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Understanding the recent rule amendments:

District meter specifications and the Approved Meter List Manual

Third In A Series

This month, we introduce the High Plains Underground Water Conservation District No. 1 (the District) ***Meter Specifications and Approved Meter List Manual (the Meter Manual).***

On July 19, 2011, the District adopted amendments to rules primarily focused on changes to programs necessary to achieve the 50/50 Management Goal for the Ogallala Aquifer *(including the Edwards-Trinity "High Plains" Aquifer)*.

A primary element of these amendments was the new requirement for meters and the reporting of water use annually for all non-exempt wells and certain exempt wells.

The Meter Manual contains (1) water meter installation requirements, (2) a description of alternate measurement methods that may be utilized during the transitional period, and (3) the approved meter list.

In order to provide this overview, we will first review a few of the basic elements of the rules that are present throughout the Meter Manual.

There are two main categories of water wells in the District: exempt wells and non-exempt wells.

Exempt wells are defined by rule as wells that are equipped to produce 17.5 gallons per minute or less or those wells that are used solely for domestic purposes.

Wells used solely for the purposes of water supply for oil and gas exploration and mining are exempt from well permitting requirements, but are subject to all other rules of the District.

Exempt Wells

For wells that are exempt from permitting, only exempt oil and gas and mining wells have to be metered; other types of exempt wells (those that are equipped to produce 17.5 gallons per minute or less or those wells that are used solely for domestic purposes) do not have to be metered or report groundwater production.

Exempt oil and gas and mining wells that are drilled on or after January 1, 2012 have to be metered before water can be produced.

Exempt oil and gas and mining wells that are drilled before January 1, 2012 may use alternate measuring method but have to install a meter by 2016.

Groundwater production for exempt oil and gas and mining wells must be reported on an annual basis using the same reporting process as non-exempt wells.

Non-Exempt Wells

All other wells are classified as non-exempt water wells. For non-exempt wells drilled and completed

See METER Page Three

New publication "spells out" economic variables of irrigation systems

By Kay Ledbetter
Texas AgriLife Extension

AMARILLO – The irrigation world has become an alphabet soup — LESA, MESA, LEPA, SDI – but a new Texas AgriLife Extension Service publication can help producers "spell out" feasibility, efficiency and water savings by selecting the right system for their operation.

The new "Economics of Irrigation Systems" publication is a collaborative work by Agri-Life Extension, West Texas A&M University and Texas AgriLife Research economic and irrigation specialists and agricultural engineers. The research was supported in part by the Ogallala Aquifer Program.

"Irrigation can improve crop production, reduce yield variability and increase profits," said Dr. Steve Amosson, Agri-Life Extension economist. "But choosing and buying the appropriate irrigation system is both expensive and complex."

The producer must determine water availability, financing, crop mix, energy prices, energy sources, commodity prices, labor availability and costs, tax rate, soil type, savings in field operations, application efficiency, operating pressure of the design and pumping lift — all before selecting an irrigation system, Amosson said.

"The less efficient the irrigation system, the more effect that fuel price, pumping lift and wage rate have on the cost of producing an irrigated crop," he said. "Therefore, when there is inflation or volatility of these cost factors, it is more feasible to adopt more efficient irrigation systems and technology."

To assist producers in these decisions, the researchers identified the costs and benefits of five types of irrigation systems commonly used in Texas: furrow irrigation; mid-elevation spray application or MESA center pivot; low-elevation spray application or LESA center pivot; low-energy precision application or LEPA center pivot; and subsurface drip irrigation or SDI.

Some of the findings include:

- Furrow irrigation systems require less capital investment, but have lower water-application efficiency and are more labor intensive.
- Center-pivot systems offer more than enough benefits in application efficiency and reduction

See PUBLICATION Page Two

In This Issue

Drought reminds us that conservation is important

"Drought reminds people that water conservation is not a bad idea, especially as water supplies continue to dwindle away," said Dr. Robert Mace, Deputy Executive Administrator, Water Sciences and Conservation, with the Texas Water Development Board in Austin.


MACE

Mace was the keynote speaker for the Alliance for Water Efficiency's (AWE) recent annual meeting and reception.

The High Plains Underground Water Conservation District is a member of the AWE, a non-profit organization dedicated to efficient and sustainable use of water.

His presentation, "Trees in Texas Are Begging For Dogs," focused on the impacts that the 2011 drought has had upon the Lone Star state.

