



MICRO MOTION ENABLES COST-EFFECTIVE CUSTODY TRANSFER OF CRUDE OIL



Micro Motion ELITE meters installed in application

RESULTS

Precise measurement over wide range of process conditions

Increased availability of metering facilities

Reduced maintenance costs (by \$60,000 per year) and parts inventory



Application

This large crude oil supplier receives oil into its main pipeline through multiple receipt points, at flow rates and densities that vary based on what oil is being received at any given time – flow rates can vary by a factor of 10 or more, and density and viscosity also vary with the type of crude oil received. Accurate flow measurement is required to meet daily over/short pipeline balance accounting and custody transfer requirements. Density data is essential for net volume calculations, and is also used to monitor crude quality.



Challenge

Five sliding-vane PD meters were used to measure volume flow rate. On average, one PD meter was overhauled every four to six months, resulting in costly maintenance and provings that entailed loss of throughput, draining the line, oil disposal, and difficulty meeting contractual supply obligations. Parts and labor alone were estimated at \$30,000 for each maintenance cycle.

Density was measured in a slip-stream densitometer. The slip-stream design was prone to plugging and was costly in terms of time and labor.

The company wanted to meet its delivery, data, and accuracy requirements with a more robust metering technology that would increase profit and reduce expenditures.



Solution

The PD meters and slip-stream densitometers were replaced by CMF400 meters and Model 2700 transmitters from Micro Motion.

The system provides accurate flow measurement over a 20:1 turndown ratio. Because one device supplies flow and density data, installation costs were reduced and the problem of plugging in the small slip-stream line was eliminated. The meter has no moving parts that can wear or be damaged by slugs or sand, and because the reproducibility of proving data has improved,

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overall system downtime and costs due to proving or repair requirements are lowered, and system accuracy is sustained over longer intervals. Real-time communication flow information and any alarm conditions are communicated to the flow computer and pipeline control system. Meter diagnostics virtually eliminate the need to drain the line for visual inspection.

In summary, the Coriolis measurement system from Micro Motion supplies highly accurate and repeatable measurements of volume flow and density while reducing costs for installation, operation, maintenance, and repair.

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