

# WATER & WASTEWATER UTILITY SOLUTIONS

## CASE STUDY

### Opportunistic Oklahoma City Increases Compliance, Reduces Operating Costs at WWTP Through Public-Private Partnership

In 2010, the Oklahoma State Department of Environmental Quality (ODEQ) filed a Consent Order against the City regarding the quality of the effluent being discharged from its wastewater treatment facility. Glenpool's City Council viewed the Consent Order as an opportunity to upgrade the operation of its 35-year-old water and wastewater collection system and the aerated wastewater lagoon treatment facility through a public-private partnership. To date, the partnership has increased regulatory compliance and significantly reduced operating expenses.

#### Consent order cites excessive ammonia levels

In the April 2010 Consent Order, the ODEQ cited the City's lagoon wastewater treatment plant (WWTP) for excessive ammonia levels in its effluent during the coldest months of the year. The plant, which serves approximately 13,000 residential, commercial and industrial customers, has a design treatment capacity of 1.4 mgd and an average treatment capacity of 780,000 gpd. The plant discharges treated wastewater into the Arkansas River to the City's east.

In the meantime, the City felt that additional day-to-day management services were needed to assume all operations and maintenance of the Public Works Department's water and wastewater collection system and wastewater treatment processing and disposal facilities. The City Council requested a scope of work proposal from Severn Trent Services based upon the company's reputation, diversity of services and existing presence in and around the state.



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## Plant upgrades, improved preventive maintenance, operator training

Taking over operational management of the plant in September 2010, Severn Trent worked with the Public Works Department to upgrade the facilities and processes used in their operation. These upgrades included:

**Physical plant upgrades:** The Public Works Department made a number of system upgrades to improve overall discharge compliance. A key upgrade was the addition of a breakpoint chlorination system to achieve nitrification during the winter months.

**Operator training and certification:** In its decision to contract with a public-private partner, the City Council cited the need to have certified plant operators to ensure the city remains in compliance with environmental regulations. Prior to September, only three of 14 operators had proper certification. By the close of the first contract year on August 31, 2011, all operators and technicians held an Oklahoma State certification.

**In-house laboratory testing:** Beginning in January 2011, Severn Trent started training the plant's operators to perform in-house testing of water samples in order to reduce the need for monthly testing by a third-party consultant. By February 1, plant personnel were handling all sample gathering and conducting the testing for pH, DO and ammonia. The outside consultant was used only for testing BOD, TSS and fecal. This resulted in a first-year savings of approximately \$15,000.

**Sewer line preventive maintenance program:** The Public Works Department mapped the entire sewer line system and implemented a preventive maintenance program to tackle the ongoing problem of sewer line maintenance. No such program previously existed, resulting in sewers that did not drain properly due to debris including old water meters, fire extinguishers, furniture and auto parts. To provide for regular maintenance tracking and scheduling, personnel installed computerized maintenance management software.

**Response to complaints and emergencies:** In October 2010, the plant installed new computer software and automatic dialers to the existing SCADA monitoring and control system. These enhancements enabled personnel to respond more quickly to emergency situations and relieving the public, police and fire departments from the responsibility of reporting such problems. The response time for other complaints, including leaks and faulty meters, was reduced to no more than 10 days compared to 15 days or more prior to the public-private partnership's start-up.

**Upgrading water meters:** Severn Trent personnel began evaluating the condition of water meters throughout the service area and found that many exceeded the expected life of 20 years. Some meters were found to be 30 to 40 years old or older, and these older meters were subject to leaks and under-readings, costing the City untold revenue. A scheduled meter replacement program was soon implemented in which 10 to 15 new meters were installed per month. The time required to read all the City's meters has been reduced from 15 or more days to just one week.

## Partnership results in multiple benefits

According to Severn Trent Services project manager, Robert J. Morgan, Jr., "All the improvements we've made in the months after our September 2010 start-up helped us bring the plant operations under budget for the 2010-2011 fiscal year. As a result, we refunded a surplus balance of \$54,623 to the City of Glenpool. This money was used to rehab a lift station — a project that wasn't budgeted in the City's capital plan."

According to Ed Tinker, Glenpool's city manager, "Most municipalities cannot realistically afford to hire all of the relevant engineers and other specialists needed to operate their water or sewer plants at the most efficient levels and in the safest manner possible. Our partnership with Severn Trent Services provides us with those specialists at significant cost savings. And we have found their level of expertise to be well beyond what we were capable of internally."

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