"The 2011 drought has been relentless. Some areas of Austin which normally receive 33 inches of rain per year have less than one inch. It is the worst one-year drought on record, the driest period on record, and the hottest period on record. Statewide surface water reservoirs are at less than 60 percent, and there have been significant agricultural losses, up to $ 5 billion, due to drought and wildfire. Texas has certainly been the bull's eye for drought this year," he said.

For example, Mace shared a *New York Times* photo of Llano TX resident John Wedekind spraying his dead grass with green dye.

The Llano River is critically low and the small Central Texas community has severely restricted outdoor lawn |watering. Those who have green lawns are required to post a sign in their yards explaining the source of the water used for irrigation. Many are using grey-water, or, like Wedekind, turf dye to maintain some semblance of green in their landscapes.

He added that the current drought conditions offer an opportunity for water conservation education.

"Who'd have thought California would not be under drought conditions this year? Texas is now the laboratory for water conservation. This is an opportunity to better learn to conserve water so that it is available when we really need it. We need to make our communities more resilient to future drought."

Mace told the group that the initial outlook for 2012 by the state climatologist is not promising.

"The extended drought is projected to continue into next year. Major cities in Texas do not have major water issues at present; however, many smaller towns and cities do. So, if you visit Texas, please bring rain. And if you can't bring rain, at least bring your dog. The trees need the moisture," Mace concluded.

Texas trees die result of drought

As many as 500 million trees scattered across Texas have died this year as a result of drought, according to preliminary estimates from the Texas Forest Service.

"In 2011, Texas experienced exceptional drought, prolonged high winds, and record-setting temperatures. Together, those conditions took a severe toll on trees across the state," said Burl Callaway, Sustainable Forestry Department head.

Preliminary estimates show three multi-county areas as being the hardest hit.

- Sutton, Crockett, western Kimble and eastern Pecos Counties for Ashe junipers.
- Harris, Montgomery, Grimes, Madison, and Leon Counties for loblolly pines.
- Western Bastrop and eastern Caldwell Counties for cedars and post oaks.

Publication discusses improved irrigation application, pump efficiency

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in field operations to offset the difference in cost of furrow irrigation.

- Half-mile center pivot systems offer substantial savings compared to quarter-mile length systems where it is feasible to use them.
- The low-energy precision application system generates the highest benefits at low, intermediate and high water-requirement scenarios.
- Advanced irrigation technologies are best suited to high-water-use crops and producers with these systems will not only lower pumping costs, but also see potential savings from the need for fewer field operations.
- Subsurface drip irrigation is not economically feasible compared to LEPA for typical crops grown because of the high investment and small gain in application efficiency.

It is best adopted where pivots cannot physically be installed. However, producers should closely evaluate using subsurface drip for high-value crops such as fruits, vegetables and cotton.

Research suggests this system may improve yields enough to offset costs through improved application efficiency and the timing of frequent applications.

"We identify in the publication the economic feasibility of replacing inefficient natural gas engines with more efficient models," Amosson said.

"In another section, we analyze the decision of when to switch from natural gas-powered irrigation to electric-powered irrigation."

Amosson said the publication will allow producers to plug in the factors on their particular operation and, after looking at all the inputs, determine whether they need to be making changes or updates to their irrigation system.

The 14-page brochure can be found online at two web sites:

- **http://agrilifecdn.tamu.edu/amarillo/files/2011/10/Irrigation-Bulletin-FINAL-B6113.pdf**
- **http://agecoext.tamu.edu/resources/library/publications.html.**

A printed copy can be purchased for $5 per copy through the AgriLife Extension Bookstore at **http://agrilifebookstore.org.**

For more information, contact Amosson at 806-677-5600 or s-amosson@tamu.edu.

Dollars and $ense of water conservation subject of Feb 8 symposium in Amarillo

The inaugural Texas Panhandle Water Conservation Symposium will be held Feb. 8, 2012 from 8:30 a.m. to 4:30 p.m. in the Grand Plaza of the Amarillo Civic Center, 401 S. Buchanan, in Amarillo.

Morning sessions will discuss drought impacts, the Texas Water Plan, an overview of what to expect when the 83rd Texas Legislative convenes in Jan. 2013, and a national overview of water conservation efforts.

Afternoon breakout sessions will feature water conservation information in the agricultural, public, and municipal sectors.

Additional information about the water conservation symposium will be published in the January 2012 issue of ***The Cross Section***.

The Cross Section

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Meter manual outlines installation requirements

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before January 1, 2012, the well owner/operator must record groundwater production in 2012 and has two options: (1) install a meter to measure water use; or (2) use an alternate measuring method to measure water use. However, all wells, except those exempt wells equipped to produce 17.5 gpm or less or for domestic use purposes, must have meters by January 1, 2016.

