French Heat Distributor Recovers Lost Revenue, Lowers Costs with Micro Motion Coriolis Meters

RESULTS

- Increased revenue by accurately measuring low-flow transfers
- Lowered maintenance costs for meters and piping
- Reduced equipment costs

Micro Motion Coriolis meters were the only meters that could measure accurately in these conditions.

APPLICATION

Compagnie Parisienne de Chauffage Urbain (CPCU), the heat energy distribution company in Paris, France, needed to measure steam condensate to determine the amount of heat energy used by their customers. CPCU distributes steam using an extensive citywide piping network. At each customer site there is a heat exchanger. As heat is transferred to the exchanger, the steam condenses, and the condensate runs through a return line back to CPCU. By measuring the condensate, CPCU can determine the amount of heat used by each customer.

CHALLENGE

Historically, the steam condensate was measured using positive displacement meters. One of the major problems with this method is that these meters only function correctly at atmospheric pressure. Since the pressure in the return lines always exceeds atmospheric pressure, CPCU needed to install an air separator and an open-air batch system at every metering point.

This system was both expensive and detrimental to the piping. Exposing the condensate to air allowed the condensate to absorb oxygen, which in turn rusted (oxidized) and corroded the pipes. The resulting pipe scale tended to damage the rotors of the positive displacement meters. These maintenance problems further increased the expense of operating this system.

Because of the problems they were having with their existing technology, CPCU decided to evaluate alternatives. Among the technologies considered were magnetic meters, vortex meters, ultrasonic meters, and Micro Motion® Coriolis meters. There were a number of adverse factors that worked against all of the technologies except Micro Motion Coriolis:

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- The metal pipe scale varied the condensate conductivity too much for the magnetic meters to obtain an accurate, repeatable measurement. The pipe scale also caused significant maintenance problems for the non-Coriolis meters.
- Vortex meters and ultrasonic meters require long straight runs of pipe, for which there was no room in CPCU's system.
- Vortex meters could not measure accurately over the highly variable flow rate of the condensate.

SOLUTION

CPCU ultimately chose Micro Motion Coriolis meters for this application, because they were the only meters that could measure accurately despite the application's conditions, and they were not susceptible to the maintenance problems that plagued other meters in this application.

The presence of pipe scale in the condensate did not affect the ability of Coriolis meters to measure flow accurately. And since Coriolis meters have no intrusive parts, the meters did not break down or require maintenance because of pipe scale.

Coriolis meters also have no special piping requirements. There is no need to have straight runs of pipe upstream or downstream from a Coriolis meter. This suited CPCU's requirements perfectly, since they simply did not have the space available to build long pipe runs.

Micro Motion Coriolis meters can measure flow accurately even at high turndown. This meant that CPCU could get an accurate accounting of customer usage even when condensate flow rates were extremely low, thereby allowing them to recover lost revenue due to measurement inaccuracy.

In addition to gaining the ability to accurately and reliably measure condensate, CPCU achieved additional maintenance cost reductions by installing Micro Motion Coriolis meters. The need for air separators and open-air batch systems was eliminated. This closed the system and, in addition to immediately lowering equipment costs, stopped the oxygenization of the condensate, which in turn reduced pipe maintenance costs.