GROUNDWATER RESEARCH SUBCOMMITTEE MEETING RECORD

TIME AND DATE:
9:00 AM, Monday October 26, 2009

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 State Soil and Water Conservation Board [TSSWCB]

ATTENDEES:

B.L. Harris	Texas AgriLife Research, Co-chair of the GW Research Subcommittee of the TGPC
Bridget Scanlon	BEG, Co-chair of the GW Research Subcommittee of the TGPC
Alan Cherepon	TCEQ
Richard Eyster	TDA
Andrew Gorton	TCEQ
Donna Long	TSSWCB
Joseph L. Peters	TCEQ
David Villarreal	TDA

MEETING SUMMARY:

Call to Order and Introductions

Dr. Scanlon called the meeting to order at about 9:07 AM. Her first order of business was to have everyone introduce themselves.

Discussion of Sources of Funding and Current Calls for Proposals

Dr. Scanlon had invited Mr. Gorton to come to the meeting and talk about the land application program at TCEQ and how it might be affecting groundwater quality. Mr. Gorton works in the Water Quality Assessment Team of the Water Quality Assessment Section of the Water Quality Division of TCEQ. One of the responsibilities of this Section is to look at permit applications that propose to apply their waste water or solid waste to land rather than discharge to a water body or intern in a landfill. They have three geologist and three agronomists on staff

evaluating the land application proposals. Ms. Lynda Clayton is the Team Leader and Mr. James Moore is the Section Manager. In the state there are approximately 3,000 land application permits, which include both agricultural, industrial, and urban sludge and wastewater.

As part of their monitoring requirements land application sites need to submit annual soil sample data, with some sites being required to sample down to three feet. The permits require the land applicators to apply only as much waste water or waste that the plant cover crop can utilize the applied nutrients before they pass through the root zone. Most sites are not required to have groundwater monitoring unless there is impounded storage on site. Also, at some of these sites there is danger of surface water runoff carrying contamination to nearby streams. Dr. Harris asked if it would not be desirable to install monitoring wells at some of the ongoing operations (sites that have been applying waste for five to ten years) to determine if there may not have been groundwater contamination or if there is potential for groundwater contamination from a front of contamination moving down toward the aquifer. Mr. Gorton responded in the affirmative. And Dr. Scanlon added that deeper soil sampling at these sites would also be useful. One of the goals would be to determine if existing standards are sufficient to prevent groundwater contamination. Ms. Long asked how the application of wastewater or waste to third-party fields was being handled. Mr. Gorton replied that the permit holders are required to keep a record of these applications.

Dr. Harris pointed out that in years past much larger volumes were applied to land with the main aim being disposal. More recent standards restrict the applications to crop utilization levels. The danger of nutrients leaching through the root zone is much greater in a sandy soil; however, the danger of nutrients running-off is greater on a clay soil. There was some discussion on a couple of phosphorus index studies -- both were 319 research projects -- conducted by a Dr. Sam E. Feagley, a soil fertility scientist with the Texas AgriLife Extension Service. Phosphorus index is one of the factors that determine how much nutrient rich wastewater can be applied to land. Dr. Scanlon pointed out that this project, the sampling of soils and groundwater below land application areas, would be something that would be of interest to both programs, both TCEQ and the TSSWCB 319. It is something that could be put into the five year plan, the *2010 Texas Nonpoint Source Management Program* document. Dr. Harris articulated the usefulness of this type of project in justifying the land application practices that we use and to assure the public that the waters of the state are being safeguarded. Ms. Long reiterated the importance of incorporating the need for this project into the five year plan, since she is working on updating it at this time. As a prerequisite in approving funding for projects, EPA looks to the presence of an expressed priority need in this plan. The updating of the plan needs to be completed for TCEQ and public review by May and be ready for the Governors signature by December of 2010. Dr. Harris suggested that some of us get together and discuss the details of this. Dr. Scanlon suggested that it would be good to have a map of all the land application sites. She also asked about the availability of all the soil sampling data. Mr. Gorton responded that a map could be generated and that all the data is available in the TCEQ Central Records. He went on to inform us that his Team was in the process of putting into place a better database that should help in getting much of this needed information in a more accessible form.

Dr. Scanlon described the problem of nutrient presence in groundwater which is used as irrigation water. When fertilizer is added to a crop to meet its total nutrient need, without regard to the nutrients already present in the irrigation water, the excess nutrients just leach through the root zone and just keep getting recycled back into the groundwater. Dr. Harris described a past

federally funded project in which he had participated with the NRCS, Extension, and TSSWCB. It was called the Hydrologic Unit Area (HUA) Project, and its purpose was to break the cycle of nutrient build-up in groundwater, by making sure that the crop is managed such that the nutrients in the soil water are utilized by the crop before it passes through the root zone and back into the groundwater. Dr. Harris pointed out that a forage crop would be optimal for the utilization of excess nutrients since its nutrient requirements are large and harvesting removes the whole crop from the field. It was also pointed out that managing the nutrients in this way could substantially reduce fertilizer costs, since fertilizer costs, especially nitrogen, have increased considerably recently. Typically producers have tended to over apply nutrients so that nutrients wouldn't be the limiting factor in growing the crop, and they have done the same thing with water.

