



## FACT SHEET—Q & A

### 41T3 Well

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**Q. How did the 41T3 well originate?**

A. The 41T3 well was originally called the “Turner #3” well and it was drilled in 1941. Hence its current name 41T3.

**Q. What is the history of the Turner wells?**

A. The 41T3 is one of three wells drilled by the City as part of a groundwater reconnaissance effort around City Springs. 41T1 (Turner #1) was drilled near the Ice and Event Center, the 41T2 (Turner #2) well was completed south of the Snowy Range Academy, and 41T3 well is located at the corner of 45<sup>th</sup> and Crow. Pumping tests confirmed there was interaction with the well at City Springs and, for this reason, a decision was made not to hook up 41T1 or 41T3 to the municipal water system at that time. In the 1990’s, 41T1 was converted to a monitor well, while 41T2 and 41T3 have served as sampling points and in other various roles for different studies and drilling projects.

**Q. When was the 41T3 first permitted?**

A. The first permit for the well was issued by the Wyoming State Engineers office in 1947 as S.C. 158, meaning that the applicant/city submitted a “**S**tatement of **C**laim” for a well that existed prior to the State of Wyoming permitting wells. This permit was for a municipal well to be used within the corporate limits of the City of Laramie. In 1977, consultant Banner and Associates requested cancellation of all three of the original statement of claim permits (S.C. 156-158) on behalf of the city. However, there was no requirement to plug the wells, so they never were.

**Q. What other important dates pertain to the 41T3?**

A. In 1980’s and 1990’s the City made an investment to clean out the well (due to dumped trash), installed a locking cap, and conducted further evaluations of the well. The 41T3 has been an important data point and has been pump tested and monitored during various drilling projects undertaken by the City. It was also during this time that the 41T3 was earmarked by the City as a potential production well to facilitate future residential growth to the north.

**Q. What is the current status of the 41T3?**

A. In 2016, the 41T3 became part of the city’s nitrate monitoring well network and was permitted with the State Engineer’s Office. This permit, Permit No. U.W. 205989 is still valid today. In 2017, with expansion to the north becoming a reality and a newfound awareness of potential competition to Casper Aquifer resources after the failed 2015 JRA-1 Jacoby Golf Course drilling project, a production well permit was applied for and granted by the State Engineer. This permit, Permit No. U.W. 207285, is a valid permit for a municipal water well. At that time, the city offered to partner with the University to develop fully the 41T3 so that it could serve dual purpose as an irrigation well for the golf course and a production well within the municipal water system. The permit is

conditioned with similar permit language as our other municipal production wells and has successfully been through the Platte River Recovery Implantation (PRRIP) review process.

**Q. What is the process and timeline to get a well permit?**

- A. After an application is approved by the State Engineer Office, the applicant has a limited amount of time to drill the well before the permit is cancelled. Under their current and more restrictive policy, the State Engineer has already granted one-time extension for P207285W, which expires in December 31, 2021. It can be considered unlikely that they will grant another one.

**Q. Does the City have a permit to re-drill the 41T3?**

- A. Yes, the city holds a valid well permit to re-drill the 41T3 well so that it can supply water for the municipal water system. When drilling is complete, the permit will transfer from the old well to the new well. The new 41T3 well will be located within municipal right of way near 45<sup>th</sup> and Crow Street. A section of roadway will need to be closed during construction of the well but will be fully operational once the well is completed.

**Q. What makes the 41T3 well permit valuable?**

- A. This well permit has a senior priority date. Wyoming water law follows the Prior Appropriation Doctrine that “first in time is first in right” but, in order to be applicable, groundwater wells must fully penetrate the aquifer. It has never been necessary for city wells to fully penetrate the aquifer. But, with mounting competition for aquifer resources, the 41T3 will be drilled to fully penetrate the aquifer and will have standing under Wyoming water law sufficient to request priority date-based administration. Other wells with more recent priority dates will have to be managed so as not to interfere with operation of the more senior 41T3 well, thus protecting water supplied into the municipal system from this well.

**Q. What is the review process at State Engineer’s Office when issuing a well permit?**

- A. The SEO Groundwater Division does not perform any kind of water availability investigation before issuing permits (outside of a select few special management areas that they maintain). Overall, SEO’s statutory “we *shall* permit” mandate clears the way for scenarios that don’t seem logical or fiscally sound, such as the University drilling a new high capacity well within 77 feet of another legally permitted and senior well like the 41T3. There is no review conducted by SEO to determine if such a scenario will cause harm or interference with other nearby wells prior to permitting a well. Wyoming water law is retroactive in this regard, with well permits being issued as a matter of course and, if the operation of a well harms any nearby well, that harm or interference is dealt with on the back end *after* the harm has occurred.

**Q. What happens if interference occurs?**

- A. When interference occurs, the State Engineer can be requested to conduct a Groundwater Interference Study. The potential exists for the State to spend many years and a large amount of money administering the situation when multiple competing wells conflict with one another.

**Q. Why is the 41T3 needed?**

- A. The City of Laramie is experiencing development pressure to the north of the City. This water demand in the north side is starving the transmission capacity of the water system to deliver to these northern areas. The City is currently working on several projects to improve transmission capacity. These projects are in various stages of completion and are part of a larger plan to solve the transmission capacity bottle neck.
  - a. North PRV Station – Allows pressure to zone 2 to supplement pressure zone 1 during high demand events (typically fires). This project is complete and functioning.

