The Ditch System

The topography of Tuolumne County varies greatly from gently rolling terrain at the lower elevations, to steep hilly uplands deeply traversed by streams and tributaries that drain south to the Tuolumne River or north to the Stanislaus River. The majority of TUD customers reside in or near the community of Sonora which is at about elevation 2,000 feet. TUD also serves customers in several communities to the east up to about elevation 6,000 feet in the Sierras and west of Jamestown at an elevation of less than 1,500 feet. The water system has changed from a utility serving mainly gold rush mining operations to one that serves the 21st century vibrant and diverse residential, commercial, and industrial sectors of Tuolumne County.

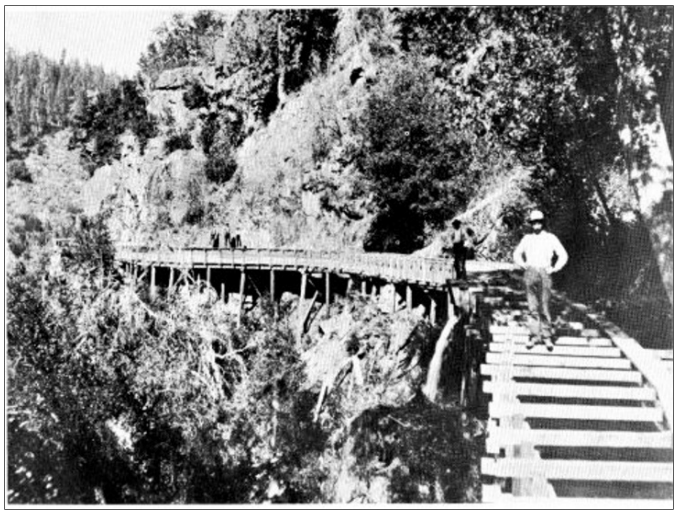
A key component of the Tuolumne Utilities District's (TUD) water supply infrastructure is the ditch system. The original ditch system was conceived and constructed by a group of energetic and resourceful miners in the early 1850's to deliver water to the communities and miners in Sonora, Jamestown, and Columbia.

TUD's ditch system consists of approximately 72 miles of open channels, flumes and pipes that begins at the Section 4 ditch near Twain Harte. This system has many uses before it reaches the district's 10 surface water treatment plants. The District serves approximately 600 raw or untreated water accounts along the ditch system within the district's service area, including an unmetered raw water service to the Twain Harte Community Services District (THCSD). THCSD serves roughly 1,500 treated water connections. The ditch system delivers approximately 130 million cubic feet of raw water annually.

The ditch system is essential and helps TUD to provide the community with reliable, high-quality water. Without water coming from the ditches, the only water available is what remains in the storage tanks, reservoirs and wells, hardly enough for drinking, sanitary use and fire protection for an extended period. Due to its importance, preventative maintenance and improvements to the ditch system are ongoing each year.

Frequently Asked Questions Regarding the Ditch System:

1. **What is the purpose of the ditch system?**
   Originally the ditch system was created in the mid 1850's as a series of reservoirs, ditches, and canals to divert and transport water primarily for mining purposes. Today, it is used to convey the water from melted snowpack that has reached the South Fork of the Stanislaus River to the Tuolumne Main Canal and into 70 miles of ditches that eventually reach TUD's water treatment facilities, storage tanks and to various classes of customers including residential, agricultural, and commercial.



2. **Who owns the ditch?**
   PG&E owns Lyons and Strawberry Reservoirs (Pinecrest) and the Tuolumne Main Canal. PG&E owns and operates a canal and flume system to deliver water from Lyons Reservoir to the Phoenix Powerhouse. TUD owns, operates, and maintains approximately 71 miles of ditch, flume, pipe, and tunnel infrastructure downstream of the Tuolumne Main Canal that diverts raw water from the PG&E system. While TUD owns and operates this portion of the ditch system, it does not own the majority of the land on which it exists.

3. **What's a miner's inch?**
   A miner's inch is a historic unit of measurement that dates back to the Gold Rush. A miner's inch equals 11.22 gallons per minute, on a 24-hour per day basis. Click the following link to watch a video on measuring water by means of a miner's inch.
   https://www.youtube.com/watch?v=Az0N1qauuds

4. **When is irrigation season?**
   Irrigation typically begins April 15th and runs until October 15th each year.

5. **Why is there an annual ditch outage?**
   The ditch system is essential in helping TUD provide the community with reliable water. Without water coming from the ditches, the only water available is what remains in the storage tanks and wells, hardly enough for drinking, sanitary use, and fire protection for an extended period. If routine ditch and flume maintenance is deferred, we run the risk of losing water supply at any time during the year. Due to its importance, preventative maintenance and improvements are vital to keep the water flowing each year.

The annual ditch outage is typically scheduled during the first few weeks in October by PG&E. PG&E owns the Tuolumne Main Canal from Lyons Reservoir down to Twain Harte. Because PG&E turns water off to the Tuolumne Main Canal during this time, TUD must take advantage of the outage to perform its own ditch maintenance while the source water is already off.

6. **Why can't the ditch outage be moved to a different time?**

   One reason the work occurs this time of year is that Phoenix Lake is full and can supply drinking water to TUD's largest customer base (Sonora/Jamestown), especially in the case of an emergency outage in the upper system. Before November 1st, each year the Division of Safety of Dams (DSOD) requires TUD to remove flash boards from Phoenix Lake Dam resulting in significant decreases in water storage to make room for winter storm water. This amount of water is not enough to supply Sonora and Jamestown with water for eight days.

   If the ditch outage is moved too far out into the wet months or even into early spring, it would create safety issues. Most of the ditch system can only be accessed by dirt roads and many are located at high elevations. Snow and rain can hinder the ability to deliver materials and equipment to areas where we have projects. Employee safety plays a big factor in this equation, and if crews had to work on a snowy, wet, or icy flume this would be very dangerous.

   Lastly, performing ditch maintenance before winter allows the water to flow much easier during the unpredictable winter months with snow and excess amounts of rain.

   TUD continues to evaluate options for scheduling maintenance at a different time of year, but as detailed above, the timing is based on safety and our top priority is keeping our communities and employees safe.

7. **How much does ditch water cost?**

   Raw water rates can be viewed by following this link:
   https://tudwater.com/wp-content/uploads/2019/11/Water-Rates_Jan-2020.pdf

8. **Does TUD have a right to access the ditch if it's on my property?**

   Yes. A right of easement has been established on all lands in which the ditch system and appurtenant facilities are located, including lands which may have been in private ownership when the ditches were first constructed, thereby created the existence of a ditch easement for the purposes of operation, maintenance, inspection, and repair.

9. **Is untreated ditch water safe to drink?**

   No. All untreated or raw water supplied from the district's open ditches, canals and conduits is unfit for human consumption. This raw water must go through a stringent treatment process before it's safe to drink. It shall not be used for residential or domestic uses including, but not limited to drinking, cooking or bathing. More information can be found here: F:\Ditches\Health Risk Info\Health Risk_Ditch Responsibility_2022.pdf