District News

March 2016

A Look at Our Water System

In the last two issues we have looked at Tarrant Regional Water District (TRWD) and the infrastructure involved in capturing the raw water and moving it to our area, and we looked at Fort Worth Water and how they treat the raw water and distribute it to their wholesale customers. This month we will explore the District's water system, what we've done to accommodate the growth in our community, and the improvements planned for the future.

An Overview of Water Operations

Fort Worth normally delivers water to the District water plant through a pipeline from the Caylor Tank in North Fort Worth. This pipeline serves Trophy Club as well as Keller, Roanoke, and Westlake. At the District plant the Fort Worth meter registers how much water flows through it, just like at a home or business. Butterfly valves allow us to adjust the rate of flow to control how much water we receive from Fort Worth. Water flows into the ground storage tanks where it is mixed with water from our wells and disinfected. Five pumps move the water from the ground storage tank to the distribution system and elevated storage tanks. The elevated storage tanks maintain pressure and fireflow in the system and provide additional water storage.

Story continued on next page

Storage tanks and pump room at District Water Plant

Kids Coloring Contest Entries Due March 28th

Get ready for Water Fest 2016 with our Kids Coloring Contest! To enter, visit our Events page at http://www.tcmud.org/administratio/events/ to print out the 2016 Kids Coloring Page or pick up a copy at the front desk.

Kids – decorate your page with crayons, markers, or whatever you like to use to color. Parents – Write your child's name, grade, and contact phone number on the back of the page. All entries must be received at the front desk of the Svore Municipal Building at 100 Municipal Drive by **Monday, March 28th at 5:00 pm.**

Entries may be displayed in the lobby of the Svore Municipal Building and/or on the District website. Trophies and ribbons will be awarded at Water Fest on Saturday, April 2nd for three groups (Pre-K, Grade K–2, Grade 3-5) or may be claimed after the event at the front desk during regular business hours.

www.tcmud.org
100 Municipal Drive
Trophy Club, TX 76262
(682) 831-4600
info@tcmud.org

Coming Up!

Wednesday, March 23rd at 6:00 pm. Regular Board Meeting in the Svore Municipal Boardroom. Attorney John Carlton to present information regarding the rate challenge process with the Public Utility Commission of Texas (PUC) and status of the Ratepayers Appeal of the Decision by Trophy Club MUD No. 1 to Change Rates.

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A Look at Our Water System, continued

From the elevated storage tank gravity moves the water to homes and businesses. Customers located between the water plant and elevated tank may receive water directly from the water plant if the pumps are running, or from the elevated storage tanks when the pumps are not operating.

The District's Supervisory Control and Data Acquisition (SCADA) system allows staff to set controls and monitor the operation of the intake and distribution systems. With SCADA, staff can adjust water system operations either onsite or remotely with a laptop or mobile device. In connection with the ongoing improvements at the wastewater treatment facility, the District is exploring an upgraded SCADA system to enhance the operations and reporting of both the water and wastewater systems.

To meet demand needs in the Public Improvement District (PID), the District distributes water to the Town of Trophy Club through eight entry points into their system. The Town in turn provides water to the customers in the PID. As a separate water provider, the Town of Trophy Club Public Improvement District is required to conduct separate water sampling and operational reporting, including the annual Consumer Confidence Report. Through a contractual agreement, the District operates and maintains their water and wastewater systems.

Repairing a water line leak

The District's highly trained, licensed and certified water operators maintain and repair the District and PID distribution systems, respond to calls for service, and read the water meters each month. They also test the water daily to be sure it's safe to drink. 365 days a year in rain, snow or shine, operators collect samples from the Fort Worth intake, the wells, the water plant, and up to 10 sample points in the distribution system. These samples are processed onsite to make sure that total chlorine, free ammonia, and chloride are in the proper range for disinfection and safety. The monthly state-required samples are sent to an independent lab to test for harmful bacteria.

In addition to the daily and monthly testing, the Texas Commission on Environmental Quality (TCEQ) collects and tests samples quarterly for disinfection byproducts. The state also requires monitoring of lead, copper and other constituents, generally every three years. Results are mailed to customers annually in the Consumer Confidence Report, and are always available on the District website. More information about required sampling is available on TCEQ's Drinking Water Watch at http://dww2.tceq.texas.gov/DWW/. Trophy Club Municipal Utility District No. 1 has been designated as a Superior Public Water System for over 12 years.

Rate of flow control actuators

Keeping up with Growth

In order to accommodate the growth in our community over the last several years, the District has added two million gallons of ground storage. Upgrades were made to the vault where the Fort Worth line comes in. The project included two actuator valves, upsized pipes and an emergency bypass. The District also has ongoing projects to upgrade and replace water lines in connection with Town street projects.

To increase the amount of water coming into Trophy Club, the District is participating with Fort Worth and other area systems on a three-phase project for improvements to the distribution system. The first phase is an upgraded water line from the Caylor Tank that serves Trophy Club and other area systems (see "A Look at Fort Worth Water" in the January 2016 newsletter.)

The second phase will benefit only Trophy Club and Westlake and is still in the planning and design stage. This project will upgrade the water line from the end of the

Fix a Leak Week is Coming Soon!

March 14-20, 2016 is national "Fix a Leak Week." The EPA promotes this annual event as part of its efforts to encourage Americans to use water wisely. They estimate that the average home can waste more than 10,000 gallons per year just through leaks.

Check your mailbox for a postcard with more information, but you don't have to wait to fix your leaks and save money! Visit our website at www.tcmud.org or call us at (682) 831-4600 to learn more. Toilet leak detection tablets and marker flags are available FREE at the front desk!

