

# Fisher® Valve Diagnostics Saves a Refinery \$837,000 USD Over Eight Years and Three Major Outages.

## RESULTS

- Identified valve control problems using Performance Diagnostics technology
- Avoided pulling 225 total valves over three separate maintenance outages in 2004, 2009, and 2012
- Saved more than 900 hours of labor



## APPLICATION

Fluidized cat cracker unit (FCCU)

## CUSTOMER

A refinery in California, USA

## CHALLENGE

Between scheduled outages, maintenance personnel at this refinery identify “poorly performing” control valves and compile a “priority fix” list of those that may need to be pulled for repairs or replaced during the next outage. The challenge was how to determine the overall health of these priority valves and whether or not they needed to be pulled from the line. The process was a time-consuming and costly.

Before 2004, the maintenance department routinely pulled all the valves on the priority list. During the tear downs and inspections, however, they’d discover that many of the valves were in good shape and didn’t really need to be pulled. (Removing one control valve typically requires two pipefitters and one I&E Technician and four hours of labor.)

Through the local Emerson sales office, Caltrol, refinery personnel learned about and began to apply Emerson diagnostics technology. The combination of FIELDVUE™ digital valve controllers and ValveLink™ software provided the tools they needed to monitor the health and performance of control valves with ease, speed, and accuracy.

## SOLUTION

After adding FIELDVUE instruments with Performance Diagnostics (PD) to control valves, plant personnel can take a laptop loaded with software to the field and communicate directly with the smart positioners.

*FIELDVUE DVC6200 digital valve controllers and ValveLink software are an important part of any control valve monitoring and diagnostic system. With these tools, maintenance personnel can determine if a control valve needs to be pulled from the line for repairs.*

***Refined products from this refining complex include California Air Resources Board (CARB) gasoline, jet fuel, diesel fuel, light-cycle oil, and liquefied petroleum gases (LPG). They are distributed through a network of third-party pipelines and terminals in southern California, Nevada, and Arizona.***

***The East Plant alone has about 500 Fisher® control valves in operation.***



The link (laptop to instrument) provides online, real-time data about the valve's performance and operating condition. Refinery personnel began to utilize this diagnostic tool before their 2004 outage. That year, the priority control valve list for the Fluidized Cat Cracker Unit (FCCU) contained 72 valves. Using Emerson diagnostic tools, plant maintenance and reliability teams determined that only 8 of those 72 valves needed to be pulled and repaired.

In 2009, the priority control valve list for the FCCU outage totaled 74 valves. Again, they pulled only 8.

In 2012, the FCCU outage priority control valve list contained 107 valves. But, using Performance Diagnostics to determine any problems, the team cut the number pulled to only 12.

### RESULT

Over these three outages, only 28 of 253 valves on the original control valve priority list were pulled for repairs. Access to online Performance Diagnostics saved this refinery more than 900 hours of labor (4 hours per valve X 225 valves). Assuming a cost of about \$60 per hour (X 3 technicians = \$180/hour X 900 hours), the plant saved \$162,000 in labor costs alone over three outages.

In addition, refinery team members saved about \$3,000 per valve in parts and labor for every valve not pulled. That represents an additional savings or avoided cost (225 valves X \$3,000) of \$675,000 over three outages.



***“This refinery has purchased wireless THUM adapters (shown above) that will make previously stranded diagnostic information available to the West Plant’s control system, without the risk of process interruption. Wireless technology from Emerson will ultimately enhance the plant’s diagnostic capabilities.”***

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