

GROUNDWATER RESEARCH SUBCOMMITTEE MEETING RECORD

TIME AND DATE:

9:00 AM, August 11, 2005

LOCATION:

Texas Commission on Environmental Quality Campus, Building F, 2nd Floor, Meeting Room
2210, 12100 Park 35 Circle, Austin, Texas 78753.

PURPOSE OF MEETING:

Regular business meeting

AGENCIES/ENTITIES REPRESENTED:

Bureau of Economic Geology [BEG]
Texas Agricultural Experiment Station [TAES]
Texas Commission on Environmental Quality [TCEQ]
Texas Department of Agriculture [TDA]
Texas Water Development Board [TWDB]
Texas State Soil and Water Conservation Board [TSSWCB]
United States Geological Survey [USGS]
Steve Walden Consulting

ATTENDEES:

Bridget Scanlon	BEG, Co-chair of the GW Research Subcommittee of the TGPC
Mary Ambrose	TCEQ, Chairman of TGPC
Radu Boghici	TWDB
Alan Cherepon	TCEQ
Richard Egg	TSSWCB
Richard Eyster	TDA
Lynne Fahlquist	USGS
Joseph L. Peters	TCEQ
Kevin Wagner	TAES

IN AUDIANCE:

Steve Walden Steve Walden Consulting

MEETING SUMMARY:

Dr. Scanlon called the meeting to order at about 9:05 AM. The meeting started with everyone introducing themselves.

Dr. Scanlon introduced the discussion, which would be a continuation of the discussion of the

last meeting, concerning white papers that need to be developed for the six priority projects listed as priority needs in the *Report to the Legislature*. The research related topics are as follows.

1. Groundwater Availability Model (GAM) Funding
2. Data Collection to Support the GAM Program
3. Expanded Funding for Groundwater Sampling for Water Quality and Water Availability
4. Ambient Groundwater Monitoring for Inorganic Constituents
5. Research on Characterization of Brackish Water and Disposal of Desalination Reject Water in Saline Aquifers and Depleted Oil and Gas Reservoirs
6. Collaborative Agricultural and Hydrogeologic Studies on Nitrate in Texas Groundwater

The discussion began with Topic 5 on brackish water characterization and desalinization waste water disposal. Dr. Jones, at the last meeting, volunteered to do a White Paper for this topic. In discussing what activities related to desalinization were ongoing, Ms. Ambrose mentioned that Texas A&M University had submitted some reports through the National Groundwater Protection Research Foundation. It was mentioned that a planned project was to be discussed at an upcoming TWDB meeting. Ms. Ambrose also mentioned also that Argonne National Laboratories was doing some work on disposal techniques.

Ms. Ambrose stated the necessity of having discussions with EPA on what class of injection wells will be required for injecting desalinization wastes. It would seem that the requirement of disposal through Class I injection wells would be extreme for this type of waste.

Mr. Walden informed us that the TWDB has tentatively gotten involved in a self-sealing-ponds project. It involves the development of techniques of injecting some type of coagulant or chemical into the bottom of waste ponds so that there would be no need to install expensive pond liners. This type of development would be very important for small communities with limited financial resources. Also, he mentioned that Steve Walden Consulting was working with Mr. Tony Bennett of TCEQ on researching the possibility of putting concentrate from treatment residuals back down a Class V type well, putting it back into the aquifer from which it came. He mentioned that there was a House Bill directing TCEQ to expedite the permitting process for water treatment residuals injection as opposed to other types of residuals that may require Class I injection. A modeling study is being done to help determine what the effects of the waste might be on the aquifer. Also, there is the consideration of the possible use of no-longer-used Class II wells. The argument is that Class V would be appropriate because, essentially, what you have is the reinjecting of water that originally came out of the aquifer. Ms. Ambrose suggested that perhaps a White Paper should be prepared on categorizing brackish water as a resource.

The discussion moved to the importance of knowing which aquifers would be candidates for desalinization. Maps showing aquifer TDS would be very useful. These could possibly be generated from electrical logs. There are maps available, from USGS source water protection work and from the TWDB, that show the thickness of fresh water. The base of fresh water for some of these (the Edwards Aquifer for instance) was based on TDS. The meta data for the mapping project should indicate on what the base of fresh water was determined.

The discussion moved to Topic 4 dealing with ambient groundwater monitoring for inorganic

constituents. The question arose if the TWDB got any funding from the last Legislative for this type of work. Ms. Ambrose mentioned that Topics 1,2,3, and 4, all, depended on the TWDB getting additional funding for support. At the afternoon meeting of the TGPC, the information should be available, whether or not the TWDB got the necessary extra funding.

Dr. Scanlon mentioned the importance, for arsenic and radio nuclide evaluation, of getting additional parameters such as D.O. and redox. Redox is very important for uranium, radio nuclide, and arsenic mobility. Measuring for these parameters does take more equipment and more time at each well. Ms. Fahlquist pointed out that the TWDB typically samples approximately 6 to 8 wells per day per sampler, while the USGS typically samples about two wells per sampling team using the NAWQA protocol. So time spent at each well depends very much on how elaborate the sampling protocol is as well as how many parameters are being measured.

