

Permit Production Limits



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Lost Pines Groundwater Conservation District
Public Workshop on Proposed Rule Changes

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Correlative Management

- Allocation of “available groundwater” over a defined area
- Can be used to define a permit production limit as AF/ac:

$$\frac{\textit{Available Groundwater (AF/yr)}}{\textit{Specified Area (acres)}}$$

Available Groundwater

- Combination of:
 - Physical limitations
 - Policy goals
- Joint groundwater planning process:
 - Desired Future Condition (DFC) is based on nine factors (some technical and some policy-related)
 - Modeled Available Groundwater (MAG) is the amount of pumping that will achieve the DFC
- Blend of hydrogeologic constraints and policy goals
- LPGCD Simsboro Aquifer MAG = 79,945 AF/yr in 2080

Specified Area

- DFC is developed for entire district
- Surface area overlying Simsboro Aquifer in LPGCD
 - No consideration related to depth or water quality
 - About 886,520 acres based on GAM data

$$\frac{\text{Available Groundwater (AF/yr)}}{\text{Specified Area (acres)}}$$

Example Calculations

- Equal allocation for all LPGCD:

$$\frac{79,945 \text{ AF/yr}}{886,520 \text{ acres}} = 0.09 \text{ AF/acre}$$

- Recently approved LCRA permit:

$$\frac{8,000 \text{ AF/yr}}{5,000 \text{ acres}} = 1.60 \text{ AF/acre}$$

- LCRA Permit
 - Represents about 10% of the MAG
 - Covers less than 1% of the LPGCD Simsboro area

Potential Production Limits (Simsboro)

- Full Simsboro Area:

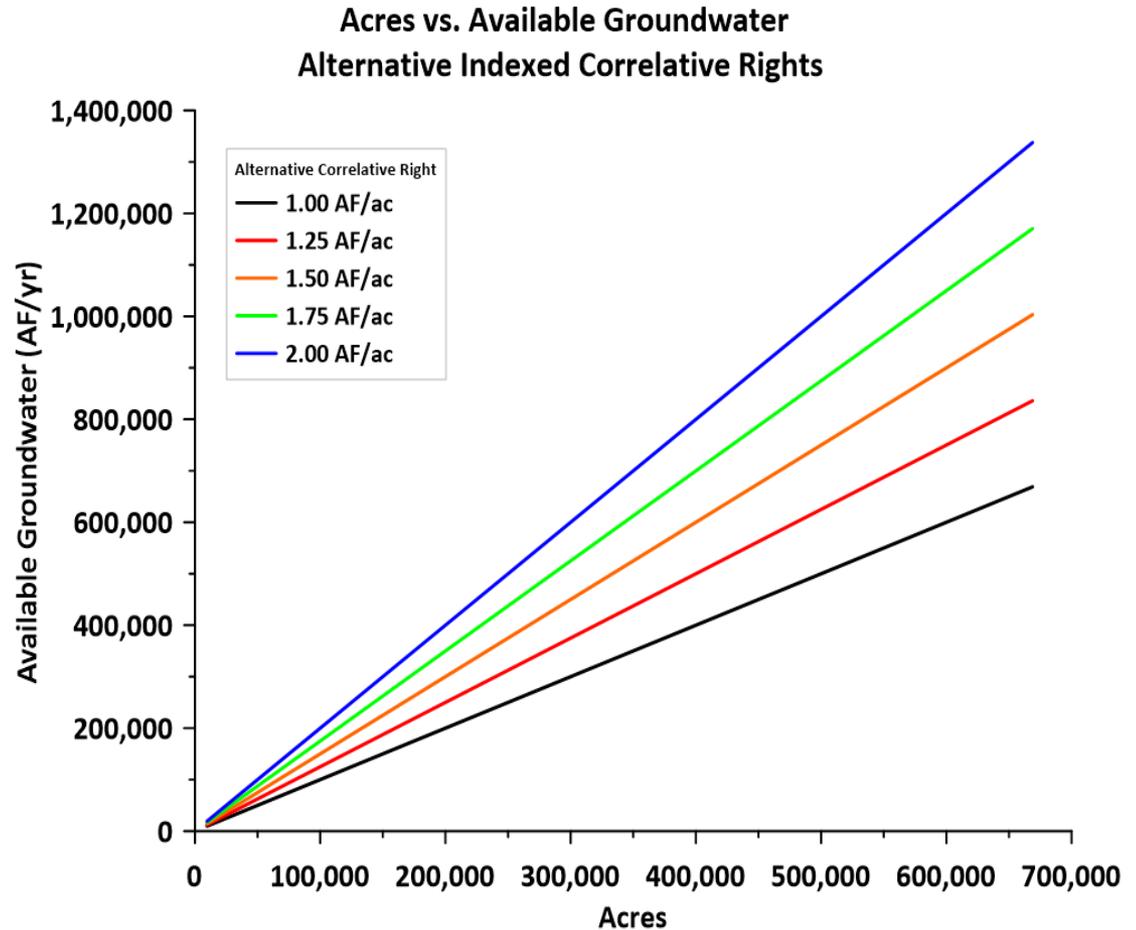
$$\frac{79,945 \text{ AF/yr}}{886,520 \text{ acres}} = 0.09 \text{ AF/acre}$$

- Depth-limited Simsboro Area:

Simsboro Bottom Elevation	Acres	"Duty" Pumping (AF/acre)
above 0 ft MSL	131,320	0.61
above -500 ft MSL	233,080	0.34
above -1,000 ft MSL	325,560	0.25
above -1,500 ft MSL	409,400	0.20
above -2,000 ft MSL	501,880	0.16

