

Case study

Water/Wastewater

Water/wastewater authority hangs up on leased lines

Diverse uses of wireless technology in water/wastewater field



Summary

- SAWS monitored steam usage and flow with an unreliable and expensive leased-line phone subscription
- The wastewater treatment plant needed visual alarm beacons and audible horns to warn of hazardous conditions
- SAWS set up a wireless network using Trusted Wireless Data Radio Modules – this network automatically polls the customers' sites and records steam usage in real-time, then this information is tracked and recorded via computer at the control center
- The company used Trusted Wireless I/O Radios to run a wireless network at the water and wastewater facility for triggering remote indicators and alarms

Challenge

SAWS maintains a large steam plant in San Antonio to generate steam, which it sells to many larger hotels and business buildings in the downtown area.

Previously, SAWS was monitoring steam usage and flow at the individual customer sites by polling flow computers, using dedicated leased phone subscriptions (leased lines.) Not only were these phone lines expensive to rent and maintain, but SAWS also experienced frequent downtime due to phone line failures. These failures required repair by outside contractors. As a result, it became necessary to manually monitor individual sites, which used expensive man hours.

In addition to the steam generator, SAWS also operates a wastewater treatment plant that handles the majority of the city's water treatment needs.

At times, chlorine levels in the main treatment center are high, or spills occur. Because of this, visual alarm beacons and audible horns were needed to alert everyone in the facility of a potentially hazardous condition. However, the facility is very large and was not wired for installing these remote indicators.

Customer Profile

San Antonio Water System (SAWS)

A public utility and water/wastewater in San Antonio, Texas that serves over one million people including businesses and other facilities and provides the following services:

- Retail water services
- Wholesale to smaller utility systems
- Wastewater collection and treatment
- Steam generation

Solution

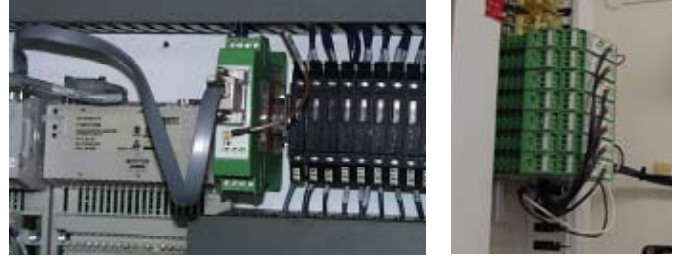
SAWS used Frequency Hopping Spread Spectrum (FHSS) Trusted Wireless technology from Phoenix Contact for both of these wireless projects. This is a commonly used, unlicensed RF technology.

For the leased-line replacement project, SAWS used Phoenix Contact's Trusted Wireless Data Radio products. These products provided wireless communication interface from the RS485 ports of the remotely located flow computers to the RS232 interface to the main control center which monitors and records steam usage. Instead of dialing sites individually and logging info, this process is now completed with the wireless network of data radios. The master radio is programmed to automatically poll the slave radios, which are located at the steam plant's point-of-use customer sites. Steam usage information is automatically recorded in real time.

SAWS utilized Phoenix Contact's Trusted Wireless I/O products in the wastewater treatment alarm application. These transmitter/receiver pairs are factory programmed, calibrated and tested as sets. They can send and receive one 4-20mA current loop and two digital status signals. In-plant



SAWS uses NIMA 4 conduit mount transmitters to communicate from several flow transmitters



Left: Trusted Wireless Data Radios transmits serial data from remote flow computers to the main steam plant control system

Right: Trusted Wireless I/O INTERFACE modules are easily wired as on/off outputs from the controller and transmit this information to remotely installed alarms

range is up to one thousand feet with no line-of-sight. With the proper relative line-of-sight and antenna equipment, transmitting potential increases up to twenty miles.

The process signals wire directly into the input terminal at the end of the transmitter; the output wires connect to the receiver. Using this system, SAWS can communicate to each of the remotely located alarm beacons and horns whenever there is a potentially hazardous condition present.

Results

SAWS calculated a two-year payback in lease costs with the purchase of the wireless technology versus using leased lines for the steam plant communication. They gained additional savings through increased reliability, and by eliminating site visits to manually record the flow computer data when the leased-lines were in repair.

At the wastewater facility, SAWS quickly and easily implemented an alarm system that notifies their employees of potentially hazardous conditions. By using Trusted Wireless I/O, the company avoided the high cost of installing wire and conduit.

For more information visit

www.phoenixcontact.com/wireless