

GROUNDWATER RESEARCH SUBCOMMITTEE MEETING RECORD

TIME AND DATE:

9:00 AM, Wednesday, October 20, 2010

LOCATION:

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

PURPOSE OF MEETING:

First 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 Water Development board [TWDB]

ATTENDEES:

Kevin Wagner	Texas AgriLife Research
Cary Betz	TCEQ, Chairman of TGPC
Radu Boghici	TWDB
Mike Chadwick	TCEQ
Alan Cherepon	TCEQ
Bruce L. Cutright	BEG
Richard Eyster	TDA
Joseph L. Peters	TCEQ
Leslie Smith	TDA
L. Scott Underwood	TCEQ
David Villarreal	TDA
Michael H. Young	BEG

MEETING SUMMARY:

Call to Order and Introductions

Mr. Kevin Wagner, with Texas AgriLife Research, Texas Water Resources Institute (TWRI), was acting as a Co-chair at this meeting, sitting in for Dr. B. L. Harris who could not be present. Dr. Michael H. Young, with the Bureau of Economic Geology (BEG), was acting as the second Co-chair, sitting in for Dr. Bridget Scanlon, who also could not be present. Mr. Wagner called

the meeting to order at about 9:08 AM. The first order of business was to have everyone introduce themselves.

Discussion of Sources of Funding and Current Calls for Proposals

Mr. Wagner announced that the Texas State Soil and Water Conservation Board (TSSWCB) has issued a Request for Proposals (RFPs) for projects seeking 319 Grant funding. Proposals must be received by 5:00 p.m. CST, Monday, November 19, 2010 to be considered for funding. Mr. Wagner then asked Mr. Boghici whether the TWDB had any RFPs. Mr. Boghici responded that their recent RFPs, now closed, were for projects aimed at determining the effects of natural and anthropogenic influenced water quality on water quantity. In the future the TWDB will have their usual yearly request for topics and ideas from their staff to be pursued as possible projects. The TWDB also sometimes receives unsolicited requests for funding for projects. Some of these get funded. Dr. Young mentioned that he had recently come across a proposal from the TWDB having to do with putting a water quality component into the GAM models. Mr. Cutright followed by informing us that the Bureau of Reclamation has a program called the WaterSMART (SMART: *Sustain and Manage America's Resources for Tomorrow*) Program, with whom he met. They were seeking people to work with them in this Program. They require that their projects be implemented through a municipality or a water management district. Some of the things they were supporting recently was looking at ways of augmenting water supplies coming from the Edwards Aquifer and the Carrizo-Wilcox Aquifer. In general they support projects that seek to achieve conservation through improved procedures, infrastructure, etc. So there may be some opportunities for receiving funding for projects under this program by teaming up with a municipality or water management district.

Discussion of Progress on White Papers

There were no white papers in progress, but Mr. Wagner asked those present if there was any need for some new white papers. No immediate ideas were expressed, but there was some discussion about the process of coming up with white paper topics, the format in which they should appear, and how white papers are used. Mr. Betz responded that white papers would go to the full Committee, to member agencies, and to interested parties. The discussion revealed that the intent was that they would primarily serve as precursors to project proposals or to recommendations to the Legislature.

Dr. Young asked if there had been any recent discussion on water reuse. Mr. Betz responded that there hasn't been much recently, but the recent TWDB's Texas Innovative Water 2010 Conference had a large section on reuse which included some interesting presentations, but there hasn't been much movement on reuse. It becomes rather complicated when downstream water users are expecting dischargers to make a contribution to stream flow. Water Rights issues come into play. Dr. Young asked that if water reuse becomes more significant in the state, whether it should be something with which the Groundwater Research Committee should become involved. It was determined that there would need to be a groundwater component for our Committee to become involved. There could easily be a groundwater quality issue in recharge areas. Dr. Young cited an example in Orange County, California where they were implementing reuse by

injecting treated water into the aquifer. Dr. Young asked the group if a white paper would be appropriate to speak to recharge by reused water, whether it be by natural recharge or through injection. Mr. Betz responded that he thought that reuse from the aquifer storage perspective will become an important topic that will need to be discussed within the next couple of years. It probably wouldn't hurt to be thinking about it and start putting together a white paper on the subject. On the national scale aquifer storage is a big issue. Mr. Betz continued by stating that at the Groundwater Protection Council meetings he attended, just the previous week, it was mentioned that ASR (Aquifer Storage and Recovery) would be discussed at both their UIC (Underground Injection and Control) meeting, in February, and the National Groundwater Association and Groundwater Protection Council Summit in Baltimore, in May. So, the reuse subject with respect to ASR would be a timely issue to address. The only place in Texas with ASR is El Paso.

