



# TEXAS WATER DEVELOPMENT BOARD



James E. Herring, *Chairman*  
Lewis H. McMahan, *Member*  
Edward G. Vaughan, *Member*

J. Kevin Ward  
*Executive Administrator*

Jack Hunt, *Vice Chairman*  
Thomas Weir Labatt III, *Member*  
Joe M. Crutcher, *Member*

**TO:** Board Members

**THROUGH:** Robert Mace, Deputy Executive Administrator,  
Water Science & Conservation

**FROM:** William R. Hutchison, Director, Groundwater Resources Division  
Kenneth L. Petersen, General Counsel

**DATE:** June 9, 2010

**SUBJECT:** Briefing, Discussion and Possible Action Concerning Exempt Use in  
Managed Available Groundwater Numbers

## **ACTION REQUESTED**

Staff is requesting Board approval of staff's revised approach to exempt uses in developing managed available groundwater numbers.

## **BACKGROUND**

The Board received briefing on the consideration of exempt use in managed available groundwater numbers at the May 20, 2010, meeting. Following discussion, it was requested that staff bring this matter back to the Board in June for further discussion and possible action.

## **STATUTORY ANALYSIS**

Section 36.117(b) prohibits groundwater conservation districts from requiring permits for (1) "wells used solely for domestic use or for providing water for livestock or poultry on a tract of land larger than 10 acres... that is incapable of producing more than 25,000 gallons of groundwater a day" (approximately 17 gallons per minute); (2) wells "used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas" provided the well is located on the oil or gas lease and the same person operates the groundwater well and the oil or gas well; (3) wells authorized under permits issued by the Railroad Commission for surface coal mining operations. In addition, the authority of groundwater conservation districts to issue permits under Chapter 36, Water Code, does not include "production or injection wells drilled for oil, gas, sulphur, uranium... under permits issued by the Railroad Commission of Texas." Section 36.117(1).

Section 36.117(a), Water Code, confers discretion on groundwater conservation districts to exempt other uses from requiring a permit. In addition, the enabling legislation for certain districts can either expand or narrow the scope of exempt uses.

Section 36.001(25), Water Code, defines "managed available groundwater" to mean "the amount of water that may be permitted by a district for beneficial use in accordance with the desired future condition of the aquifer..." Since, by definition, groundwater conservation districts cannot require a permit for any exempt use of groundwater, exempt use amounts may not be permitted and staff's recommendation is that exempt uses be excluded from managed available groundwater numbers.

### **PREVIOUSLY ISSUED MANAGED AVAILABLE GROUNDWATER NUMBERS**

As discussed at the May Board meeting, staff practice to date has been to develop managed available groundwater numbers that include both exempt and nonexempt uses. Pending Board direction, staff proposes to issue revised managed available groundwater numbers (MAGs) after September 1st. These would include MAGs for Groundwater Management Area (GMA) 8 and GMA 9. Staff will solicit input from the respective groundwater conservation districts in developing estimates of exempt groundwater use, incorporate these estimates into draft managed available groundwater reports, and solicit comments from the respective districts prior to finalizing and issuing the revised MAGs.

In those groundwater management areas in which exempt use is a relatively small percentage of total groundwater availability, there may be little or no impact. In the case of GMA 9, a revised MAG that fully safeguards exempt use (including projected increases in exempt use) should have no impact since no permitted use within the GMA is contemplated. In others, however, the MAG could be reduced by a measurable percent. Districts within a GMA may choose to revise the desired future condition (DFC) of the aquifer in cases where the revised MAG does not fully support uses requiring permits. 30 Texas Administrative Code Section 356.33 of the TWDB's rules contemplates that DFCs must be adopted "at least every five years" but may be amended or revised more frequently as necessary. Staff notes that any changes in exempt use following adoption of a DFC, such as a significant increase in oil and gas production activities, could be incorporated into a revised MAG or a revised DFC.

### **EXEMPT USE AS A PERCENTAGE OF GROUNDWATER AVAILABILITY**

Staff has prepared estimates of the relative impact of exempt uses on total groundwater availability in each county. Groundwater availability is currently defined by regional planning groups. Managed available groundwater is calculated by the TWDB based on an adopted desired future condition. Managed available groundwater numbers will ultimately replace "groundwater availability" numbers in regional water plans. Comparing estimated exempt use and groundwater availability on a county scale for the entire state, therefore, provides some understanding of the significance of exempt use to available groundwater supplies. Total

groundwater availability data from the 2007 State Water Plan for each of the 254 counties in 2010 was compared to estimates of exempt use. For purposes of this analysis, exempt use for groundwater pumping for rural domestic and livestock was estimated using the approach outlined at the May 20, 2010 Board meeting. (Attachment 1) Estimates for mining uses (which include oil and gas production activities) were obtained from the 2007 State Water Plan.

