

North Plains Water News



A Publication of the NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT

VOLUME 55, NO. 1 "Maintaining our way of life through conservation, protection, and preservation of our groundwater resources."

SPRING 2009

Evaluation of Alternative Water Conservation Strategies for the North Plains Groundwater Conservation District to be Conducted By Texas AgriLife Extension Economist

The North Plains Groundwater Conservation District is facing some critical decisions regarding potential water conservation policies. It has been projected in the Senate Bill 1 and Senate Bill 2 planning efforts that the four Western Counties of the District will fall well short of the goal of having 50% of the groundwater remaining in 50 years. Dr. Steve Amosson, Texas AgriLife economist, will lead a study to evaluate the short term and long term economic implications of alternative water conservation strategies being considered by the District.

The goal of the study will be to develop and update economic optimization and socio-economic models for each the eight counties in the District. Economic optimization models, which consist of individual models for each of the 8 counties in the study area, will estimate changes in the aquifer and farm net income over a 60 year planning period. The parameters for each county will include the number of acres planted in each major crop, the number of irrigated acres, and the percentage of the county overlying the Ogallala Aquifer. The aquifer characteristics for each county include the average saturated thickness, depth to water, specific yield, and recharge. The crop parameters for each crop will include crop price, cost of production, and crop yield. The crop yield will be determined by a production function which estimates yield as a response to applied water.

Socio-economic models evaluate impacts on the regional economy. For this

study, models to evaluate the socio-economic impacts on the overall study area and selected county impacts of the alternative scenarios will be analyzed. The analysis will use the input-output model and Impact analysis for PLANning (IMPLAN). Input-output modeling is a method used to understand the linkages between elements of an economy and estimate the impacts of changes in the economy. To measure impacts, the IMPLAN model produces multipliers which attempt to estimate the total economic impact of expenditures within an economy.

These models will be developed, refined or updated to accurately portray the counties in the District. Three or four different water conservation strategies will be evaluated using the economic models, and the impacts of both short (10 years) and long term (60 years) of each conservation strategy will be estimated. Results of the study will provide insight into the changes in producer income and saturated thickness of the aquifer, as well as impacts on regional economic activity, income and employment from each conservation strategy evaluated.

Sponsors of the study include North Plains Groundwater Conservation District, Texas Corn Producers Board, Texas Farm Bureau, Texas Cattle Feeders Association, and the Texas Association of Dairymen. The information gleaned from the study will aid the District's Board of Directors as they make decisions about the management of the groundwater within the District for the future.



Hydrologic Atlas of North Plains Groundwater Conservation District Available to the Public

North Plains Groundwater Conservation District has completed the annual Hydrologic Atlas of the District. The Atlas uses current and historical data to map groundwater information throughout the District on a county-by-county basis.

The atlas is titled "Hydrology and Water Resources 2008" and contains information that landowners often request about the Ogallala aquifer and the water resources of areas within the District.

The maps section contains maps depicting water-level monitor well locations, estimated depth to water, estimated aquifer thickness and estimated average declines (25 maps).

In addition to the maps section, the atlas also contains sections outlining the purpose of the District, the history and statutes for the District, the geographical extent of the District and general information on the geology and hydrology of the

District. It features information on the current volume of water in storage in the aquifer, average aquifer thickness, as well as estimated annual water usage, recharge, and other inflows and outflows of the aquifer.

The groundwater atlas may prove useful to individuals in groundwater investigations of different areas of the District. The District receives many requests for this type of information each year, and with the atlas, District residents have a tool that will allow them to easily compare general geologic and hydrologic information of differing properties.

Copies of the atlas can be obtained free of charge at the North Plains Groundwater Conservation District office at 603 East 1st Street in Dumas, or it may be downloaded from the District website at www.npwd.org by clicking on the link for "Hydrology".

