

Capital Area Ground Water Conservation Commission

Watching out for A Treasured Earth Resource

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

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NEWSLETTER

April 2008

Commission & District News

Scheduled Meetings. – The Technical Committee will meet at 1:30 p.m. Tuesday, June 10, 2008 in the conference room of the U.S. Geological Survey at 3535 South Sherwood Forest Boulevard, Baton Rouge, Louisiana. The regular meeting of the Board of Commissioners will be held at 9:30 a.m., Tuesday, June 17, 2008 in the conference room of the U.S. Geological Survey. The Administrative Committee will meet at 8:30 a.m. in the Commission office, Suite 129, 3535 South Sherwood Forest Boulevard, one hour before the regular meeting.

March Meetings. – The Technical Committee met at 1:30 p.m., Tuesday, March 11, 2008, at 3535 South Sherwood Forest Blvd., Suite 129, Baton Rouge, Louisiana.

Commission Chairman John Steib introduced himself and had each of the attendees identify themselves and who they represented. Technical Committee Chairman Dale Aucoin brought the meeting to order, and Don Dial introduced the speaker. Jay Grymes works full time as the weather forecaster at WAFB Channel 9. He

also has some part-time teaching commitments in the Geography and Biological and Agricultural Engineering Departments at LSU.

Mr. Grymes gave a presentation on the subject of global warming. First of all, he stressed that global is an inappropriate term and climate change should be addressed on regional terms. As an example, from 1901-1998 the northeast U.S. showed a warming trend and the southeast a cooling trend.

Climate change is largely natural in occurrence, and the effect of human-induced changes is problematic. Many periods of warming and cooling have been documented over the past 600,000 years. The present warming trend (last 30 years) is believed by many to be caused by greenhouse gas emissions, notably carbon dioxide, oxides of nitrogen and methane. However, by far the most important greenhouse gas in the atmosphere is water vapor which often receives little or no attention.

There are difficulties involved in computer models which may reflect the bias of the organization or person doing the model. Carbon dioxide is considered by many to be the culprit

of global warming. However, long-term records show that the rise and fall of carbon dioxide **follows** the rise and fall of earth temperature, not vice versa at least prior to human factors and industrialization. Mr. Grymes also mentioned the effect of solar radiation and the cyclical effect of sunspot activity. Only in the recent past have ocean factors such as La Nina and El Nino been studied. Their effect on global climate is widespread. He concluded that he is neither a proponent nor a skeptic of global warming, but a “watcher”. That is, he looks at the information with a critical eye to see if the conclusions are justified based on scientific knowledge.

Pumping Fee Increase

The Board of Commissioners voted unanimously at the Commission meeting December 11, 2007 to increase the pumping fees in the five-parish District to \$4.00 per million gallons. The last increase was in 1995. The Board felt that an increase was needed to keep pace with the rising operation costs. Over the years, rent, office supplies, transportation and project costs have increased.

The Commission, along with three other cooperators, U.S. Geological Survey, Louisiana Department of Transportation and Development and East Baton Rouge City-Parish DPW, will be involved in a ground-water flow model of the “1,500-foot” sand and a flow and solute-transport model of the “2,000-foot” sand.

The fee increase takes effect on April 1st. Pumping invoices that are sent to the water users on April 1st, which covers the period of January, February and March, will be billed at the old rate (\$3.50 per million gallons). Invoices that are sent out on July 1st will bill the users at \$4.00 per million gallons. A reminder of the new rate will be sent with each invoice.

Alternative Water Source

By 2020, desalination and water purification technologies will contribute significantly to a sustainable, affordable and adequate water supply for our nation.

-USGS Fact Sheet 075-03-

In Louisiana, we have taken pride in the fact that we have a voluminous amount of fresh ground water. This is generally true, but not a guarantee that we will always be problem free. In the Capital Area, two of our concerns are water-level declines and saltwater encroachment. In the foreseeable future, we may want to investigate supplemental sources to augment the fresh ground water for industrial and public-supply use.

Water-deprived areas such as the western United States are finding new sources to deal with water shortages. El Paso, Texas opened up a 27 million gallons a day desalination facility last year. The plant uses brackish water from the Hueco bolson to supplement the fresh ground water and water from the Rio Grande. The project is the first of its kind involving a federal-local partnership. The plant serves the city and military base at Ft. Bliss.

San Antonio is completing a feasibility study to treat brackish ground water in that region. Their goal is a 22,000 acre feet annual supply of potable water that would supplement the freshwater from the Edwards aquifer during times of peak demand.

The availability of brackish water in the Baton Rouge area is practically unlimited as there are many sands at depths below the base of fresh water. An exhaustive study of saline water resources of Louisiana shows the availability of brackish water at dissolved solids concentrations of 1,000-3,000 mg/L and 3,000-10,000 mg/L in the USGS publication Hydrologic Atlas 310 by Winslow et.al (1968). It should be pointed out that desalination of brackish water has economic advantages over that of seawater. Seawater has a chloride concentration of 19,000 mg/L, whereas brackish water can be found up to a few thousand mg/L in the Capital Area. The table below from the booklet desalination.com (2003) gives estimates of the cost to consumers.

