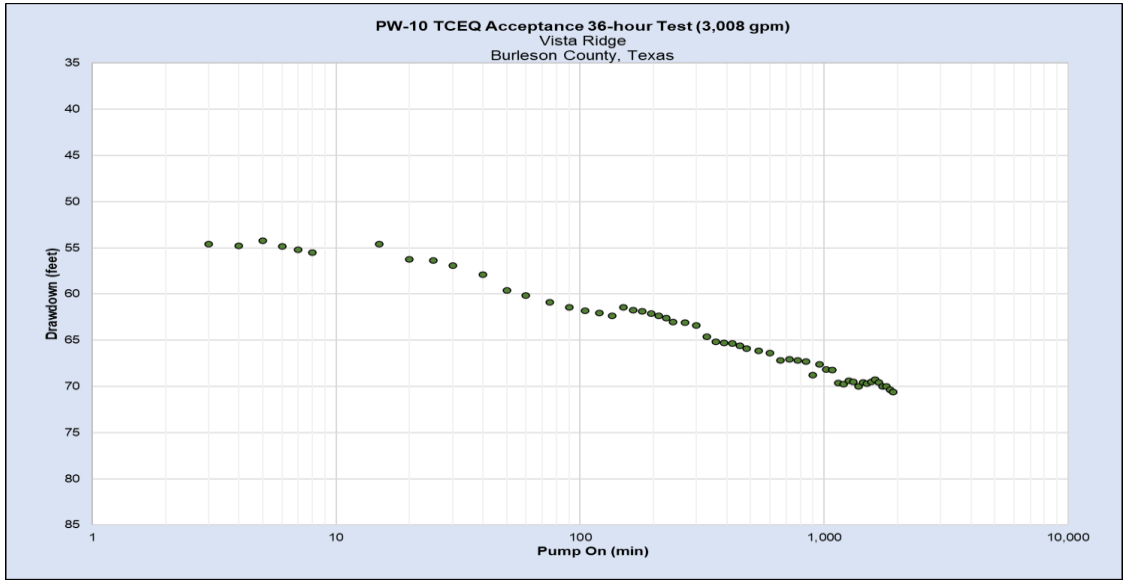



# Simsboro Transmissivity in GAM

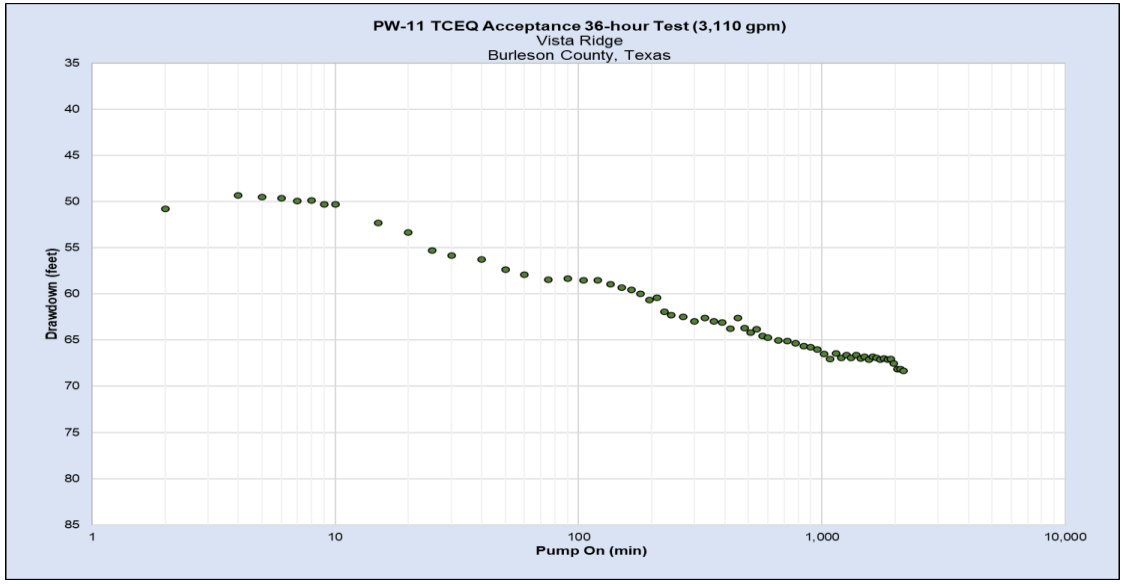


