Mid East Texas GCD Final Desired Future Conditions (DFCs)

25 May 2010

Introduction

As decided by all member districts in GMA12, the Mid East Texas Groundwater Conservation District (METGCD) DFCs will be stated as average drawdowns throughout the entire district per aquifer from 2000 to 2060. The Central Queen City-Sparta Groundwater Availability Model (CQCSpGAM) was used to calculate potential future drawdowns within the district. Desired future conditions for the Carrizo, Calvert Bluff, Simsboro, and Hooper aquifers are based on the model results.

Considerations and Procedure Used

The original CQCSpGAM well file had approximately 14,600 acft/yr of total pumping assigned to METGCD. On 23 June 2009, the district board decided to raise the total district pumping to 25,000 acft/yr, as a reasonable allowance for potential future permit applications, and to re-run the model to determine DFCs based on that pumping amount. The model pumping inputs were modified by multiplying the pumping rate in each district model cell by 25,000/14,650 = 1.71 to raise the entire district pumping to 25,000 acft/yr. This method preserved the distribution of pumping that was built into the original model.

Model-calculated average drawdowns in METGCD for the Queen City and Sparta aquifers are negative due to anomalous increases in hydraulic head in the up-dip areas of each aquifer throughout the predictive period. These increases were investigated by the district hydrogeologist, who concluded that the current version of the model is not accurately simulating future water level response in the Sparta and Queen City formations and, therefore, cannot be used to determine a managed available groundwater (MAG) for any Sparta or Queen City aquifer DFCs proposed by METGCD. METGCD is therefore proposing zero average district-wide drawdowns in year 2060 as their DFCs for the Sparta and Queen City aquifers, and is requesting that the TWDB determine the MAG for these two aquifers based on some method other than CQCSpGAM results. A copy of the hydrogeologist's report concerning rising water levels in the CQCSpGAM is attached to this document.

Model-calculated average drawdowns for the other aquifers present in METGCD were used to determine DFCs for those aquifers. The drawdown values calculated by the model are precise to within about ±5 feet, therefore, the average drawdown values calculated by the model are rounded to the nearest 5 feet for the DFCs.

METGCD Proposed Desired Future Conditions

The desired future conditions for METGCD, as approved by the district board in Resolution 2010-10 (May 20, 2010) are presented in the following table.

Aquifer	Avg. District Drawdowns
Sparta	0 feet
Queen City	0 feet
Carrizo	55 feet
Calvert Bluff	70 feet
Simsboro	115 feet
Hooper	95 feet

not accurately simulating future water level response in the Sparta and Queen City formations and therefore should not be used to determine a MAG for any Sparta or Queen City aquifer DFCs proposed by METGCD.

METGCD is therefore proposing zero average district-wide drawdowns in year 2060 as their DFCs for the Sparta and Queen City aquifers and requesting that the TWDB determine the MAG for these two aquifers based on a water budget analysis rather than on the CQCSpGAM results. METGCD intends to revisit the Sparta and Queen City DFCs after the CQCSpGAM has been revised and the problems with rising water levels in the outcrop zones are fixed.

