

SmartClean® Cleaning Optimization Program

The usual prescription for sewer systems plagued by a history of progressive, relatively fast-occurring build-ups and blockages is to create a rigorous program of cleaning to avoid sanitary sewer overflows (SSOs). This process, termed high frequency cleaning (HFC), requires continuous application of human resources and equipment to stay 'ahead of the system.' While HFC can be successful at lowering instances of SSOs, HFC has substantial and continuous operational costs. HFC also promotes over-cleaning, pipeline deterioration and shortening the lifetime of expensive underground assets. In spite of this, spills still occur between cleanings because there is no real-time visibility of sewer conditions.



For most wastewater utilities, collection systems are 'blind spots' creating the need to routinely clean at specific sites based on a history and/or perceived risk of spills. A wastewater operator increases cleaning frequency because not only does cleaning reduce near-term risk, but more frequent visits to troubled sites gives more frequent information about the sites.

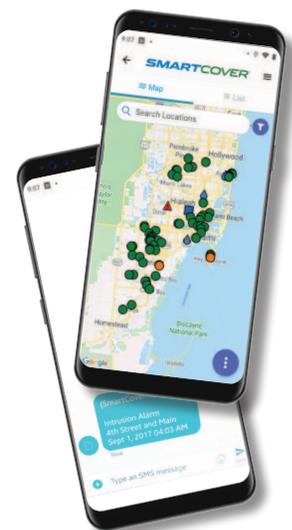


With continuous remote sewer monitoring, SmartCover provides collection system visibility, allowing utilities to take a proactive approach to cleaning maintenance – the advantages are cost savings, risk-reduction and a more complete understanding of sewer conditions.

SmartCover provides automatic AI-based analysis with precise knowledge to show where and when to issue a cleanout work order. Equally, there is assurance that between cleanouts, sewer levels are monitored and notifications are sent when unusual changes or notable irregularities signify a potential problem.

Sustainable Benefits

- Improved visibility: prioritized site cleanings based on real-time sewer conditions
- Productivity gains: resource allocation of personnel and equipment
- Continuous SSO & CSO protection: ongoing monitoring between cleanings issues alarms when cleaning is necessary
- Improved crew safety: less time in roadways
- Real savings: lowers traffic management costs
- Extended asset life: fewer cleanings reduces pipe stress and deterioration
- Mobile app: free to SmartCover users, iOS and Android



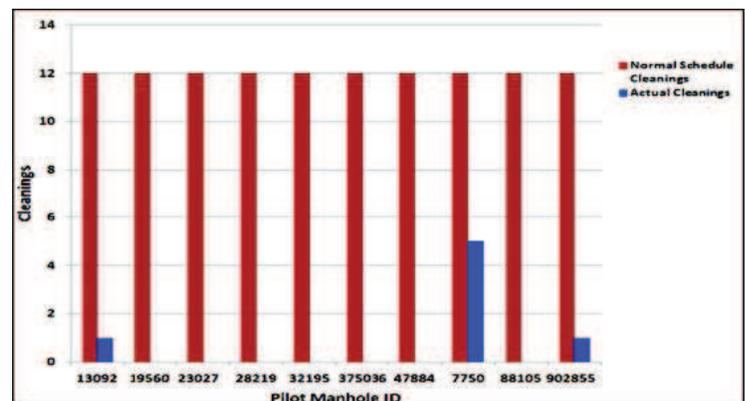
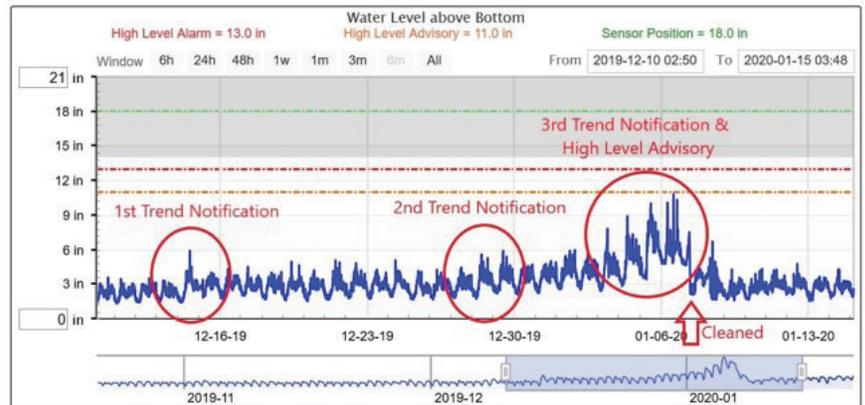
SmartClean[®]
Cleaning Optimization Program

Shift From A High Frequency Cleaning Paradigm

When a utility makes the shift from HFC to a SmartClean program, a fast and consistent return on investment (ROI) is achieved. If a collection system is following a monthly HFC program and manual site inspections to continually adjust cleaning frequencies, the SmartClean program brings in the technology to automate the process so operators can rely on real-time data to clean only when necessary, eliminating significant expense and resources associated with HFC.

The built-in, automatic software analyzes day-over-day sewer changes and seeks out anomalies. This analysis of real time sewer conditions detects small but potentially important changes in water levels. Easy-to-read reports show systematic variances from any "normal" diurnal fluctuations. For example, a rising trend indicates a potential downstream build-up, whereas a falling trend indicates a potential upstream build-up. Response teams receive messages when preset alarm levels are triggered and sewer operators can determine what action to take – such as a site inspection or cleaning.

These powerful, predictive insights into collection system behavior provide transparency of potential problems days, or even weeks, ahead.



The chart shows a Before and After comparison of HFC cleanings versus the number of cleanings prescribed under a SmartClean program.

Immediate Results: 94% Cleaning Reduction

A SmartClean program provides exceptional value for a collection system. Maintenance programs based on real-time sewer conditions are transforming work practices – sewer operators are prepared rather than reacting. Ultimately, these practices lower costs, reduce crew safety risks, preserve infrastructure assets and eliminate costly sewer overflows.