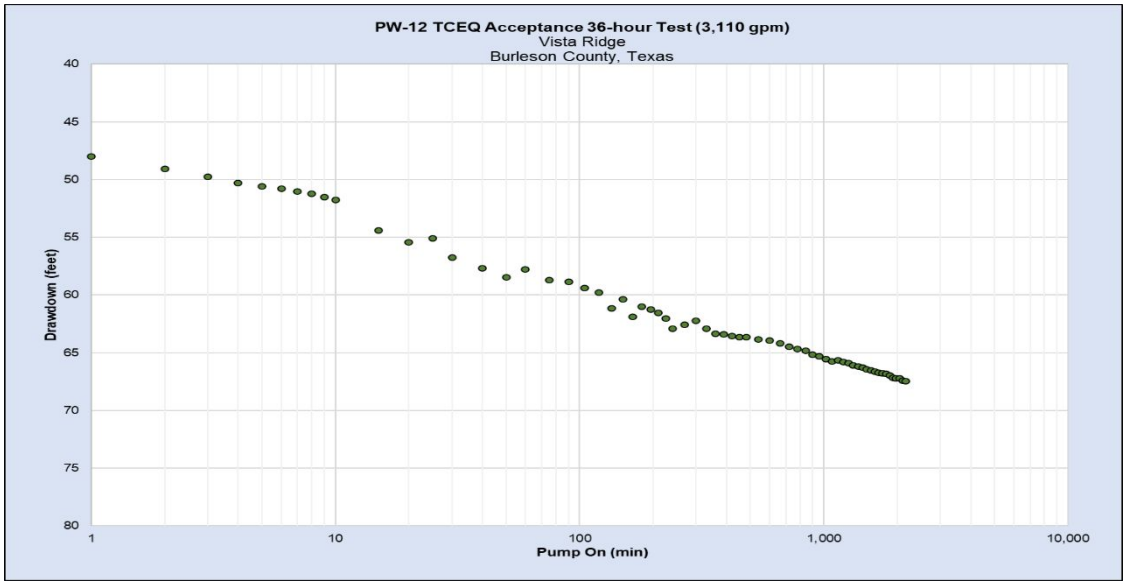
# Aquifer Pumping Tests: PW-9 & PW-10



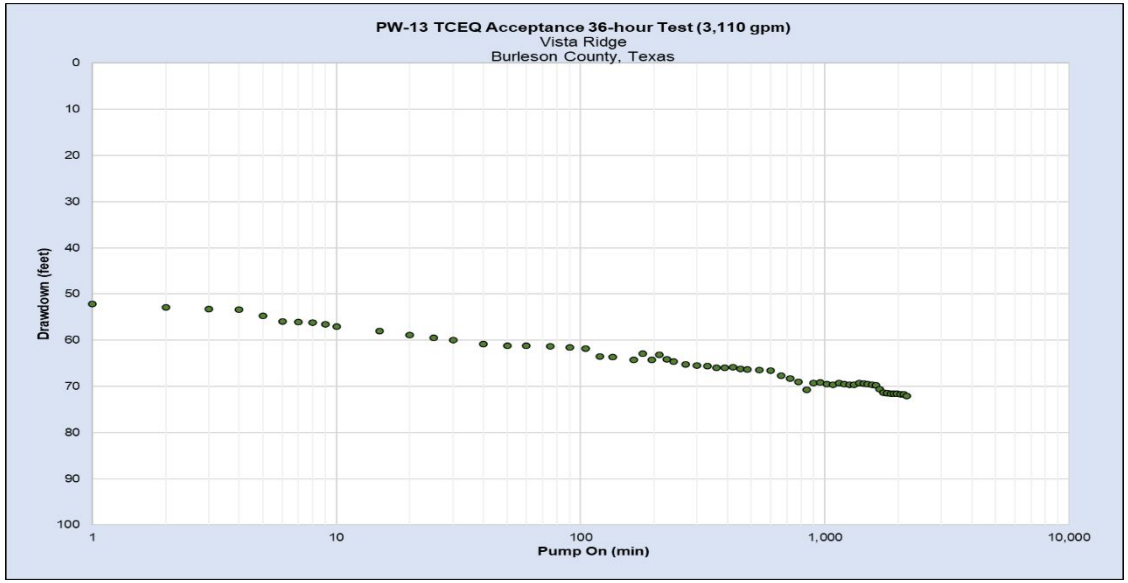



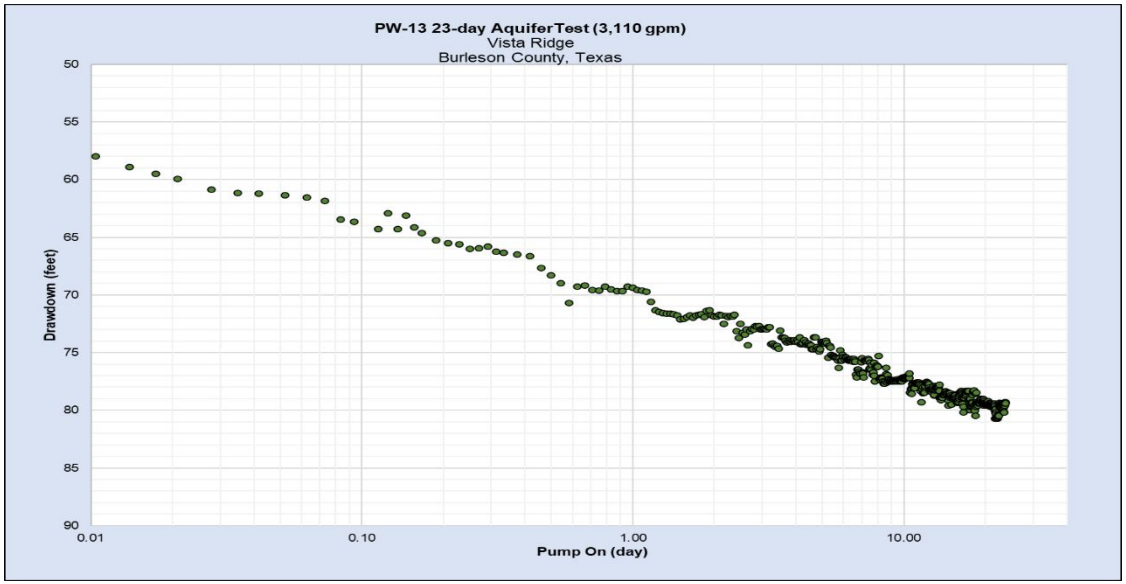
