

Micro Motion® Coriolis Meters Increase Accuracy and Reliability of Custody Transfer Data and Reduce Maintenance Costs

BENEFITS

- Reduced maintenance and repair costs by approximately \$187,000 per year
- Increased accuracy and reliability of LACT (Lease Automatic Custody Transfer) system measurements
- Reduced gain/loss cost adjustments by 99 percent



PROCESS

An oil and gas producer operating in southwest Texas used Positive Displacement (PD) meters with electronic temperature compensators in their Lease Automatic Custody Transfer (LACT) system. The LACT system is an automated skid that measures and records the amount of crude oil transferred (custody transfer) and obtains the appropriate samples to confirm the oil gravity (API°) and average temperature for calculating the net volume at the reference conditions.

CHALLENGE

To operate and maintain the LACT system, the oil and gas producer was experiencing the following:

- They were replacing PD meter intermechs every 2 to 3 years at a cost of \$7500 per unit, plus \$1000 to cover the cost of labor and reproofing the meter.
- They were needing to find an alternative to the electronic temperature compensators they were using because the compensators would no longer be available from the original supplier.
- They were experiencing gains/losses in cost adjustments that required 20 hours of labor to clarify and resolve each adjustment.

At the time they were managing these issues with the LACT system, API published guidelines for use of Coriolis meters in crude oil custody transfer. Given their increasing operation and maintenance costs, the oil and gas producer saw an opportunity to research an alternative solution using Micro Motion Coriolis meters in the LACT system.

www.micromotion.com



LACT system with a PD meter and external temperature compensator installed



For more information:

www.EmersonProcess.com/solutions/oilgas

www.micromotion.com



SOLUTION

After comparing the total costs of maintaining their existing PD meters and the capital cost of new temperature compensators to that of purchasing new Coriolis meters, the oil and gas producer realized the investment in Coriolis meters proved to be more attractive to the organization over the long term. The producer reported the convincing factors to purchase the Coriolis meters were the lack of mechanical parts and repair and the inclusion of an electronic temperature compensator inside the meter, which removed the need to maintain or purchase separate temperature compensators.

The oil and gas producer initially installed two Micro Motion Coriolis meters to compare meter factors and repeatability against the PD meters. They proved both meters over a 90-day period to see how well the Coriolis meters performed, and they determined that the Coriolis meters complied with industry standards. Over time, the producer found that the Coriolis meter factor was more consistent and reliable in relation to seasonal changes in weather. With these results, the company initiated a replacement program for about 70 PD meters in the field. They chose to implement a proactive strategy of replacing all high-volume meters first, and then a repair-by-replacement strategy where if a PD meter failed, they then replaced it with a new Coriolis meter.

With 50 percent of the PD meters replaced with Coriolis meters, the oil and gas producer saw the gain/loss cost adjustments reduce by 99 percent. The producer also gained an increased confidence with their system data accuracy and reliability and reduced their maintenance and repair costs by approximately \$187,000 per year. Additionally, the oil and gas producer gained the ability to diagnose other problems, such as plugged filters, in the LACT system using the Coriolis meters. Given these trends, the oil and gas producer was confident in their decision to retrofit their LACT system to use Coriolis meters.



LACT system with a Micro Motion Coriolis meter (including a retrofit kit) installed as a direct replacement to the PD meter and temperature compensator