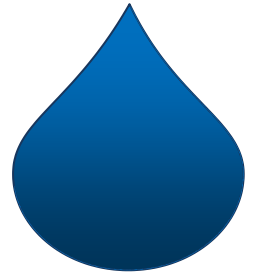


Capital Area Ground Water Conservation District



Watching out for A Treasured Earth Resource

Dedicated to the conservation, orderly development and protection of quality of ground water in the Capital Area

Volume 40, Issue 1

NEWSLETTER

3rd Quarter 2014

Commission Votes to Support Groundwater Study

The Capital Area Groundwater Conservation Commission voted at its September 16th meeting to support LSU Associate Engineering Professor Frank Tsai in his Request for Proposal and Notice of Intent that has been submitted to the Louisiana Board of Regents. The title of the proposal is “Conjunctive Management of Baton Rouge Multi-Aquifer System for Saltwater Intrusion Mitigation.” The project goal is to develop a conjunctive management framework that takes advantage of the Baton Rouge multi-aquifer system to mitigate saltwater intrusion. The conjunctive management framework will utilize several hydraulic control techniques to mitigate saltwater encroachment. These hydraulic control approaches include pumping well relocation, freshwater injection, saltwater scavenging, and their combinations. Specific objectives of the project are:

- constructing scientific geologic architectures of the “800-foot” sand, the “1,000-foot” sand, the “1,200-foot” sand, the “1,500-foot” sand, the “1,700-foot” sand, and the “2,000-foot” sand,
- developing scientific saltwater intrusion models for these sands,
- using connector wells to draw native groundwater from one sand and inject to another sand to create hydraulic barriers to halt saltwater intrusion,
- using scavenger wells or well couples to impede saltwater intrusion progress and reduce chloride concentration in pumping wells, and
- reducing cones of depression by relocating and dispersing pumping wells to different sands. The project will utilize optimization techniques and newest LSU high performance computing (HPC) facilities to derive solutions.

The conjunctive management framework will serve as a scientific tool to assist policy makers to solve the urgent saltwater encroachment issue in the Baton Rouge area. If successful, the research results would stabilize water companies as well as industries in East Baton Rouge Parish and neighboring parishes by reducing their saltwater intrusion threats, which in turn would sustain Capital Area economic development.

Dr. Tsai is asking for annual matching funds of \$20,000 for three years. He has also reached out to the industries in the Capital Area that utilize the “2,000-foot” sand for assistance. The Commission voted to support the proposal and provide “gap” funding up to \$60,000 over the three year term of the project. The short-term results of the project will help the Commission determine the optimum location for a saltwater scavenger well in the “2,000-foot” sand.

**Commission Welcomes
Newest Members**

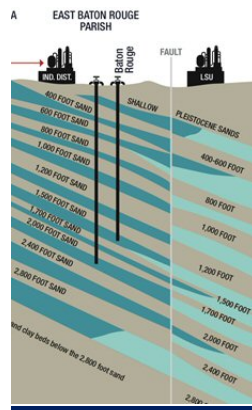
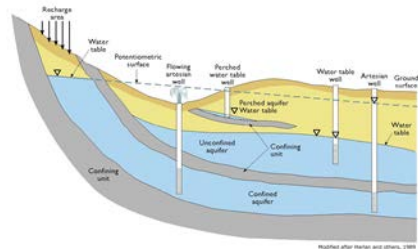
Act 795 of the 2014 Louisiana Legislature added a sixteenth member to the Commission, the East Baton Rouge Parish Department of Public Works, who has nominated Mr. Thomas Stephens. Mr. Stephens is the Chief Design Engineer for the Department of Public Works, and has worked for since 2005. He has a B.S. in Civil Engineering from LSU and holds Louisiana registrations as a Professional Engineer in Civil Engineering and as a Land Surveyor.

Mr. Russell Hicks has been appointed to the Commission to fill the unexpired term of Mr. John Cadenhead, who resigned this summer. Mr. Hicks currently works in code enforcement for the East Feliciana Police Jury. He retired as Chief Deputy Constable with the Baton Rouge City Constables Office in 2000.

**Technical Committee Plans
Groundwater Workshop**

A workshop about saltwater intrusion into parts of the Southern Hills Aquifer that serves East Baton Rouge Parish will be held in conjunction with the December 2, 2014 meeting of the Technical Committee.

The meeting will take place from 1:30 to 4:30 p.m. in the Griffon Room of the LaSalle Building in downtown Baton Rouge.



The purpose of the workshop is to educate new and existing the board members and the public on the challenges and possible solutions to the problem of saltwater intrusion into freshwater aquifer.

Topics would include explaining the complexity of the aquifer system under Baton Rouge, computer modeling that is being done to try to understand the system and planning and management possibilities for groundwater. Dr. Frank Tsai, associate professor in the Department of Civil and Environmental Engineering at LSU is coordinating the workshop with Conservation District Director Tony Duplechin.

“We have to know our aquifer first,” said Tsai, who has been working on the saltwater intrusion issue for several years with the Commission.

