

WEPEC Improves Corrosion Control with SmartCET Transmitters



“Integrating Honeywell’s SmartCET corrosion monitoring within the common temperature system at the refinery improves the efficiency of corrosion data capture, and enables the operator to implement corrosion control measures through adjustment of the process control parameters. Ultimately, this solution will improve both the reliability and safety of equipment.”

Zhenghong Zhou, Vice Director of Technical Department, West Pacific Refinery

Benefits

WEPEC, a large Chinese refinery, implemented Honeywell’s SmartCET® transmitters to assist engineers and operators in determining the corrosion risk level of the equipment over time and improve equipment reliability, availability and integrity.

SmartCET provides access to current, efficient, actionable information on both general and localized corrosion, as well as information to help evaluate the corrosivity of the internal environment. This enables operators to limit corrosion events and improve equipment condition through adjusting the process control parameters according to various corrosion environments. SmartCET fits better with in-plant monitoring needs than other corrosion detection systems as it includes a time-trended general (uniform) corrosion rate, and uniquely provides the most accurate indication of the most damaging localized or pitting corrosion.

Since SmartCET communicates via the HART protocol, it can easily connect to existing control systems meaning that the corrosion data can be alarmed, historized, trended and assigned to a process group. In this way, corrosion data can correlate seamlessly with other process variables, providing a broader view of plant operating conditions and the effectiveness of corrosion mitigation methods.

According to WEPEC, implementation of the SmartCET transmitters and their integration with the control system has enabled refinery engineers to:

- View all corrosion-related data online and in real time via the DCS simultaneously with other key process parameters
- Evaluate the effect of process upsets on corrosion and the impact on plant metallurgy



Honeywell’s SmartCET corrosion transmitters help WEPEC’s refinery improve reliability and safety.

- Evaluate the effect of corrosion inhibitor and guide its injecting time, amount and more
- Employ corrosion monitoring data as a key control parameter and reduce failures by maintaining an acceptable corrosion rate

Background

Dalian West Pacific Petrochemical Co., Ltd., referred to as WEPEC, is China’s first large-scale Sino-foreign joint venture petrochemical enterprise with an annual crude oil processing capacity of 10 million tons. The refinery was fully operational by the end of 1997 with shareholdings by Dalian Municipal Construction Investment Company, Sinochem Group, Sinochem (Hong Kong) Petroleum International Limited, Total Company (France) and PetroChina Company Limited.

WEPEC produces a wide variety of petrochemical products, both selling within the domestic market and exporting to more than 10 countries including Japan, Korea, Singapore, Indonesia, the Philippines and Vietnam.

Challenges

In the past WEPEC refinery engineers viewed corrosion monitoring and its instrumentation to require expert knowledge, and their experience was that it was difficult to analyze and correlate corrosion data along with operational parameters.

WEPEC viewed the path forward as integration of real-time corrosion data online with the plant process control system, bringing all corrosion-related data to the same platform as other process and operational parameters in order to establish correlations to enable an improved understanding of the effect of both process and operational conditions on the plant metallurgy.

Solution

WEPEC selected Honeywell's SmartCET multivariable corrosion monitoring over other technology due to the distinct value of the output parameters relative to other instruments they had used, specifically:

- SmartCET provides information on localized corrosion through the Pitting Factor, whereas other older instruments only indicated general corrosion rates.
- SmartCET offers additional corrosion variables that vastly improve the accuracy of the published corrosion rate and provide an indication of how the corrosion mechanism changes in the process environment.
- The corrosion data and trends measured by SmartCET were verified by WEPEC refinery engineers with Ultrasonic Thickness Gauge.

According to the equipment with a high level of corrosion risk, WEPEC installed 11 SmartCET transmitters in the following locations:

- ADU (atmospheric distillation column top pump around loop, before and after the overhead accumulator)
- VDU (condensate surge drum outlet)
- FCCU (stripper overhead, rich amine loop) circuits

WEPEC designed the system architecture so the SmartCET corrosion monitoring data and trends are displayed on the control system screen together with the process parameters (temperature, flow, velocity, pressure) of each monitoring point. The corrosion and process data of each point are shown together on the same time axis, which enables the operators to view the correlations between changes in corrosion and process conditions. Accordingly, the objectives of implementing corrosion control measures through adjusting the process parameters have been realized.

The corrosion monitoring system integration with the refinery control system was implemented in January 2008 and has been hailed as a success. The multiple unit applications are helping the plant engineers to understand how process upsets affect plant metallurgy and supporting their goal to reduce failures.

Zhenghong Zhou, Vice Director of Technical Department, West Pacific Refinery, said, "In addition to the capabilities of the SmartCET product, we recognize tremendous value in the support that we have received from Honeywell. We look forward to our continued cooperation and further success."

SmartCET® is a registered trademark of Honeywell International Inc.

More Information

For more information on Honeywell's corrosion solutions, visit www.honeywell.com/ps or contact your Honeywell account manager.

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