Based on this analysis:

- 207 counties (81 percent) had exempt uses that were less than 20 percent of groundwater availability in 2010.
- 12 counties (5 percent) had exempt uses that were greater than 50 percent of groundwater availability in 2010.

### **SUMMARY**

Staff recommends approval of this approach.

Attachment 1: Staff's Approach to Estimating Exempt Use

### **Staff's Approach to Estimating Exempt Use**

In most cases, the largest categories of exempt use are rural domestic and livestock. Staff has developed estimates of these categories for all 254 counties based on census data and water planning data maintained by TWDB. Staff has also developed a method to further subdivide these estimates by aquifer within each county using the water well database.

Decadal estimates of rural domestic use from 2010 to 2060 were developed by TWDB staff and are based on census block utility service area boundaries, the number of single-family connections reported in the annual Water Use Survey, and the "County-Other" population in the 2007 State Water Plan.

- The census block utility service area data provided a means to estimate population served by "exempt wells"
- The Water Use Survey data provided information to estimate per capita use for rural domestic areas. The state-wide per capita use estimate using this approach for 2006 was 87 gallons per capita per day, and was 105 gallons per capita per day in 2007.
- The County-Other data were used to estimate decadal growth rates in population.

This approach resulted in two sets of decadal estimates of rural domestic use (one based on 2006 per capita use, and one based on 2007 per capita use) for each county in Texas. For purposes of using this method, an average of these two estimates will be used.

Decadal estimates of livestock use will be taken directly from the estimates in the 2007 State Water Plan. These estimates exist for each county in Texas.

Subdividing these estimates by aquifers within each county will be completed by using the water well database. The database contains codes for well use and for aquifer completion. Although not every well in the state is represented in the database, this method assumes that the percentage of domestic and livestock wells in each aquifer in a given county is representative of all domestic and livestock wells. Thus, the total exempt use (sum of rural domestic and livestock) can be allocated to each aquifer.

An example for Angelina County is shown below. At the April Board meeting, staff presented preliminary managed available groundwater numbers for Groundwater Management Area 11. These numbers represent the total pumping that is consistent with meeting the goal articulated in the desired future conditions established by the groundwater conservation districts in Groundwater Management Area 11.

Summary of Managed Available Groundwater Calculation in Angelina County (located in Groundwater Management Area 11)

<b>Aquifer</b>	<b>Total Pumping (acre-feet per year)</b>	<b>2060 Exempt Use in acre-feet per year (Entire County)</b>	<b>Percentage of Wells in Aquifer</b>	<b>2060 Exempt Use Estimate by Aquifer (acre-feet per year)</b>	<b>Proposed Managed Available Groundwater (acre-feet per year)</b>
<b>Yegua-Jackson</b>	16,507	918	74	679	15,828
<b>Sparta</b>	689		15	138	551
<b>Queen City</b>	1,093		0	0	1,093
<b>Carrizo-Wilcox</b>	26,414		1	9	26,405
<b>Total</b>	44,703		90	826	43,877
<b>Other</b>	N/A		10	92	N/A

Note that the all pumping consistent with the desired future condition in Angelina County is 44,703 acre-feet per year, and the exempt use estimate for rural domestic and livestock is 918 acre-feet per year, which provides a managed available groundwater of 43,785 acre-feet per year. Extending the analysis further, based on the water well database, 74 percent of the domestic and livestock wells in Angelina County are completed in the Yegua-Jackson Aquifer. Therefore, staff estimates that 679 acre-feet per of exempt use is from the Yegua-Jackson Aquifer. Thus, the managed available groundwater associated in the Yegua-Jackson Aquifer in Angelina County is 15,828 acre-feet per year out of a total pumping of 16,507 acre-feet per year.

Also note that 10 percent of the domestic and livestock wells are located in aquifers other than those for which desired future conditions have been established. Based on this analysis, only 826 (90 percent) of the total exempt use estimate is considered in making the managed available groundwater calculation.

It is recognized that this method will not accurately estimate exempt use in all cases. These estimates do not account for:

- Vacation homes
- Hunting camps
- Small scale commercial establishments in rural areas
- Small public water systems that are not included in the Water Use Survey
- Groundwater use associated with oil and gas production
- Historic uses that are exempt from regulation
- Municipal uses that are exempt from regulation

Staff plans to solicit input from districts regarding groundwater use for oil and gas production. Staff proposes to develop exempt use estimates with the method described above (along with

estimates for groundwater use for oil and gas production), document the estimates in draft managed available groundwater reports to the districts, and solicit comments regarding those estimates. If a district can document a more accurate estimate of exempt use given their particular set of circumstances, staff would then make a decision on whether to modify the estimate (based on information and documentation of the alternative estimate) or maintain the original estimate. If no response is received from the districts on the exempt use estimate, it will be considered accurate, and the draft document will be finalized.