Radar Level for Sewage Lift Stations

Company Profile

Located in Central NJ, this medium-sized utility authority maintains the sewer and water services for roughly 40,000 residents over a 40-acre area.

Challenge

Wastewater lift stations are designed to move wastewater from lower to higher elevations when there is insufficient gravity flow. One of the key elements of the lift station is the "wet well," whose level is monitored and controlled so that the sewage can be gravity fed back to the central treatment plant. A level sensor is used to monitor the wet well level so that if an overflow condition is detected, the sewage pumps are automatically turned off.

The traditional approach is to use a submersible level sensor. Rags and other heavy paper debris can enter the sewage pipes and tend to wrap around and clog the submersible sensor. This can prevent the sensor from accurately measuring the level and cause an overflow. For this reason, back-up level float switches are usually installed to shut down the pumps if the submersible sensor fails to detect a high level.

Solution

Rawson/Industrial Controls provided a better solution to detect the level by using a non-contact radar level transmitter mounted above the highest point in the wet well. These sensors are designed to operate outside and in tough environmental conditions, and are also available in a submersible design. The radar level transmitter sends its output to the same lift station control system without the associated cost of reengineering the system. While a backup level sensor may also be installed, they are prone to failure due to their contact with debris in the system.

Results

Installation of a radar sewage level sensor reduces maintenance and troubleshooting expense due to the tendency of submersible sensors to clog. This distracts from other preventative maintenance activities and expenses associated with the risk of spill cleanups and EPA fines. The installation of an entire fleet of radar level sensors will pay for itself by avoiding a single event.