Chevron Harnesses the Power of AMS Device Manager to Slash Maintenance Costs at El Segundo Refinery

RESULTS

- $45,600 saved on troubleshooting in one year
- $136,800 saved by avoiding unnecessary valve maintenance
- $90,800 benefit by improving the performance of one steam control valve
- $100,000 saved through a program of salvaging surplus valves

APPLICATION

A network of 103 control valves equipped with FIELDVUE® digital valve controllers (DVC) at a strategically important California refinery.

CUSTOMER

The Chevron El Segundo Refinery near Los Angeles. The El Segundo Refinery, built in 1911, is the largest producing oil refinery on the west coast processing more than 276,000 barrels of crude per day.

CHALLENGE

Step-by-step valve troubleshooting procedures for evaluation of suspected problems were burdensome and time-consuming. One procedure could consume up to10 hours of attention by as many as eight different individuals before a repair or replace decision was made. With an average of two such investigations occurring each week, the annual cost for valve troubleshooting was about $57,000. Even then, valves were occasionally pulled without good reason, resulting in still higher costs.

SOLUTION

A pilot program was initiated to evaluate the ability of the AMS Device Manager software to continually monitor and report on the condition of a select group of operating valves, enabling personnel to make timely decisions in order to preserve process availability. This software, is employed in two ways.

"With this tool, I can determine what's wrong with a valve in 20 minutes. Existing troubleshooting procedures can take up to 10 hours before determining whether or not a valve needs to be pulled – and even then, the root cause of the problem may not be found."

Ken Howard
I&E Reliability Analyst
Chevron El Segundo Refinery

AMS

For more information:
www.emerson.com

EMERSON

First, the103 DVCs on the network are monitored continuously from a PC located in the office of the I&E Reliability Analyst, who manages the pilot program. Any operational change in one of these valves is sensed instantly, and a device alert indicates that some preset limit has been exceeded. The Reliability Analyst can interrogate these valves from his office at any time. In addition, diagnostic information generated by DVCs on other valves in the refinery can be accessed using a portable laptop computer with the same software.

The time required to troubleshoot a valve using the AMS Device Manager ranges from 20 minutes to 3 hours, depending on who identifies the problem initially and how long it takes before the software is employed. Troubleshooting costs approximately $11,400 per year using this system, resulting in an annual saving of $45,600 versus the established evaluation procedure.

AMS Device Manager enables further savings by providing the knowledge needed for maintenance personnel to determine when a valve should be pulled or restored to full functionality through recalibration, bench set adjustment, tuning, etc. This happens an estimated 30 times per year. Since it costs approximately $4,500 each time a valve is pulled, torn down, and repaired, the refinery is saving about $136,800 annually by avoiding unnecessary maintenance.

In just one case, a quick look inside an operating valve controlling the flow of steam to a power generating turbine showed the valve was not operating properly and needed repairs. When returned to service, the valve's performance was so improved that power generation increased by up to 6 megawatts, resulting in a calculated economic benefit of approximately $90,800.

The refinery is also saving an estimated $100,000 annually through a valve salvage program. If valves that have been removed from service appear to be in good enough condition for reuse, they are listed on a database. When an engineer needs a valve and finds a suitable one on this list, necessary repairs are done, and the valve goes back into service in a new location. The result is a significant saving versus buying a new valve.

"The true operating condition of a control valve can be determined very quickly by taking a valve's current signature using the AMS Device Manager with the ValveLink® SNAP-ON™ and comparing it with the signature of that same valve when new."

Ken Howard
I&E Reliability Analyst
Chevron El Segundo Refinery

Contact Us
www.emerson.com/contactus

AMS

For more information:
www.emerson.com

EMERSON™