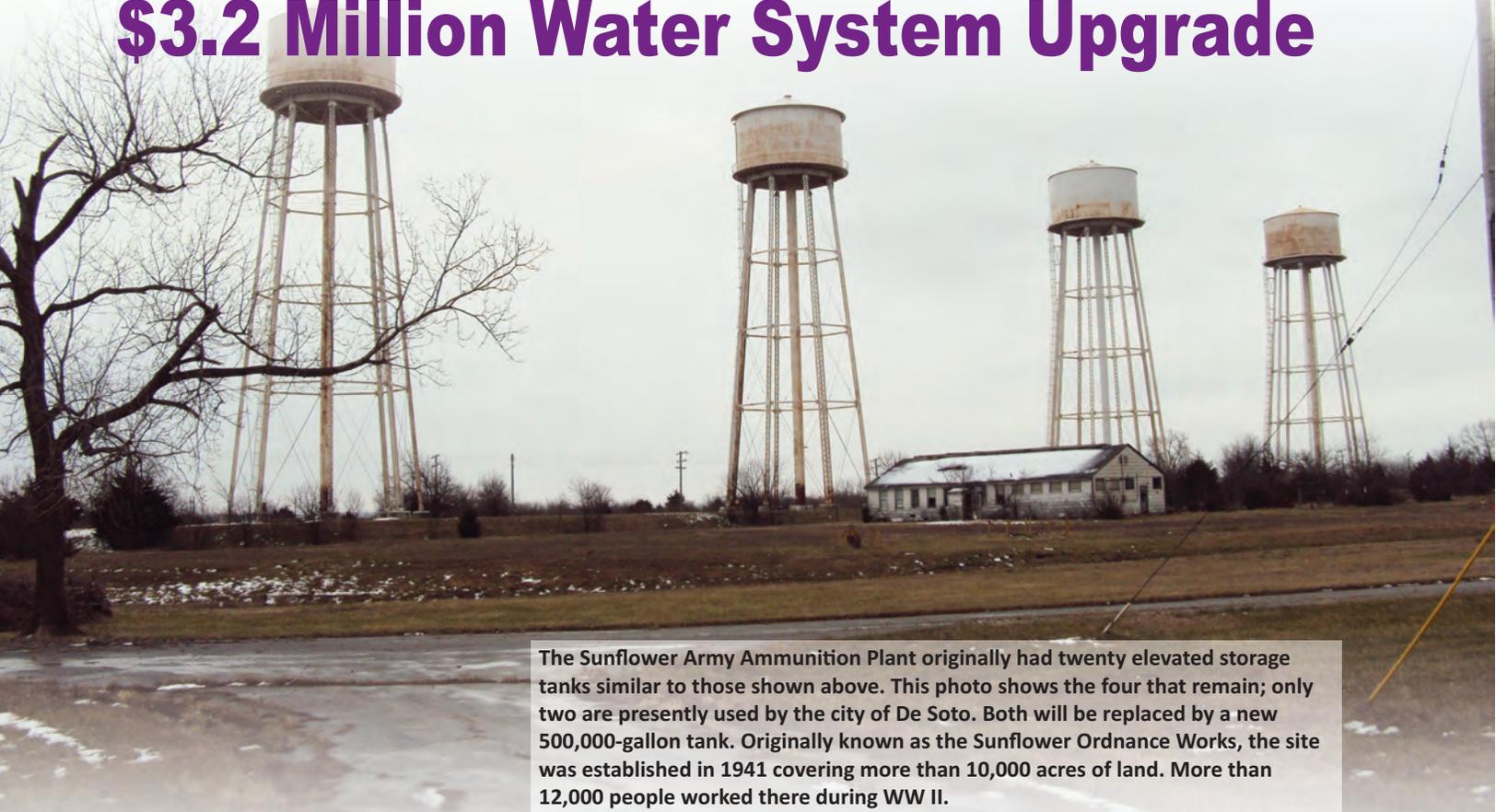


# City of De Soto Approves a \$3.2 Million Water System Upgrade



The Sunflower Army Ammunition Plant originally had twenty elevated storage tanks similar to those shown above. This photo shows the four that remain; only two are presently used by the city of De Soto. Both will be replaced by a new 500,000-gallon tank. Originally known as the Sunflower Ordnance Works, the site was established in 1941 covering more than 10,000 acres of land. More than 12,000 people worked there during WW II.

