2011 Irrigation Data Complete

The estimated irrigation usage within the District for the 2011 crop is now complete. The estimated total is calculated by monitoring irrigated fields that are equipped with meters. These fields include the major irrigated crops that are grown within the District.

Table 3 includes the crops that were monitored during the 2011 irrigation season, and the total seasonal application for each. Also, we have included the 10-year average application for several of the most prominent irrigated crops from our metering program. The data indicates that the 2011 irrigation was higher than average for cotton, peanut and wheat.

Crop	2011 Irr. (in.)	10-Year Avg. Irr. (in.)
Cotton	17.89	*11*
Peanut	24.58	*18*
Wheat	7.54	*6*
Pasture Grass	4.66	
Watermelon	19.24	
Alfalfa	36.75	

Table 3

The current drought is likely to persist or worsen during the coming months, according to the February 2, 2012 forecast from the U. S. Climate Prediction Center. The current forecast extends through April 2012. So, if the pattern we

2011 Irrigation...continued on Page 6

(Achieving our DFC...continued from Page 1)

forward. That is because the District greatly expanded the network of observation wells when we began operating in 1993.

So, if we maintain annual usage of say, 150,000 ac-ft (on average) there is a good chance that the DFC is met. But, how much can we do with 150,000 ac-ft per year? Does that represent a big departure from "normal"? The data in Table 2 represents the past ten year average irrigated acreages and applied irrigation water for the District. The acreage figures were obtained from the FSA and the irrigation numbers were acquired from our meter cooperators. You see that the total for our four main crops requires about 138,000 ac-ft per year, leaving about 12,000 ac-ft for other irrigated crops, as well as other purposes (i.e. municipal and industrial).

It is important to re-emphasize that these numbers are not exact, whether from a computer model or other source. However, you understand that we have a reasonable estimate of annual water usage that is required to meet the DFC. Perhaps the most important lesson in this process is that ALL water users should be aware of the DFC and how we can meet it. That awareness requires that everyone develop some understanding of water use throughout the year.

2002-2011 Crop Averages

Crop	Acreage	Irrigation Total (in.)	Total (ac-ft)
Cotton	103,185	11	94,587
Peanuts	22,756	18	34,135
Wheat	13,356	6	6,678
Sorghum	7,213	5	3,005
			138,405

Table 2 **Source: FSA, SPUWCD**

2011 irrigation..continued from Page 5

saw in 2011 is also likely in 2012, how will our water users respond? Will irrigated producers again use large amounts of water on the same acreage, or will water use and/or acreages decline?

During our January 26, 2012 " *Water Issues and Planning for the Future*" meeting, about 20 producers completed a survey regarding their plans for 2012. The results from that survey are shown below, and are a response to the question about 2012 water use after the results seen in 2011.

- 15%—Go for it. I have to make an irrigated crop at all costs.
- 15%—Water until my crop is established. At least I say I tried.
- 25%—If we don't get significant rainfall by May 1st, farm it dryland.
- 30%—Reduce acreage to meet my water supply.
- 15%—Other

Now, for those who plan on irrigating, even if the drought continues, consider these best management practices:

1. Limit pre-watering, as research has shown that about 50% is not available by planting time.
2. Match acreage with supply (gpm/ac).
3. Deliver water properly (i.e. no chemigation pads or high elevation spray).
4. Plant flat if possible, as raised beds require more water to wet the planted area.
5. Consider the possible return. Last year, our meter cooperators averaged about 18" of irrigation on cotton, for an average yield of about 640#/ac. Likewise, the average peanut irrigation was nearly 25". The average peanut yield was about 2,650 #/acre.

GROUNDWATER SOUTH PLAINS NEWS

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Achieving our DFC

The process of adopting a Desired Future Condition (DFC) is but one step of the water management process required by Chapter 36 of the Texas Water Code. Afterward, groundwater conservation districts (gcds) must adopt a management plan and rules necessary to achieve the DFC. At this point in time, the South Plains UWCD is considering what changes may be necessary to its management plan in order to meet the adopted DFC of managing decline to no more than –1.15 feet per year.

Following the adoption of DFCs in August of 2010, the gcds in Groundwater Management Area #2 were subsequently provided estimates of groundwater usage that meet the DFC, also known as Managed Available Groundwater (MAG). Using a computer model, the Texas Water Development Board supplies these MAG figures to each gcd. Due to *"computational limitations, assumptions, and knowledge gaps"* , the TWDB recognizes that models are best viewed *"as tools to help inform decisions rather than as machines to generate truth or make decisions."* However, when this data is coupled with local data, we develop a better understanding of the possible range of water usage that may be permitted to meet the DFC. For this reason, we present some data here that help define that range of annual groundwater production for the District.

