GROUNDWATER RESEARCH SUBCOMMITTEE MEETING RECORD

TIME AND DATE:
9:00 AM, Wednesday, July 20, 2011

LOCATION:
Texas Commission on Environmental Quality Campus Building F, Room 2210, 12100 Park 35 Circle, Austin, TX 78753

PURPOSE OF MEETING:
Fourth quarter regular business meeting

AGENCIES/ENTITIES REPRESENTED:

Bureau of Economic Geology [BEG]
Texas AgriLife Research
Texas Commission on Environmental Quality [TCEQ]
Texas Department of Agriculture [TDA]
Texas Groundwater Protection Committee [TGPC]
Texas State Soil and Water Conservation Board [TSSWCB]
Texas Water Development board [TWDB]
Texas Water Resources Institute [TWRI], a branch of Texas AgriLife Research

ATTENDEES:

Kevin Wagner	TWRI (Texas AgriLife Research)
Michael H. Young	BEG
Cary Betz	TCEQ, Chairman of TGPC
Lauren Bilbe	TCEQ
Alan Cherepon	TCEQ
Richard Egg	TSSWCB
Richard Eyster	TDA
Janie Hopkins	TWDB
Kelly Mills	TCEQ
Joseph L. Peters	TCEQ
David Villarreal	TDA

MEETING SUMMARY:

Call to Order and Introductions

Dr. Wagner called the meeting to order at about 9:02 AM. Dr. Wagner, TWRI, was acting as a co-chair at this meeting, sitting in for Dr. Bill Harris who will be retiring at the end of August and will no longer be a co-chair. It is yet undecided who will be Dr. Harris's

permanent replacement as co-chair. Soon after the meeting started, Dr. Michael Young joined Dr. Wagner as a co-chair, sitting in for co-chair, Dr. Bridget Scanlon, who could not be present. The meeting started with introductions.

Discussion of Sources of Funding and Current Calls for Proposals

Dr. Wagner started the discussion by announcing that the TCEQ 319 Requests for Proposals (RFP) was out, but the closing date for proposals is next week Friday, July 29. 2011. Mr. Egg went on to inform everyone that the TSSWCB 319 RFP was scheduled to go out at the beginning of September, the tentative date being September 2, 2011. Dr. Wagner asked if the TWDB would be soliciting any proposals, and Ms. Hopkins responded that as far as she knew the TWDB would not have any available grant money for the next year. Mr. Egg went on to mention that the Coastal Management Program, Grant Cycle 17, opened for grant applications on April 2011, with the deadline being October 12, 2011.

Discussion of Progress on White Papers

Dr. Wagner started a discussion on one of the Subcommittee's proposed white papers, **Health aspects of lignite deposits associated with groundwater**. He informed us that he had visited with Dr. Vincent Nathan, of the Texas A&M School of Rural Public Health. Dr. Nathan had confirmed to him that there had been documented cases world-wide of where groundwater associated with lignite deposits is a health issue when used as a drinking water supply. They discussed a few things that could be done here in Texas. The first thing would be to map areas where there is an overlap of lignite deposits with groundwater that is being used for drinking water. Once these areas are mapped, work can proceed in cooperation with Texas Department of State Health Services (DSHS) to determine if there may be evidence of adverse health effects in the overlapping areas. If it is determined that there are adverse health effects, then counter measures can be considered, such as point-of-use treatment. It's not clear from where funding would come, but this would serve as a general outline for the proposed white paper.

Dr. Wagner also brought up the subject of groundwater vulnerability to contamination. There is a need for some method of determining groundwater vulnerability. One solution is to update DRASTIC to eliminate some of its weaknesses. Ms. Bilbe indicated that there was some discussion at the last Nonpoint Source Task Force meeting about updating DRASTIC, but the subject has been put on hold until there has been an updating of the Management Program. However, this is a subject that will be under consideration by the Nonpoint Source Task Force. Mr. Eyster opined that it would be a major undertaking to revise DRASTIC. Dr. Wagner suggested that, as the strategy develops, the Groundwater Research Subcommittee can get involved, especially in putting together a white paper that would outline exactly what needs to be accomplished. Ms. Bilbe agreed that a white paper would be very helpful.

