

## **Lake Stevens Sewer District Monitors Sewer Treatment System with Sensaphone 2000**

By Bob Douglass

The Lake Stevens (Washington) Sewer District (LSSD) is a sewer collection and treatment system that currently processes more than three million gallons of raw sewage per day, servicing 10,000 homes and businesses, and more than 22,000 residents. Built in 1956, the system serves a drainage area of nearly 6,700 acres (including 5,690 acres outside the city limits) surrounding Lake Stevens, which is 1000 acres. It operates 8.9 miles of collection system, 9.7 miles of interceptors (15-inch to 36-inch sewer mains), 30 lift stations and a wastewater treatment plant.

While the system typically operates smoothly, there are times when unexpected events – power outages, pump failures, other mechanical breakdowns – cause the system, or at least part of the system, to shut down. To avoid those nightmares, LSSD is using a Sensaphone 2000 remote monitoring and alarm notification system.

“Our founding mission is to protect the environmental quality of Lake Stevens, but perhaps the most immediate goal is to protect our customers from a system failure that sends sewage backing up into their homes, damaging the interiors,” explained Rick Lewellen, deputy manager for operations at LSSD. “These types of repairs are tremendously expensive. In addition to having to replace damaged belongings, cleanup requires the services of water damage restoration companies that charge thousands of dollars to put people’s homes back in order. Although a portion of the cost is covered by the district’s insurance, some personal items such as heirlooms and pictures are irreplaceable and we have to do all we can to prevent this inconvenience and stress for our customers”

Lewellen first learned of the Sensaphone 2000 system during the 1999 WEFTEC trade show for the water and wastewater industry. At the time, LSSD monitored its facilities using two phone dialers, one at the treatment plant and one at a lift station that pumps waste from the basin to the treatment plant. The capabilities of the older monitoring system, according to Lewellen, were limited.

“The previous system only offered two notifications. Each time it sent an alarm, the on-call operator had to respond to the site to determine the particular reason for the fault,” he said. “We were looking for something that would give us a little more information and be more operator friendly.”

While walking the WEFTEC show floor, Lewellen saw the Sensaphone system. “I was impressed that the Sensaphone monitor was accessible from remote locations,” he said. “You can call and press a single button and it would rattle off all alarms and

status. That was a big selling point for us. We were also impressed that it was computer-based and you could access the stations from the computer to look at the various faults and status reports.”

When he returned to Washington, Lewellen convinced his superiors that the Sensaphone system would improve their monitoring capabilities, and provide more control and functionality in the process. They first specified it for two smaller projects, including the rehab of an existing lift station, which did not have a dialer installed at the time. “We were so happy with the initial results that we added another Sensaphone in 2001 and again in 2002. Now we have eight units, and we specified the Sensaphone for installation in three more lift stations under construction. All of them will have the Sensaphone 2000 units installed for primary monitoring.”

The Sensaphone 2000 system has eight channels, eight universal inputs that accept wet or dry contact sensors, 4-20mA signals, thermistor, and even pulse count devices. Its data logging capabilities enable it to store, retrieve (locally and remotely), and then analyze 32,000 time-stamped records. The Sensaphone 2000 system has the ability to call the office during the day, the house at night, and a cell phone on the weekends. No monthly service fees are required.

The LSSD is using the system to monitor the wet well level in some of its 30 lift stations. It also monitors pump failures, PLC (programmable logic controller) operations or failure; pump priming systems and more. The district has the unit programmed to dial an answering service when an alarm occurs. The service notifies the on-call staff member and provides the voice prompt it received. The staff member then decides how best to react to the alarm.

The key benefit to the system, Lewellen said, is the ability to trend the recorded data, enabling operators to spot problems before a malfunction occurs. “We can graph the trends of the instruments over the last 24 hours and see which one was malfunctioning and at what point,” he said. “That saves the operator time and the district the expense of sending someone to investigate the site. We can analyze the maintenance and malfunction from the desktop before deciding how to correct it.”

The system also enables the LSSD to schedule preventive maintenance. “We always have redundancies that allow a person to respond and begin repairs before a worse situation can evolve,” Lewellen said. “This prevents major station breakdowns.”

Like other communities, Lake Stevens is experiencing rapid growth. To accommodate the growth, LSSD is building a new \$70 million treatment facility and lift station that will double its capacity. Construction will begin in 2008. When

finished, the new plant is expected to meet the region's sewer treatment needs until 2050.

Based on their experience with the Sensaphone 2000 system, LSSD officials are considering specifying the same remote monitoring unit for the new construction project. That decision will be made later in the design phase.

***About the author:** Bob Douglass is the vice president of sales and marketing for Sensaphone, Inc., manufacturer of the complete line of Sensaphone remote monitoring systems. For more information, visit [www.Sensaphone.com](http://www.Sensaphone.com) or call 610-558-2700.*