In Table 1, we show estimated groundwater usage for those years (since 1990) where the subsequent average water level declined more than –1.15 feet (the current DFC). Also shown is the average decline from our network of observation wells. Because groundwater usage estimates may vary, it is helpful to look at the average from these twelve years when considering the data. As you see, it appears safe to say that annual usage above 170,000 ac-ft results in an average decline greater than –1.15 feet. Although certain years may be a departure from these averages, we have some confidence in them because we have multiple data points in the record set. Our most accurate estimates of usage are from the years 2002-forward. This is because of the meter cooperators in the District that have supplied data to the District from flow meters on center pivots and subsurface drip systems. The best data concerning water level changes is found in the years 1994-

Years Historically Exceeding the DFC

Year	Usage (ac-ft)	Decline (ft)
1990	131,901	-1.54
1993	180,849	-1.71
1994	166,728	-2.25
1996	148,061	-1.55
1998	253,812	-3.13
1999	165,233	-1.79
2000	203,141	-1.65
2001	183,691	-1.38
2002	136,116	-1.45
2003	153,165	-1.46
2009	171,466	-1.36
2011	200,736	-1.83
Avg.	**174,575**	**-1.76**

Table 1 **Source: TWDB, SPUWCD**

(Achieving our DFC...Continued on Page 5)

