

TWDB Response to Stakeholder Comments and Questions  
Groundwater Availability Model for the Queen City and Sparta Aquifers  
TWDB Contract No. 2003-483-482

1. Stakeholder Comment: In the introduction to the Draft Report (Section 1.0, P. 1-1), it is stated “as a result of Senate Bill 1, the approach to water planning in the state of Texas has shifted from a water-demand based allocation approach to an availability-based approach.” Yet, on P. 4-144, is stated that, “The TWDB predictive groundwater pumping for the period 2000 through 2050 [is or will be] based on projected water demand reported by Regional Water Planning Groups as part of Senate Bill 1 planning (TWDB, 2002).” A water-availability approach would seem to be entirely different from a water-demand approach. It would be extremely helpful to have some explanation (in terms that a geologist can understand) of how these two seemingly very different approaches are being mated for the purposes of the GAMs. Some explanation of how the regional demand figures are converted or reanalyzed to provide demand projections for the GAMs is sorely needed.

*The pumpage used in the GAMs was developed from data submitted in the Water User Group Exhibit B tables by the regions for the 2002 State Water Plan. Current supplies and future strategies should not have exceeded the amount the region defined as “available” from each source of water. Only when current supplies and future strategies, when summed, exceeded the demand for a water user group were adjustments made to pumpage. Capping the pumpage on demand, when applicable, was intended to reflect a more reality based pumpage scenario. The pumpage data sets developed from the 2001 regional water plans were therefore used as one pumpage-scenario example in the GAMs and are not meant to be the final word on pumping in the models. Rather, they serve as a starting point or initial scenario that Regional Water Planning groups and Groundwater Conservation Districts can use for comparison. The GAMs are meant to be used as tools to compare various scenarios guided by the policy of the regional and local groups. The pumpage-scenario presented in the GAM reports is not meant to be used by itself to define the groundwater availability for an area.*

2. Stakeholder Comment: On P. 4-144 of the draft report, there are statements that, “In some cases, the RWPGs identified new well field locations for developing new water supplies. In such instances, the specific locations of the future well fields will be used to spatially distribute the groundwater pumping forecasts. However, in the absence of any data indicating otherwise, we will assume that the most recent past distribution of groundwater pumping represents the best available estimate of locations of future groundwater withdrawals.” Again, on P. 4-145, it is stated that “Similarly for manufacturing, mining, and power generation, predicted future water pumping totals by county-basin will be distributed among the same wells and locations used by those water users in 1999.” These statements are not very detailed and the process may, in some cases, lead to invalid assignments of pumpage. For example, if this process were

used for the GAMs of the Carrizo-Wilcox aquifer system, the locations of ground water pumpage for mining in Milam and Lee Counties in 1999 would not be representative of the locations for ground water pumpage for the Three Oaks Mine to be opened in Lee and Bastrop counties. Isn't there some mechanism by which clear deviations from the results of applying the process of allocating pumpage can be recognized? Isn't there some tabular method by which these assumptions and decisions can be made clear to readers of the report and those who will use the model?

*The pumpage distributions used in the predictive model runs are not meant to be the final word on pumping in the models. Rather model users are encouraged to implement various pumping scenarios in the models for their planning. One of the deliverables for the GAM projects is the database of pumpage used in the models identified by water users group identification (ID) and grid cell. These databases can be used implement alternative pumpage scenarios.*

3. Stakeholder Comment: My greatest concern is that the models are so complex, underlain by a multitude of decisions and assumptions that few other than those who developed the models will really understand them.

*We agree that the models are complex. However, we believe that the complexity is necessary for the models to represent the physical system. If the models were simpler we would run the risk of either creating a black-box or a non-physical model. The limitations and assumptions of the Queen City and Sparta aquifers GAM are documented in Section 11 of the model report. In addition, the data used in the model are documented in the report or reference is made to the source of the data.*

4. Stakeholder Comment: I worry, too, that our ability to process information numerically has outstripped our ability to comprehend fully what we are doing.

*We agree that having an understanding of the hydrogeologic system is at least as important as the numerical model. A significant portion of the GAM projects is devoted to gathering, processing, and interpreting hydrogeologic data and developing the conceptual model of the aquifer system. The first six chapters of the Queen City and Sparta Aquifers GAM report are devoted to discussing the conceptual model and translating it to the numerical model. The GAMs are intended to be "living tools". The Texas Water Development Board (TWDB) hopes to revisit each of the GAMs periodically to determine if improvements to the conceptual model or the numerical translation are needed.*