- b. Cirrus Sky PRV Station – Allows pressure to zone 3 to supplement zone 2 during high demand events. The project is complete and functioning.
- c. 20-24 crossover – This is a short large diameter pipe between 20- and 24-inch transmission lines. This connection improves the flow capacity of the 20-inch transmission line to the north areas of pressure zone 1. Design is complete and construction is planned for 2022.
- d. North Side Tank – This project takes water from pressure zone 1 (mostly the 20-inch transmission line) and pumps it to a new tank to serve pressure zone 3. Currently, zone 3 does not have a tank and relies on continuous pumping from Wister Drive pump station. This project is designed to correct the fire flow shortfalls in pressure zones 1, 2 and 3 along the north side of town and supply development along the north side of town and north of the City. The capacity of this project is 2650 GPM. Zone 1 can't deliver this much water without completion of several projects that will improve transmission capacity to the north. This project is in its final design phase and is scheduled to start construction this summer.
- e. Grand Ave – This project replaces the 14- and 16-inch lines in Grand Ave with a 30- and 24-inch line. Delivery to zones 1 and 2 are improved with this project. Project is partially complete. Future phases are in the budget out years.
- f. Third Street – This project replaces pipe that is at the end of the service life in Third street and eliminates a transmission bottle neck between Grand and Lewis. This will make up some short fall to the North Tank project. The full benefit won't be realized until Grand is complete. The Third Street project is currently out to bid and scheduled for construction this summer.
- g. North Campus Water line – Provides zone 2 water service to North campus area and opens area for development. This project increases demand to the north in zone 2. This project is in its final design phase and is scheduled for construction this summer
- h. Two Mg Zone 1 Tank – This is a new zone 1 tank near the proposed North Tank Pump Station and was part of the original North Tank conceptual design but was dropped as the project moved into Level 3 design. Leakage in the 8 MG tank and a closer look at zone 1 transmission capacity brought this tank back. This tank allows the 8MG tank to be removed from service for repairs and it flattens the demand curves from the North Tank Pump Station. This flattening will reduce the swings in Zone 1 that will be caused by North Tank Pump Station. This project is in the budget request phase.
- i. Fourth Street Transmission Line – This project is at the master plan level. This project conceptualized as a 30-inch transmission line extending work in Grand Ave to the North Tank Pump station. This would bring the North tank Pump Station capacity up to 4000 GPM.

**Q. What benefits will accrue once the 41T3 well is integrated into the municipal water system?**

- A. The 41T3 well will pump water directly into the Zone 4 storage tank.
  - a. Address the immediate short fall in the transmission capacity of Zone 1 to supply the North Tank pump station. Zone 4 is supplied by pressure zone 3 through the Imperial Heights Pump Station. By meeting the Zone 4 demand with this well, Pressure 3 demands will be reduced by 800 GPM. The North Tank station could be operated at a lower flow rate
  - b. Add robustness and resiliency to the system. Currently, all the water supplied to Zone 3 comes from Zone 1. All the zone 4 water comes from zone 3. This well would pump into zone 4 providing a second source to both zones 3 and 4.
  - c. Situated toward the north side of town, the well will address limited transmission capacity to the north within pressure Zone 3. The location alleviates some of this transmission capacity by improving the ability of Zone 4 to supplement the north end of Zone 3.
  - d. The supplemental supply to Zones 4 and 3 provides additional time to complete the list of projects identified in this document.
  - e. Managing water age in the system is constant challenge and is critical to maintaining water quality. The water in the north east part of distribution network has some of the longest

travel times from source to customer taps and therefore some of the highest water ages. The well provides an additional valuable tool to manage water age across the distribution system.

**Q. What potential issues do the new UW wells pose to the City's existing water supply?**

- A.** This is a multi-faceted question because there are many potential issues, from operational to financial to water supply availability. New UW wells have been drilled in a location understood to be up-gradient from the city's existing Turner Wells. They have also been drilled deeper than the city wells. This means that even though the city's Turner Wells have senior water rights (1868), it will not be possible to compel the University to irrigate in a way that won't interfere with the city wells. Ultimately, the City Springs wells may have to be re-drilled in response to the wells authorized by the University Trustees and at significant expense to Laramie rate payers.

The Casper Aquifer is Laramie's main insurance policy against prolonged drought. For instance, in 2002 the worst recorded year of runoff in the history of the Laramie River occurred and the entire population of Laramie was served by ground water from the aquifer. It took many years for water levels to recover in the aquifer as a result. Now, with the University planning to take water from the same aquifer at the same location, the city's drought resiliency could be drastically reduced.

At this time, the extent of interference the new UW wells will have with City wells is not known but could be significant depending upon drought conditions. Section 4 of the Wyoming Public Service Commission Rules (PWSCR) requires that utilities, such as water systems, that interfere or may interfere with one another are to coordinate and take steps to eliminate the interference. If the interference is caused by a new system, the owner of the new system must pay for the correction and mitigation of any interference (Wyoming Chapter II General Regulations §4(f)). It is unclear if this regulation will apply to the University's new wells. The City has consistently taken the position that the cost to mitigate any impacts caused by the University's new wells must not be borne by city rate payers.

This has also caused concern about degradation of water quality within the aquifer. Decades of data in the City Springs area documents the cross connection between geologic formations. City water operators are concerned that the University's new high production wells may de-water the upper portion of the Casper Aquifer and draw dissolution minerals downward into the Class I potable Casper Aquifer from the overlying Satanka shale formation. The City already experiences this occurrence during drought years, or when its wells are pumped heavily; however, we are able to manage a broad well system to prevent this from happening. The City will not be able to require the University to do the same. City officials have requested repeatedly that pump tests occur, and more data be gathered to gain a better understanding of the hydrogeologic effects of bringing the University's two new high production wells online; unfortunately, those requests have been declined at multiple junctures.