District Personnel Attend GIS Seminar

Dale Hallmark, District Assistant Manager and Odell Ward, Natural Resource Specialist attended a Geographical Information Systems (GIS) seminar January 21 thru January 23, 2009, hosted by the Columbia Regional Geospatial Service Center at Stephen F. Austin University in Nacogdoches, Texas. Courses included an introduction to ESRI's ArcPad data collection and mapping program (ArcPad I), and advanced ArcPad (ArcPad II), and a workshop on requirements for candidates

seeking certification as a Geographical Information Systems Professional (GISP).

The ArcPad I class introduced participants in the use of ArcPad for data collection which uses a Windows CE environment (a Windows operating system for handheld computers and PDA type devices) with add on Global Positioning System capabilities. The course covered collecting and mapping GPS data using the program and equipment in the field. Data collected range from well location data points, drill sites, or any other location

of interest or investigation and associated data.

The class on acquiring the GISP designation outlined the certification program for GIS professionals and showcased the educational, practical experience and professional requirements. Dale and Odell are likely future candidates for the professional certification which can take several years to fulfill all requirements.

The course on ArcPad II is an intermediate level workshop for users with previous experience collection GPS data and using the ArcPad system. Data

collection techniques and editing were the main topics discussed. The class also included techniques on collecting data from sites that are not physically accessible.

Other discussion groups/classes attended included The Status of Geospatial Sciences, Tools and Applications for Applied Field Data Systems, Resource and Data Access, and Conservation and Research Applications Using GIS. The information and skills acquired will allow District personnel to better manage, analyze and collect data in the field.

District Begins Campaign to Support SMARxT Disposal Program



New posters with a green medicine capsule showing the continents of the world will soon be appearing in businesses around the North Plains Groundwater Conservation District. The District is partnering with the U.S. Fish and Wildlife Service, the American Pharmacists Association, and the Pharmaceutical Research and Manufacturers of America to increase consumers' awareness of the problems associated with improper disposal of unused pharmaceuticals.

SMARxT Disposal targets medication consumers to raise their awareness about the potential negative environmental impacts improperly disposed medications may have on aquatic ecosystems, and potentially groundwater supplies, and also provides guidance on proper disposal alternatives.

The campaign seeks to raise consumer awareness while promoting environmentally-friendly consumer behaviors through diverse communication networks. The goals are to elevate the medication disposal issue, encourage consumers not to use the outdated advice of "flush unused medications or pour them down the sink" and provide them with more environmentally-friendly alternatives.

Scientific research indicates that current consumer advice for medication disposal may contribute to environmental harm. Also, most consumers lack awareness of the potential environmental and societal impacts of improperly disposed of medications. When they flush medications down the toilet or pour them down the drain, they flow through the community's sanitary sewer system to a wastewater treatment facility. Recent studies, using methods which detect low concentrations of compounds, show that municipal wastewater treatment facilities may not always successfully remove medications or their by-products. This treated wastewater is then released into local waterways where it may harm fish and wildlife, pollute surface water, and potentially infiltrate into groundwater.

This is a national campaign that unites diverse interests from the health care profession, pharmaceutical manufacturers, and conservation community to participate, collaborate and succeed locally. Pharmacies will serve as one of the key educational intervention points and will be supported with campaign materials provided by the North Plains Groundwater Conservation District.

The campaign Web site at www.smarxtdisposal.net is pivotal in communication efforts and highlights the steps consumers can take to ensure that their every day actions will safeguard lives and protect the environment.

What steps does the SMARxT Disposal campaign recommend for disposal? Follow your medication prescriber's instructions and use all medications as instructed. If you do not use all of your prescribed or over-the-counter

medication, you can take a few small steps to make a huge impact in safeguarding lives and protecting the environment by disposing of unused medicines properly:

1) DO NOT FLUSH unused medications and **DO NOT POUR** them down a sink or drain.

2) Be Proactive and Dispose of Unused Medication In Household Trash. When discarding unused medications, ensure you protect children and pets from potentially negative effects:

a) Pour medication into a sealable plastic bag. If medication is a solid (pill, liquid capsule, etc.) crush it or add water to dissolve it.

b) Add kitty litter, sawdust, coffee grounds (or any material that mixes with the medication and makes it less appealing for pets and children to eat) to the plastic bag.

c) Seal the plastic bag and put it in the trash.

d) Remove and destroy ALL identifying personal information (prescription label) from all medication containers before recycling them or throwing them into the trash.

