

PLANTPROFILE

Frequent upgrades, the ability to handle various capacities, and recognition by the EPA result in a sense of pride in the employees at the Lititz (Pa.) Sewer Authority Wastewater Treatment Plant

Changing with the Times

Overview

By Tim Gregorski

NAME: Lititz Sewer Authority Wastewater Treatment Plant

LOCATION: Lititz, Pa.

PLANT SIZE: The wastewater facility currently operates as a 3.85-mgd two-stage activated sludge facility with aerobic digestion and chemical addition to control conventional pollutants and nutrients. The plant has been operated by Severn Trent Services since 1988.

INFRASTRUCTURE: The Lititz Sewer Authority Wastewater Treatment Plant incorporates a variety of treatment processes including: raw wastewater pumping, a back-raked mechanical bar screen, aerated grit chamber, primary treatment, carbonaceous activated sludge, intermediate clarification, nitrogenous activated sludge, final clarification and disinfection. The biosolids process includes aerobic digestion, gravity thickening, belt filter press dewatering and land application of digested biosolids.



Constructed in 1980, the Lititz Sewer Authority Wastewater Treatment Plant has undergone numerous retrofits and modifications.

Originally constructed in 1980, the Lititz (Pa.) Sewer Authority Wastewater Treatment Plant was outfitted with state-of-the-art technology at the time, but as with any facility over 25 years old, retrofits and modifications have been necessary, many of which have resulted in cost-savings.

One area of improvement involved reductions in chemical and power usage, which resulted in an annual savings of \$12,000.

Another wastewater plant modification included the retrofit of an existing blower with more equipment, providing additional annual savings.

“Around 1990, we de-rated one of the 300-hp blowers to 150 hp at a cost of \$18,000,

and we were able to reduce our operating fee by \$1,000 per month,” said Carl D. Kline, area manager, Severn Trent Services.

By implementing various operational controls, the plant can meet discharge limits with reduced oxygen demands to date.

“Increased influent loadings are pushing us to the limits of the 150-hp blower, but the power savings have probably been in the range of \$200,000,” Kline added.

In 1997, the plant began a pilot test for bioaugmentation of its aerobic digester. Because the plant was designed with fine bubble diffusers in the digester, it was never able to maintain much of a dissolved oxygen level due to constant diffuser clogging. Currently, the plant is achieving excellent

volatile solids reduction, reduction of solids volume and experiences no foul odor when the digestion is complete, according to Kline.

This changed in 1999 when the Lititz wastewater plant began thickening all of its biosolids on the gravity portion of the belt filter presses. The plant was able to increase the percent solids from an average of about 2 to 5.6%. This, in turn, reduced the volume of biosolids to be hauled out, also reducing the storage capacity requirements, and low hauling costs.

Complementing the cost-saving measures mentioned previously, the Lititz wastewater plant recently installed an alarm system with an autodialer that allowed the facility to reduce staffing from 24/7 to a single eight-hour shift. According to Kline, this system was one of the single largest cost-saving measures.

Additional plant modifications

A number of other plant modifications have been made in recent years, including the conversion of a gravity thickener to an extension of the plant's digestion process.

The plant also stripped all the methane gas equipment from the original anaerobic digesters and converted them into additional storage for 300,000 gal of thickened sludge. After a few piping modifications and relocation of a progressive cavity pump, the plant was able to get biosolids both into and out of the tanks.

Another modification at the plant involved the installation of a SCADA system that allowed the plant to monitor data and control return and wasting rates throughout the facility. "However, the SCADA system does not give us the ability to control all aspects of the facility," Kline said.

In 2001, a final upgrade of the raw sewage pumping station resulted in a 10% increase in permitted capacity to 3.85 mgd. According to Kline, the upgrade included all-new controls and installation of three new closed coupled 100-hp pumps that replaced two existing extended shaft pumps.

Officials at the Lititz wastewater treatment plant plan to meet the Chesapeake Bay initiatives for reduction of nitrogen and phosphorous in the near future.

Recognitions abound

Earlier this year, the U.S. EPA presented the

borough with a regional award for excellence in operation and maintenance of the facility. In recognition of outstanding operations and maintenance practices and compliance status, the EPA presents the Region III Operations and Maintenance Excellence Award for Medium Sized Advanced Wastewater Treatment annually.

"The award also stands for confirmation that we have done a good job in caring for our environments, as well as the assets of the community," Kline said. "It also justifies the decision that Lititz Borough Council made to retain Severn Trent as the contract operator since 1988."

Kline went on to say that the facility takes great pride in having members of the Borough Council, the Sewer Authority, vendors, contractors, regulatory personnel, and other visitors comment on the attractiveness of the facility and how that indicates the professionalism and operational excellence within the facility.

"Wastewater treatment plants have the stigma of being dirty places that you only visit when necessary," Kline said. "We believe you don't have to be ashamed of working at a sewer plant." [www](http://www.severntrentservices.com)

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About Severn Trent Services

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