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Site 6 Rehab Project

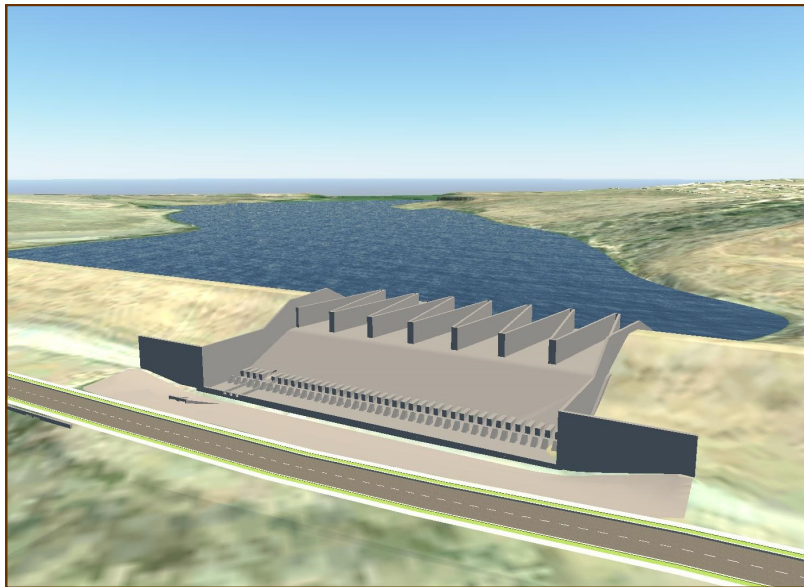
Plum Creek Conservation District is moving forward with plans to rehabilitate its “high hazard” Site 6 dam which is located in Kyle, Texas, where Beebe Rd, High Rd. and Goforth Rd. converge. On August 13th, at a special called meeting, President James Holt and the Plum Creek Conservation District Board of Directors awarded the Site 6 rehabilitation project to Archer Western Contractors, Ltd .

When built in 1967, Site 6 was classified as a “low hazard” dam with a maximum capacity to hold 3763 acre feet of water and the ability of containing a 25 year rainfall event of 6.4 inches. According to a 1989 NRCS study, Site 6 has the capability to pass 52% of the probable maximum flood (PMF). The PMF is “the maximum runoff condition resulting from the most severe combination of hydrologic and meteorological conditions that are considered reasonably possible for the drainage basin under study.”

In 2002 Site 6 was reclassified to a “high hazard” dam, because, in the event of a dam failure, downstream residents and property would be at risk. Breach studies have indicated that numerous structures and

several county roads would be at risk from a catastrophic breach of Site 6. One of these roads, Goforth Road, is a well traveled arterial roadway, located immediately downstream of the dam.

The rehabilitation project (prototype shown to the left), which was designed by Freese & Nichols, a nationally acclaimed engineering company, calls for a labyrinth weir design, an extension of the dam southeastward, removal of the old auxiliary spillway which currently crosses over Bebee road, installment of a new intake riser and impact basin and a realignment of Bebee road. The



Site # 6 Labyrinth Weir Prototype Design

Image by Freese & Nichols

new design meets the Texas Commission of Environmental Quality's dam safety requirements. Because it will be necessary to drain the reservoir before construction starts, the Texas Parks and Wildlife Department has relocated the fish from Site 6 to Site 5 (located approx. 1 mile west of site 6 between the subdivisions of Kensington Trail and South Lake). The total cost of the rehabilitation project is estimated at \$7,959,000. Funding for the project is provided for by a 65/33.25/1.75 % funding match, where 65 % of the cost will be allotted to the federal government, 33.25 % to the Texas State Soil and Water Conservation Board and 1.75% to the Plum Creek Conservation District. The project is currently underway and should be completed by the Fall of 2017.



Site # 6 TPWD Fish relocation project

Image by Texas Parks & Wildlife Dept.

Winter 2014/2015 Water Levels

The table below shows water levels for 12 wells that were measured in the Winter of 2014/2015 along with their corresponding lowest recorded water level. If you are interested in finding out the water level in your well and how it compares to other wells in the area, contact us to schedule a time to measure your

Well	Winter 2014/2015 Levels	Lowest Recorded Level
Cargile	- 38.7	- 66.00
Kosarek	- 47.25	- 50.8
Larsen	- 22.8	- 22.8
Lipscomb	- 91.05	- 93.9
Lockhart #8	- 98.35	- 108.0
Luling # 1	- 49.57	- 52.65
McCormick #1	- 71.75	- 71.75
Moore	- 64.65	- 70.6
Nohra	- 105.77	- 130.67
Platt	- 123.1	- 123.15
Wells	- 80.95	- 90.35
Williams	- 75.75	- 83.05

Winter
2014/2015
Water Levels

Update 84th Legislative Session

With the conclusion of the 84th legislative session, there were a number of bills signed into law having to deal with water. Listed below are summaries for a few of these bills and how they may affect Groundwater Conservation Districts.

