



TID TIDINGS

Newsletter of the Tulare Irrigation District

Average Water Supply – How Often and to Whom?

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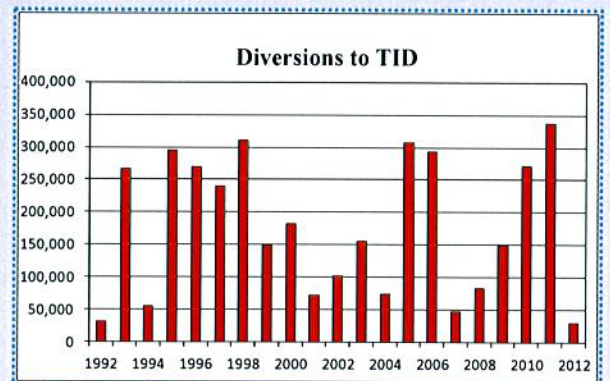
The Board of Directors holds regular public meetings on the 2nd Tuesday of every month at 9:00 am at the District office in Tulare

Many water suppliers and those reporting on water availability talk about long-term supplies as an average quantity or, for seasonal planning purposes, express the numbers relative to the so-called average year conditions. To many of us the word “average” implies “normal” and implies a condition that frequently occurs, with variances either higher or lower happening only on occasion. Being generated by annual weather patterns of snow and rain, quite the opposite of this is experienced with water supplies. Years at or near average don’t come along very often at all and what we as water managers deal with is considerable variation from year to year. Case in point – last year brought us supplies upwards of 170% of “normal” and this year is looking more and more like one of those well below average. By observing the last 90 years or so of annual Kaweah River flow records, the actual average amount has never occurred and amounts within just 5% of that have occurred only three times! The mathematical average is around 433,000 AF and last year came in at a whopping 864,000 AF. This year may be down around 260,000 AF or even lower.

Now, moving beyond what’s average or normal, further complicating our situation here at TID is the nature of our water allotments – determined by legal water rights on file with the state for the Kaweah River and contracts with the U.S. Bureau of Reclamation – across the wide swings from year to year in runoff amounts. TID obtained a number of water rights and ditch company stock on the Kaweah River system since its formation way back in 1889. Many of these don’t yield much water except in the wetter, above-average years; a few produce water in all year types, albeit less in drier years. With our contract with USBR for water from the Friant Unit, we can count on a firm supply of 30,000 AF of Class 1 water in most years; however, our variable Class 2 contract of up to 141,000 AF only amounts to much in the wetter years. As an example of how this plays out, take last year with runoff averaging around 170% of average. Our Kaweah and Friant supplies (not counting extra water we purchased from others) totaled about 320,000 AF. This year, trending much drier, may come in at about one-half of last year in terms of runoff, say around 85% of average. At that percentage, we’d be looking at maybe around 110,000 AF from the Kaweah and Friant sources combined. So, a year half as wet only provides TID with just over a third as much water.

With these wide swings in water supply, TID strives to sustain adequate budget reserves to carry it through dry years with minimal water sales and provide sufficient funds to buy all the extra water we can during the wetter years. It’s the extra, wet-year water that we depend on to recharge the underground aquifers, enabling our farmers to count on their wells to maintain planted acreage throughout all year types. In other parts of the Valley – in particular the west side – growers aren’t so fortunate. Some areas have no usable aquifers to draw from and, when surface supplies are low, farmers must make tough decisions on what to plant and on how many acres, reserving first enough water for any permanent crops they may have.

To the right is a portrayal of the ups and downs of our annual water diversions in acre-feet during the last 20 years. Last year TID saw its best with nearly 340,000 AF brought in. This year we may see the worst with less than 30,000 AF and the Board is grappling with the possibility of not enough for a summer irrigation run.



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GROUNDWATER REPORT—LEVELS UP AGAIN, BUT FOR HOW LONG?

Wet years like 2010 and 2011 do two important things. One, they keep a lot of water in canals and ditches for irrigation and, two, they bolster the groundwater supply – evidenced by a rise in the water table – for the ensuing dry years. When added to the 10-ft rise in 2010, this year’s fall measurements average another 16-ft rise, bringing the total gain to 26 ft over the two-year wet period.

This doesn’t happen all by itself, however. TID, as well as other water districts and municipalities, engage in numerous water exchanges, purchase programs and recharge operations to maximize the capture of the ample surface supplies to bring about the needed additions to our underground reservoir. TID alone spent around \$6.5 million of additional funds in the last two years to help make this happen.

