

Comment on Presentation by Mr. Donnelly

Technical Issues on GMA 12 Desired Future Conditions

**GMA-12 Appeal Hearing
March 7, 2012**

George Rice
March 14, 2012

Slide 19 – *Limitations*, bullet 3:

Mr. Donnelly presents a quote from the Central Carrizo-Wilcox GAM Report: “*Similarly, stream base flow is not predicted accurately for individual model cells.*”¹

However, the base flows that were presented for the Colorado and Brazos rivers were for stream reaches that are much larger than an individual cell.

- The Colorado River main stem² consists of 48 cells³ (MODFLOW stream segments 36, 38, 40, and 46).
- The Brazos River main stem consists of 45 cells⁴ (MODFLOW stream segments 49, 51, 53, 58, and 60).

It should be noted that the quote used by Mr. Donnelly was extracted from a paragraph that refers primarily to wells. The complete paragraph is:

- *The square-mile-grid cell size limits the applicability of the model at a local level. The model would not be appropriate in its present form for the detailed work needed for designing and locating individual wells in well fields. The model may be used to assess regional water-resource implications of the withdrawal of groundwater from well fields. In addition, corrections for apparent drawdown may be needed to apply model results, calculated for the center of grid cells, to individual wells and their pumping cycles. Similarly, stream base flow is not predicted accurately for individual model cells.*⁵

¹ A cell in the GAM is a square that is one mile on a side.

² Not including tributaries.

³ The units that discharge groundwater to the Colorado River are: Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, and Hooper.

⁴ The units that discharge groundwater to the Brazos River are: Sparta, Weches, Queen City, Reklaw, Carrizo, Calvert Bluff, Simsboro, and Hooper.

⁵ TWDB, 2003, page 271 underline added.

References

Texas Water Development Board (TWDB), 2003, *Groundwater Availability Models for the Central Part of the Carrizo-Wilcox Aquifer in Texas*, by Alan R. Dutton, Bob Harden, Jean-Philippe Nicot, and David O'Rourke, University of Texas Bureau of Economic Geology, February, 2003.

TWDB, 2004, *Groundwater Availability Models for the Queen City and Sparta Aquifers*, by Van A. Kelley, Neil E. Deeds, Dennis G. Fryar, and Jean-Philippe Nicot, with Toya L. Jones, Alan R. Dutton, Gabe Bruehl, Tanya Unger-Holtz, and James L. Machin, University of Texas Bureau of Economic Geology, and R.J. Brandes Company, October 2004.