**T**he city of De Soto, located in Johnson County, recently approved a \$3.2 million upgrade to the municipal water system. De Soto has a population of 5,500, served through approximately 1,500 residential meters.

The city's water treatment plant is located south of De Soto, at the former Sunflower Army Ammunition plant. The plant was constructed in 1942 and was rehabbed in 1972. The treatment plant has eight filters. Presently, only three of the filters are operated. Each filter has the capability to produce 675 gallons per minute (gpm). During the winter months the plant operates an average of 12 hours per day, and produces 500,000 gallons per day. The production typically increases to one million gallons per day during the summer months.

The project also includes replacing all of the valves and controls on each of the filters. The mixed media will also be replaced in each of the filters.

**Presently, only three of the filters are operated. Each filter has the capability to produce 675 gallons per minute (gpm).**

The city recently installed a new lime feeder. This feeder simplified the work at the plant. A bulk truck now pulls up to the bulk tank and pumps lime to the top. The old feeder required the operators to manually fill the bulk tank.

Two clarifiers were added to the plant. The capacity of each clarifier is 500,000 gallons. The lime is fed into the clarifiers.

After the filters the water enters a 1.2 million gallon clearwell. The clearwell is equipped with three high service pumps; each has a pumping capacity of 1,740 gpm.

A new water storage tank is also included in the project. The new tower will have a capacity of 500,000 gallons. As of January 15, this portion of the project is still out on bids. The city presently uses two of the four water storage tanks at the plant site. The elevated tanks are in a row and are referred to as "The Four Sisters Towers".

**In another project, the city recently replaced approximately 1.5 miles of 24-inch pipeline from the plant, north to another main line.**

In another project, the city recently replaced approximately 1.5 miles of 24-inch pipeline from the plant, north to another main line. This section of the water main contributed to a substantial portion of the city's water loss.

Another facet of the project was to replace all the meters on the city's wells. The old meters required having the screens cleared quite often. When the screens became partially blocked it caused the meters to over-register. This contributed to a portion of the city's water loss. The old meters were replaced with new 6-inch Mag. meters. The city operators installed the new meters.

The city currently operates five wells. They are in the process of rehabbing another well to have a total of six operable wells.



**Dennis Smith, Water Plant Operator, explains the improvements proposed in the city's water treatment plant. Smith visits with Tony Kimmi, KRWA Tech Assistant in the plant on the site of the former Sunflower Army Ammunition Plant.**

De Soto has contracted with Utility Service Company, Pierre, Georgia, to maintain the wells. The price is \$6,000 per well annually. This contract covers the pumps as well as the motors. Utility Service Company will also periodically acidize the wells.

Currently the city operators spend approximately two hours per day traveling to the wells to turn them on and off. A new telemetry system will be installed to eliminate this



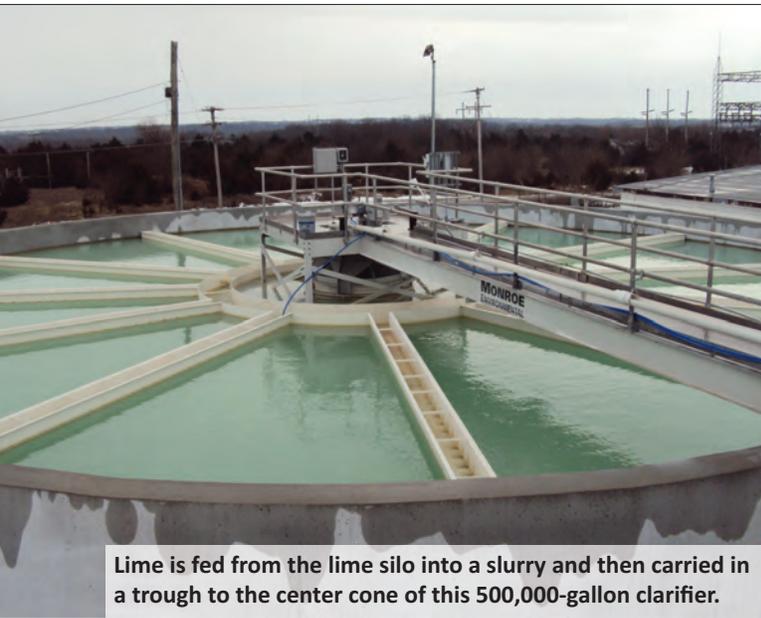
# ALEXANDER PUMP & SERVICES INC.