It was mentioned that BEG would be working with the TWDB in a denitrification study. It was also mentioned that the USGS would be sampling the Gulf Coast Aquifer in Orange and Jefferson county, using the NAWQA protocol. Mentioned also was the fact that the TWDB makes a request of the USGS, every year, for sampling data that they would like to have. It was determined that the BEG and the TWDB should work together on a White Paper on ambient groundwater monitoring for inorganic constituents.

Ms. Fahlquist has put together an unpublished USGS report on ambient monitoring. The Data Management Subcommittee will be working with this report in trying to apply its suggestions.

Topic 3, Expanding funding for Groundwater Sampling for Water Quality and Water Availability was the next topic of discussion. Dr. Scanlon mentioned that the first three topics are pretty much related. Age dating is included here. Age dating can be done as a one time endeavor. The TWDB has done some analysis of Tritium. However, the sampling density needs to be increased. They have been doing some Carbon 14 analysis also. Tritium gives ages of younger waters. Carbon 14 is used for older water. Sulphur 35 is also used for younger waters. Chlorine 36 has also been used but not very successfully. Chloro-Fluoro-Carbons (CFCs) can also be used to date the water.

Topic 1, Groundwater Availability Model (GAM) Funding, was the next topic. This White Paper will be keyed to the continued support of the GAM Program. It was mentioned that the GAM Technical Advisory Committee would be meeting the following week. Dr. Scanlon said that she would be attending.

Topic 6, Collaborative Agricultural and Hydrogeologic Studies on Nitrate in Texas Groundwater, was the final topic of discussion. Dr. Scanlon asked Mr. Wagner how the Nitrate Study was progressing. He indicated that the project was just getting started and that the QAPP was just recently approved. Some monitoring on irrigation wells, belonging to landowner cooperators, has just begun. It was decided that it would be nice to have Ms. Christine Morgan to come and give us a short briefing on the project.

Dr. Scanlon described somewhat her project with TCEQ, concerning the sampling of aquifers in East Texas to determine if denitrification is taking place. They will be analyzing for noble gases,

nitrogen gases produced by denitrification, and redox. She mentioned that it would be nice to get some cooperation on the project from the TWDB. The Southern Gulf Coast and the Southern High Plains are other areas that have high nitrates. Ms. Fahlquist explained that denitrification is not very likely in the Edwards except in some localized areas where the D.O. is low.

Mr. Eyster spoke to considering nitrates in irrigation water as a possible source of nitrogen for crops. It would be useful to include this nitrogen in the fertilizer budget. Mr. Wagner mentioned that the TSSWCB were checking into this also in the Seymour Aquifer. They were suggesting to the farmers in the area, over a number of years, that they take advantage of the irrigation water nitrogen.

Ms. Ambrose mentioned the fact that drip irrigation was becoming more and more popular as a means of waste disposal. It's important, then to know what happens in the root zone to the waste before the water passes down to the groundwater. Some legislation was recently passed that added a new chapter, Chapter 37, to the Water Code, that addresses the drip irrigation of waste water. An important issue is the possible build-up of salts in the root zone. A group headed by Ms. Suzanne Vargas in the Water Quality Division, evaluates what happens to these loads and whether planned projects will be protective of water resources. They look at application rates, root zone depth, nitrate and phosphoreus concentrations, etc. and make recommendations for permit levels. Dr. Scanlon mentioned that in the Seymour Aquifer alfalfa is harvested five times a year, and as a result there was very little nitrogen in the subsoil. Ms. Ambrose also mentioned that the TCEQ was in the process of developing rules for the drip irrigation application of waste water under Chapter 37.

As an additional topic Ms. Ambrose brought up the subject of CO₂ sequestration. She asked if this is something with which our subcommittee wanted to get involved. It's at least a topic of discussion. There may be enough research already being done in this area. We need to determine if there is anything specific that may not yet have been covered in the existing research projects. Dr. Scanlon suggested that we should try to find someone to give us a presentation on the subject. One question is whether CO₂ sequestration will be treated as disposal or storage for future use. This then goes into determining under what regulatory area the activity will fall. It was pointed out that groundwater injection of CO₂ is something with which the gas industry is very familiar. Ms. Ambrose mentioned that EPA was planning a CO₂ sequestration workshop to meet right after the Groundwater Protection Council Meeting in Portland Oregon, in September.

Just before adjournment Ms. Ambrose asked Dr. Scanlon if she would be contacting people about getting started on the White Papers on the six topics, to which she agreed.

The meeting ended at approximately 10:06 AM.

Information Item: The decision was made at the TGPC meeting in the afternoon that the next meeting date for the TGPC, the ACS, and the GWRS will be November 10, 2005. The GWRS meeting will take place at 9:00 AM, at the Texas Commission on Environmental Quality Campus, Building F, 2nd Floor, Meeting Room 2210, 12100 Park 35 Circle, Austin, Texas 78753.

Minutes prepared by Joseph L. Peters, November 8, 2005.

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Reference: *Activities of the Texas Groundwater Protection Committee – Report to the 79th Legislature*