

Micro Motion® Coriolis Meters Boost Gas Lift Production, Reduce Maintenance

BENEFITS

- Increased hydrocarbon liquids production
- Reduced lift cost associated with maintenance and gas efficiency
- Lower installed capital cost

PROCESS

Upstream oil & gas; production management; gas lift

An upstream production field employed gas lift as means of artificial lift to improve hydrocarbon liquids production on fourteen of its wells. Injected gas, along with associated natural gas, is separated from the produced liquids at a central production facility. The natural gas is treated, compressed, and then redistributed for gas lift operations at designated wells.

CHALLENGE

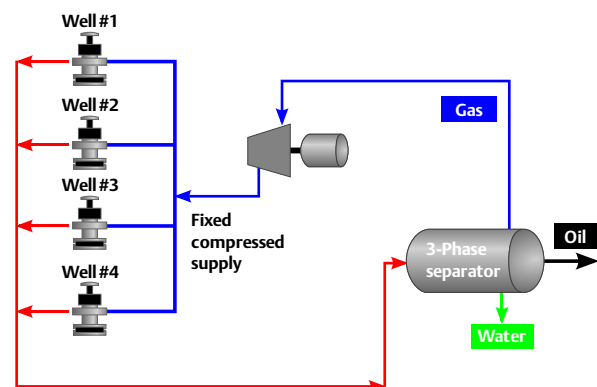
Differential pressure flow meters (orifice) were originally installed, along with the associated temperature and gauge pressure transmitters, to monitor and control the distribution and supply of natural gas to several gas injection manifolds. The combination of ambient temperature variations and the length of distribution piping was resulting in the formation of liquids after compression. These liquids regularly plugged the differential pressure transmitter impulse lines. The changing well product rates, characteristics (water cut), and variations in the supply of compressed gas often required flow adjustments to the individual wells over a 30:1 turndown ratio.

The maintenance cost, ineffective use of personnel, and injection rate inaccuracies over such a wide range of flow rates prompted the producer to look for alternatives for measuring gas lift injection rates.



The production field was able to maintain an accurate injection flow rate over a wide turndown.

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For more information:
www.EmersonProcess.com/solutions/oilgas
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SOLUTION

Micro Motion Coriolis meters were installed to monitor and control the gas injection rates at each of the production well manifolds. The Micro Motion meters were immune to problems such as plugged impulse lines, so this set of problems was eliminated. Measurement reliability was improved.

The low maintenance requirements of the Micro Motion meters helped to reduce overall maintenance costs, and freed maintenance personnel to focus on higher value activities.

With the Micro Motion meters, the production field was able to maintain an accurate injection flow rate over a wide turndown. This allowed them to:

- Set and manage optimal gas distribution to all the production wells
- Maximize economic efficiency in relation to production gain and volume of gas injected
- Recognize and resolve gas rate injection problems promptly

The capital cost associated with new installations was also lowered, because the need for extended pipe runs, flow conditioning, and pressure and temperature transmitters was eliminated.

Effective control of gas lift operations has an impact on both production revenue and lift costs in the form of the cost of natural gas recovery, treatment and compression. From a production increase perspective alone the payback can be fairly substantial. The table demonstrates potential payback in relation to the increase in production and the number of wells involved.

Annual Revenue Increase (x \$1000 @ \$65/bbl)

	Number of wells			
Bpd production increase	1	2	3	4
1	\$23	\$118	\$237	\$474
5	\$118	\$593	\$1186	\$2372
10	\$237	\$1186	\$2372	\$4745