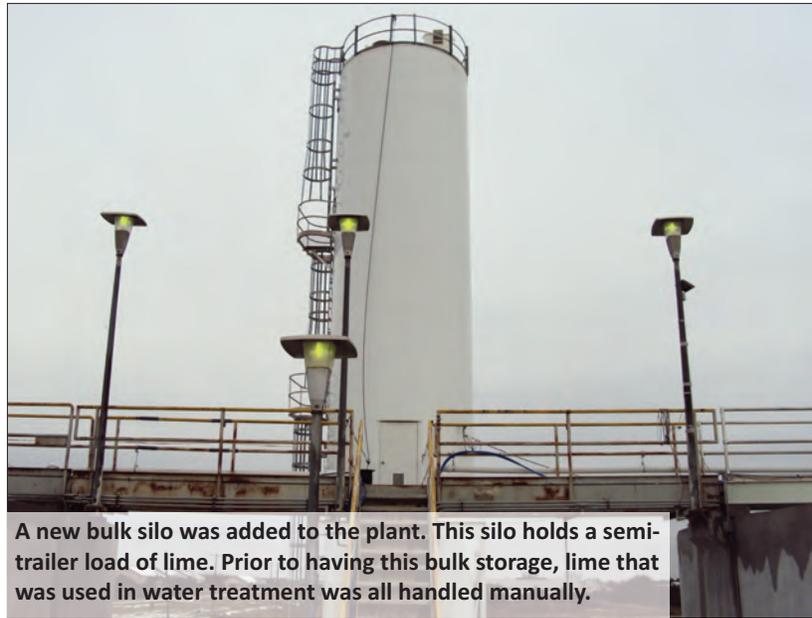
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Lime is fed from the lime silo into a slurry and then carried in a trough to the center cone of this 500,000-gallon clarifier.



A new bulk silo was added to the plant. This silo holds a semi-trailer load of lime. Prior to having this bulk storage, lime that was used in water treatment was all handled manually.

Rate Structure			
Usage From Gallons	Usage	Existing Rate Structure	2016 Rate Structure
0	1500	\$19.27	\$22.00
1501	4500	\$6.06 per 1000 gal	\$7.20 per 1000 gal
4501	8500	\$7.43 per 1000 gal	\$7.85 per 1000 gal
8501	1000000	\$8.05 per 1000 gal	\$8.70 per 1000 gal

burden. MicroComm of Olathe, Kansas was awarded that portion of the project.

Another feature of the city's system is the interconnection with Johnson Cons. RWD 6. That interconnection has the capacity to flow water either direction.

Three operators work at the plant, two rotate on a 7-day on – 7-day off shift. Operator Dennis Smith has operated the plant for the past 13 years.

### Impact on rates

Water and wastewater rate alternatives were presented to the city commission by City Engineer Mike Brungardt, P.E., on November 5, 2015 at the city commission meeting. The report noted that the city had issued \$3.2 million in bond financing for the current round of improvements at the

Sunflower Water Treatment Plant. That financing was rolled into a larger debt restructuring that included \$8.4 million in refinancing from the sewer plant construction in 2007. Together, the yearly debt service for this restructuring totals \$843,137.50 in 2016 and \$839,000 in 2017.

The city approved new rates that went into effect in January. The table at left shows the increases approved for De Soto rates.

### History of Sunflower Army Ammunition Plant

The Sunflower Ammunition Plant was established in 1941 on 10,747 acres. During World War II, the Sunflower Ordnance Works produced more than 200 million pounds (91,000,000 kg) of propellants and employed as many as 12,067 people.

In 1951, the Sunflower Ordnance Works was brought out of standby due to the Korean War. This time the plant produced more than 166 million pounds (75,000,000 kg) of propellants, with employment of up to 5,374.

When the plant was originally constructed, it had twenty water storage tanks and a 12 million-gallon underground storage for fire suppression. Today all but four elevated tanks have been taken down and the underground storage has been abandoned.

*Tony Kimmi has worked as a Tech Assistance for KRWA since October 2009. He has extensive experience in the operation of construction equipment. He has assisted in the construction of several rechlorination stations and ongoing monitoring of water quality issues. Tony enjoys providing assistance to public water systems.*



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