Dr. Wagner mentioned the three white papers that Dr. Scanlon had volunteered to develop: (1.) **The characterization of groundwater - surface water interactions in the state with respect to water quantity and quality,** (2.) **Aquifer Storage and Recovery (ASR) Programs in Texas, and** (3.) **Quantification of the vulnerability of dynamic aquifer systems, such as karst and alluvial aquifers, to**

contamination focusing particularly on pathogens. Dr. Scanlon was not present to report on her progress, but Dr. Young, who works with Dr. Scanlon, reported that she had been doing considerable work on the **ASR** white paper, and that, out of the three, she had probably accomplished the most on this one. Ms. Hopkins informed us that the third white paper, **Quantification of the vulnerability of dynamic aquifer systems . . .**, was actually a project on which Dr. Scanlon was working under contract to the TWDB, and that there had been progress on this one as well.

Mr. Egg brought up the practice of fracing in the oil and gas industry, asking if the subject had become an issue and if anyone was doing any studies in this area. Dr. Young responded that the BEG has been doing quite a bit of work on fracing, mostly dealing with quantity, such as the amount of water being used and the compounds that are used as additives in the water. He mentioned that Dr. Jean-Philippe Nicot had just recently published a BEG publication reporting on a study done for the TWDB on the amount of water that's used across the state in mining and oil and gas production. The amount of water used for fracing in the state was one of the subjects of the paper. There are a number of other studies proceeding, at the BEG and in cooperation with Petroleum & Geosystems Engineering at the University of Texas, concerned with a number of basic questions related to fracing, such as where does the used water go and what is the interaction between the water, the rock, and the additive compounds used.

Mr. Eyster asked if there were any good wells completed in Glen Rose formation, in the area of Maverick and Webb Counties. He said that some of the ranchers in the area were selling Carrizo water for fracing and were also thinking about drilling down to the Glen Rose as an additional water source. It was his and some of the other attendees opinion that Glen Rose wells in this part of Texas would be rather deep and that there would be a rather low probability of getting a good producing well. Ms. Hopkins mentioned that she had been contacted by a company interested in drilling for brackish water in about seven counties along the subcrop of the Carrizo. She added that we still don't have a good database of the brackish water; however, Mr. John Meyer of the TWDB is working on putting one together. Dr. Young stated that there is a website, http://fracfocus.org/, which is a hydraulic fracturing chemical registry website. It's a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. On this site you can search for information about the chemicals used in the hydraulic fracturing of oil and gas wells as well as obtain educational materials designed to help put the information in perspective. The information for the website is being input on a voluntary basis, mostly by the major companies. It's a very good source for the public to be able to see what is put into frac water and exactly how much water is being used. Mr. Egg mentioned that he had done some calculations recently and determined that the drillers were paying in the neighborhood of $170,000 to $180,000 per well for fracing water.

There was some discussion about the technical details of fracing, especially the makeup of the fracing fluid, which is primarily water with various additives and a proppant. Mr. Betz added that EPA was doing a comprehensive study on fracing, scheduled to be completed in about 18 months. One site in Texas, in Wise County, is under particular scrutiny where they are studying all the effects of fracing, including quantity and quality, especially the impacts of quantity on drinking water. There are a total of ten sites nationwide being studied. Dr. Young mentioned that he had a copy of the study plan for the research, which he would

make available to anyone who might be interested.