# Aquifer Pumping Tests: PW-11 & PW-12



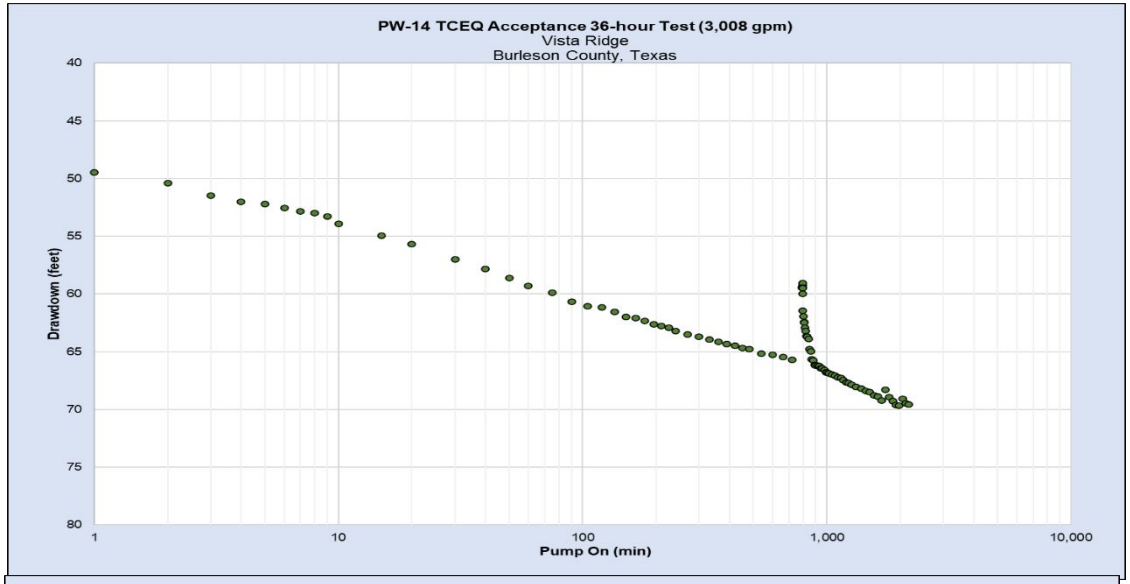



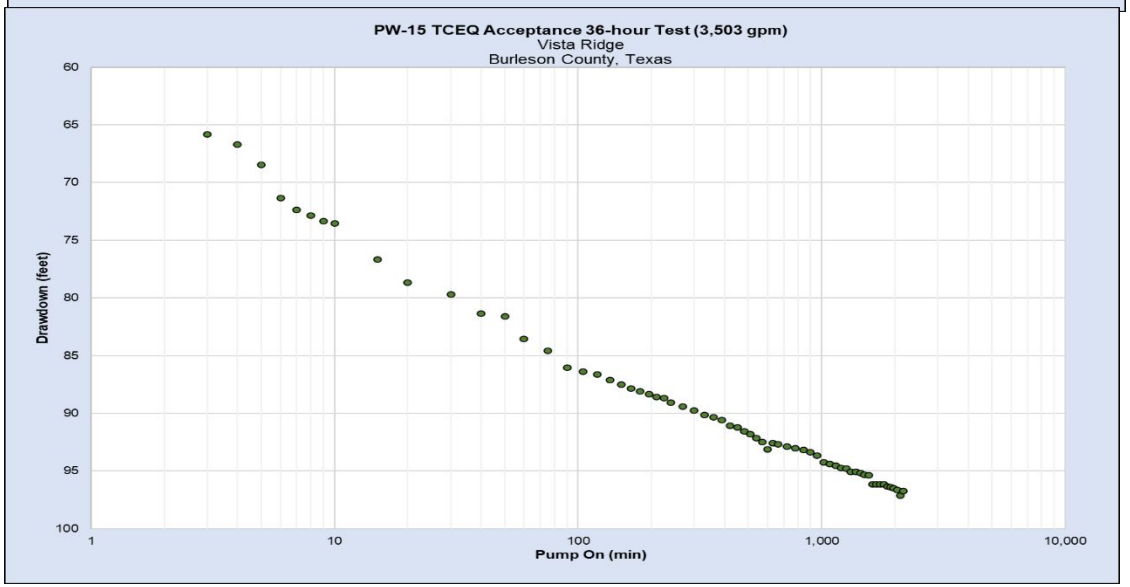