For new, non-exempt wells that are drilled on or after January 1, 2012, a meter from the approved meter list must be installed on the new well before groundwater production can begin.

Beginning on January 1, 2012, all groundwater production from non-exempt wells and oil and gas and mining wells from the Ogallala Aquifer *(including the Edwards-Trinity "High Plains" Aquifer)* must be measured and reported annually to the District.

Water use reports for 2012 will be due to the District by March 1, 2013.

The Meter Manual includes the list of approved meters that may be used to measure the amount of groundwater produced.

If wells are connected into a well system prior to use, for example, a center pivot or drip irrigation system, then water use may be measured with one meter on the system, so long as all water produced from the system wells goes through and is recorded by the meter.

Alternate Measuring Methods

During the transitional period from January 1, 2012 to December 31, 2015, owners/operators of wells that were drilled and completed before January 1, 2012, may choose one of three approved alternative methods of measuring water use.

The three alternative methods that are approved during the transitional period are based on (1) natural gas consumption, (2) electric consumption, and (3) hour meters/nozzle packages on center pivot systems.

The detailed methodologies for using one of these alternative methods to measure groundwater production are included in the Meter Manual (available on the District website at **www.hpwd.com**).

All water use reporting, regardless of the method of measurement, is based on self reporting by the owner/operator.

It will be important that starting January 1, 2012, appropriate records are maintained *(meter readings, gas bills, electric bills, and hour meter/nozzle package records)* by the owner/operator so that annual groundwater use may be easily calculated at the end of the year.

Prior to the publication of the Meter Manual on September 1, 2011, many producers were already using water meters as part of ongoing business operations. Some of the meters installed prior to September 1, 2011 are not on the approved meter list.

Producers may continue to use these meters so long as they are functioning within the prescribed accuracy range *(80 to 120% accuracy)* and when the meter is replaced a new meter must be installed according to the Meter Manual and be from the Approved Meter List.

Information for Meter Manufacturers

The Meter Manual includes detailed capabilities and performance standards that a meter must meet before it can be considered for the approved meter list. These include, for example, meter accuracy and quality assurance testing.

Meter manufacturers in the region were asked this past August to submit any meter models that met the required capabilities and performance standards that they wanted the District to consider for inclusion on the approved meter list.

The initial list was published in the Meter Manual on September 1, 2011.

From this point forward, on a quarterly basis, any additional meters that have been submitted to the District for review and added to the approved meter list if all criteria are met.

It is also important to note that if a meter on the approved list is subsequently determined to be unacceptable for durability or performance issues, it may be removed from the approved meter list at any time. However, removal of a meter from the list will not affect a producer's ability to continue to use the meter if it is installed according to the Meter Manual and is installed while the meter is on the Approved Meter List.

Meter Installation

Installation requirements are also an important part of the Meter Manual.

There are different types and styles of water meters available for use on the approved meter list.

Each meter, in order to record the volume of water used accurately, must be installed according to the manufacturer's installation requirements.

These installation requirements, for example, include the length of straight pipe that must be installed upstream and downstream of the meter in order for the meter to register properly.

After installation of a meter, owners/operators need to notify the District that a meter has been installed and is ready for inspection.

District personnel will be conducting well site visits to ensure that the meters have been installed properly. If the well is pumping during the well visit, District personnel may measure flow from the well to ensure that the meter installed is recording accurately.

To facilitate these flow tests, wells completed after January 1, 2012 must be designed so as to ensure at least 15 pipe diameters of straight pipe upstream and 5 pipe diameters of straight pipe downstream of the meter.

Wells drilled before January 1, 2012 must be installed according to the applicable meter manufacturer specification. However, these specifications may not be adequate to allow District personnel to perform necessary flow tests.

To accommodate this situation, an alternative meter installation design has been developed.

At the conclusion of these well site visits, properly installed meters will be equipped by District personnel with an official seal.

Diagrams and dimensions of straight pipe necessary for new and existing well meter installations are available in Part Two of the Meter Manual.

Also, the Frequently Asked Questions section at right includes a series of dates that will be important for well owners and operators to review regarding the different components of the Manual.

The components of the Manual may be reviewed in detail at the High Plains Water District's website at **www.hpwd.com**.

Frequently-Asked Questions

IMPORTANT DATES

Well owners and operators are encouraged to review these dates as they relate to different components of the Meter Manual.

