Lake Texoma Water Management

Frequently Asked Questions (FAQs)

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

Q1: Why is Lake Texoma so low?
A1: A combination of factors is contributing to the current lake level. Even though there was substantial rainfall last May-July, there has been very little precipitation since. We need to have significant rainfall across the entire watershed that feeds Lake Texoma to bring water levels back up. In general, a persistent exceptional drought for the last three years has gripped much of the Lake Texoma watershed. Inflows into the lake for 2011 were the lowest since its construction and 2013 saw the second lowest inflows. Evaporation of water is also a contributing factor. On an average year, Lake Texoma loses approximately six feet (74") of water to evaporation. When the Lake Texoma basin does not get enough rain, the combination of evaporation and ongoing water usage will cause the lake level to drop. The primary ongoing water usage from Lake Texoma is for municipal/ industrial water supply and hydropower, which are critical in meeting needs for water and electricity. The lake is designed and required to allow authorized project purposes such as water supply and hydropower to continue during drought periods. By this design, Texoma has historically maintained an elevation of 612 or above, approximately 85 percent of the time.

Q2: Why are there water releases from Denison Dam during drought?
A2: The Flood Control Act passed by Congress in 1938 allowed for the construction of Denison Dam for the authorized purposes of flood control and hydropower production. Other authorized project purposes, such as water supply and recreation were added later. Lake Texoma has significant power and water supply storage that is congressionally authorized and paid for by various users. In times of drought, the water stored in the lake for these users is needed, even if it sometimes results in a lower lake level.

Q3: What are the authorized purposes of Lake Texoma?
A3: U.S. Army Corps of Engineers projects such as the Denison Dam and Lake Texoma are multipurpose. The Congressionally authorized purposes of this project are flood risk management (formerly known as flood control), water supply, hydroelectric power, regulation of Red River flows, improvement of navigation, and recreation. Lake Texoma has significant power and water supply storage that is congressionally authorized and paid for by its users. Storage means a certain amount of water in the lake that is set aside and can be used only for a particular user (customer) who has paid for it.

Q4: How can recreation become a higher priority?
A4: Project authorization mandates us to strive to balance project purposes. In order to specify one project purpose as a higher priority, legislation to amend or change the existing authorizations would have to be passed by Congress. For recreation to have allocated storage within Lake Texoma, as hydropower and water supply do, storage would have to be reallocated from one purpose to another and the costs of that storage paid into the U.S. Treasury.

Q5: Who determines the amount of water available for hydropower production and water supply?
A5: Congress must specify or authorize the amount of specific storage allocations.

Q6: What is conservation storage?
A6: From top to bottom, reservoirs typically have three "pools" – the flood pool, the conservation pool, and the inactive pool. The design elevations of the pools do not change although the lake level fluctuates depending on rain, evaporation, and water use. The conservation pool at Lake Texoma refers to the volume of water contained between the top elevation of 617.0 ft above mean sea level (modified seasonally down to 615.0 and up to 619.0) and the

bottom elevation of 590.0 ft. The volume of water in the conservation pool is considered to be set aside as "storage" to satisfy congressionally authorized project purposes such as water supply and hydropower.

The top of the conservation storage marks the bottom of the flood pool, which is used for temporary storage of excess water following heavy storms. The bottom of conservation storage marks the top of the inactive storage pool, the part of the reservoir designed for hydropower head and storing sediment, typically holding lower quality water due to its depth.

Q7: What is the District Drought Contingency Plan?
A7: Each Corps of Engineers project has a drought contingency plan. The drought contingency plans provide a basic reference for water management decisions during a water shortage induced by drought. The plans provide four levels of response which are progressively initiated as the drought intensifies.

Q8: What are the drought levels in the plan?
A8: There are four drought levels in the District Drought Contingency Plan:

- Drought Level 1 – elevation 617 – 612.
- Drought Level 2 – elevation 612 – 607.
- Drought Level 3 – elevation 607 – 599.9.
- Drought Level 4 – elevation 599.9 – 590.

Q9: What actions do the drought levels trigger?
A9: At Drought Level 1 – Alert Phase-Normal Operations:

- Water storage accounting of conservation storage by users on a monthly basis when 75 percent of the conservation pool remains.
- Meet monthly with SWPA to allocate power for the following month.
- Obtain water supply withdrawal rates from users.
- Monitor basin and lake conditions.
- Normal data collection.

