Still Performing, *Still Accurate*

South Fayette Municipal Authority (SFMA) and three other contributing communities in western Pennsylvania have been metering their flow for 19 years in a unique agreement with Allegheny County Sanitary Authority (ALCOSAN). This agreement evolved 10 years ago into an escrow-based arrangement that allows the communities to pay themselves through an escrow account and reinvest the excessive infiltration and inflow (I/I) payments into their own collection systems. The meters chosen for this arrangement have been accurately monitoring and reporting without dispute, replacement or renegotiation.

By Cindy O'Gorman

Pennsylvania flowmeters used to equitably distribute excess I/I and reinvest in infrastructure

Four ADS Model 3500s with sensors were installed in 1990 and are still reporting data accurately today.

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Recommended by a local engineering firm, ADS Environmental Services was chosen as the meter supplier for this project. In 1990, the company installed four ADS Model 3500 flow monitors with remote access to data via modems for the jointly owned Robinson Run Interceptor System. This system included four communities: South Fayette Township, North Fayette Township, McDonald Borough and Oakdale Borough. These same four communities participate in this system today. The designated operating agency for this interceptor system was and currently is SFMA, managed by Jerry Brown, who came to the authority in 1988 with an open-channel flow monitoring background gained through 13 years of prior work experience with two local engineering firms.

Installation

The Robinson Run Interceptor System carries wastewater to ALCOSAN's Chartiers Interceptor and Treatment Plant from the aforementioned municipalities. Initially established as a billing network for excessive I/I, the conditions of the agreement originally required the four communities to jointly and equitably bear the cost of I/I passed through to ALCOSAN, which exceeded their allowance. Four locations in the network were strategically selected as installation sites for the flowmeters. The SFMA manager was trained by ADS to maintain and service the meters on his own and analyze the flow monitoring data for quarterly reporting to ALCOSAN.

Since the installation of the meters, the authority has maintained the permanent network on its own, relying on the manufacturer only for time and materials services (e.g., sensor replacements). The authority is even able to replace boards itself. Additionally, SFMA manages a temp pool of six meters for internal short-term monitoring where it requires additional flow monitoring information such as developing communities or flow concern areas.

"The accuracy, repeatability and uptime of these meters is absolutely critical to an equitable distribution and a successful arrangement for all five parties," said Brown. "We chose to use a relatively small number of meters to save money. This necessitates certain assumptions, which means that excessive downtime or inaccuracies would have multiple negative repercussions. The quad-redundancy of the ultrasonic depth sensor is a primary benefit for us, reducing the chance of lost data, minimizing service checks and allowing for the comparison of measured flow with calibrated theoretical flow."

Reporting & Revising

Reporting to ALCOSAN requires a combination of metering in strategic locations coupled with reasonable assumptions where metering is not possible or practical due to cost constraints. The assumptions are checked periodically to assure that nothing has changed. When necessary, the assumptions are adjusted to fit the growth of the communities.

A quarterly analysis of the flow is required as part of the agreement. ADS software, communicating remotely with the meters, provides data that is analyzed by the authority and reported to all five parties in the agreement. Mass balancing on the flowmeters is required and is cross-checked with calibrated theoretical flow comparisons to confirm that readings received are what they should expect to receive. The reliability of the metering data over the years has created an environment where trust—not suspicion—prevails. Calibration and redundancy offer a strong foundation for reliable, dependable data that has been a primary component of this successful, supportive arrangement.

"The first six years, there was a lot of money changing hands," Brown said. "There has never been a disagreement between ALCOSAN or the other three communities as to the readings on the meters or the reporting of the data—never a dispute or an argument. For 19 years we have trusted the meters, the readings and the process. ALCOSAN has developed the same trust in us and the data we present to them."

In 1996, the agreement was amended, changing from a rate-per-thousand-gallons billing arrangement to one that allowed the four communities to deposit the fees for excessive I/I into individual escrow accounts designated for sewer rehabilitation work in their own borough or township. The need for accurate flow monitoring data continues in this revised agreement as the SFMA continues in the management and calculation of excessive I/I against an annually adjusted allowance based on inch-miles of public sewer in its system. The authority also receive an allowance for metered public water consumption.

Interceptor System Pioneers

A spirit of cooperation and trust has allowed these suburban communities to participate in an interceptor system that supports the investment and growth of collection system infrastructure far better than in the majority of parts of the country. At a time when concern for infrastructure sustainability and health has been elevated to level of public awareness campaigning, four western Pennsylvania communities and ALCOSAN have been implementing a program worthy of recognition and admiration for 19 years. WWD

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