July 19, 2011

- Adoption of rule revisions by HPWD Board of Directors.

September 1, 2011

- Publication date of HPWD Meter Manual.
- Wells with meters installed before this date can continue to produce with these meters as long as accuracy is between 80% and 120%.

January 1, 2012

- Groundwater production must be recorded for non-exempt wells and oil and gas and mining exempt wells beginning on this date.
- Allowable Production Rate for production in 2012 and 2013 is 1.75 acre feet per Contiguous Acre.
- All new wells or well systems *(except those wells or well systems equipped to produce 17.5 gpm or less or used solely for domestic purposes)* drilled on or after this date must be installed with a meter.

December 15, 2012 through January 15, 2012 *(and every year thereafter)*

- Final meter readings for annual production must occur during this time period.

March 1, 2013 *(and every year thereafter)*

- First production reports due.
- Deadline for applying to District to carry water forward that was not used in previous production year.

January 1, 2014

- Allowable Production Rate for 2014 and 2015 is 1.5 acre feet per Contiguous Acre.

January 1, 2016

- Meters must be installed on all wells by this date *(except for those wells or well systems that are equipped to produced 17.5 gpm or less or are used solely for domestic purposes)*.
- Allowable Production Rate for 2016 and beyond is 1.25 acre feet per Contiguous Acre.

Adjust controllers to avoid unnecessary winter watering

Now that most turf grasses are dormant, the High Plains Underground Water Conservation District No. 1 reminds homeowners and businesses to adjust their automatic landscape sprinkler systems to avoid unnecessary irrigation during winter months.

In recent years, the High Plains Water District has received numerous reports of homeowners and businesses operating irrigation systems in freezing weather.

Most callers expressed concern about the icy patches created when the irrigation water left the landscape and pooled in roadways, intersections, and along curbs.

This often results in a very dangerous situation for drivers, which can be avoided through proper management of these irrigation systems.

It is important to note that some communities have ordinances that prohibit automatic sprinkler system operation during freezing temperatures.

Since landscape irrigation controllers and systems can vary, the High Plains Water District recommends homeowners and businesses contact their local landscaping professional or landscape irrigation specialist for instructions on changing controller settings for winter.

This simple practice of adjusting automatic sprinkler systems in response to changing climatic conditions can help reduce water waste and can save money for homeowners and businesses.

HPWD

High Plains Underground Water Conservation District

A new informal logo for the High Plains Underground Water Conservation District was adopted at the Nov. 2011 Board of Directors meeting.

Conservation Conversation

News briefs and other conservation-related information

APPOINTMENT: Melanie Callahan was named Executive Administrator of the Texas Water Development Board (TWDB) on Dec. 15. She has served as interim Executive Administrator since March 2011.

APPROVAL: Members of the Texas Water Development Board approved the 2012 "Water For Texas" state water plan at their Dec. 15 meeting. The document serves as a guide to state water policy with information from each of the 16 regional water planning groups and policy recommendations to the Texas Legislature.

HONORS: The Texas Water Conservation Advisory Council recognized one group and three family farming operations as 2011 winners of the Save Texas Water Blue Legacy Award in Agriculture.

- The North Plains Groundwater Conservation District's Agriculture Committee was honored for work on the "200-12 Reduced Irrigation on Corn" demonstration project. The project is designed to demonstrate methods and techniques producers can use to grow 200 acres of corn using 12 inches of groundwater. Committee members are Harold Grall of Moore County, Phil Haaland of Hartley County, and Danny Krienke of Ochiltree County.
- Family farming operations receiving the award include: D&D Farms (Ford Family), Dumas, TX; Gertson Farms (Gertson Family), Lissie, TX; and Schur Farms (Schur Family), Plainview, TX.

The Blue Legacy Award in Agriculture is an annual award recognizing outstanding water conservation efforts and successes of the agriculture community. Visit **www.savetexaswater.org** to learn more about the 2011 award winners.

RETIREMENT: Carole D. Baker retired Oct. 31 after 21 years as Director of Intergovernmental Relations for the Harris-Galveston Subsidence District. Baker acquired the unofficial title of "Queen of Texas Water Conservation" for her efforts to bring water conservation to the forefront in both state and federal legislative arenas. She has had leadership positions in many water-related organizations including Alliance for Water Efficiency, American Water Works Association, Texas Water Conservation Association, Texas Water Foundation, TCEQ Irrigator Advisory Council, and the National Steering Committee for EPA WaterSense Labeling, just to name a few.

BAKER

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