3) Check for Approved State and Local Collection Programs. Another option is to check for approved state and local collection alternatives such as community based household hazardous waste collection programs.

More information on the program may be obtained at the SMARxT Disposal website at www.smarxtdisposal.net or on the District website at www.npwd.org by clicking on the link for SMARxT Disposal. Local pharmacies will begin to have the materials available in their businesses over the next few weeks.

District Offers Rainwater Harvesting Class

Billy Kniffen, Water Resource Specialist with the Texas AgriLife Extension Service, will be in Dumas on April 21 to conduct a free informational class on Rainwater Harvesting sponsored by North Plains Groundwater Conservation District. Mr. Kniffen travels the state of Texas promoting the use of rainwater as a source of optional water for homes, businesses, agricultural operations, and wildlife habitat.

Mr. Kniffen has worked for the Texas AgriLife Extension Service for 26 years and served as the president of the Texas Rainwater Catchment Association. He has also served in several roles for the American Rainwater Catchment Systems Association. He has assisted with several publications including *Harvesting Rainwater for Wildlife*, an AgriLife Extension booklet titled *Rainwater Harvesting*, and *Rainwater Harvesting in West Texas*. He also serves on AgriLife Extension's Rainwater Task Force.

Billy and his wife live in a home in Menard, Texas that is totally dependent on rainwater for all uses. Data that they have collected shows that they use 35 gallons of water per person a day in their home, and they have the ability to maintain their home on less than 9 inches of rainfall per year. He will answer questions from anyone interested in knowing more about putting in a home rainwater harvesting system.

For many home-owners who are not interested in providing for all of their home water needs with rainwater, installing a rain barrel system to capture water for landscape watering is an attractive option, and instructions for installing rain barrels will also be a topic during the Tuesday evening presentation.

Owners of agricultural operations who have barns or covered areas, such as those found in dairies, will also be surprised at how much water they can



collect from a one inch rainfall. For every inch of rain, about 600 gallons of water can be collected from 1,000 sq.ft. of roof area. A typical home with 2000 sq.ft. of roof area in the Texas Panhandle can yield up to 20,000 gallons a year, water that would otherwise run off.

The Texas Water Development Board says that rainwater harvesting is enjoying a revival in popularity for two reasons: its inherently superior quality and an interest in reducing consumption of treated water. Rainwater has long been valued for its purity and softness. It is slightly acidic, and is free from disinfectant by-products, salts, minerals, and other natural and man-made contaminants. Furthermore, rainwater harvesting is valued as a water conservation tool to reduce demands on more traditional water supply sources.

Mr. Kniffen will conduct a two hour class, from 6:00 p.m. to 8:00 p.m. on April 21 at the Amarillo College Moore County Campus auditorium, at 1220 East 1st Street in Dumas. There will be free informational materials on all aspects of rainwater harvesting available as well. Persons interested in attending are encouraged to register for the class by calling North Plains Groundwater Conservation District at 806-935-6401 or by e-mailing to Rhonda Artho at artho@npwd.org. Registration is not mandatory, and everyone is welcome to attend, but registering will aid the District in planning for quantities of free informational materials to have on hand that evening.

District Provides Water Quality Analyses to Monitor Groundwater Quality

North Plains Groundwater Conservation District monitors Ogallala water quality by collecting and analyzing samples from well over 250 wells within the District. It is the goal of the District to ensure as much as possible that future supplies of water are adequate as well as of good quality. The District also performs water quality analysis of samples at the request of rural landowners and prior to many land sales for banking and real estate concerns.



North Plains Groundwater Conservation District Makes Changes to Rules

A public hearing concerning changes to the rules of the North Plains Groundwater Conservation District was held on January 20 at the auditorium of the Amarillo College Moore County campus. The public was invited to make comment about the proposed rule changes, and several persons spoke to the Board of Directors regarding their concerns over the rule changes.