Discussion returned to the procurement of a map of all the application sites, that it should be requested from the Section Manager, Mr. James Moore. The map should distinguish between the agricultural, industrial, and municipal operations, or each could have its own map.

Mr. Gorton mentioned that his Section gets a lot of questions about what the agency is doing about hormones, endocrine disrupting chemicals, and other pharmaceutical products. Ms. Long responded by relaying some information presented at the recent EPA QA Conference in Dallas. An employee of the National Exposure Research Laboratory, at EPA, in Athens Georgia, Susan Richardson in her presentation at the QA Conference, indicated that wastewater treatment facilities in Texas are doing a good job of removing these constituents. In Texas ammonia is often used with chlorine in disinfection at these wastewater treatment facilities, which accomplishes a much greater reduction of these compounds than what would result by disinfecting with chlorine alone. It turns out that this chlorine-ammonia combination is the best available technology at this time for the treatment of water contaminated with endocrine disrupters and pharmaceuticals. Mr. Gorton pointed out that the situation at feedlots would be different where there is the use of hormones and antibiotics, but there is no chlorination. There is no good information on whether these constituents are getting into groundwater. Mr. Eyster informed us that Texas has the strictest CAFO rules in the nation, especially in the Bosque and Leon River watersheds. Dr. Harris suggested that we need to have some type of routine drilling program to evaluate a statistical significant percentage of the land application sites so that it can be determined what areas or what types of sites are the most likely to have problems.

Mr. Gorton brought up the problem that exists in the Panhandle of determining background levels, where everyone is applying nitrogen fertilizer to the land and there is such a large number of CAFOs. Not knowing background makes it difficult to determine if and how much groundwater contamination there might be and what the source may be.

The updating of **TEX*A*Syst** and the publicizing of it by holding educational demonstration events, such as the disinfection of wells, was discussed. Some of the problems or careless practices, such as storing pesticides or other chemicals in well houses, were discussed. These are the types of practices that **TEX*A*Syst** was designed to correct. Dr. Harris said that he anticipated that Texas AgriLife Research would be submitting a proposal for a 319 grant for updating **TEX*A*Syst**.

Dr. Harris reiterated his concerns, that he expressed at the last meeting, about rural populations on water wells that may have water quality problems, but, since they are not considered to be a community water system, there is no means of addressing their problems. He expressed the

belief that EPA made a big mistake when they defined community water systems, but did not include rural communities that are on a common aquifer because they do not pump from the same well. Dr. Harris gave an example of a situation in Southwest Texas in Jim Hogg County that has arsenic in the groundwater supply. These are low income people that don't have a voice and may not even speak English. If this would be a community system under the present EPA definition then it would qualify for various types of support for testing and treatment. Ms. Long asked how this problem and the need to address it should be incorporated into the *2010 Texas Nonpoint Source Management Program* document and into the *Report to the Legislature*. Mr. Cherepon suggested that our Subcommittee bring this matter up at the TGPC meeting. He also suggested that this might be something on which a Frequently Asked Questions (FAQs) document could be developed by the Public Outreach and Education (POE) Subcommittee. It was suggested by Dr. Harris that our Subcommittee make a recommendation to the TGPC that they take some action in pursuing 319 funding for the support of the initiatives that we have discussed, namely the study of possible contamination from land application sites and the problem of rural communities on individual wells drawing form an aquifer with water quality problems.

Ms. Long made an announcement that, for emerging contaminants, EPA has a list of priorities that need more study. The list is on the website, http://www.epa.gov/ogwdw000/ccl/ccl3.html. The CCL stands for contaminant candidate list. CCL 3 is the current list that they are assembling. It is a list of contaminants that is currently not subject to any proposed or promulgated national primary drinking water regulations, that are known to occur or anticipated to occur in public water systems, and which may require regulation under the Safe Drinking Water Act (SDWA).

Dr. Scanlon suggested that we should be thinking about some topics that we'll want to talk about at the next meeting. She suggested TCEQ short courses, carbon sequestration, and agricultural carbon sequestration. Dr. Harris said that there were several projects ongoing right now considering carbon sequestration. Dr. Scanlon also suggested that we help with the *2010 Texas Nonpoint Source Management Program* document. Ms. Long suggested that she could get the appropriate portions of the preliminary draft that deal with groundwater priorities to those of us that want to look at it, and we can then make our suggestions for additions and improvements.

Dr. Harris explained to us how Dr. Bill Hutchison, of the TWDB, took the Intergovernmental Panel on Climate Change (IPCC) Report and ran all the models for the Southwest part of the state. Dr. Harris suggests that Dr. Hutchison should take the same approach and analyze the groundwaters of Texas.

The meeting adjourned at 10:11 AM.

Minutes prepared by Joseph L. Peters, November 10, 2009

A**ction Items:**

1. Pursue the project of studying possible contamination from land application sites.
2. Pursue the problem of rural communities on individual wells drawing form an aquifer with water quality problems, but have no recourse, because of a lack of feasibility, to creating a community water system as defined by EPA.
3. Be ready to discuss these topics at the next meeting: TCEQ short courses, carbon sequestration, and agricultural carbon sequestration.
4. Review portions of the preliminary draft of the *2010 Texas Nonpoint Source Management Program* document that will be emailed to everyone. Send suggestions for additions and improvements back to Ms. Long.

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