Mr. Cherepon brought up the subject that the difficult economic situation that we are undergoing could possibly have an impact on water quality, due to insufficient resources to maintain or improve facilities.

Mr. Wagner reminded us of a project that this Subcommittee undertook in 2004, that consisted of putting together list of possible research topics that could be pursued. It was a two to three page list that included ideas from all the Subcommittee's participating agencies. This list would be a prime source of selecting topics for research needs and selecting the most important ones for the development of white papers. Some of the topics on the list have no doubt already been taken up since 2004, but there should be a sufficient number of topics left to pursue. The list probably needs to be updated and reprioritized. Dr. Young brought up the importance of prioritization in this time of economic contraction where only the most important topics can be pursued. Mr. Betz mentioned that the most important topics are put into the *Legislative Report* as recommendations, and it just happens that the upcoming *Report* will be discussed at the Texas Groundwater Protection Committee (TGPC) meeting in the afternoon, and that one of the recommendations in the *Report* concerns groundwater/surface water interactions. Mr. Betz went on to explain the primary purpose of the *Legislative Report*, namely to report on the activities of the TGPC and to give the Legislature a list of recommendations for needed research projects for possible funding. It was mentioned that some recommendations are carried over from year to year, such as the recommendation to establish an abandoned well plugging fund, and continued funding of brush control projects.

Mr. Wagner suggested that we retrieve the old list of research topics and use it as a topic of discussion at the next meeting. The discussion would be on updating the list and determining a priority for the research topics.

Dr. Young asked when the *Legislative Report* had to be completed. Mr. Betz responded that the TGPC, at its meeting in the afternoon, will need to approve the *Report*. It must be fully completed before the start of the next legislative session. After the TGPC approves the *Report* it is sent to all the TGPC member agencies' executive management (the head of each agency) for their concurrence, which usually isn't a problem. After their concurrence it goes to printing. The printed *Reports* are sent to the Governor, the Lieutenant Governor, Speaker of the House,

and a courtesy copy to the two Natural Resource Committee Chairmen. A couple of copies are sent over to the Legislative Library.

Dr. Young asked about items from Dr. Scanlon's (BEG's) list of recommendations for the legislature. He was informed that there were four or five items from her list in the *Legislative Report*. They included recommendations on the topics of brackish water, characterization and assessment of aquifers, surface water/groundwater interactions, providing onsite filter systems to rural domestic well owners for arsenic and other contaminants, and continued funding for the closure of abandoned water wells.

Information Exchange

Since Dr. Young was new to the Groundwater Research Subcommittee group Mr. Wagner asked him to give us a little background on himself. He has a bachelor's in geology, a master's in geoscience and groundwater, and a doctorate in soil physics. He's now been in Texas with the BEG now for two months, after having spent the last ten years at the Desert Research Institute. The Institute has two main campuses: in Reno and Las Vegas, Nevada. It's part of the university system of Nevada. Dr. Young was stationed at the Las Vegas campus, where he did research in soil physics and recharge in warm deserts. He was the acting director of hydrologic sciences. His background is in groundwater, evapotranspiration, and the influence of soil properties on the biosphere. Much of the research at the institute is aimed at water source identification and assessment for Southern Nevada. The Las Vegas metropolitan area has a population of two million people with 90% of its water supply coming from the Colorado River. The lake behind Hoover Dam, Lake Mead, recently reached its lowest level ever, well below 50% of its capacity. The Colorado River feeds seven states, thus there is a big focus on water conservation including the reduction of evapotranspiration.

Public Comment

There were no comments from the public.

Adjournment

The meeting adjourned at 9:42 AM.]

Action Items:

- * Retrieve list of research topics put together in 2004 and use it as a subject of discussion at the next meeting. The discussion would focus on updating the list and determining a priority for the research topics.

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A copy of the *Research Needs Topics* document, created in 2004 follows, starting on the next page.

Research Needs Topics

Combined List From Discussions, Etc. at the Meetings of the GWRS

Please review the potential research topics listed below and, based on your agency's needs, give each one a rating of 1 to 5, with 5 representing the highest need for research. Feel free to add topics or suggest improvements in wording.