Members of the public who made public comment voiced their agreement with the plan to implement the new rule changes gradually over a period of years, but expressed concern that lowering the limit on the number of water wells that can be drilled on a section of land would be a hardship for entities such as feed lots. Others expressed concern over the limit on the number of wells per section and suggested that the number of wells should be limited by the total gallons per minute that could be produced from that section. One agricultural producer stated that lowering the limit on the number of wells per section would cripple farmers who must depend on small wells that don't produce sufficient water, and so need the maximum number of wells allowed for agricultural production.

After consideration of the comments heard from the public, the Board voted to adopt the changes to the rules, with the exception of the change to Rule 2, which would have lowered the number of wells allowed per section and added two new well classifications to those already used by the District.

The Board of Directors amended Rule 3 of the District to reduce Allowable Annual Production of groundwater beginning January 1, 2011 from two (2) acre-feet per year to one and three-fourths (1.75) acre-feet per acre per year. Beginning January 1, 2012, the Allowable Annual Production will be one and one-half (1.5) acre-feet per acre.

Rule 3 was also amended to add a provision for a Conservation Reserve. The purpose of the Conservation Reserve is to provide flexibility for Water Right owners by permitting them to exceed the Allowable Annual Production limit a total of .50 acre-feet in a year. An owner can accumulate a Conservation Reserve by reserving all, or a portion of, the current year's (Reserve Year) Allowable Annual Production on a property. The owner can then apply the property's Conservation Reserve, not to exceed .50 acre-feet per acre per year, to increase the property's Allowable Annual Production of groundwater. If the Conservation Reserve is not utilized within the two-year period following the Reserve Year, any accumulated Conservation Reserve will terminate. The property must be in production for a full year before it qualifies for the Conservation Reserve.

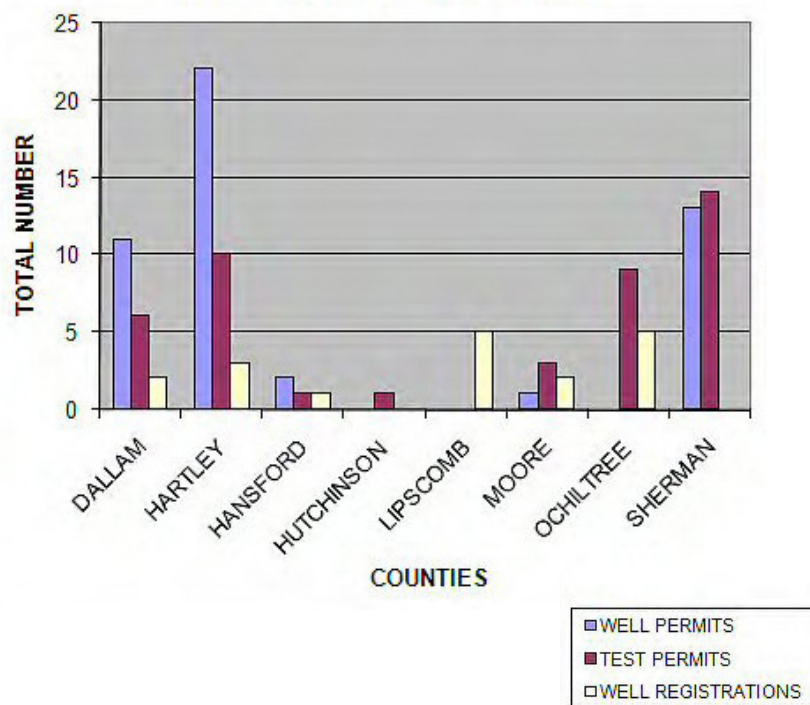
Rule 3 will continue to require metering systems on all wells and equipping of any new well drilled after October 14, 2003 with a District approved water meter. In another change to Rule 3, the Annual Production reporting date has now been extended from January 31st to March 1st of each calendar year.