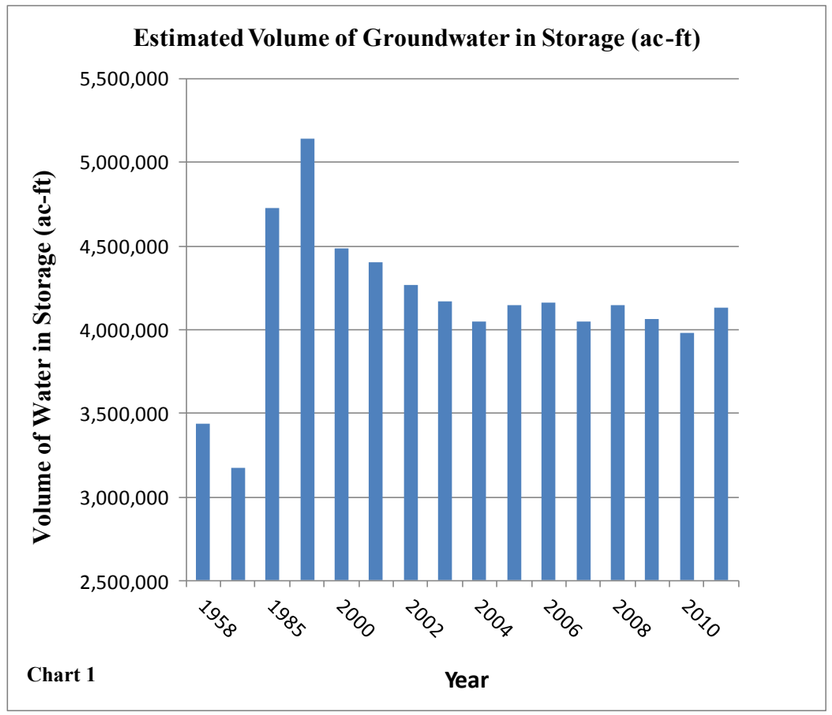

Chart 1

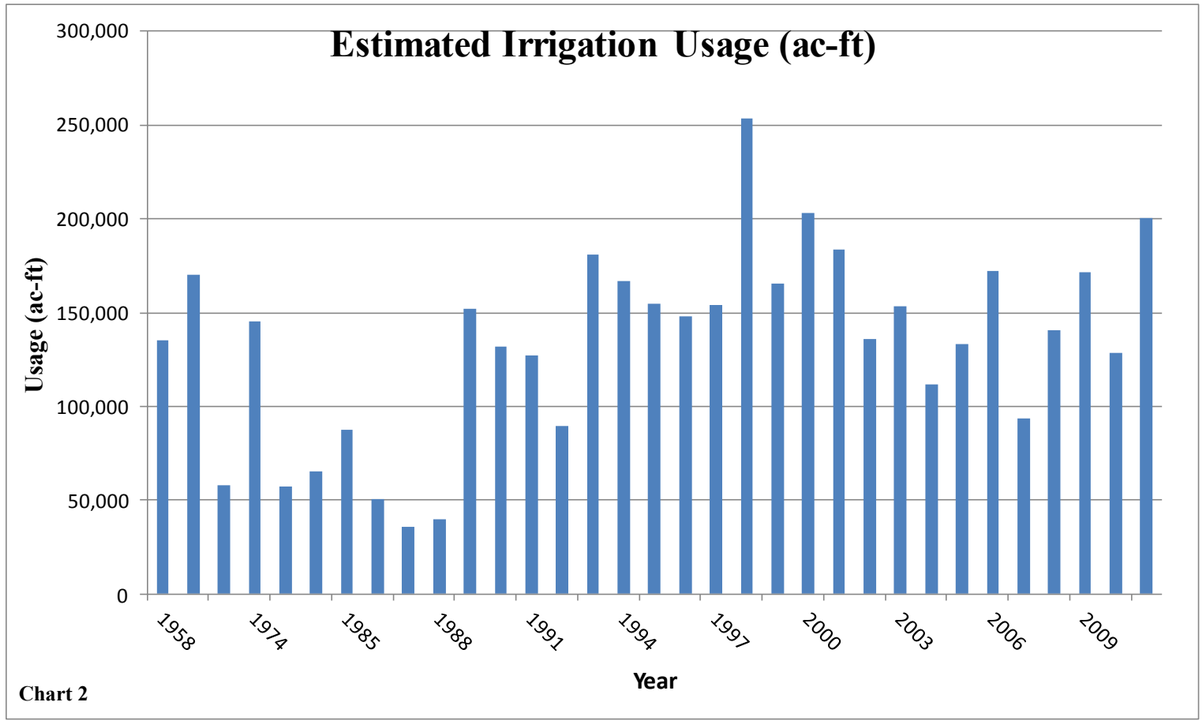

Chart 2

Historical Perspective of Storage vs. Usage

One of the earliest estimates of water in storage for the District is found in 1958, from the U.S. Geologic Survey's Bulletin 6107. At that time, it was estimated that we had about 3.4 million ac-ft of groundwater in storage. The next publication that contains volume estimates was published in 1978. Texas Water Development Board Report 222 states, *"The Ogallala aquifer in Terry County contained approximately 3.2 million acre-feet of water in 1974. Historical pumpage has exceeded 130,000 acre-feet annually, which is more than twice the rate of natural recharge to the aquifer in the county. This overdraft is expected to continue, ultimately resulting in reduced well yields, reduced acreage irrigated, and reduced agricultural production.*

"There is a very uneven distribution of groundwater in the county. Some areas have ample groundwater resources to support current usage through the year 2000; whereas, in other areas of the county, groundwater is currently in short supply. Pumping lifts in wells range from less than 25 to more than 200 feet. This range is expected to remain constant during the period covered by this study."

Understandably, years of higher water usage resulted in the decline from 1958-1974. However, during the next 20 years, we saw the aquifer recharge to a high point of about 5.1 million ac-ft in 1995. Since 1995, we have again experienced years of declining storage.

Chart 1 at left shows the estimated volume of groundwater in storage for the District. That volume represents the estimated water stored in the saturated section of the Ogallala formation, although not all of it is recoverable. The first five data points represent the years 1958, 1974, 1985, 1995, and 2000. Other years following are each of the years 2001-2011. The 1958 and 1974 numbers are taken from USGS and TWDB reports. All other calculations are supplied by the District.

Chart 2 represents the estimated irrigation water usage for selected years. The first six years shown are 1958, 1964, 1969, 1974, 1979 and 1984. Beginning 1985, yearly values up to 2011 are shown. The past 10 years of estimated water usage are taken from our meter cooperators. All other usage data is taken from TWDB surveys.

There are several important facts regarding the data presented in these two charts. First, the lowest estimated volume in storage figure is from 1974 at 3.17 million ac-ft. Secondly, our storage declined by an estimated 20 percent, or 1 million ac-ft, during the period 1995-2005. Third, longer patterns of usage less than 150,000 ac-ft per year may actually increase our stored water. Fourth, we know that irrigation usage dropped off substantially once the supply figure dropped as

Storage...Continued on Page 4

Storage...continued from Page 3

low as 1974 levels. That drop off continued for almost 20 years before rising near 150,000 ac-ft/year somewhat regularly.

Now, if we use these historical trends as some basis for future events, several conclusions may be obtained. First, we are currently sitting about 1 million ac-ft above the 1974 level. If we see patterns of usage similar to those during the 1995-2005 period, we will be at 1974 levels in 10 years. Again, remember that irrigation usage dropped considerably once the supply declined to 3.17 million ac-ft in 1974. Secondly, we know there are quite a few more wells in place today than there were in 1974, so it is definitely possible to draw down the aquifer below that point. Third, we may also calculate when the aquifer may be at 1974 levels using a trend line from the volume chart. Depending on where your analysis begins (1985, 1995 or 2000) we may reach that level in the next 13-25 years.

Interim Charges Released

Texas Lt. Governor Dewhurst recently released interim charges for the Senate Natural Resources Committee. The charges specifically related to groundwater are listed below:

1. Study the impediments to implementation of the State Water Plan, and make recommendations to ensure that Texas has access to sufficient water for future generations. Specifically, consider the following:

- Review opportunities to fully fund the implementation of the State Water Plan by encouraging local project selection and financing;
- Consider groundwater regulation and determine whether there is a need for modification of our current regulatory structure.

2. Study and make recommendations on the management of groundwater resources. Specifically, consider the following:

- Consolidation of groundwater conservation districts along major aquifer lines in an effort to increase efficiency and enhance responsible groundwater management;
- Effectiveness of single county and non-contiguous groundwater conservation districts;
- Efficiency and effectiveness of varying groundwater regulations and permitting processes throughout the state, including the adequate planning for withdrawals and the development of Desired Future Conditions (DFCs) as compared to the regulation provided to surface water resources;
- The relationship of local groundwater regulations to the State Water Plan and the regional planning process.

South Plains UWCD

Calendar of Events

- March 6—Board Meeting District Office
- April 3—Board Meeting District Office
- April 6—Good Friday Holiday Office Closed
- May 1—Board Meeting District Office
- May 12—Election Day Don't forget to vote!
- May 28—Memorial Day Holiday Office Closed