- I. Improve Characterization of Texas Aquifers and Flow Systems
 - Better quantify recharge [Rating ____]
 - Do more work on mapping recharge for the various aquifers [Rating ____]
 - Improve knowledge of groundwater flow paths [Rating ____]
 - Conduct basic research on evapotranspiration including determining rates as well as sources (e.g. source water, soil water, or groundwater) [Rating ____]
 - Do more work on mapping evapotranspiration [Rating ____]
 - Refine Groundwater Availability Models (GAMs) for assessing wellfield protection areas. Most protection areas, in general, are defined using travel times of groundwater particles. Travel time can be readily calculated using the GAMs and MODPATH code. [Rating ____]
 - Collect isotope data to help with the above and answer other questions [Rating ____]
 - Better define structure and extent of aquifers particularly minor aquifers *e.g.* build upon the Source Water Assessment and Protection Project (SWAP) database by including minor aquifers [Rating ____]
 - Assess impact of landuse and landuse changes on recharge [Rating ____]
 - Better quantify aquifer characteristics (recharge rates, storativity, transmissivity, pumping, vulnerability, radionuclides) [Rating ____]
 - Better quantify karst aquifer characteristics (permeability and porosity) in the Edwards and other karst aquifers [Rating ____]
 - Determine effect of karst properties on BMPs, well head protection, etc. [Rating ____]
 - In-stream flows (decrease due to reuse or reduced spring flows) [Rating ____]
 - Surface water/ground water interface [Rating ____]
 - Linking of WAM and GAM projects/linking of groundwater and surface water models [Rating ____]

- II. Scale
 - Determine the optimal level for monitoring networks *e.g.* optimal well spacings [Rating ____]
 - Investigate methods for scaling field-study scale evapotranspiration estimates to large scale regional groundwater models [Rating ____]

- III. Water Quality

- Assess impact of landuse and landuse changes on water quality. An inventory of chemicals stored or used and landuse practices in the capture areas of a water supply wells could also prove useful. [Rating ____]
- Assess fate and transport of a contaminant released into the aquifer materials by adding the MT3D code to the existing GAMs [Rating ____]
- Collect additional pump test data to estimate transmissivity around water supply wells to develop finer model grids for contaminant studies [Rating ____]
- Collecting water quality data (particularly isotopes) in the capture areas of major water supply wells can also provide better insights on the groundwater flow system and help develop strategies to protect groundwater supplies. [Rating ____]
- Do more study on West Texas aquifers looking at things like salinity [Rating ____]
- Brush control/salt cedar/juniper/etc. and effect on quantity and quality [Rating ____]
- Expanded/long term ambient/baseline monitoring of groundwater, especially for pesticides [Rating ____]
- Nitrate/bacteria problems [Rating ____]
- TDA has need for studies on nitrates and also pesticides [Rating ____]
- Identification of sources of nitrate contamination, especially for the Edwards [Rating ____]
- Investigation of how atrazine is getting into groundwater in the Panhandle [Rating ____]
- Use of brackish groundwater/desalinization of groundwater [Rating ____]
- Groundwater Radioactivity Studies (A&M will be working on project to identify naturally occurring high arsenic and radio nuclide areas.) [Rating ____]
- Identification of Geology Associated with High Radioactivity [Rating ____]
- Removal of Radio Nuclides [Rating ____]
- Studies of former building/structure sites, former military bases, etc., contaminated by pesticides, arsenic, etc. [Rating ____]
 - * Determining typically expected contamination levels [Rating ____]
 - * Determining what technologies to use to clean-up sites [Rating ____]
- Removal of arsenic and other constituents from groundwater [Rating ____]
- NSF to start large hydrology program – could support work to develop sampling methods [Rating ____]

IV. BMPs

- Will BMPs increase the effectiveness of impervious covers? [Rating ____]
- Evaluation of BMPs, whether they are achieving the desired results [Rating ____]

V. Policy and Economic Analysis

- Projects that develop policies and technologies to reduce pumping and promote conversion to dry-land agriculture [Rating ____]
- Economic and policy analysis in installing drip irrigation or other BMPs [Rating ____]

- Social science/policy (for example how to reduce actual usage by looking at regulations, economic/social incentives, and farm commodity programs) [Rating ____]

VI. Health Related

- Health Issues (CDC and NIH) [Rating ____]
- Study of Health Issues with High Radioactivity Groundwater [Rating ____]

VII. Miscellaneous

- Colonia Needs [Rating ____]
- Rainfall calibration using NexRad [Rating ____]
- Septic Tank Problems [Rating ____]
- On-Site Waste Systems [Rating ____]
- Use of Topographic Depressions in Residential Areas to Intercept Runoff [Rating ____]
- Acquisition of a better data management system, such as EQUIS, for state agencies and other entities [Rating ____]
- Research Projects Can Be Drawn From the *Strategic Plan* and *Groundwater Protection Strategy* [Rating ____]