

City of Scottsdale, Arizona



The City of Scottsdale, Arizona has seen considerable population growth since its incorporation in 1951 from a population of 2,000 to a population today in excess of 240,000 people. As the population grew and water resources declined, the City took steps in the 1990's to implement a water reuse plan to meet this growth. Rather than discharging wastewater to a regional system, known as the Sub-Regional Operating Group (SROG), the City constructed its own water reclamation plant in 1998 that included advanced wastewater treatment. Known as the Water Campus, final effluent from this facility could be used to provide turf irrigation water to 23 north Scottsdale golf courses or be used for groundwater recharge. Most of the wastewater treated at the Water Campus is pumped from five large lift stations. Water that is used for recharge undergoes additional treatment that includes reverse osmosis and microfiltration to assure the highest quality of water prior to it being recharged.

Scottsdale's Water Resources Department is responsible for the operation and maintenance of their water and wastewater systems. Besides a sewer collection system that involves 1,400 miles of sewers and 43 wastewater lift stations over a 185 square mile area, there are two water reclamation plants within the City. The remainder of the wastewater flow is discharged by gravity into the SROG system. The collection system is divided into five sewer sub-basins. Each sub basin is a distinct wastewater collection system with its own characteristics.

Created in 1979, SROG provides wastewater treatment at the 91st Avenue Wastewater Treatment Plant for the cities of Phoenix, Glendale, Mesa, Tempe and Scottsdale. A portion of the effluent from the 91st Avenue Treatment Plant is used for cooling water at a nuclear power plant. Because of the contractual arrangement of this effluent, each SROG city must maintain a certain flow to the 91st Avenue Treatment Plant. There are two meters located at Scottsdale's meter station prior to the flow entering the SROG system.

According to Richard Sacks, P.E., Senior Water Resource Engineer, for Scottsdale, "The flow commitment into the SROG system and the increased demand for reclaimed water presented an opportunity to better manage our wastewater flows." While the wastewater lift station discharges were metered, there were no meters to determine the gravity flow characteristics. This led the Water Resources Department on a search for flow meters that would provide the needed data. Sacks adds, "What we are trying to do is get a handle on our flows from the sub basins and verification of the billing meters at the meter station into the SROG system."

Sacks was familiar with the City of Phoenix's use of the Marsh-McBirney Flo-Dar Flow Meters in similar temporary/permanent monitoring applications and in their regional system interceptors. In 2008, Sacks visited the Water Environment Federation Technical Exhibition and Conference (WEFTEC) in Chicago and viewed an in-booth demo on Hach's Data Delivery Services (DDS). After discussing his application specifics including the use of the meters in deep manholes and any effects of hydrogen sulfide on the meters, personnel recommended DDS as an ideal solution.



DDS Flo-Logger/Flo-Dar in 20' Deep Manhole

With DDS, users never have to visit flow monitoring sites again which keeps their flow monitoring personnel safe. Each DDS certified personnel install award-winning, web-enabled flow meters and handle any maintenance for a low monthly fee. No flow meter purchase is required. Unedited flow data is available 24/7 via any web browser.

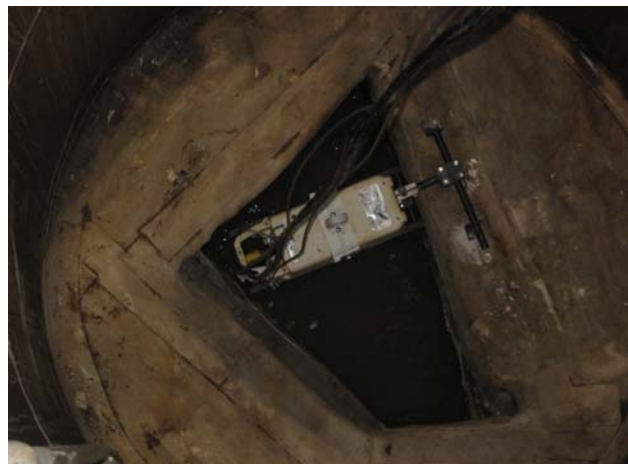
After further exploration of DDS with his local rep, Ted Cameron with The Cameron Group, and Andrew Gilmore of Carollo Engineers, an 18-month DDS contract was signed.

The feature that sealed the deal according to Sacks was the web-based concept that allowed him to get flow data anytime, anyplace.

**“It really fulfills our needs...
the price was right too.”**

***Richard Sacks, P.E.
Senior Water Resources Engineer
City of Scottsdale, Arizona***

In February 2009, six DDS Flo-Dar meters were installed at strategic locations throughout the community in line sizes from 24 to 42 inches. Regarding the City’s decision to utilize DDS, Sacks adds, “It really fulfills our needs. With the meters we can actually determine where the water is coming from and there are three meters strategically placed that can check the billing meters. I’ve got to tell you the price was right too!”



DDS Flo-Dar Sensor in 42" Sewer Line

Sacks views flow data from the DDS meters on a daily basis. He adds, “It’s interesting because I can really pick up the issues. I can get a chart that shows maximum, average, and minimum flow and graphically show the results. I can do that at home or do it here.” Prior to the DDS meter installations Sacks was unaware that surcharge conditions were happening at some of the sites during certain times of the day. He adds, “Now we have the data even under surcharge conditions.”

Sacks also developed a spreadsheet that takes data from both the Flo-Dar meters and the meters on the discharge. He adds, "Between the Flo-Dar meters and the discharge meters I have a real good handle on our flows. We now know what we have coming in to the station and we know what goes out and then there's an overflow which goes into the regional system. It's a quick and dirty approach to permanent monitoring. We may expand the number of sites but for now the six are giving us good data."

As the DDS meters continue to create an accurate and reliable flow history that will allow the City of Scottsdale to maximize the use of their treatment system, a determination will be made on whether to keep the meters at their current location or to relocate them. Future plans call for permanent flow monitoring throughout their entire system.