Salinity	US \$ per 1000 Gallons
Fresh water	\$0.95 to \$2.50
Brackish water	\$1.25 to \$2.75
Seawater	\$2.50 to \$7.00

Six Ways to Kill a Pump

1. Ignore it. – This is the long, torturous way of death. You probably have a book containing operation and maintenance instructions. This includes periodic checks on packing, gaskets, O-rings, amperage and pump discharge. Failure to give the pump a shot of grease, check for misalignments, change of filters or cleaning of parts may cause your pump to become old before its time. Think of it as a new car you purchased

for \$30,000. No way would you want to deny it the proper maintenance it requires because you want to protect your investment.

2. Strangle it. – The life breath of a pump is liquid taken in through the inlet or suction nozzle. To strangle the pump, you simply operate it at a suction head less than that required for the pump. This may occur because of lowered pumping levels or a strainer clogged with debris. Routine checks for air entrainment which results from cavitation will reveal that you have a problem. Ignore the change in pitch of the motor and you may be rewarded with an impeller eroded beyond repair.

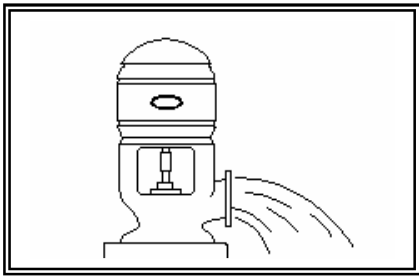
3. Fry it. – To heat up the pump, close down the valves to reduce flows. For a faster kill, operate the pumpage at “shutoff” (i.e. running without priming) or closing the valve to control discharge. This would be like hitching a Clydesdale to a garden cultivator. A pump operating at low efficiency creates heat, and heat means problems will occur somewhere down the line. Once the pump is fried, get one that matches the expected flow and demand conditions.

4. Overtax it. – In other words, tax it to death. Work it at higher than rated capacities and you can count on a broken shaft or bearing. To save it from an early death, run the pump within the requirements noted on the nameplate such as capacity, head, speed, amps, volts, etc. If this is not feasible get a pump that is suited to your conditions.

5. Rip it apart. – If the pipes don’t match the pump, get out the old come-along and contort the components in place and bolt them together! In due time the pipes and fitting will crack, water will blow all over the place and the motor may short out. The alternative is to install the piping correctly the first time.

6. Vibrate the #!&!# out of it. – By seriously misaligning the pump and motor, you can set up a good vibration that will work on the bearings and shaft. The pump base can also sound the death knell if the bolts aren't secured properly or the bolts aren't checked routinely to see that they remain tight.

(This entertaining report on pumps appeared in the AWWA publication *Opflow*, January 2005, "How Many Ways Can We Kill a Pump", by John Stubbart. I have condensed and edited it to fit in the newsletter. DD)



Damaged Well Survey

It was reported in the *Advocate*, March 29th, that the state will be conducting a survey of damaged water wells in the coastal parishes. The destruction caused by hurricanes Katrina and Rita in 2005 left many wells whose present status needs to be checked. The Departments of Natural Resources and Health and Hospitals are teaming up to investigate an estimated 3,600 to 4,000 water wells that may have been affected by the storms.

The survey has begun in Cameron Parish, and will move eastward across the coastal parishes. A Baton Rouge-based firm, GEC Inc., will be doing the work which will take six to eight months to complete. The project will cost about \$600,000. Damaged wellheads will be closed off to protect the aquifers from surface contamination. After the work is completed, a report will be given to the Louisiana Recovery Authority to decide on what should be done with the wells. It should be pointed out that

DOTD regulations for the plugging of abandoned wells are in place and need only to be executed.

We reported after hurricane Katrina in the October 2005 newsletter of conditions in the New Orleans area. After being inundated several weeks by contaminated water, the amount of recharge through abandoned and improperly secured pumping wells probably will never be determined. It is hoped that the survey will shed some light on that problem. In our Capital Area District the effect of Katrina on wells was minimal. We did not bear the brunt of the storm and there was no flooding.

Pointe Coupee Water Levels

In this issue we will review the water levels in the major aquifers outside the major pumping centers in Baton Rouge. The aquifers that supply industrial and public-supply use in Baton Rouge extend into the surrounding parishes. The following graphs reveal water-level trends in Pointe Coupee Parish over the last 11 or 12 years.

In Pointe Coupee Parish, the four major aquifers are shown in the graphs. Over a period of about twelve years the declines are as follows:

- PC-143 – "2,800-foot" sand —5 feet
- PC-70 – "2,400-foot" sand —10 feet
- PC-138 – "2,000-foot" sand —14 feet
- PC-155 – "1,200-foot" sand —10 feet

In future issues we will review the water levels in the other parishes in the District.

Did You Know?

"We have staked the whole of all our political institutions upon the capacity of mankind for self-government, upon the capacity of each and all of us to govern ourselves, to control ourselves, to sustain ourselves according to the Ten Commandments of God."

James Madison
(Known as the "Father of our Constitution")