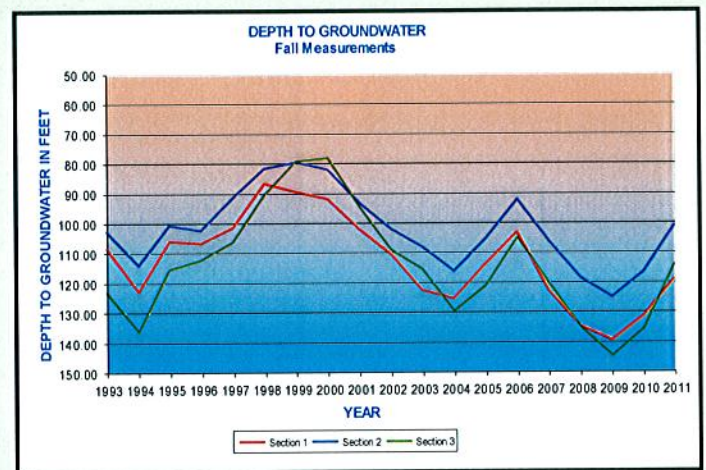
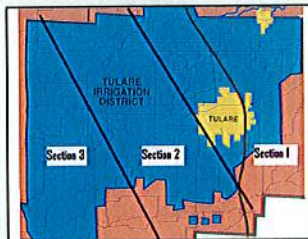


Tagus Basin—Late 2011

Looking at the graph below, it’s apparent the steepest rise was in Section 3, the westerly portion of the District. This area gained 21 ft in standing water levels and is welcome news as this is typically the area of heaviest drawdown due to pumping influences in the Kings County area that lies adjacent to it. The extended recharge period of the last two years is showing up to the west as the hydraulic pressures created by upstream recharge activities evidence themselves as the pressure gradients flow westerly, or downhill so to speak.

Depth to Water in Feet

	2007	2008	2009	2010	2011
Section 1	123	135	139	131	119
Section 2	106	119	125	116	101
Section 3	120	135	144	135	114
Average	116	129	136	127	111



Partnership with Visalia

The Tulare area is water short – this has always been the case and the District has been ever on the lookout for ways to get more water to the region to meet crop demands. The early, initial quests were singular-minded, which was to get more ditch water for the summer months. In the past when we couldn’t get it, farmers had few problems making up the difference with pumped groundwater, in many cases from very shallow depths, if not flowing artesian springs. Expanding agriculture brought with it expanded searches for more water. Often in the pioneering days water acquisitions came in rather large amounts. The Kaweah River was carved up with hard-fought battles in court and the District garnered its share in significant volumes. Then, in the 1940’s and for the next 20 years, came the large dam-building era and TID bought in for a large stake in the Friant Unit of the Central Valley Project and for storage rights at Terminus Dam.

We now live in a period where the amount of developed water has been rather static, if not shrinking, and entities wrestle for smaller and smaller pieces of the water pie. We’ve come to realize that new water for the Tulare area is to be gained only with creativity and sometimes

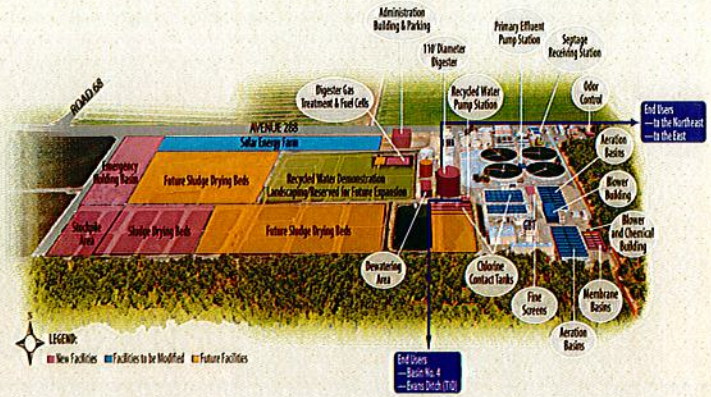
compromise. Our neighboring cities, Tulare and Visalia, are more recent players in the water quest challenge, their mantra being to secure the needed water and projects to sustain the underground supplies from which they rely on 100 percent. It is not lost on anyone, not the farmers, the irrigation districts nor the municipalities, that the groundwater supply faces serious problems in the long run, if not sooner. TID’s initial quest for surface water to fill the canals and ditches for the summer has likewise broadened to include projects and operations to directly replenish the groundwater aquifers beneath us.

So what might have been scoffed at 30 years ago as a potential source of new water is being given thoughtful consideration today. The City of Visalia came to TID some time ago with an idea for a new source of water. They were under directives from the state to stop discharging water from their wastewater treatment plant into Mill Creek and put the water somewhere else. At the same time, the City has the opportunity to modernize its treatment plant near Plaza Park and, at considerable expense, render the plant capable of treating the water to what’s known in the engineering circles as “tertiary” levels. Tertiary-treated

water is extremely high quality and is suitable for nearly all uses, including direct use on edible crops. Such recycled water has been successfully utilized in many communities throughout the state. The City's idea – and its question posed to us – could TID take the newly-treated water into its canal system for deliveries to its growers in trade for some of its extra water for recharge targeted to benefit the groundwater conditions beneath the City?