At Drought Level 2 – Expanding Actions:

- Begin monthly water storage accounting for users.
- Activate the Corps Drought Management Committee (CDMC)
- Recommend SWPA to limit power production within Public Law 100-71, which requires them to limit power production to rapid response, short-term peaking purposes as determined by the power scheduling entity. Short term peaking generally means full power production of about 4-8 hours per day on average.
- Promote conservation of water to users when they use more than 50 percent of their authorized storage.
- Provide resident offices with lake projections for concessionaires and dock owners.
- Cease releases for non-critical project testing and inspections.
- Schedule ad hoc meeting of Interagency Drought Management Committee (IDMC).
- Notify public of possible boating safety hazards due to low lake levels.

At Drought Level 3:

- Activate the Interagency Drought Management Committee (IDMC).
- Increase frequency of water supply accounting as needed.

- Notify state Water Resources Boards and users when 25 percent of conservation storage remains.
- Comments sought by the CDMC from interested individuals and groups.
- Schedule more frequent meetings of CDMC as necessary.
- Evaluate water intakes of contracted in-lake water users.
- Identify surplus water supply for municipal and industrial use and costs.
- Minimize special event recreation releases.
- Notify SWPA of restrictions of hydropower production within Public Law 100-71 that hydropower generation should only be made to satisfy critical power needs on the power scheduling entity's electrical system as determined by the power scheduling entity. Critical power needs generally means full power production of about 4-6 hours per day on average.
- District Engineer and staff to determine surplus water available at Corps projects.

At Drought Level 4:

- Notify state Water Resources Board and users when 10 percent of conservation storage remains.
- Make no releases for special events except as approved by District Engineer.
- Begin planning priorities of usage for inactive storage.
- Notify contract water users of impending need to arrange for emergency water needs.
- Contract emergency water supplies if available.

Q10: What has the Corps done to manage the drought?
A10: The Corps has worked closely with hydropower production customers under Public-Law 100-71 to account for their usage and to encourage conservation.

Public Law 100-71 specifies that when the water surface elevation is between 612 and 607 msl (Mean Sea Level), the Corps will notify SWPA that hydroelectric power generation should only occur when it is needed for rapid response, short term peaking purposes as determined by the power scheduling entity. Short term peaking generally means full power production of 4-8 hours per day on average. During calendar years 2011, 2012, and 2013, SWPA generated only about 26 percent of historical average generation, equivalent to an average of about 2 hours per day. From May 2012 to December 2013, SWPA has generated only about 19 percent of average, or about 1.54 hours per day to conserve storage whenever possible, and is operating in accordance with all approved plans and procedures.

Q11: Since we know there will be droughts, why doesn't the Corps anticipate droughts and take action before one occurs?
A11: In general, lakes are designed to mitigate droughts by storing water when it is available and releasing it to users when needed. Texoma was designed to satisfy project purposes by the authorized use of conservation pool storage during droughts. The Corps models historical data including droughts, and incorporates that in water yield analyses used in determining conservation pool storage allocations.

Q12: You have stated that the 2011 inflows to Lake Texoma are the lowest since its construction, and that 2013 saw the second lowest inflows. Is it possible to limit outflow equal to inflow so that downstream users would get the amount of water nature intended?
A12: No. Inflows during droughts may not satisfy authorized project purpose needs. Without the use of allocated storage, Texoma would have considerably less reliability and value as a water resource. The construction of a dam changes the geographic, ecologic, and social environments of the basin. Denison Dam brought the region increased

development by providing a reliable source of water, by increasing the availability of electricity, and by reducing the threat of major floods. The American people, through Congress, built the reservoirs to hold water for later use; manage the risk of flooding; provide safe drinking water; generate clean, renewable energy; and provide water for navigation. Later Congress added the missions to provide individuals the opportunity to recreate and the responsibility to care for fish and wildlife to the reservoirs' authorizations.

Q13: Drought results in economic hardship to Lake Texoma-area business and reduces the value of homes near the lake. Does the Corps consider this in the management of the water in the lake?
A13: Management of the water of the lake considers all project purposes, but some purposes have allocated storage under federal agreements that require repayment by users. Both hydropower and water supply users have these agreements to repay the federal government for allocated storage. This repayment represents a share of the cost of operations and original construction of Lake Texoma. In exchange, these users have the rights to use water in their storage. Recreation users are not required to repay the government for any storage.

Q14: Why is there a seasonal pool at Lake Texoma? What is it?
A14: Work began with the Lake Texoma Advisory Committee (LTAC) in the late 1980's on a seasonal pool plan for Lake Texoma. Coordination among members of the LTAC took about two years. The LTAC recommended the agreed upon seasonal pool plan to the Corps of Engineers in 1991. The plan was approved and implemented in April 1992. The plan was modified slightly in 1997, based upon a recommendation by the Oklahoma Department of Wildlife Conservation (ODWC) and approved by the LTAC.

