GAM run 03-35

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REQUESTOR:

Mr. Jason Coleman, General Manager, South Plains Underground WCD

DESCRIPTION OF REQUEST:

Mr.Coleman requested the following information from the Southern Ogallala aquifer Groundwater Availability Model (GAM) for the South Plains Underground Water Conservation District (SPUWCD):

- Shape files used to generate water table decline maps for the GAM run supplied to the SPUWCD with average recharge (2003-2014) from GAM run 03-21.
- Shape files used to generate water table decline maps and flow budget for the years 2001-2014 substituting usage numbers supplied by SPUWCD from GAM run 03-21.

METHODS:

To address the request, we:

- Ran the Southern Ogallala aquifer Groundwater Availability Model (Blandford and others, 2003) for the projected period 2000-2050 with average recharge and queried the budget files in the South Plains UWCD for 2001-2014; and
- Changed the pumpage for 2001-2014 to reflect the numbers supplied by SPUWCD; ran the model and computed the water budget and heads for 2001-2014.
- The files used to generate the water table decline maps are actually data base files (*.dbf) that were imported into Surfer 7 and contoured.

PARAMETERS AND ASSUMPTIONS:

The recharge in the model was considered average for the 2001-2014 period. The pumpage used in the first scenario was from the Regional Water Planning Group designated as Region “O”. The pumpage in the second scenario was supplied by SPUWCD for the 2001-2014 period and was applied only to irrigation. Recharge was maintained as average. The pumpage was distributed spatially exactly like the pumpage in the Blandford and others (2003) report. All other assumptions are identical to the Blandford and others (2003) report.

RESULTS:

The data in the files was contoured using kriging in Surfer 7, combined with base maps of the district and supplied to the SPUWCD. The files contain x, y coordinates, cell ID, head elevation in 1996, bottom elevation of the Ogallala, surface elevation, specific yield for each cell, and water level elevations for each year 2001-2014. Average recharge and RWPG pumpage were used to generate 2001ar_2014ar.txt and SPUWCD pumpage was used to generate 2001_2014rp.txt. Both files can be imported into ArcView as tables and contoured.

REFERENCES:

Blandford, T. N., Blazer, D. J., Calhoun, K. C., Dutton, A. R., Naing, T., Reedy, R. C., and Scanlon, B. R., 2003, Groundwater Availability of the Southern Ogallala Aquifer in Texas and New Mexico; Numerical Simulations Through 2050: Final Report prepared for the Texas Water Development Board.