

AI-Driven Corrosion Monitoring Improves O&M and Brings Additional Benefits

By Peter Manos

Leading process industry facility operators have been enjoying improvements in real-time corrosion monitoring and other advanced sensor-based capabilities, an Artificial Intelligence of Things (AIoT) trend which ARC Advisory Group has highlighted in the ARCVIEW, [AI Operator-Centric Next-Gen Corrosion Monitoring](#) and elsewhere.

Recently, several such operators in oil & gas, chemical, refining, and related industries have received some much-deserved accolades, with the issuance of the latest American Fuel & Petrochemical Manufacturers (AFPM) Innovation Awards.

Flint Hills Resources is a leading refining company, one which the AFPM's Innovation Award has recognized for their use of a groundbreaking sensor system developed in collaboration

mPACT2WO's AI-driven solutions are paving the way for a new era of industrial operations, where real-time monitoring, predictive maintenance, and data-driven decision-making are the norm. Harnessing the power of AI and subject matter experts with advanced sensors available with these types of solutions can help to create a safer, cleaner, and more efficient industrial landscape.

with mPACT2WO, a Molex business. This achievement not only highlights Flint Hills Resources' commitment to safety and environmental responsibility but also showcases mPACT2WO's expertise in AIoT-driven solutions for industrial challenges. This cutting-edge AI-driven solution utilizes sophisticated ultrasonic sensors for corrosion monitoring, providing early detection of potential problem areas with greater accuracy and insights in challenging industrial environments.

AFPM has recognized refineries, petrochemical facilities and their contractors that have developed unique and innovative programs or practices that effectively improve the site's safety performance for either occupational or process safety.

This award recognized Flint Hills Resource's innovative sensor system that detects potential problems by monitoring challenging areas that was implemented alongside their sister company, Molex. Key benefits of this solution include enabling operators to focus on asset health and overall operational excellence. By relying on highly accurate data, it allows for precise prediction of remaining operational life windows. This enables Flint Hills Resources to align its planning seamlessly with the appropriate outage window for optimal maintenance strategies. As a result, the solution overcomes the drawbacks of schedule-based maintenance activities, which often led to over- or under-maintenance of assets.

The sensor system implemented by Flint Hills Resources exemplifies a spirit of innovation by addressing a critical issue in the industry, one associated with monitoring difficult-to-reach areas. By leveraging mPACT2WO's advanced AIoT capabilities, the system enables early detection of potential leaks and equipment failures. This proactive approach not only improves safety but also optimizes operational efficiency and reduces maintenance costs.

More information on the AFPM award is available at this link: [AFPM Honors Refining and Petrochemical Facilities Demonstrating Outstanding Safety](#)

The combined mPACT2WO and Flint Hills Resources accomplishments in the broader domain of real-time monitoring extend beyond corrosion monitoring, to also include fugitive emissions and leak detection monitoring, which were highlighted in a recent ARC Digital Transformation Podcast, at this link: [Emissions Monitoring Transformation with Flint Hills Resources & mPACT2WO/Molex](#).

The AIoT-driven real-time monitoring and fugitive emissions reduction pathways, along with more advanced corrosion monitoring, offer numerous benefits. mPACT2WO's approaches enhance workforce engagement by cutting across silos and drive real-time collaborations, ultimately increasing asset productivity, monitoring, and control. A question that successful organizations are now asking themselves is whether they recognize the opportunities they can create by improving operations today in ways that will unleash greater improvements and competitive advantage in the future.