The Board voted to delete Rules 4 and 5 from the old rules, and made significant changes to Rule 9. Test Hole Permits will now be effective for 60 days from the date of application, and any extension of that permit will be submitted to the Board for their consideration. Well permits will remain valid if the well is completed within 150 days from the filing date of the application.

All operators will now be required to display a Domestic Well registration, a Test Hole Permit, or a Well Permit when drilling, completing, or equipping a new well. Rule 10 had previously made this a requirement for drillers, but now all individuals involved in the completion of a new well must display the registration or permit.

Individuals who are tardy with the completion of their paperwork to the District will now forfeit their deposit if all information required by the rules of the District is not submitted to the District within 30 days after the expiration of a Test Hole Permit. These changes to the rules were effective immediately after the Board vote on January 20. Individuals interested in obtaining a copy of the rule changes may contact the District office at 806-935-6401 or by e-mail to Rhonda Artho at artho@npwd.org.

Permit/Registration issued in January 1 - February 23, 2009



Students Are Invited to Apply for Texas State Water Camp

The District invites high school students who are interested in learning more about water and water conservation to the Texas State Water Camp held in Monahans, Texas. Texas Agri-life Extension's 17th annual Texas State Youth Water Camp is set for July 12-16 in the George and Opal Bentley 4-H Center in Monahans. The District will pay for the \$150 registration fee and travel expenses for students who live within the District that are accepted to attend the camp.

The fun-filled, five day educational camp featuring hands-on experiences, guest speakers, and field trips, and teaches high school youth the importance of water stewardship. The camp also trains youth in water conservation and preservation, and illustrates how our water resource are being used by industry, agriculture and municipalities. The camp begins Sunday afternoon and concludes with luncheon on Thursday.

Derek Scasta, Extension agent in Ward County and the camp's coordinator, said the five-day camp helps older Texas youth learn about water issues. "We strive to build an appreciation among the campers

of the implications water management has on agriculture, industry, municipalities and homes," Scasta said. "The camp is an excellent opportunity for high school boys and girls from across the state to learn more about our water resources."

The camp will be conducted by Extension agents and specialists, U.S. Department of Agriculture Natural Resources Conservation Service personnel and other water resource experts.

Applications are currently being accepted for the camp, and the deadline for application is May 22, 2009. Information about the camp can be found at <http://ward-tx.tamu.edu/> or by calling the Extension office in Ward County at (432) 943-2682 or 943-4112. Information and links to the website for the Water Camp can also be found on the District website at www.npwd.org by clicking on the link for Water Camp. Students who are accepted to the camp should contact Rhonda Artho at North Plains Groundwater Conservation District at 806-935-6401 or by e-mailing to artho@npwd.org to arrange to have their travel and registration paid.

Area Comprising the North Plains Groundwater Conservation District

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 Casey Tice Compliance Coordinator
 Christie Frost Permitting Specialist
 Karen Mannis Permitting Specialist
 Mike Pitts Monitor Well Program Coordinator
 Odell Ward Natural Resource Specialist
 Randy Coon Natural Resource Specialist
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 Brian Bezner, Director Dalhart, Texas
 Phil Haaland, Director Dalhart, TX
 Wesley Spurlock, Director Stratford, TX
 Harold Grall, Director Dumas, TX

Leaky Pipes - Factoid

Did you know each day approximately six billion gallons of treated drinking water are "lost" primarily due to system leaks throughout the United States? This is approximately 14% of the nation's total daily water production. (Reported by American Society of Civil Engineers)

From the EPA's Water Sense publication

RETURN SERVICE REQUESTED

PERMIT NO. 324
LUBBOCK, TX
U.S. POSTAGE PAID
STANDARD
PRESORTED

NORTH PLAINS GROUNDWATER
CONSERVATION DISTRICT
BOX 795
DUMAS, TEXAS 79029

Daisy Girl Scouts Earn “Using Resources Wisely” Patch



Daisy Girl Scouts from Dumas recently earned their “Using Resources Wisely” patch while learning more about groundwater at the North Plains Groundwater Conservation District Offices. Rhonda Artho, Education & Public Relations Coordinator, began the afternoon by presenting the girls with information about the Ogallala aquifer and actions that the girls can take at home to conserve water. The girls then decorated bookmarkers with beads and yarn while studying the fun water facts printed on each bookmarker.