Q15: Why do the releases last longer than the time listed on the published hydropower release schedule?
A15: Power discharge schedules are tentative and subject to change at any time to meet power demand.

Q16: Who decides how much water is released during hydropower generation?
A16: SWPA is a Power Marketing Administration within the Department of Energy and is the federal agency which markets hydropower from Lake Texoma. SWPA markets this hydropower to two Texas not-for-profit electrical cooperatives. Lake Texoma is normally scheduled by the cooperatives or their scheduling agents to meet short-term peaking power and energy requirements, as well as to meet Corps flood control release requirements when Lake Texoma is in the flood pool. Generation at the project is coordinated with SWPA and scheduled within the operational guidelines and procedures established for the project.

Q17: Where do the profits from hydropower production go?
A17: SWPA is a federal agency that operates within the Department of Engergy under the authority of Section 5 of the Flood Control Act of 1944. It is one of four Power Marketing Administrations in the United States. By law, SWPA markets the hydropower from Denison Dam and other federal hydropower projects in the region at cost-based rates to not-for-profit customers, largely municipalities and rural electrical cooperatives. Money received from hydropower production goes back to the U.S. Treasury to repay the American public for the construction and operation of the dams with interest; no "profits" are earned through the sale of federal hydropower.

Q18: Why can't you just stop releasing water from Lake Texoma?
A18: Arbitrarily stopping releases from Texoma would violate the congressionally authorized purposes of the lake. That would also be contrary to several federal contracts and agreements. Were hydropower production at Lake Texoma altered, there would be several adverse impacts. It could result in a rate increase of 11 percent to SWPA customers in Texas, Louisiana, Oklahoma, Arkansas, Missouri, and Kansas, which ultimately serve more than eight

million end users. The U.S. Treasury would lose the $5.6 million in revenues it receives for the capacity and energy marketed at Lake Texoma annually. The cost to replace that capacity and energy in The Electric Reliability Council of Texas (ERCOT) would cost $18.9 million annually. The estimated amount of other fuels to produce equivalent energy would be either 375,200 barrels of oil, 113,900 tons of coal, or 1.9 billion cubic feet of natural gas, with associated emissions of 182,000 tons of greenhouse gases.

Modification of hydropower production at Lake Texoma would also be a major federal action requiring complete compliance to the National Environmental Policy Act (NEPA), as there could be environmental impacts to downstream habitats caused by the lack of water releases. An Environmental Impact Study would be required before production could stop, and public participation and comments would be a part of the process.

Q19: Is evaporation really a major contributor to the low pool elevation of Lake Texoma?
A19: In an average year Lake Texoma will evaporate approximately six feet (74") of water. On a peak evaporation day at Lake Texoma, the lake can evaporate as much as 2,000 acre-feet of water per day or 651 million gallons per day.

Q20: Is the Corps intentionally drawing down Lake Texoma?
A20: The Tulsa District is committed to the efficient management of the water stored in Lake Texoma and is operating the project according to its federally authorized purposes.

Q21: Which boat ramps are usable while the lake level is so low? Can I still use the lake?
A21: The following list of Corps operated boat ramps are open and available for use at elevation 608.37 East Burns Run(West Ramp), East Burns Run(South Ramp), Platter Flats, Johnson Creek and Buncombe Creek. Although the lake is at very low levels it is still open to all users. We do recommend that boaters use caution due to the low lake levels.

Q22: What is the lowest elevation that the lake has ever seen?
A22: The lake reached elevation 599.96 in 1957. Later that same year, the lake experienced a record setting flood elevation that sent water over the spillway for the first time since the lake was constructed.

Q23: Where can I find information about the water level of Lake Texoma?
A23: Updated information is available daily in a couple of different places on our homepage. Current readings for Lake Texoma and Denison Dam are available at http://www.swt-wc.usace.army.mil/DENI.lakepage.html. The lake level is available there as well as historical information about the lake's level. The Tulsa District also provides a Water Control Data Page http://www.swt-wc.usace.army.mil/. Daily lake conditions, real-time gage information, hydropower schedules and more information are available at this site.

Q24: Where can I learn more about the drought?
A24: The U.S. Drought Monitor provides a weekly drought summary and a drought outlook. It is available at http://droughtmonitor.unl.edu/. We publish a Reservoir Drought Update weekly when any of the Tulsa District lakes are in drought. It is available on our homepage at http://www.swt.usace.army.mil/Home.aspx.