

Oilfield Service Company Saves \$1,280,000 with Magnetic Flowmeter Technology

RESULTS

- Saved \$1,280,000 in maintenance costs
- Improved frac operations and safety
- Reduced risk of poor frac job

APPLICATION

Frac fluid flow discharge on an oilfield services blending unit

CUSTOMER

Oilfield service company operations on land and offshore in the United States

CHALLENGE

This oilfield service company was having difficulty finding a reliable flowmeter to accurately measure the fracturing fluid discharge on a truck mounted blending unit. The flowmeter ensures that the correct amount of fluid is pumped into the well during fracturing operations and is critical to ensuring the frac job is done correctly.

The frac fluid is a slurry mixture of abrasive sand, gel, and/or water which wears out many flowmeter technologies and can result in an unstable flow signal, making the measurement unusable. For this measurement, the customer had been using turbine meters which would wear out on a monthly basis due to the abrasive sand, gel/water mixture. In addition, the truck vibrates aggressively both during the fracturing operation and while driving to and from location on gravel roads. This aggressive application may cause flowmeter technologies to experience intermittent failures and/or result in an inaccurate measurement.

The abrasive nature of the fracturing fluid required monthly replacement of the turbine meter internals due to wear and every year the body of the turbine meter would need to be replaced. On average, this company was spending \$18,800 per truck, per year in maintenance costs. With a total fleet of 100 blending units, this resulted in \$1,880,000 per year in maintenance. In addition, these characteristics in an instrument increased the risk of a poor frac job on an operation with hundreds of thousands of dollars at stake. A poor frac drop can lead to production startup delays or require more extensive well rework.



Rosemount Magnetic Flowmeters reduced lost time, maintenance costs, and increased the safety of frac operations.



The Rosemount high signal magnetic flowmeter sensor

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SOLUTION

In order to provide a more reliable solution for this application, a unique Rosemount magnetic flowmeter was developed with victaulic fittings to provide a drop in replacement for the existing turbine meters. The Rosemount High Signal magnetic flowmeter system was selected because of the increased signal strength to combat the high level noise caused by the frac fluid, sand, gel and/or water. The High Signal magnetic flowmeter provided a high signal to noise ratio, ensuring that the measurement remained accurate and stable without increased damping even with high sand content. The polyurethane liner and flush-mounted, tungsten carbide coated electrodes ensured a long meter life under the abrasive flowing conditions.

With a reliable and accurate measurement, this customer minimized lost time and successfully achieved their frac design. During maintenance operations, the victaulic end connections enabled faster removal and replacement compared to standard flanged connections. Rosemount magnetic flowmeters also reduced maintenance costs and increased safety. Since Rosemount magnetic flowmeters have no moving parts, the frac crews did not have to spend significant time during or after the operation maintaining equipment. Including the cost of the meter and annual preventative maintenance, this customer calculated their savings to be \$12,800 per year, per truck. The total yearly savings for the entire fleet was \$1,280,000.

RESOURCES

Emerson Process Management Refining Industry

<http://www.emersonprocess.com/solutions/oilgas/>

Rosemount Magnetic Flowmeters

<http://www2.emersonprocess.com/en-US/brands/rosemount/Flow/Magnetic-Flowmeters/Pages/index.aspx>

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