

San Antonio Water System (SAWS) Optimizes Collection System Cleaning with Real-Time Monitoring and Analytics

San Antonio Water Systems (SAWS) located in San Antonio, Texas, serves a population of about 1.8 million and operates and maintains over 5,700 miles of sewer pipe and about 120,000 manholes. It is one of the largest municipal water systems in the country with more than 11,000 miles of potable water and sewer pipes.

The Challenge

SAWS received an EPA Consent Degree with an estimated cost of 1.2 billion. In response, SAWS adopted the EPA's Capacity, Management, Operations and Maintenance (CMOM) guidelines and instituted high frequency cleaning (HFC) for their pipeline segments. SAWS established a program of routine cleanings at monthly, bi-monthly, quarterly, semi-annual and annual frequencies, identifying 200 high risk sites for regular monthly cleanings.

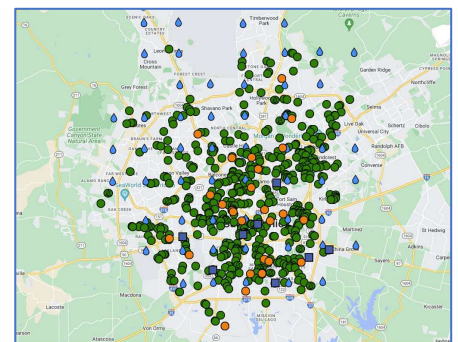
SAWS also operates an extensive odor and corrosion control program dosing millions of dollars of chemicals per year and operating a network of odor scrubbers to eliminate complains from the community and satisfy their customer base. With the large collection system network, warm temperatures and the need to move wastewater over long distances, odor generation and release is an issue.

The Solution

SAWS deployed SmartCover sensors to collect real-time sewer data for both level monitoring and odorous H₂S monitoring. The level monitors helped them transition from a routine, calendar-based cleaning system, to a prescriptive "as needed" cleaning program when the data notified them of a potential blockage. The H₂S monitors helped identify problem areas and allowed SAWS to better optimize their chemical feeds to minimize spikes that could lead to nuisance odors and community complaints.

Highlights:

- **Reduced cleaning by 95%**
- **Avoided over 4,000 SSOs since 2009**
- **Saved an estimated \$1 million dollars in operational costs**
- **Minimized odor complaints**
- **Increased chemical dosage efficiency**



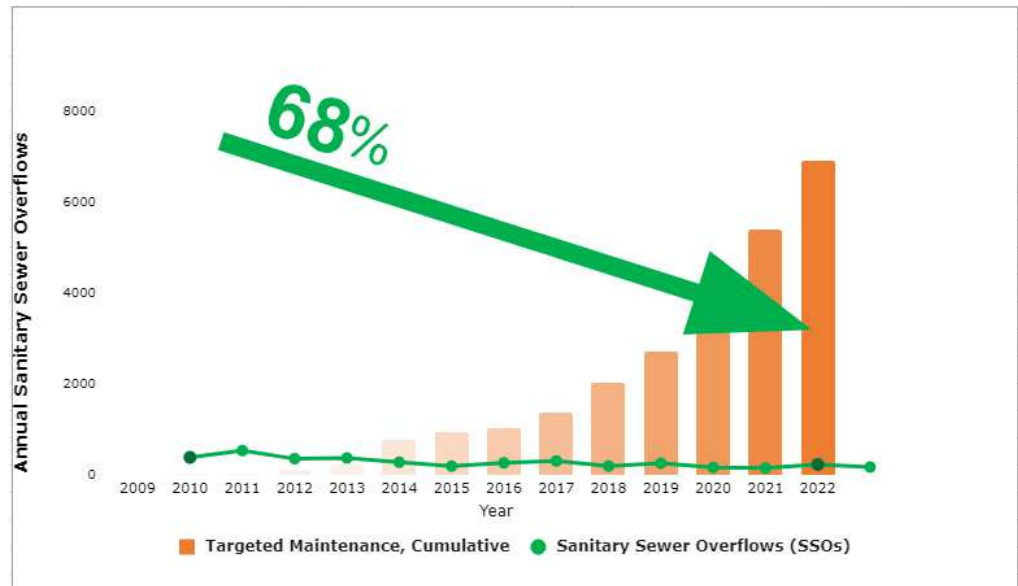
SmartCover Current Deployment

The Results

SAWS was able to reduce their collection system cleaning by 95% with zero SSO incidence helping SAWS avoid over 4,000 SSOs since the program's inception. Nearly 1,300 cleanings were scheduled, but only 65 cleanings were identified and performed during the initial deployment alone.

This saved the utility an estimated \$1 million in savings. This reduction in routine cleaning led to reduced wear and tear on pipes and preserved operators' time and resources which could be allocated to other activities.

On the odor control side, SAWS was able to better control the variability in H2S levels in their system, reducing odor complaints and allowing their odor scrubbers to operate within specification. SAWS was also able to lower operational costs by reducing the frequency of carbon replacement and decreasing ferrous sulfate addition while improving the performance of their odor control program. With the ease of relocating the H2S units, SAWS has the ability to quickly re-deploy them to newly identified hotspots in order to rapidly collect real-time data that provides valuable troubleshooting insight for Field Investigation.



Conclusion

San Antonio Water System has successfully leveraged smart sewer technology to address their changing infrastructure needs. In addition to a better understanding of their systems, SAWS has prevented sanitary sewer overflows, optimized their cleaning and odor control programs, in turn optimizing resources and preserving utility assets.

The integration of smart sewer technology has allowed improved visualization of site conditions leading to a more proactive versus reactive decision-making process. These 24/7/365 'eyes and ears' of the sewer system have brought peace of mind knowing sewers are being monitored, data is automatically analyzed and plenty of advance notice is provided to assist operators in protecting public health.