Alternative Permit Production Limits

- For example, to achieve a limit between 1.0 and 2.0 AF/ac:
 - Available groundwater (MAG) increase, and/or
 - Acreage reduction



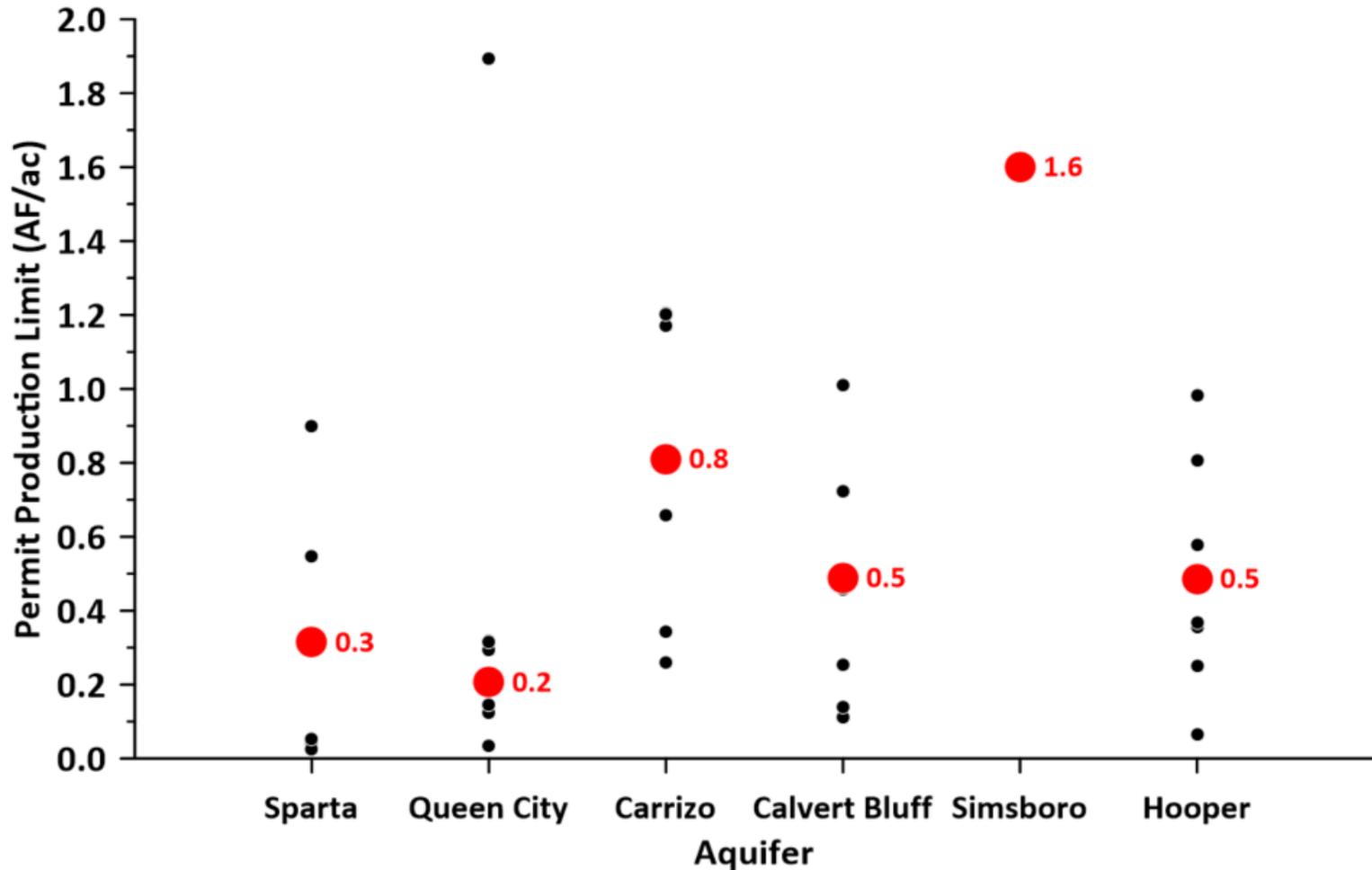
“Short-Term” Permit Production Limit

- 1.6 AF/ac for Simsboro
 - Unsustainable over long term
 - Policy decision
- No technical basis to anticipate or speculate how rapidly permits would be issued
- Options to address “too many” permits:
 - Production limit would have to be reduced
 - Available groundwater would have to be increased
 - Specified area would have to be reduced

Other LPGCD Aquifers

- Goal: treat all aquifers “equally”
 - Hydrogeologic differences in aquifers?
 - Historic pumping in different aquifers?
 - DFC/MAG differences in aquifers?
- Analyses completed to characterize differences in all LPGCD aquifers
 - Pumping vs. drawdown results from seven GAM simulations
 - Simulated 36-hour pumping test results using GAM parameters
 - MAG for each LPGCD aquifer
 - Permitted well GAM hydraulic conductivity
 - Permitted well GAM transmissivity

**Permit Production Limit (AF/acre) for Each LPGCD Aquifer
All Alternative Methods and Average of All Methods
(One Queen City Outlier removed from Average Calculation)**



Aquifer-Specific Production Limits (Average of all analyses)

- Sparta Aquifer = 0.3 AF/acre
- Queen City Aquifer = 0.2 AF/acre
- Carrizo Aquifer = 0.8 AF/acre
- Calvert Bluff Aquifer = 0.5 AF/acre
- Simsboro Aquifer 1.6 AF/acre
- Hooper Aquifer = 0.5 AF/acre

Questions and Discussion



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