CASE STUDY • REFINING

VORTEX TECHNOLOGY REDUCES MAINTENANCE COSTS AND ELIMINATES UNSCHEDULED SHUTDOWNS IN DELAYED COKER APPLICATION

Customer

A large global refinery in North America

Application

Coker resid flow to the Fractionator tower

Challenge

This refinery had been experiencing constant maintenance issues with high costs, process downtime, and inaccurate measurements in the delayed coker application process.

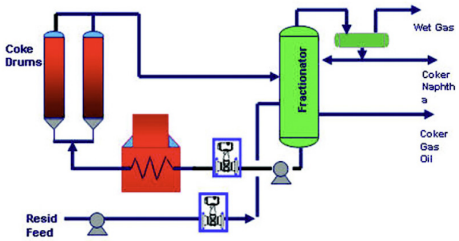
The coker resid is a by-product from the delayed coker application and is fed into the fractionator. Processing the coker resid is the final stage in optimizing the usable hydrocarbons from crude oil in the refining process. The Delayed Coker process generates coke which builds up and results in small particles called coke fines and larger coke chunks in some of the process streams.

In addition, the feed stocks are generally thick tars and sludge from the vacuum tower, which makes measurement difficult due to the high viscosities of these fluids. To compensate, these applications are typically run at high temperatures. As a result, DP orifice flow systems with long runs of impulse piping have been the traditional flow technology used in these applications.

The DP orifice system that was installed experienced constant maintenance issues due to impulse plugging from the coke fines and orifice blockage from the coke chunks. This resulted in increased maintenance costs and process downtime while the impulse lines were cleared and the blockages removed.

Results

- Eliminated unscheduled shutdowns
- Reduced maintenance costs
- Increased process reliability



Typical Delayed Coker process diagram

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Solution

This refinery had success with a vortex meter in a similar application, so the Rosemount™ 8800 series dual vortex meter was tested. Since installation in the fall of 2003, the vortex meter has not had any issues with plugging.

Due to the all welded design and non-clog technology of the Rosemount 8800 Vortex Flow Meter, this company has experienced an increase in process availability and accurate measurements. In addition, by eliminating the unscheduled shutdowns caused by plugged impulse lines and blocked orifice plates, less time needed to be dedicated to flushing out the lines which helped to reduce maintenance costs.

Eliminating problematic impulse lines has led to increased process reliability, and eliminated unscheduled shutdowns.

Since installation in the fall of 2003, the Rosemount 8800 Vortex Meter has not had any issues with plugging.

For more information, visit
Emerson.com/oil-gas
Emerson.com/Vortex

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