A Look at Our Water System, continued

Phase One improvements to the area near Highways 170 and 377 to a 30 inch water line. The future third phase will upgrade the 21 inch line that serves only Trophy Club to a 24 inch line.

To help prioritize and plan major upgrades needed within the District system, the Board of Directors authorized a water system study. The District encourages its customers to view the final report and video replay of the February 5, 2016 workshop session. Both are available from the Capital Improvements page on the District website at http://www.tcmud.org/services/capital-improvements/. The study and hydraulic model of the system gives us a clearer picture of how the system currently operates and projects necessary upgrades based on future demands.

Based on historical usage and growth trends, the District expects the average daily demand to increase from 2.8 million gallons per day (MGD) to 4 MGD and the maximum daily demand to increase from 6.8 to 9.3 MGD. The District has a responsibility to build the water system to meet peak demand. If not designed for peak demand then during peak usage the supply will fall short to allow for domestic and firefighting purposes. Once system pressure loss occurs it can take many days for the water system to recover.

Through our contractual agreement with the City of Fort Worth, our major water supplier, we currently only have 3.7 MGD allotted through Fort Worth's distribution line. How have we been able to get enough water to meet our peak demand of 6.8 MGD? Fort Worth has allowed us to "borrow" capacity in their system unused by other wholesale customers. As other area water systems grow and use more of their allotted capacity, less excess is available to Trophy Club. After Phase 1-3 of the Fort Worth upgrades are completed, our contractual allotted capacity will increase to 10.3 MGD.

In addition to the upgraded water supply line from Fort Worth, the study recommends the following major improvements (as well as other smaller projects throughout the distribution system) within the next 5-10 years.

Install an ammonia feed at the water plant. Chloramines are a mixture of chlorine and ammonia used to disinfect water. This mixture sustains a longer chlorine residual than using chlorine alone, which means the water stays disinfected for a longer period of time. At this time the chloramines come from the water purchased from Fort Worth and the District just adds chlorine to boost the residual. For enhanced water treatment and operations, the ammonia feed is an upgrade planned for the near future.

Upgrade the water line from the water plant to the elevated tank on TW King Road. The elevated tank and main water line down Indian Creek Drive were installed roughly 30 years ago and will not be adequate to serve the growing needs of the homes and businesses along the line *and* fill the elevated tank. The District hopes to begin this project in the very near future.

Improve the high service pumps at the water plant. The water study recommends upgrading one of the fixed speed pumps to a higher capacity variable speed pump to improve the amount of water that can be pumped at peak demand times.

Increase ground storage. The District currently has 6 million gallons of ground water storage and an additional 400,000 in the elevated tank. While this amount currently satisfies the state requirements for water storage,

A Look at Our Water System, continued

the District needs to improve the amount of storage capacity to accommodate the buildout of the town's residential and commercial properties. Once the Town's police station is removed from the water plant area, a third 3 million gallon tank will be installed at that

location. This will still leave land available for future water infrastructure where the Annex Building is currently located.

Increase elevated storage. Elevated storage contributes to the District's overall water storage capacity, but more importantly it maintains water pressure and fire-flow in the system. Additional elevated storage may be required for efficient operations in the future. The study recommends that the District monitor usage patterns and plan for additional elevated storage in the future if needed. The District owns land at the two well sites not located at the water plant that may be possible locations if a future water tank is needed.

The Need for Water Conservation

The District is working diligently to improve the amount of water we can receive and the capacity of our system, but conservation is still essential to meeting our future needs. This effort is not just important for Trophy Club, but for all water systems. Water conservation is the supply strategy with the lowest cost to customers. It extends the life of existing infrastructure and may postpone replacement or costly additions. Region C Planning Group estimates that 24% of the future demand for water will be met through conservation. See "A Look at Our Water Supply" in the December 2015 newsletter.

Conservation is also important in a very practical way because the existing infrastructure can only deliver a certain amount of water to customers. Our contractual agreement with Fort Worth only allows us to purchase 3.7 MGD from their system and this amount will not increase until all three phases of water line improvements are complete. Fort Worth's system is designed based on contractual amounts with their wholesale water systems, and they in turn have agreements with TRWD for the amount of water to be supplied. Planning, designing and building water infrastructure takes years, so capacity and allotted amounts can't be changed overnight.

To make our water system more efficient, the District continually monitors water loss to minimize waste. The water loss rate is calculated and reported to the state on an annual basis. Results are also published in the annual Consumer Confidence Report, which is mailed to customers each year and is available on the District website. The calculation starts with the amount of water pumped minus the amount of water sold, then subtracts other known non-sale uses of water to account for the difference. Non-sale uses include water for fire-fighting, hydrant flushing and flow testing, tank maintenance, water main breaks, and other water treatment operations and requirements.

Some of these uses can be measured, while others must be estimated. The water that the District pumps but cannot be accounted for is the water loss. The District's water loss rate is well within industry standards for small to medium water systems. Since the District purchases the majority of our water, the amount pumped but not sold is a cost that must be absorbed by all customers in the form of higher water rates.

As water meters age they tend to register less than the full consumption of water. In order to minimize water loss due to under-registering meters and give a clearer picture of the efficiency of the system, the District has initiated a meter replacement program. We are sending a sample of the meters replaced each year to an independent laboratory for testing. All meters replaced and tested in 2015 showed significant under-registering. More information about this program and the results from the meter accuracy testing can be found on the District website at www.tcmud.org/services/water/.

To learn more about water conservation, smart irrigation, and District operations, visit us at the upcoming Water Fest event "Science on Tap" or email us at info@tcmud.org.