

**MINUTES OF THE WORK SESSION
RED RIVER GROUNDWATER CONSERVATION DISTRICT**

TUESDAY, OCTOBER 11, 2011

**AT THE GREATER TEXOMA UTILITY AUTHORITY
BOARD ROOM
5100 AIRPORT DRIVE
DENISON, TX 75020**

Members Present: George "Butch" Henderson, George Olson, Don Wortham, David Gattis, Harold Latham, Don Morrison, Mark Patterson

Members Absent: None

Staff: Jerry Chapman, Carolyn Bennett and Carmen Catterson

Visitors: James Beach, LBG-Guyton Associates

1. Call to order, declare work session open to the public, and take roll.

President Henderson called the meeting to order at 2:04 PM. Board Member Gattis arrived at 2:05 PM. Mr. Chapman introduced James Beach with LBG-Guyton Associates. Mr. Beach attended the meeting to give the Board insight into the aquifer study being proposed by Groundwater Management Area 8 (GMA 8).

At this time, President Henderson moved to Item 3.

3. Discussion regarding construction of revised regional groundwater availability model and aquifer characterization for the northern Trinity and Woodbine Aquifers.

Mr. Beach stated that he is not attending the meeting to convince the Board of anything. He is only present to educate. The two aquifers in Fannin and Grayson Counties are the Woodbine and Trinity Aquifers. A Groundwater Availability Model (GAM) was a tool developed to meet Texas Water Development Board (TWDB) requirements in the mid-late 1990s. The GAM was a tool that combined other groundwater modeling tools for regional evaluations for long-term supply and was intended to help provide a better method for managing groundwater. The GAM cannot determine the level of water in one location at a given moment in a specific location. The tool is not simple, but is very useful if it is used correctly. The GAM is used to calculate the amount of Modeled Available Water (MAG). The GAM was meant to look at groundwater on a regional scale for long-term planning to predict impacts until 2050. The GAM was intended to assist groundwater districts and water planning agencies to determine water availability for the future.

The model is based on available data to determine cause and effect of the aquifer. The results provided by the GAM can be used to compare to actual data to make the model more accurate over time. The GAM is divided into "gridblocks" or "cells," which is the measurement of calculation. The current GAM uses a 1-mile grid. The model shows where the water is being pulled from and where it is being

used. For each grid block, the model looks at the natural recharge, the amount of water in storage, the amount being removed from storage by pumping, the exchange of water from one grid block to another, and the return flow from irrigation.

Mr. Beach explained that before the TWDB's budget was cut, the TWDB performed an Evaporation and Recharge Study and a new assessment of aquifer properties. The new data from the current drought is available and new modeling codes and tools are available. The new data will take into account how the aquifers will respond in a drought condition. This was not taken into account for the previous model. The new model would be able to assist with groundwater management, whereas the old model was not designed to manage the aquifer.

The Desired Future Condition (DFC) of an aquifer details how much drawdown is desired in 50 years. Across the GMA 8, the group reviewed the regional demands on the aquifer and established drawdown goals across the region. The MAG provides the amount of acre-feet that can be pumped to reach the DFC. The current available MAG for Fannin County is slightly less than 4,000 acre-feet per year and for Grayson County is 21,500 acre-feet per year. The total for the Red River GCD is approximately 25,000 acre-feet per year. In 2003, the groundwater used was 21,146 acre-feet per year. The estimated amount for 2060 is 28,454 acre-feet per year of groundwater use.

Mr. Beach briefly explained how aquifers are recharged and the definition of water level, which is the resting level of the water in the aquifer. An unconfined aquifer is not bound on the top by a confining level, which puts the aquifer under pressure. The Trinity Aquifer is made up of several confining layers of clay, which causes the water to be put under pressure and the water to flow up the well. The water will flow up the well until it reaches the water level. The groundwater budget takes into account inflows, outflows and changes in storage. As the groundwater districts set their water use goals by using this data and the information provided by the DFCs and the GAM. Pumping can cause decreased outflow from the aquifer into springs, etc. The Trinity Aquifer has seen significant drawdown over the years – as much as 800 feet in some locations.

