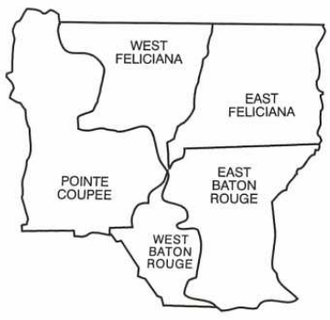


Capital Area Ground Water Conservation Commission

Watching out for A Treasured Earth Resource

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

Volume 36, Issue 2 **NEWSLETTER** *October 2010*

Commission & District News

Scheduled Meetings – The Technical Committee will meet at 1:30 p.m. Tuesday, December 7, 2010 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, December 14, 2010 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.

September Meetings – The Technical Committee met Tuesday, September 14, 2010 at 1:30 p.m. in the U.S. Geological Survey conference room, 3535 South Sherwood Forest, Baton Rouge, Louisiana.

Chairman Mark Walton brought the meeting to order and Dr. Frank Tsai, LSU, gave an update on the scavenger well modeling study in the vicinity of Lula pumpage station. Saltwater encroachment is moving northward toward the pumping wells at Lula and the purpose of the project is to delay or prevent saltwater from reaching the wells which are screened in the "1,500-foot" sand. In 2009, six wells at the station pumped an average of 7 million gallons per day.

Twelve scavenger well scenarios were presented with various configurations of wells beginning on January 1, 2011. Several findings and recommendations were noted and will help to develop an optimum plan of action to control the invasion of salty water toward Lula pumping station. Scavenger wells may also effectively reduce chloride concentrations in the Government Street wells.

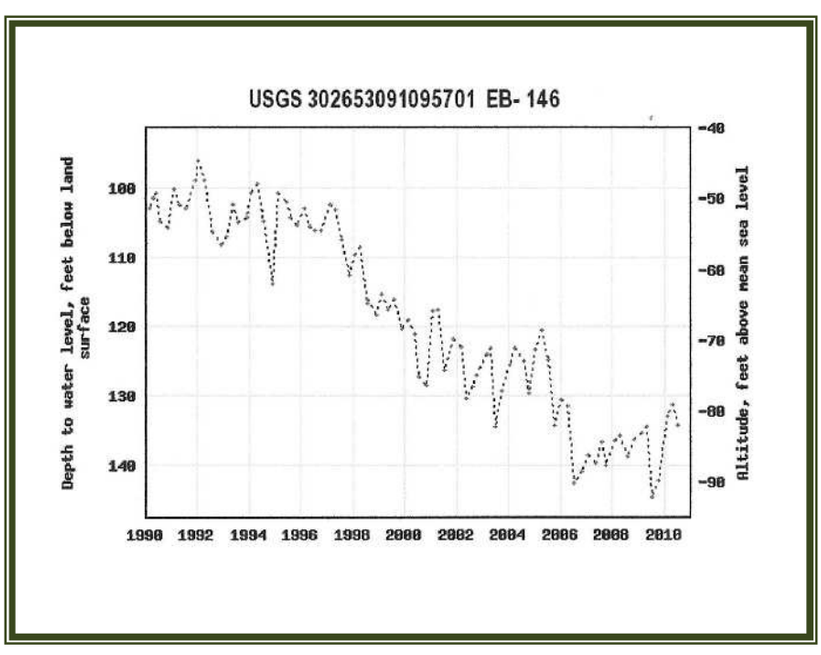
Dan Tomaszewski, USGS, presented some information on the "1,200-foot" sand in East Baton Rouge and surrounding parishes. The "1,200-foot" sand does not have the problem of saltwater encroachment such as the "1,500-foot" sand. However, some wells, for example EB-621, are located very close to the Baton Rouge fault, and have shown a rise in chloride concentration in the recent past. Hydrographs of observation wells in the Capital Area indicate water-level declines since the mid-nineties. The water level in EB-146, south of the cone of depression (see graph), has hovered between 130 and 140 feet below land surface for the past 4 years. The potentiomentric map of the "1,200-foot" sand in 2001 shows a maximum water level of about 150 feet.

Water Reclamation

Considering the droughts of recent years, many communities are looking at the reuse of wastewater as a valuable resource to be conserved. Southern California has led the way in the use of barrier wells to counter the advance of seawater into a freshwater aquifer. Originally, these wells were supplied by potable water from water treatment plants. Wasted sewer water is now considered useful in that area and is reused by treating it in an advanced water treatment facility. Aquifer recharge may be accomplished with direct injection into an aquifer by a combination of media filtration (MF), reverse osmosis (RO) or ultraviolet light (UV) which produces potable-quality water.

In Miami, Florida the Biscayne aquifer is designated a sole source aquifer. In 2007, the South Florida Water Management District issued a permit to use the South District Water Reclamation Plant as an alternative source to meet future water demands. The reclamation project, capable of producing 21 million gallons per day will become operational in 2014. Like the West Coast, injected water would act as a barrier to seawater invasion.

A study was made some years ago to look at the reuse of wastewater in the Capital Area. The public water supply here is excellent quality and with proper treatment, could be injected back in aquifers with the same water



quality from which it was originally pumped. The injection well(s) would be located at some distance from active pumping wells and the injected water would be treated to drinking water standards.

Alternative Sources for Baton Rouge

Mississippi River. – Although limitless in volume, the Mississippi River has high hardness which would require considerable treatment to be considered as an injection source for ground water. However, after treatment for hardness it may be possible to blend it with the public-supply ground-water distribution system which has a hardness generally less than 10 mg/L/.

Amite River. – Unlike the Mississippi River, the Amite River is fed by source water within the Amite River Basin in Louisiana and and southern Mississippi. Fed primarily from overland runoff and shallow ground-water base flow, the water is of good quality, having low harness and total dissolved solids. Treatment would be simpler and the water would blend well with the ground-water system. The eventual completion of the Amite River Diversion Canal would also be a viable source of good quality water consisting mostly of local rainwater runoff.

Ground Water of Inferior Quality. – The undesirables in ground-water supplies usually consist of some combination of iron, manganese, hydrogen sulfide and possible color and pH. Some of the aquifers in the Capital Area are passed over because of these problems. However, with proper treatment these constituents can be treated to drinking water standards. The removal of suspended solids, such as in surface water, would not be needed. On-site treatment could be accomplished at each well site before the water entered the distribution lines.

Reverse Osmosis. – This procedure has been in operation for some time now, and through the technological advances made, is a viable means of producing fresh water from brackish or salty water. It is used primarily in coastal areas where the seawater is converted to potable drinking water. As the name implies, salty water under pressure is filtered by osmosis through a porous membrane to become fresh water. Permeate, or fresh water recovery requires a higher osmotic pressure the higher the salinity of the water. The moderately saline water in the local aquifers is considerably less salty than seawater and would operate more efficiently. According to a book titled ***desalination.com,*** seawater systems operate at a 30 to 40 percent recovery rate. Brackish water RO systems are able to convert 70 to 85 percent of the feed into potable water. For the brackish waters in the Capital Area, the disposal rate of saline water would be much less.

Scavenger Wells. – In areas of saltwater encroachment two wells, one pumping fresh water and the other pumping saltwater at the base of the aquifer, are pumped simultaneously. The salty water is collected for disposal or reinjected back into the salty zone of the aquifer and the fresh water is usable as a potable supply.

The Capital Area Ground Water Conservation Commission is currently involved with Baton Rouge Water Company and Louisiana State University to model a scavenger well system in the "1,500-foot" sand near Lula pumping station. If successful, the control of the salty water moving toward this pumping station would add years to the life of the public-supply wells located there.