# Aquifer Pumping Tests: PW-13



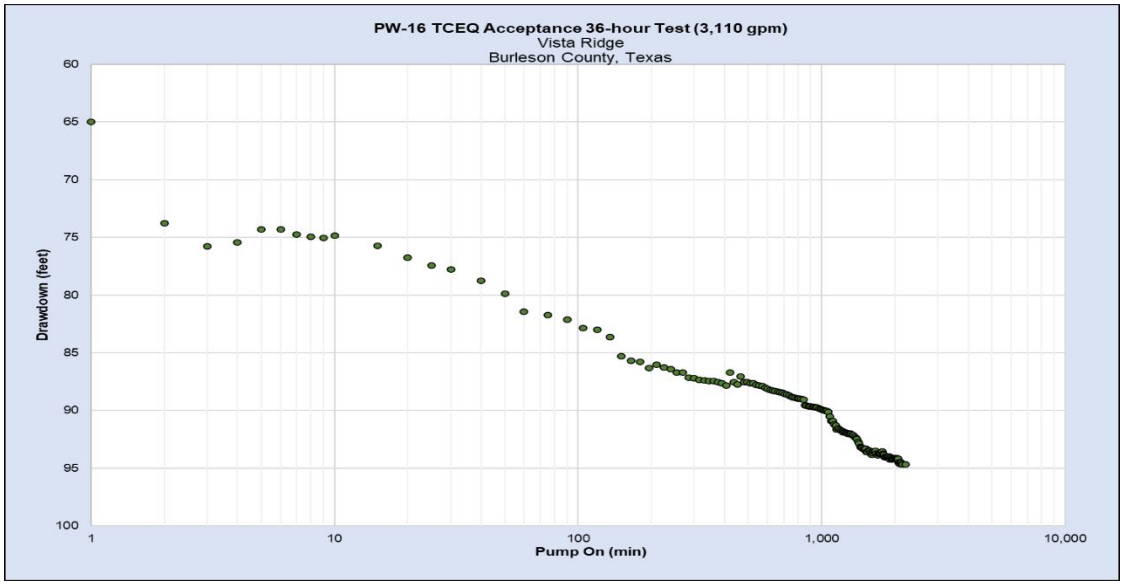



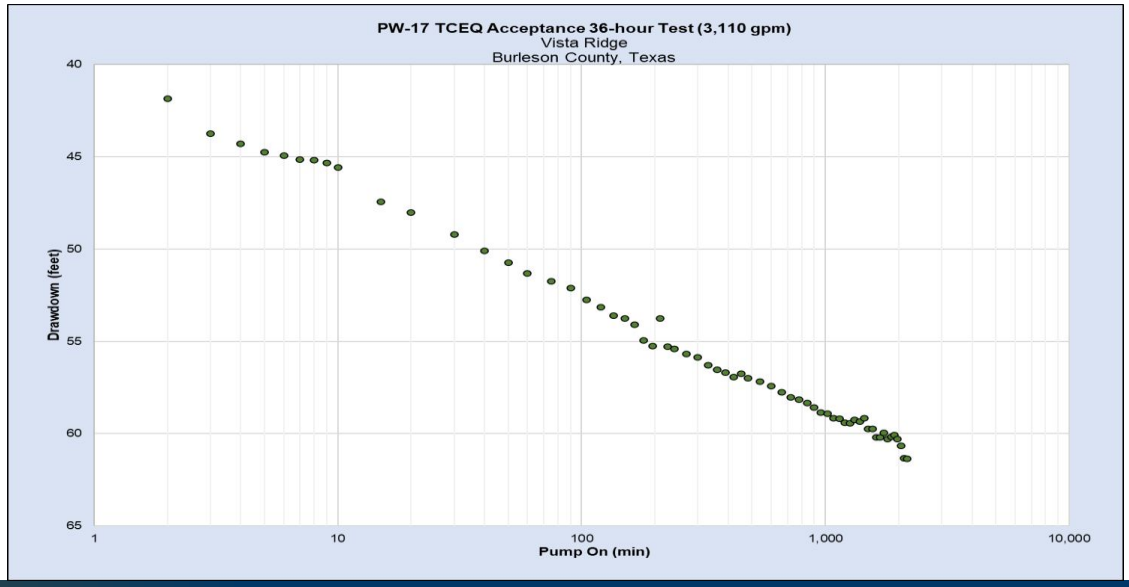
# Aquifer Pumping