

# Pipeline Distribution Company Improves Gain/Loss, Reduces Maintenance with Micro Motion Coriolis

## BENEFITS

- Reliable measurement systems
- Reduced maintenance cost
- Precise fiscal measurements over time
- Improved inventory management



## PROCESS

Custody transfer; natural gas liquids

A number of upstream natural gas production facilities were separating and storing natural gas liquids (NGLs) for sale to downstream processing facilities. The local transportation company provided gathering, pipeline transportation, and cavern storage for the NGL supply to a number of processing plants as well as for the NGL-based products being made by those plants.

## CHALLENGE

The pipeline distribution and storage company used a combination of turbine and positive displacement (PD) meters to manage the transfer and inventory of the hydrocarbon liquids involved. Dirty fluids and the non-lubricity characteristics of the NGLs caused meter failures and/or issues with sustained flow measurement performance. They also encountered issues with maintaining slip-streamed fast loop density measurements.

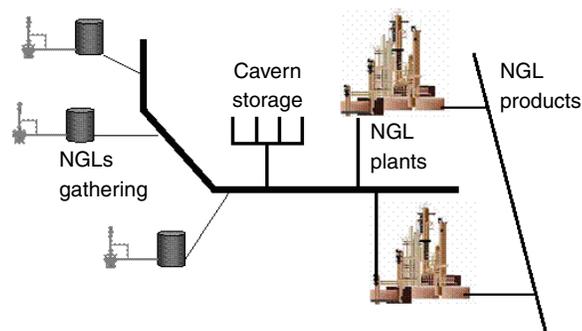
The facility was required to prove all the flow meters on a regular basis in compliance with industry standards, regulations, and contractual obligations.

## SOLUTION

Over a two year period, the pipeline distribution company installed 16 new Micro Motion Coriolis custody transfer skids as replacements for problematic metering systems. Because the Coriolis meters had no mechanical parts to wear out or break down, the facilities eliminated problems associated meter failures and achieved a higher level of

*There were no more meter failures, and a significantly lower need to pull and clean meters.*

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sustained measurement. This resulted in a reduction of settlements with downstream processing facilities. The level of improvement is depicted in the accompanying graph, which shows a proving comparison of a turbine and a Micro Motion Coriolis meter in the same NGL pipeline application. (In the graph, the Micro Motion Coriolis meter is blue and the turbine meter is red.)

The ability to measure density with Coriolis meters provided a full stream density measurement as an alternative to the slip stream systems that were encountering plugging problems—eliminating the added cost of slip stream system to new installations. In addition, annual maintenance costs were reduced because of no meter failures, a significantly lower need to pull and clean meters, and less time spent maintaining slip stream systems.

Proving the meters did require some minor changes in work procedures, although this was seen as a simple adjustment by the end user. Because Coriolis meters provide flow measurements in both mass and volume, the end user had the added flexibility of proving in either mass or volume.

The overall gain/loss ratio for the distribution and inventory system was reduced to 0.2% (down from 0.5%). Given the typical pipeline volumes involved in this application, that translates to a \$547,500 annual improvement for a 30,000 bpd pipeline at \$50/bbl for NGL.

