DFC Tracking Panel

Texas Alliance of Groundwater Districts

2017

Texas Groundwater Summit

Greg Sengelmann, P.G.
General Manager
Gonzales County Underground Water Conservation District
GMA 13 Boundary
Effects of Pumping on Aquifers

Figure 3 From Bush School Capstone Report
Reorganizing Groundwater Regulation in Texas

Unconfined Portion

Confined Portion

Recharge Zone

Farmer Jones’ Well

Farmer Smith’s Well

Initial Water Level

After 5% Dewatering

Confining Layer

River Channel
(River changes from gaining to losing as groundwater level declines in the outcrop. Surface water rights affected.)
Desired Future Conditions

• Current DFC – Based on average drawdown in the aquifer across the district over 50 years
  
  • Model shows Carrizo Aquifer down-dip drawdowns of about 130 feet inside the Western Project well fields and 150 – 160 feet inside the Eastern Project well fields over 50 years
  
• Proposed DFC - 75% of saturated thickness in the aquifer outcrop at the end of 2012 remains in 2070
  
  • Model shows Carrizo Aquifer saturated thickness remaining in the outcrop portion of the aquifer of about 5 – 50 % over 50 years
Carrizo Aquifer Drawdown Map

District-Wide Drawdown
2000 - 2017
-23.47 feet

LEGEND
Observation Wells
District Boundary

Gonzales County UWCD
Carrizo Aquifer
Observation Wells
Drawdown 2000 - Jan. 2017
GMA13 Saturated Thickness Remaining

Carrizo ST Thickness Remaining with Scenario 9

Black: 0 – 5% remaining
Red: 5 – 25% remaining
Orange: 25 – 50% remaining
Yellow: 50 – 75% remaining
Light Blue: 75 – 100% remaining
Light Blue: 100 – 150% remaining
GCUWCD Saturated Thickness Remaining

Carrizo ST Thickness Remaining with Scenario 9

MAP LEGEND

Black: 0 – 5% remaining
Red: 5 – 25% remaining
Orange: 25 – 50% remaining
Yellow: 50 – 75% remaining
Light Blue: 75 - 100% remaining
Dark Blue: 100 – 150% remaining
Observation Well Project

- Install 19 observation wells across the outcrop in Caldwell, Gonzales and Guadalupe Counties in a cooperative effort with the Guadalupe County GCD and Plum Creek Conservation District.

- Assess thickness of the outcrop
- Assess geologic stratigraphy
- Assess hydraulic conductivity
- Assess water quality
- Assess groundwater – surface water interaction
- Use observation wells to assess DFC compliance
References