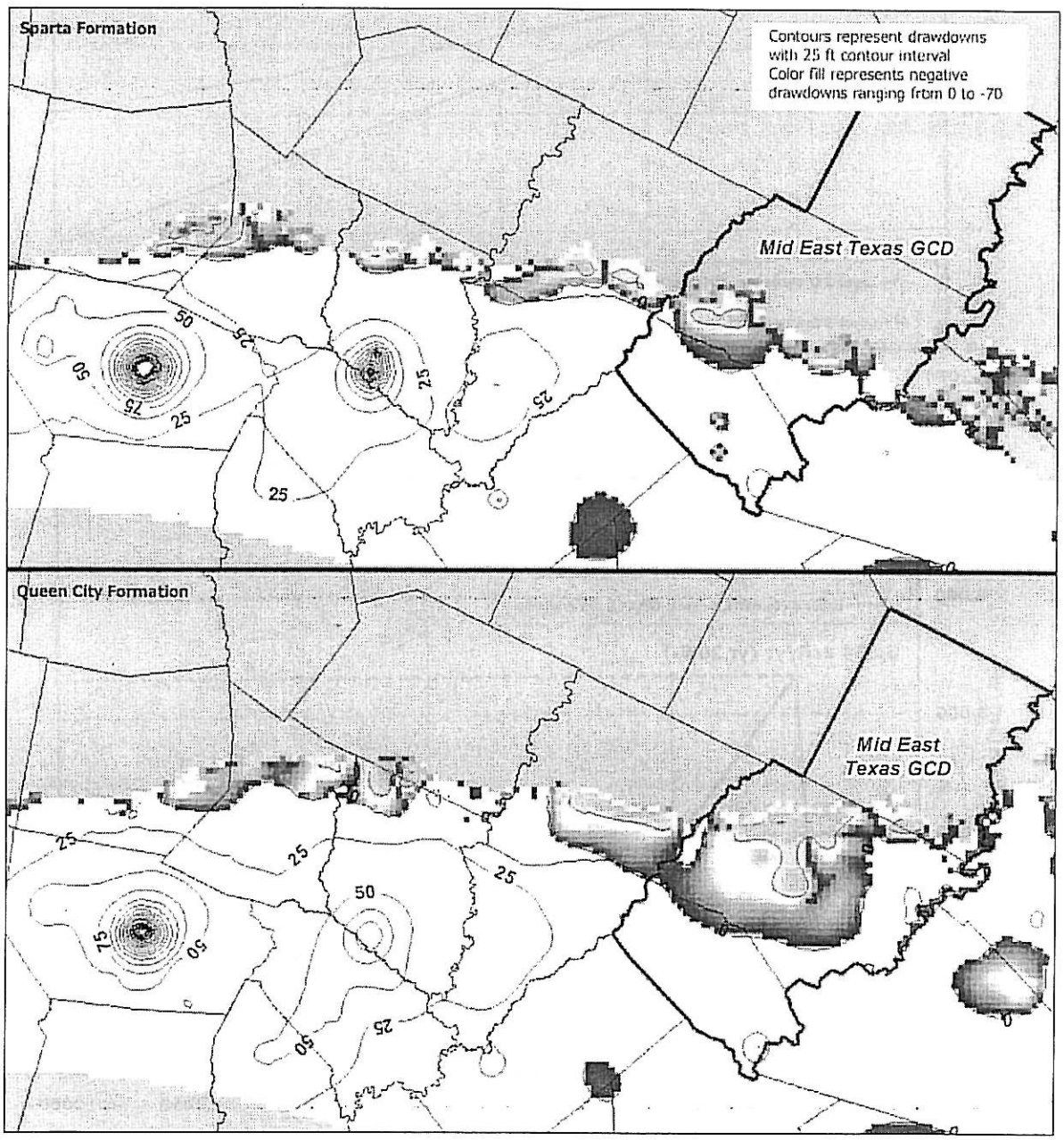

Figure 1. Model-calculated drawdowns from 1/1/2000 to 1/1/2060 throughout GMA12 using the GMA12_7A well file

Figure 4. Average Drawdowns in METGCD from the GMA12_7A GAM Well Files

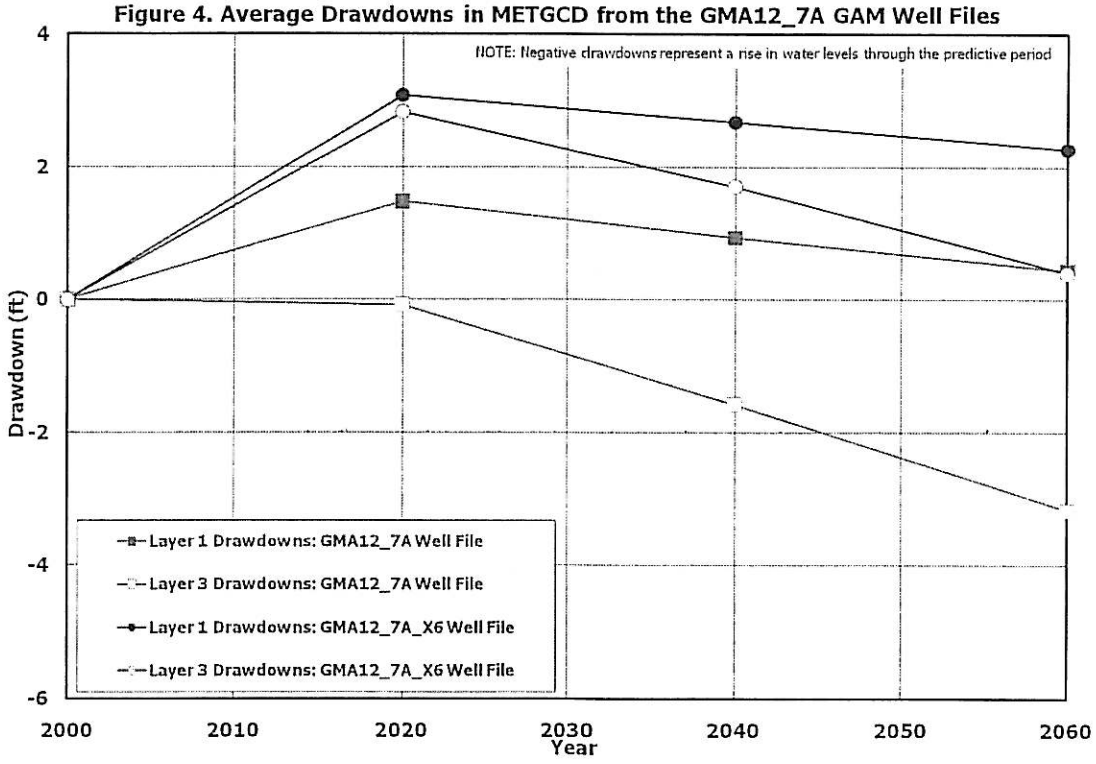

Figure 5. Total METGCD Pumping in the GMA12_7A Well File Multiplied by 6