Duplechin said he wanted the workshop to be held during the December meeting because he wanted more time to get the word out to the public and to other industries that use parts of the aquifer.

“There are still some misconceptions in the public,” he said. As an example, he said, some people think that because the Baton

Rouge Water Company started operating a scavenger well designed to protect other drinking water wells, the aquifer would respond in a positive way immediately.

“It doesn’t quite work like that,” he said.

(adapted from Advocate article by Amy Wold 9/10/14)

2015 Officers Elected

The nominating Committee offered the following Commissioners for next year’s officers:

- John Jennings - President
- Dale Aucoin - Vice President
- Amelia Kent - Sec./Treasurer

All received unanimous approval. Congratulations!

Baton Rouge Groundwater
Third in a continuing series

**Tuscaloosa Marine Shale and
Fracking in the Capital Area**

There have been a number of stories in the news lately, both locally and nationally, about the practice of hydraulic fracturing, or “fracking” for producing oil and natural gas from some underground formations. Our concern in the Capital Area revolves around exploration and production in the Tuscaloosa Marine Shale. Following is information from several sources addressing some of the questions and concerns that have been posed.

(Next Issue: What is happening in the Capital Area?)

What is “fracking?”

Hydraulic fracturing (fracking) is a well-stimulation technique in which rock is fractured by a hydraulically pressurized liquid. A high-pressure fluid (usually

chemicals and sand suspended in water) is injected into a wellbore to create cracks in the deep-rock formations through which natural gas, petroleum, and brine will flow more freely. When the hydraulic pressure is removed from the well, small grains of hydraulic fracturing proppants (either sand or aluminum oxide) hold the fractures open once the deep rock achieves geologic equilibrium.

The hydraulic fracturing technique is commonly applied to wells for shale gas, tight gas, tight oil, and coal seam gas. Such well-stimulation is common throughout the exploitation of the field to greatly increase the flow rate. Stimulation is intensified to extend the period before production declines.

The first commercially successful application followed in 1949. As of 2012, 2.5 million hydraulic fracturing operations had been performed worldwide on oil and gas wells; over one million of those within the U.S.

(source: Wikipedia)

Fracking Pros and Cons

Hydraulic fracturing involves drilling thousands of feet below the earth's surface and pumping millions of gallons of water and chemical additives at high pressure into the well. Because of the United States' large reserves of shale gas, advocates say American energy independence is a real possibility if the industry is given support.

Conversely, environmental activists caution that the potential dangers of the fracking process have not been fully evaluated and may not be worth the risk. Instead, they say, the U.S. should focus on renewable energy sources such as wind, solar and biomass.

The energy potential for shale gas is undeniable. It is among the fastest growing energy sources in the country. In 2000, shale gas represented 1 percent of natural gas supplies in the country. Today, that number is 30 percent and rising. While there are great risks to the fracking process, many argue there are also a number of potential benefits.

Below is a list of several arguments made by both sides, for and against hydraulic fracturing. Do the risks outweigh the rewards? Is this a practice not worth pursuing?

PRO: Energy Independence

Estimates by the United States Department of Energy put the number of recoverable barrels of shale gas at around 1.8 trillion. To put that into perspective, Saudi Arabia is estimated to have roughly 2.6 trillion barrels of oil reserves.

CON: Water Pollution

A blog post by the Natural Resource Defense Council explains that "Opponents of such regulation [of fracking] claim that hydraulic fracturing has never caused any drinking water contamination. They say this because incidents of drinking water contamination where hydraulic fracturing is considered as a suspected cause have not been sufficiently investigated."

It then goes on to list more than two dozen instances of water pollution to which hydraulic fracking is believed to have contributed.

CON: Leaks More Emissions Than Coal

Methane is a greenhouse gas and major component of shale's carbon footprint.

Cornell Professor Robert Howarth said about a study he conducted, "Compared to coal, the footprint of shale gas is at least 20 percent greater and perhaps more than twice as great on the 20-year horizon and is comparable when compared over 100 years."

PRO: Burns Cleaner Than Other Fossil Fuels

Researchers at MIT found that replacing coal power plants with natural gas plants could work as part of a plan to reduce greenhouse emissions by more than 50 percent.

CON: Hydraulic Fracking Has Been Linked To Earthquakes

Several earthquakes both in the U.S. and abroad have been linked to the hydraulic fracturing process.

One British company, Cuadrilla Resources, admitted in a report that its hydraulic fracturing process well "did trigger a number of minor seismic events."

CON: Companies Don't Have To Disclose Chemicals Used In Process

Fracking is exempt from the Safe Drinking Water Act of 2005, thus allowing companies to conceal the chemicals used in the process.

PRO: Buys Time To Develop Renewable Energy

Former chief of staff to President Clinton and former head of the Center for American Progress John Podesta says natural gas can serve "as a bridge fuel to a 21st century energy economy that relies on efficiency, renewable sources, and low-carbon fossil fuels."

CON: Requires Large Amounts Of
Water

The fracking process can require
around five million gallons of
water.

(source: The Huffington Post)

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