Information Exchange

Dr. Wagner made the official announcement that Dr. Harris, who had been a Co-Chair of this Subcommittee, was retiring effective August 31st, from the TWRI. He had been the Interim Director of the TWRI. Dr. Neal Wilkins has been named as the new Director, effective June 1st. Dr. Wilkins is also the Director of the Institute of Renewable Natural Resources (IRNR) and will continue as Director of both institutes. Dr. Wagner indicated that he would continue to serve as the alternate Co-Chair of the Groundwater Research Subcommittee (GWRS). In response to a question from Dr. Young, Dr Wagner indicated that the two institutes would be sharing some administrative resources having a combined business office, combined administrative support, probably a combined communications team, and a combined GIS staff. Any similar support functions will be shared by the two institutes, but they will retain their separate missions. Dr. Wagner also announced that Dr. Allan Jones, a former Co-Chair of this Subcommittee, would also be retiring at the end of August, from the Texas AgriLife Research and Extension Center at Dallas.

Ms. Hopkins shared an interesting call she had received from a person representing a private company that was investigating a novel application of pumped-storage hydroelectricity. Since most higher-elevation areas in the US with potential for pumped-storage hydroelectricity have already been utilized, this company was investigating an innovative application of the technology. Pumped-storage hydroelectricity is a type of hydroelectric power generation used by some power plants for load balancing. The method stores potential energy in the form of water pumped from a lower elevation reservoir to a higher elevation reservoir. Low-cost off-peak electric power is used to run the pumps. During periods of high electrical demand, the stored water is released through turbines to produce electric power. The innovative application of the technology would be, during low electrical demand, to pump saline water from a well into some type of storage, and then, during peak demand, letting the water flow back down the well through a turbine, which would generate electricity.

Ms. Hopkins went on to reintroduce the subject of the **Health aspects of lignite deposits associated with groundwater**. She asked about what lignite studies had been carried out in Texas, her recollection being that the USGS had done a lignite study in North East Texas. Mr. Betz responded that Dr. Robert B. Finkelman, Research Professor at the University of Texas at Dallas, has been working on a study on the health effects of lignite for about two years. Some of the compounds found associated with lignite deposits in Romania and other parts of the Balkan have also been found in low concentrations in some parts of the Carrizo. Mr. Betz mentioned that Dr. Scanlon at one point had been gathering some information on research in this area. Dr. Wagner mentioned a couple of papers that had been published on investigations in the Carrizo on this topic. One was authored by H. L. Branning, and the other co-authored by Dr. Finkelman. Dr. Wagner and Ms. Hopkins concluded that even though there had been this work in Texas, there had been nothing statewide, and that all the possible compounds associated with lignite deposits and thought to have adverse health effects have not yet been identified. Mr. Betz said that in the Balkan studies they did identify several compounds believed to have potential adverse health effects.

Ms Hopkins also announced that a grant proposal, put together by Dr. Scanlon, was being submitted to the Centers for Disease Control (CDC) on July 21, 2011. The proposed project, to be performed by BEG if the grant is awarded, will be to provide a better and more efficient method of extracting water quality data, primarily from the TWDB database. This will be done by developing a Google Fusion Map Application. One aim is to facilitate the investigation of the presence of contaminants such as arsenic and radio nuclides in unregulated drinking water sources.

Dr. Young stated that the groundwater science community does not directly collaborate very much with the health community, and that the CDC was pursuing more interaction. He suggested that this would be something the GWRS Subcommittee could discuss: How can we better communicate with health professionals? A division of the National Institutes of Health (NIH) called the National Institute of Environmental Health Sciences (NIEHS) has a huge program called the Superfund Research Program (SRP) that supports this type of collaboration. Thus far Texas has not received any of these grants, but big grants are available, on the order of five to seven million dollars over five years. Dr. Wagner suggested that he would like to bring Dr. Vincent Nathan, of the Texas A&M School of Rural Public Health, to speak to our group since his research is focused on the effects of water quality on health.

Public Comment

There was no public comment.

Adjournment

The meeting adjourned at 9:36 AM.

Minutes prepared by Joseph L. Peters, September 12, 2011

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