HB 200(Keffner/Perry) revises the Desired Future Conditions' appeals process. An "Affected Person" may file a petition with a district/districts in a Groundwater Management Area (GMA) appealing the reasonableness of an adopted Desired Future Condition. A district is required to then conduct a contested case hearing. The decision by the district may be further appealed to district court. The deadline for proposing DFCs by the GMAs is May 1, 2016. Once DFCs are adopted, any petitions must be filed within 120 days.

SB 854 (Zaffirini/Lucio III) involves the renewal of "Operating" permits. S.B. 854 requires the automatic renewal of operating permits by groundwater districts if the permit holder submits the renewal application in a timely manner. Renewal is granted automatically without a contested case hearing as long as the permit holder does not have any unpaid fees or fines, is not in violation of the district's rules, and is not requesting a change that would require a permit amendment.

HB 30(Larson/Perry) relates to the development of brackish and seawater desalinization. HB 30 requires regional planning groups to consider large scale desalinization and brackish projects. It requires the Texas Water Development Board to study and map the brackish aquifers and to identify brackish zones, except within the BSEACD,EEA, Harris-Galveston Subsidence District and Fort Bend Subsidence District. This bill does not require any specific action from a groundwater conservation district.

HB 655 (Larson/Perry) relates to Aquifer Storage and Recovery and gives exclusive jurisdiction to TCEQ for the regulation and permitting of ASR injection wells. If the amount of groundwater recovered from the well/s exceeds the volume authorized by the commission, then the permitting requirements of a groundwater conservation district would apply.

HB 3405 (Isaac/Rodriguez) expanded the territory of Barton Springs/Edwards Aquifer Conservation District (BSEACD) into parts of Hays County. BSEACD is PCCD's adjacent neighboring district to the north.

For more information concerning the 84th legislation session water related bills, go to www.tdl.org and look up Texas Water Journal Vol 6, No 1 (2015).

Update 84th
Legislative
Session

New Water Technologies on the Horizon

There are several innovative and experimental water technologies emerging on the horizon that may offer potential for conserving water and therefore increasing fresh water supplies.

Seawater & Brackish Desalination: One of the biggest road blocks standing in the way of many desalination projects is the high cost associated with the need for considerable amounts of energy. Advances have been made in increasing the energy efficiency of traditional (Reverse Osmosis) desalination through innovated membrane design. Researches are looking at new materials, such as Graphene, as a replacement for Polymide, a standard type RO membrane material. Graphene is an allotropy of Carbon and was first isolated in a lab in 2003. It has remarkable properties, being 207 times stronger than steel and very permeable that, some say, could offer promise as an 'ultimate RO membrane'. Lockheed Martin is developing a commercial product called Perforene and has just received a US patent for it.

There is also research being done on alternative desalinization methods. One alternative method, called biomimicry, is being investigated at the National Environmental Research Institute of Singapore in which the biological processes of mangrove plants and euryhaline fish are being studied. Both mangrove plants and euryhaline fish, such as Tilapia, have the ability to extract seawater efficiently using very little energy. At the heart of a mangrove's capability to desalinate is the salt gland. The aquaporins (or water ways) of these salt glands have been studied extensively by Dr. Tan. Dr. Tan indicates, through observations using advanced imaging techniques, that aquaporins provide selective passages for water molecules to pass through, but block salts. By studying how these biological processes work, scientist are hopeful that their research will play a role in the development of a practical utilitarian desalination solution.

Smart monitoring: In Texas, all Water Supply Corporations (WSC), having 3300 plus connections, or current TWDB loans, are required to report annually their estimated water loss due to leaks. 2014 Estimates show that there was a total of 203,801 acre feet of water loss due to leaks for the state of Texas. Inevitably, water lines will leak and fixing them as soon as possible is a big priority for WSCs. Not only do leaks reduce a WSC's profits, but also put a strain on water supplies, especially during times of drought. New monitoring technologies have been developed to detect and locate leaks quicker, giving a WSC the ability to reduce potential water loss. When strategically placed, electronic instruments, such as acoustic sensors which listen to the flow of water and pressure sensors which measure water pressure, can reduce water loss. To financially assist WSCs in providing leak detection, the TWDB Water Loss Auditing Department offers free rental access to their acoustic leak detection and flow meter devices.



Image by Valmont Industries, Inc.

intelligent irrigation: The 2012 Texas State Water Plan calls for a reduction of water demand for agricultural irrigation purposes from 10,079,215 acre-feet in the year 2010 to 8,370,554 acre-feet in 2060, a 1,708,661 acre-foot reduction. One would expect agricultural water use to increase rather than decrease in order to meet the growing decadal demand for food as Texas' population is expected to increase by 82%. The plan, however, anticipates that by utilizing drought resistant crop varieties, water efficient farming practices, better weather predictability and more efficient irrigation systems, this expected demand would be offset. One of the new technologies, **precision irrigation systems**, uses predictive analysis to make smarter decisions. The emphasis is on having a better weather forecasting model coupled with measurement procedures to help determine, for example, what the best planting date would be, when and how much fertilize to apply, and when and where irrigation should occur, thus maximizing the effectiveness of the water used.

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The Plum Creek Conservation District's Newsletter is available via email. If you or someone you know would like to receive our Newsletter via email rather than US Mail then contact our office at (512) 398-2383.

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