Tests: PW-14 & PW-15



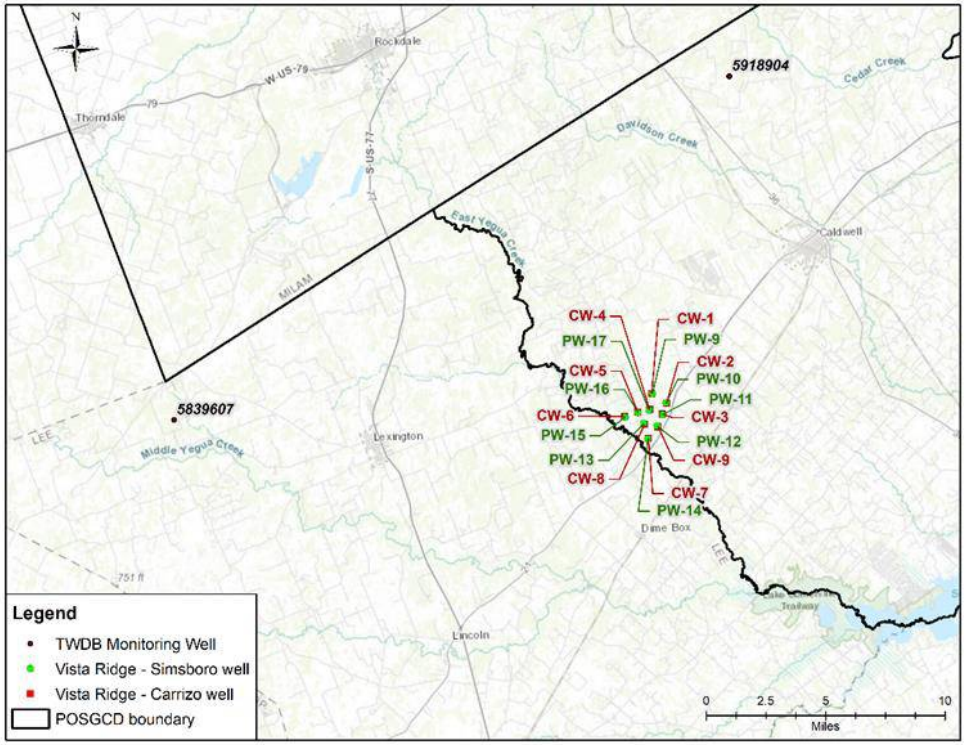
# Aquifer Pumping Tests: PW-16 & PW-17

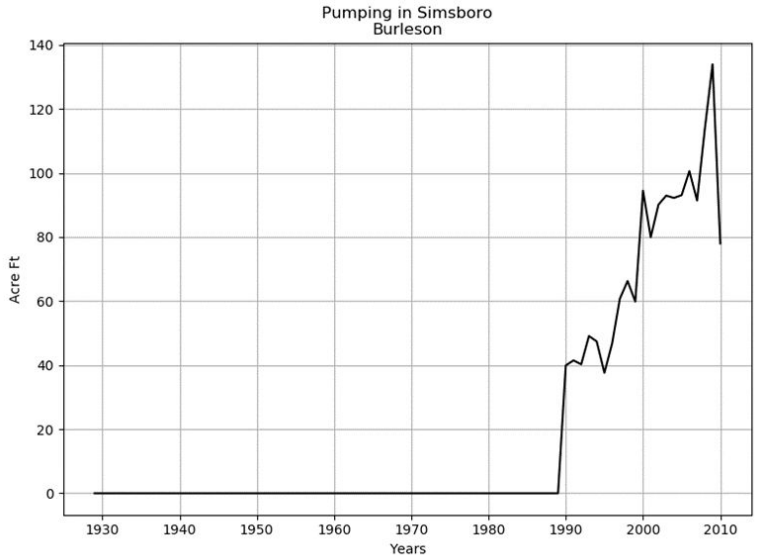


