Vortex Technology Helps Optimize Well Production for Oil & Gas Producer in Thailand

Results

- $164,000 USD economic gain in the first year from 2 bpd production increase due to efficient gas lift program
- Optimized production through improved artificial lift
- Decreased maintenance costs with reliable vortex technology design with no moving parts
- Decreased well shut-in with vortex online sensor replacement and meter verification diagnostic feature
- Reduced HSE risk with isolated gasket-free sensor

"Emerson's Rosemount™ vortex technology helped us to develop an efficient gas lift program resulting in increased output from one of our mature assets."

- Operations E&I Manager

Application

Achieve accurate measurement of gas flow from the gas lift compressor and the gas lift pipeline.

A major oil and gas producer in Thailand planned to maximize the production from one of their mature fields using gas lift. Gas lift operations must maintain an optimal gas injection to hydrocarbon liquids production ratio to optimize production. Suboptimal injection rates can reduce the hydrocarbon liquid production rates or result in hydrate interrupted production due to hydrate formation. The gas injection rates must be monitored and set in relation to the different production rates of each well, changing well production characteristics, and variations in natural gas supply.

Achieving accurate measurement over a large flow range at high pressures in a corrosive offshore environment was a major challenge to optimizing well production.

The oil and gas producer evaluated different technologies and began by using turbine flow meters for gas lift. However,with turbine flow technology,low-flow measurement proved to be challenging .The turbine flow meter internal moving parts got affected due to long hours of continuous operation and corrosive offshore environment and the customer also had to maintain spares of rotors & blades of turbine meters.

Customer

Leading Oil & Gas producer in Thailand

Rosemount 8800 Vortex Flow Meter with Stainless Steel (SST) Housing Option

Solution

The customer evaluated the performance of Rosemount 8800 Vortex Flow Meter for gas flow measurement in the gas lift injection supply from the gas lift compressor and the gas lift pipeline. Rosemount 8800 Vortex Flow Meter turned out to be a maintenance-free solution with significant advantages:

- Isolated non-wetted sensors allow for online sensor replacement without shutting down the well
- Reliable maintenance-free design with no moving parts vulnerable to wear and tear
- Available with SST electronics housing for offshore corrosion protection
- High turndown to manage gas lift/gas injection demand

Due to built-in electronics verification and a lack of moving parts, the need for frequent site visits and recalibration was eliminated. As a result, the oil and gas producer standardized the Rosemount 8800 Vortex Flow Meters across all of their gas lift operations.

The performance of vortex flow meters over a wide range of flow rates helped to maintain optimal gas injection rates. Production increased 2 bpd in the first year, a significant economic gain for the customer.

	Expected Annual Revenue Impact (x $1000 per $45/bbl)		
	Number of wells		
bpd production increase	1	3	5
1	$16	$49	$82
2	$32	$98	164

The table above highlights the expected annual impact in relation to the increase in production and number of wells.

Resources

Emerson Automation Solutions Industries
Emerson.com/Oil&Gas

Rosemount Quad Vortex Flow Meters
Emerson.com/RosemountVortexFlow

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