In most locations without groundwater districts, the Rule of Capture is the standard of operation. However, groundwater districts serve to protect the groundwater to prevent over-pumping of the aquifer. GMAs help the groundwater districts to manage the aquifer and prevent one area from effecting the aquifer under nearby districts by limiting pumping in each area.

After the last legislative session, the definition of DFCs were adjusted to include 9 specific conditions that must be considered in order to develop the DFCs for an area. The conditions will provide additional need for verification and specification of the use of the groundwater. The groundwater districts and the GMAs will need to address each specific condition and how it was taken into account during the development of the DFCs.

The 9 conditions are:

1. Aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another;
2. The water supply needs and water management strategies included in the state water plan;
3. Hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the executive administrator, and the average annual recharge, inflows, and discharge;

4. Other environmental impacts, including spring flow and groundwater-surface water interaction;
5. Land subsidence;
6. Socioeconomic impacts;
7. The impact on the interests and rights in private property;
8. The feasibility of achieving the desired future condition;
9. And other information relevant to the specific desired future conditions.

Board Member Gattis asked Mr. Beach to expound on how the firm developing the model will collect all the data. Mr. Beach responded that the TWDB provided a study on evaporation and recharge. The collection of data is the most important aspect of the model. The new model will utilize all existing data that is available from wells that have been drilled since the previous model was developed in 2004. All new municipal wells that are drilled are required to perform a pump test, which will provide the water level of the aquifer in that location.

The previous GAM was based off a database created in the early 1990s. This was a combination of all existing data at that time. However, it did not include the data from the Texas Commission on Environmental Quality (TCEQ). The model will include both the Trinity and Woodbine Aquifers and will take into account all the differences in the aquifers throughout GMA 8. Three databases for well information exist – the electronic TWDB database has approximately 10% of existing wells, the paper records at TCEQ has approximately 70-80% of existing wells, and the public water supply data kept by the TCEQ has approximately 10% of existing wells. The last two groups were not included in the Meyers Database that the existing GAM was based on.

The benefits to updating the model will include focusing on areas that now have groundwater districts and on adding all new data that is available now that was not available or not included in the first model. The existing model does a good model of the down-dip side of the Trinity Aquifer, but does not include good data for the outcrop areas. The new model will provide much better information on the outcrop areas and the down-dip sections. This will allow much better examples and projections of how the aquifer will react to different scenarios. The static levels provided by municipal wells will be included in the new model. The model is a regional perspective and will not be able to simulate the impacts of individual wells on the aquifer, but will provide a more refined look at the aquifer.

The Board asked that if a 1-mile grid will provide 10-20 feet of accuracy, what accuracy a 1/8-mile grid would provide. Mr. Beach responded that that the model would provide a similar level of accuracy that is dependent upon the available data. The outcrop areas will have better data provided, which will provide a higher level of accuracy and a more refined grid will provide a better model. Mr. Beach stated that there are some updated codes that would enable the outcrop areas to be modeled at a 1/8-mile grid and the down-dip areas on a 1-mile grid.

Board Member Gattis stated that it appears that this entire process to update the model will mostly benefit the legal side of the debate. Mr. Beach stated that the 9 conditions were provided by a group of consultants and provided to the legislature. The conditions were included in SB 660, which modified the process of approving DFCs, etc. However, nothing will eliminate the possibility of a law suit.

Vice President Olson asked what consequences would be experienced if the District does not participate in the new GAM. What would happen if only one or two districts participate in the model

update? Board Member Gattis asked if the District wanted to do a study for only this area, what steps the District should take. Mr. Beach responded that the District should update the large regional model and make sure that the simulated models match the actual levels. Alternatively, the District could contract to create a smaller sub-regional level model. If several districts in GMA 8 create a new model, the TWDB could change the model of standard and the other districts would have to catch up. President Henderson stated that the intent of the model would be to include the TWDB from the start and to work with the TWDB to make sure that they are fully satisfied with the model that is developed.