A Florida Girl Scout troop produced a video called “Scouting for Water Conservation”, which the kindergarten age Daisy scouts enjoyed as they discussed the ways that the girls in the video were conserving water. To finish up their badge requirements, the girls decorated door hangers for their homes with the message “Save Water”, and added flowers and rain drops to remind their family of the importance of water conservation as well.

The Daisy Scouts each received a five minute shower timer for their home and a fun booklet titled “Know What? We Use Water Wisely” that is geared toward younger children. The “Using Resources Wisely” is one of five Girl Scout badge workshops that are offered each year by the District.

Free Summer Teacher Workshop Offered

Teachers who are looking for some fun, interactive and hands-on activities for their students next year can find many such activities during the free one day summer Teacher Workshop offered by North Plains Groundwater Conservation District. This year’s workshop will be on Tuesday, June 16 from 9:00-4:00, with a one hour break for lunch.

The workshop, which will feature activities from both *Project WET* and the Texas based *Major Rivers* curricula, will give teachers the opportunity to actually participate in the hands-on activities that they can then take back to their students as an enhancement to their current curriculum. Many of the activities can be used in different subject areas, including science, reading/language arts, art, music, social studies and history. Any teacher who wants to freshen up their year with some new activities to get students engaged in learning more about water and water conservation while having a great time should consider attending this workshop.

Teachers who attend will receive the award winning *Project WET* Curriculum

Guide, which contains over 100 activities for all age levels and all content areas, and the Texas based *Major Rivers* curriculum kit, which focuses on the water resources of the state of Texas. Both curricula have been aligned to the national and/or state standards, making it easier for teachers to see how to fit the activities into their current lesson plans.

In addition, teachers who register before May 16 can also receive a free classroom kit of materials used to conduct the activities that are covered at the workshop. Teachers can earn three different types of continuing education hours, which include 6 hours of State Board for Educator Certification (SBEC) approved CPE hours, 6 hours of Gifted and Talented (G/T) approved CPE hours in Differentiated Curriculum, and 6 hours of approved credit for the Texas Environmental Education Advisory Council (TEEAC) for those teachers who are working on their Environmental Educator Certificate.

This workshop promises to be a day



of fun and activity, and a wonderful chance for teachers to bring water education materials back to their students in a form that will fit nicely into already existing curriculum units. Teachers may register for the class by contacting Rhonda Artho at 806-935-6401 or at artho@npwd.org. There is a \$25 refundable registration fee, which will be refunded at the conclusion of the class.

School Districts who are interested in having the workshop at their location, or in another time format, such as an in-service or after-school training can also request that by contacting Rhonda Artho at the District office.

Students are Invited to District’s “Make a Splash” Festivals

It’s Water Festival time again! District fourth graders are invited to attend either of the two “Make a Splash” festivals to be held in Perryton and Dumas. These festivals are annual events where students can spend a day attending fun-filled and hands-on activities to learn more about their groundwater resources and the other natural resources of the Panhandle.

Schools are invited to send their students to the festivals, and home-school students and private school

students are also invited to attend. The Perryton festival is co-sponsored by Frank Phillips College, and will be held at the Frank Phillips College Allen Campus on March 27. The Dumas festival will be held at the Moore County Community Building on May 7.

The festivals begin at 9:20 am, and are over by 2:30 so that students who are being bussed in will have time to return to their home schools afterwards.

Other agencies participating in the festivals include Texas Parks and Wildlife, West Texas A&M University, Panhandle Groundwater Conservation District, Valero McKee Refinery, Ochiltree and Moore County AgriLife Extension, 4H, Window on the Plains Museum, and G.E. Water & Process Technologies.

Parents or teachers wishing for their students to attend a festival can contact Rhonda Artho, Education & Public Relations Coordinator, at 806-935-6401 or at artho@npwd.org.

