Neches and Trinity Valleys Groundwater Conservation District

Groundwater World

April 2016

Special points:

Did you know:

- There is the same amount of water on earth today as there was 3 billion years ago?
- 97% of the world's water is salty or otherwise undrinkable, 2% is locked in ice caps and glaciers, 1% is available for human use?

Inside this

Welcome

The Neches and Trinity Valleys Groundwater Conservation District (NTVGCD) welcomes you to its newsletter. We hope this publication gives you useful information concerning District activities and requirements, groundwater conservation, and educational information for learning more about groundwater resources in Anderson, Cherokee, and Henderson Counties.

You may have asked, "Why does a Groundwater Conservation District do."

We are all taking care of our own water without the state or federal government doing it for us. The District was not created in an effort to do away with the rights of the individual, but rather to create a local organization designed to maintain those individual rights and provide for the protection, conservation, and wise use of our own water for the good of all.

In 2001, the Texas Legislature passed Senate Bill 1821 which authorized the creation of NTVGCD as a local means to regulate groundwater in order to protect it from overuse, contamination and wasteful use. This was approved by the voters in a general election in November 2001. The district includes all of Anderson, Cherokee, and Henderson Counties.

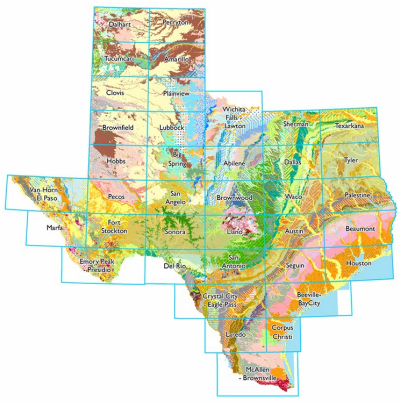
NTVGCD has a seven member unpaid Board of Directors. The Commissioners' Court of Anderson, Cherokee, and Henderson Counties have each appointed two directors, one to represent agriculture, industry, and landowner interests. The cities of Athens, Jacksonville, and Palestine share a seventh Director position on a rotation representing municipal use.

The District is prohibited by legislation from levying taxes. It also may not exercise the power of eminent domain not issue or sell bonds in the name of the District. The District is funded by pumping fees assessed on certain non-exempt wells, such as public water supply and commercial wells. The District does not impose pumping fees on wells used solely for domestic or agricultural purposes. The District may issue permit fees for registration, drilling, and operating of non-exempt wells. Some groundwater conservation districts are tax-based or funded under different methods.

Our rules, management plan, forms and other useful information are available on our web site. Please check us out at www.ntvgcd.org. We welcome you to contact our office with any questions or concerns you may have. Please 'Like' and follow us on Facebook where we post updated drought information and other current items.

Groundwater Resources

The Carrizo-Wilcox aquifer is the primary source of groundwater within the District. The Queen City and Sparta are other minor aquifers pumped within the District. The depth of the aquifer sands is highly variable within the district. Groundwater represents 32 percent of the water sources within the District with surface water being the major remaining source. The estimated water pumped by aquifer is 90.4% from Carrizo-Wilcox; 4% from Queen City; 5.4% from Sparta; and the balance from undifferentiated aquifers.



Education to Go

The District has had an educational program going on for a long time that takes a program to the schools to educate students on water and focusing on groundwater. It is called **Amazing Aquifers**. We are proud to say we have presented this program to thousands of students in our District. So far Chris has presented the program to over 1,100 students this year.

Christopher Cook, who is a retired local teacher, has spent his time getting out the word on how much water is out there for us to use and protect.

If you would like to schedule the program for a school or class, contact the District office.

Jacksonville 7th grade science classes

Districts work together to Set a Desired Future Condition for Groundwater

By state law, NTVGCD and the other Groundwater Conservation Districts (GCDs) are tasked with a huge, unfunded mandate to establish groundwater availability models and desired future conditions (DFC) of local aquifers projected to the year 2070. This must be done by May of 2017 and the results will become part of the State Water Plan and thus will effect groundwater production and use in the District for future generations. This is a lengthy process and as work continues on setting the DFC, public comments and input will be requested and considered by the District Board.

On September 1, 2005, House Bill 1763, passed by the 79th Legislature became effective and made some profound changes in how groundwater availability is determined in Texas. Because the population of Texas is expected to double over the next 50 years, groundwater availability will be a topic of heated debate, even in places like East Texas which has always been blessed with an adequate supply of water.

HB 1763 made important changes, many of which require extensive study, planning, and action by GCDs, including requiring the regional water planning groups to use groundwater availability numbers from the DFC, regionalizing decisions on groundwater availability, and defining a permitting target for groundwater production. These changes affect the rules and plans of GCDs, regional and state water plans, and various groundwater projects planned around the state.

HB 1763 established 16 Groundwater Management Areas (GMAs) of Texas which, naturally, do not have the same county line boundaries as the Regional Water Planning Groups as the GMAs more closely follow aquifer boundaries. NTVGCD, along with the Pineywoods GCD, Rusk County GCD, and Panola County GCD are the districts in GMA 11 (eleven). These Districts represent seven counties but there are all or part of 28 counties within GMA 11, mostly unprotected counties without a GCD. The GCDs are tasked to set the DFC for all of the 28 counties.