Mr. Beach explained that having a water level in each grid would be helpful, but the model would be able to estimate a level for each grid based on historical data from the last hundred years. New data helps, but it is the historical data that creates a model. The old data did not include historical static water level data and the new model will include this data to make the water levels more accurate in the model. President Henderson stated that he is torn since he believes the District cannot afford to participate in the study and the entities he represents do not want to pay for the study, but he believes the study would be very valuable to the District. Board Member Gattis expressed that he feels the study should wait for another five years while data is collected. However, the data is always changing and if the study waits five years, it could wait an additional five years to be developed since the data would already be outdated.

The model would be developed with open-source mod-flow code and then existing data would be incorporated into the code. The coding of the model is not the cost, it is the work that goes into building the model and collecting data. Board Member Gattis clarified that the new model would be developed with the TWDB to help defend groundwater district and GMA actions while making permitting decisions without taking the time to collect data.

At this time, President Henderson moved back to Item 2.

2. Discussion regarding development of District's Management Plan

The District's Management Plan must be completed and submitted to the TWDB as a final copy before August 2012, which is three years after the District's creation. The North Texas GCD recently completed the first draft of their Management Plan and spent approximately \$96,000. The Management Plan will define how the District manages the groundwater, including locating wells and preservation of the aquifer. The staff has not presented information on the Management Plan and the requirements to the Board at this time, since Temporary Rules were required to be approved first. Mr. Chapman requested a cost estimate on how much it would cost for the required hydrogeotechnical information. Mr. Chapman contacted Dr. Bill Hutchison who formerly worked for the TWDB and now works for LBG-Guyton. The cost estimate will depend on when the current studies being completed by the TWDB are finished.

The Management Plan must be submitted to the TWDB for an initial review by March-April 2012. The TWDB usually takes 60-90 days to review the plan before approving it for a public hearing and final approval. The Management Plan will provide a more detailed look at the aquifers and how the aquifers will be managed. The Management Plan must be officially approved and submitted to the TWDB before September 1, 2011.

The North Texas GCD approved their budget, which included \$200,000 for the model update and a rate of \$0.10 per 1,000 gallon. If the North Texas GCD opts not to participate in the model update, they plan to use the additional funds to pay down their start-up loans.

The Board discussed the benefits of participating in the groundwater model update and potential litigation that could occur from not participating. Board Member Gattis recommended initiating a concentrated effort to collect good data from as many entities as possible for the next several years and see how much litigation occurs.

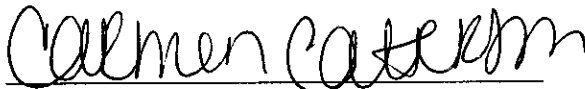
President Henderson expressed concern since Fannin County is currently pumping almost 2,000 acre-feet per day above the current DFCs. Board Member Gattis stated that the District would not have any control on what data is provided to the model or is produced by the model. If the District does not participate in the model update, the District will not be included in the consideration of DFCs from the model.

President Henderson recommended providing a budget to the District for approval on October 19, 2011 excluding the \$200,000 in order to receive approval. The Board discussed having the field technician assist with collecting better data from cities. Board Member Morrison asked if it would be possible to share the field technician with the North Texas GCD and the staff responded that it might be a possibility, but would depend on how busy the field technician. The Board requested the staff provide a draft of the North Texas GCD's Management Plan to begin considering.

4. Adjourn work session

Upon motion by Board Member Gattis, seconded by Board Member Morris and passed unanimously, the Board adjourned at approximately 4:09 PM.

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Recording Secretary



Secretary-Treasurer