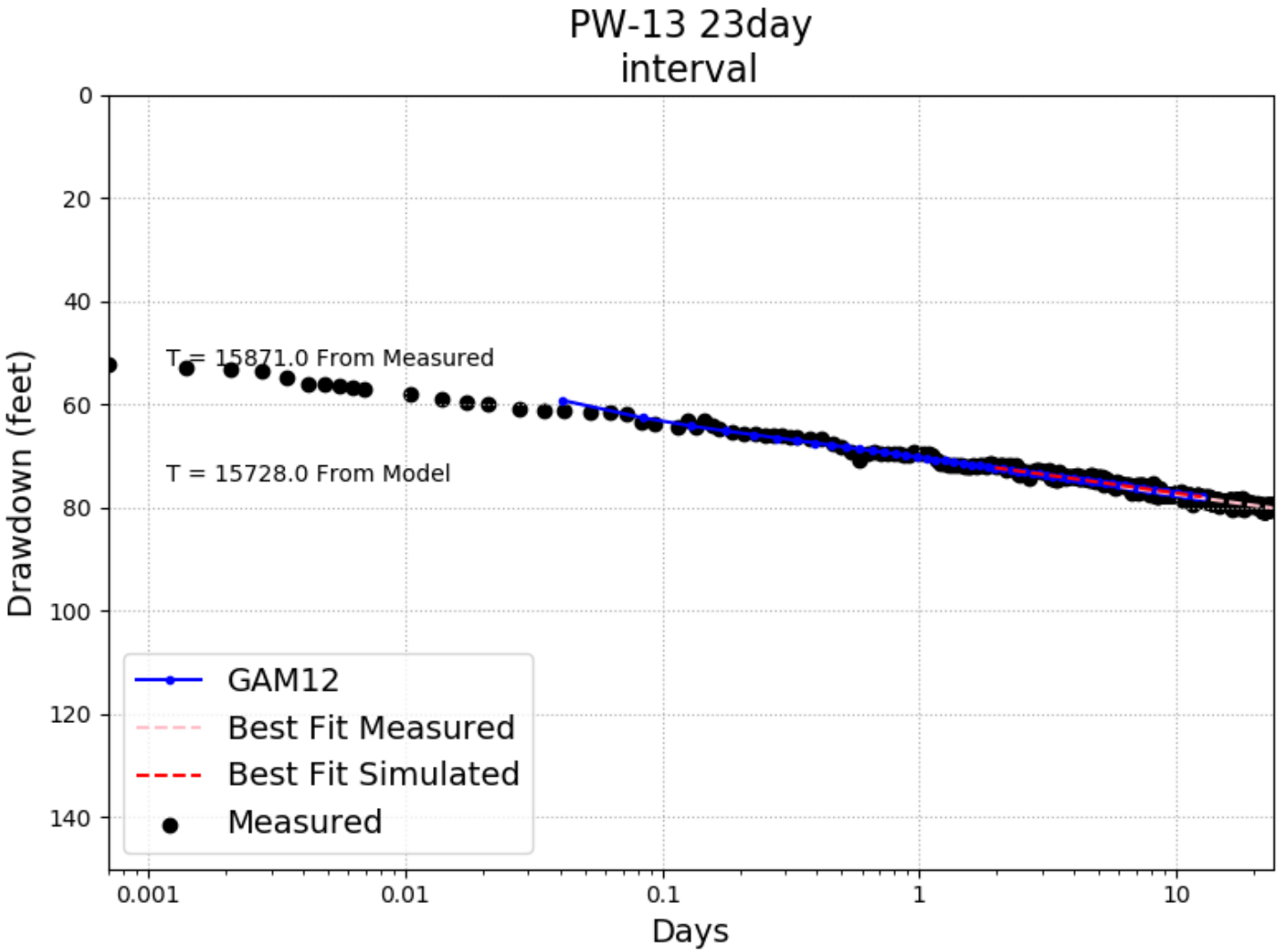
# Why It should be Modified

- Transmissivity Values are too Low in Simsboro
- Historical (1930 -2010) Data in Burleson for Simsboro
  - Low Pumping Rates
  - One hydrograph
- Vista Ridge may be pumping 35,000 AFY from Simsboro