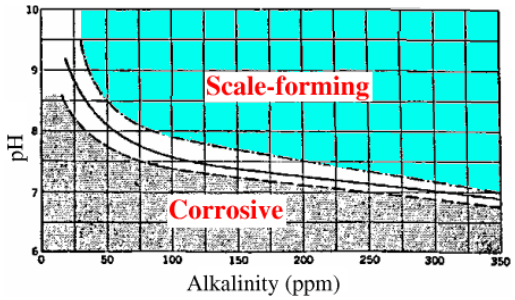
The tasks created by HB 1763 will require much of the Districts resources. This includes hiring persons to run models for different projected growth rates for population, agriculture and industry. It is an expensive exercise to determine what we want our Desired Future Conditions to be in 50 years. In the process we will also determine the Modeled Available Groundwater (MAG) that will represent what is believed to be the quantity of groundwater that can be permitted in each county and aquifer.

What Happened in Flint?

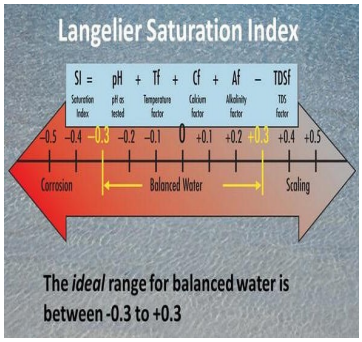
As the headlines start to fade from the national stage, the fact remains that there are about 6.1 million lead service lines nationwide. If the average cost of replacing each one is $5,000, then the collective cost could easily top $30 billion, according to the American Water Works Assn. This is in addition to $1 trillion needed over 25 years to repair and expand buried drinking water mains.

Clean, safe drinking water depends on complex treatment and distribution systems that require constant attention and sustained investment, Michael Deane, executive director of the National Association of Water Companies said. "The issue in Flint was operational," he said. "The failures were related to treatment, not the water system infrastructure. Flint has brought attention to the fact that the water treatment process is very complicated." Water treatment protocols vary according to many factors, including the source and chemistry of the water and the makeup of the distribution system, and the operation of water utilities is just as important as the investments being made in the system's infrastructure. (from: Water and Wastes Digest)

Chemical stability of the finished water is very important. Water that is chemically unstable will either cause corrosion or calcium carbonate scaling in the distribution system. Water that is corrosive will attack all of the metal components of the distribution system including storage tanks, pipe, valves and meters. It will cause rust and tuberculation (A corrosion process that produces hard knob-like mounds of corrosive products on metal surfaces, increasing friction and reducing flow in a water distribution system) in iron pipe and steel storage tanks. Tuberculation can dramatically increase the friction loss and reduce the carrying capacity of a distribution line. Corrosive water can also result in problems from lead and copper that can leach out of the customers plumbing fixtures.



One method of determining whether the pH and alkalinity are properly adjusted to produce stable, non-corrosive water is with the Baylis Curve. Plotting the pH and alkalinity of the water on this chart will indicate whether the water is corrosive or not. If the point where the pH and alkalinity cross is below the curve (dark gray area) the water is corrosive and will attack metal tanks and pipes in the system which will leach out lead and copper metals, if present. If the point is above the curve the water is not corrosive but does have excessive amounts of alkalinity present, which will cause the formation of lime scale (see picture), mostly Calcium bicarbonate-Ca(HCO3)2 and Calcium Carbonate-CaCO3, in the lines. This scale formation can restrict the flow of water in the line if allowed to build up over a long period of time and can be as bad for the system as corrosive water. When the point falls within the dotted lines or on the curve itself, the water is stable and will not cause corrosion problems.



The Langlier Index also factors water temperature into the equation. It is more commonly used for industrial water treatment. An index number is calculated based on pH, alkalinity and temperature. If the index number is a positive number, the water is scaling. If the index number is a negative number, the water is corrosive.

So what happened in Flint? We will probably never know for sure but there is one thing we do know and that is there is a proper way to evaluate and treat raw water to keep this from happening. The operational system failed in Flint due to poor monitoring and treatment of the new raw water source. The City and the State can take responsibility for the disastrous results that came about. To change water sources from Lake Huron to the Flint River they should have done slowly and performed jars tests on the new source to see what treatment would be required to make the water potable and safe to drink.

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Calendar of Events

The regularly scheduled Board meetings are the third Thursday of each month at 1:00PM. The meeting will be held at the Neches and Trinity Valleys Groundwater Conservation District office located at 914 S. Bolton St. in Jacksonville. If you are planning to attend the meeting, please call due to possible time or meeting location changes.

District Office hours (M-F) 8:00 am—12:00 noon
1:00 pm—5:00 pm

On Friday afternoons, call first after 1:00 pm

- **The District office will be closed for the following holidays for 2016**

Labor Day	**Veteran's Day**	**Thanksgiving**
Christmas	**New Year's Day**	**MLK Day**
Good Friday	**Memorial Day**	**Independence Day**