SAWS Uses Internet of Things to Optimize Cleaning and Dramatically Lower Costs

**Who:** San Antonio Water System (SAWS), TX

**Problem:** In a recent one-year study to determine if a fast and consistent return on investment could be achieved with the SmartCover® SmartClean™ process, the San Antonio Water System (SAWS) participated in the use of an Internet of Things, real-time monitoring system to direct and enhance their cleaning maintenance programs.

SAWS selected 10 high frequency cleanout (HFC) sites. SmartCover® remote field units were installed at each site to monitor levels and watch for pattern changes. SAWS had successful HFC programs already in place and used cleaning feedback to continually adjust cleaning frequencies. For this demonstration project, SAWS suspended their protocol from regular cleaning to cleaning only when the SmartCover® system indicated it was necessary.

**Details:** An analytical software tool called SmartTrend®, included with each SmartCover®, allowed SAWS to monitor day-over-day level trend changes and receive messages for trend anomalies. This analysis of the real-time monitoring data detected small but potentially important changes in water levels. It showed systematic variances from “normal” diurnal fluctuations. A rising trend indicated a potential downstream build-up, whereas a falling trend indicated a potential upstream build-up. This data enabled users to consider action such as a site inspection or cleaning. SmartTrend® provided powerful, predictive insights into the behavior of the collection system enabling users to have visibility of a potential problem days or even weeks ahead while concurrently providing continuous protection from overflows.

**Results:** During the 12-month test period, SAWS performed only seven cleanings based upon the monitoring and trend analysis (five at a single problematic site).

This compares with the 120 cleanings that would have been called for under normal HFC scheduling, which represents a 94% reduction in scheduled cleanings. Other than a three day period in May/June 2016 when nearly 16 inches of rain overwhelmed the SAWS system, there were no SSOs at the pilot locations during the non-flood months of the test period.
The chart here shows a comparison between the number of HFC cleanings that would have been required per location based on scheduling vs. the actual number of cleanings performed by using the real-time data monitoring and SmartTrend® analysis.

As shown by these pilot tests, the number of times maintenance trucks are mobilized to clean HFC sites was dropped by 94%. Based on SAWS estimates of $500 per cleaning, the payback time for the monitoring equipment is less than one year, and the net savings is $1,500 to $4,000 per monitored location per year. Additionally, high value human and equipment resources are freed for more pressing needs, risk to staff is reduced, and the risk of spills at monitored locations is dramatically reduced.

**Conclusion**

The SmartCover® sewer monitoring system is an Internet of Things solution for sewer collection systems. Real-time remote networked monitors provide exceptional ability to gain collection system visibility and drive maintenance programs with data. Users benefit with predictive trend tools that transform work practices, favoring planning versus reacting. These practices lower costs, reduce in-traffic risks, eliminate SSOs and preserve assets.

**SmartCover® Integrated Solution Delivery Model**