This concept as proposed by the City appears to have merit, particularly if TID winds up water ahead. That is, over the long-haul, we return less water than what is received from the City. Moreover, TID's returns would occur at times when we have access to surplus Friant water over and above our in-district needs. The exchange as envisioned could thus score well on both our quest to obtain more ditch water as well as water for sustaining the underlying groundwater. While the amounts which could be available from the City are relatively small compared to our normal water supplies and would often be blended in with our Kaweah and Friant sources, they would nevertheless represent a measurable improvement in our overall water balance. Motivating the City is TID's payback supplies of additional imported water, which for the most part wouldn't otherwise get turned in to the Kaweah Basin area, coupled with the fact that such deliveries will be dedicated to recharge operations as determined by, and for direct benefit to, the City of Visalia.

Having these understandings in place, our next and critical task is to ascertain whether the water quality of the plant effluent stands the suitability test for application to the crop varieties grown within our service area and is also suitable for delivery to recharge basins. We and Visalia both understand that this most important step needs to be taken before any commitments can be made on a water exchange. To that end, we are partnering with the California Water Institute at Fresno State University to take a look at this. They have



Rendition of New Visalia Treatment Plant

experience in this area and possess an understanding of soil chemistry, crop water quality needs, and constituents within tertiary-treated wastewater.

Should the outcome of the Fresno State study prove promising, we would then plan to hold grower meetings within the areas proposed to receive the City's water with the idea of explaining the operation of the exchange and to address any landowner concerns. While only the northwest portion of the District may receive this water, we foresee a benefit to other portions in that our more traditional water sources will be in part freed up to deliver water elsewhere in the District. Stay tuned for more on this potential opportunity to improve both our delivery capabilities and local groundwater recharge efforts.



George Jones & Beth Holmes

EMPLOYEE NEWS

On Friday evening December 9, 2011, TID employees had a grand time celebrating the service years of four of its employees. Two long-time employees Beth Holmes and George Jones were honored for their 25 years of continuous service and Daniel Castro and Aaron Fukuda for 5 years of service.



Aaron Fukuda & Daniel Castro

Ms. Holmes began her career with the District in May of 1986. She began as a Clerk, then Administrative Secretary and finally a Senior Accounting Clerk. She has reported to three different Controllers at TID over the years and has had to fill in for these duties during times of changeover in that position. Because of her many years of experience and dedication, Ms. Holmes was appointed by the Board of Directors as the District's Assessor-Collector in 2006.

Mr. Jones began his career with the District in December of 1986. He began as a Ditch Tender/Ditch Maintenance Worker and due to his experience gained over the years rose to the position of Heavy Equipment Operator in July of 1998, the highest field position achievable. Mr. Jones also has worked as a relief Ditch Tender for many years and can fill in wherever needed within the District's extensive system of canals and ditches.

Mr. Castro began his career with the District in April of 2006. After a 5-year stint with Soult's Pump, he was hired by TID as its Shop/Maintenance Worker to help the Shop Foreman with the many duties of keeping the District vehicles in good running condition. He has been a veritable "jack of all trades" assisting in shop repairs, garnering parts and supplies and servicing equipment out in the field. He has done a terrific job in keeping everything in running order.

Mr. Fukuda hired on as the District's newly-created position of Engineer back in May of 2006. The District Board and staff are very proud of the tremendous job that he has done. Many District grant projects have been coordinated by him. He played a key role in working with architects, contractors and others in coordinating the move to the District's new facility on Avenue 240 two years ago.

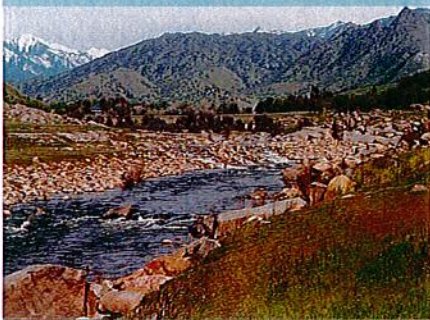
The District Board and employees wish to thank Beth, George, Daniel and Aaron for their hard work and steadfast dedication to the Tulare Irrigation District and its farmers over the years. Well done and thanks for sticking with us!

Tulare Irrigation District
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LOOK INSIDE...

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Visit Us At...
www.tulareid.org



Founded in 1889, Tulare ID was one of the first irrigation districts in California. Its purpose is to serve the water supply needs of the greater Tulare area, a rich and agriculturally diverse region within the Southern San Joaquin Valley. The water provided comes locally from the Kaweah River and is also imported from the Federal Central Valley Project.

Important Dates to Remember

March

13th—TID Board of Directors meeting

April

10th—TID Board of Directors meeting

May

1st—2nd Installment reminder notice mailed
8th—TID Board of Directors meeting

June

12th—TID Board of Directors meeting
20th—2nd Installment delinquent