# Check on Calibration: Aquifer Test Result



# Check on Calibration: Calibration Statistics

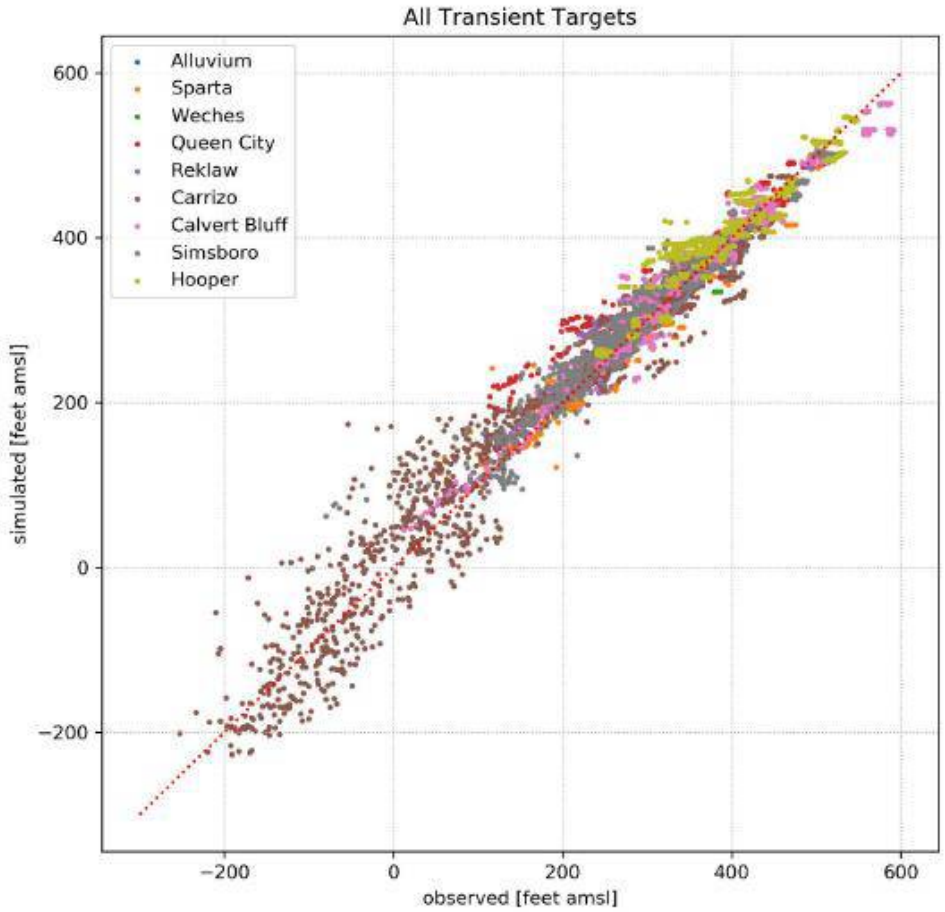



**Figure 5.3.3g.** Scatter plot of simulated versus observed hydraulic heads for the 11,378 water levels used as calibration targets across the entire model for the transient period 1930 to 2010.

# Check on Calibration: Calibration Statistics

**Table 5.3.3a.** **Calibration statistics for transient conditions based on the equal-by-well weighting scheme for the entire model domain.**

| Hydrogeologic Unit | Count[a] | Mean Error (feet) | Mean Absolute Error (feet) | Root Mean Square Error (feet) | Measured Range (feet) |
|---|---|---|---|---|---|
| Alluvium[b] | 50 | -1.1 | 3.5 | 4.4 | 66 |
| Sparta | 74 | -2.7 | 14 | 19.2 | 393 |
| Weches | 7 | 2.3 | 12.9 | 20.1 | 217 |
| Queen City | 79 | -6.4 | 14.5 | 22.7 | 344 |
| Reklaw | 28 | -6.4 | 9.5 | 13.8 | 317 |
| Carrizo | 197 | -3 | 14.8 | 22.4 | 618 |
| Calvert Bluff | 97 | 0.3 | 14.5 | 20.7 | 504 |
| Simsboro | 68 | -11.3 | 19.8 | 25.5 | 501 |
| Hooper | 47 | -11.8 | 19.4 | 26.2 | 291 |
| Shallow Groundwater Flow System | 106 | 2.4 | 14.9 | 20.7 | 367 |
| All | 647[c] | -4.3 | 14.4 | 21.3 | 743 |

[a] number of wells with hydraulic head targets
[b] all in the Brazos River alluvium
[c] sum for hydrogeologic units


Questions?