



# Emerson: The Outstanding Glob

Managing assets efficiently within any company can be a tremendous undertaking; even small industrial plants can contain thousands of assets, such as valves and actuators, which need constant monitoring.

Shutdowns, turnarounds, and outages (STO) can be costly and risky. Poor workmanship can lead to discovery work or unscheduled slowdowns that prolong downtime and may even create safety issues, especially in aging plants. Managers need to stay within budget and on schedule, despite limited resources.

However, when properly planned, these management challenges offer opportunities to align maintenance with facility goals and implement long-term plant reliability. Denny Cahill, Vice President, Lifecycle Services for Final Control at Emerson, spoke with us about how the company's turnaround solutions use a proven process to schedule and prioritize ongoing maintenance, leading to repeatability, efficient results, and smoother operations. "By implementing these sustained solutions", Cahill says, "many Emerson clients have ensured their processes meet business objectives, reduce risk, increase cost efficiency, and improve returns on investments."

*By John Butterfield*



## al Partner for Lifecycle Services

### A Long History of Diagnostics

"Cutting edge technology is in Emerson's DNA," says Cahill, "and that's evident throughout our product and service offerings. Development and advancement of diagnostic technologies has given Emerson an edge in providing comprehensive valve and related product repair capabilities to protect some of the most critical assets in plants."

Emerson's forty-five years of experience began with their first lifecycle service center, opened in 1972 in Gonzales, Louisiana, USA to provide expertise for reliability-centered control valve maintenance. Since then, lifecycle services has expanded to a global



network of 162 owned and authorized centers offering some of the most comprehensive valve repair services in the world and dispatching experienced Emerson professionals where and when customers need them.

"It doesn't matter whether customers are starting a process, planning maintenance or a turnaround, or using valve diagnostic technologies to extend their plant's life," says Cahill, "Staff at these flexible, local centers can help our clients realize the true potential of their production assets." To support customers, Emerson offers a broad package of **maintenance services** that includes:

- highly skilled and certified technicians who provide cost-effective maintenance
- parts and products, instant repair, and replacements
- diagnostics and troubleshooting
- calibration repair, overhaul, and maintenance planning

The company also provides **reliability services**—including startup and commissioning, preventive diagnostics, equipment lifecycle strategies, educational services, technology upgrades and retrofits, and STO planning—as well as **performance services**, such as asset management strategies, asset performance engineers, valve connected services, predictive diagnostics, control performance audits, and performance consulting.

### Diagnostics and Expertise to Move from Reactive to Proactive Action

Plants are being continually asked to increase their reliability, reduce variability, and maximize uptime. But operating under tight budget constraints forces them into a reactive mode, unable to identify issues in advance that could save them time and money in the long term. Further, companies that perform reactive maintenance can be inadvertently increasing risk. In a 2004 survey of pulp and paper mills, 66% of all respondents estimated that more than 60% of all safety incidents occurred when maintenance jobs were carried out reactively. However, with better diagnostics and

expert advice, plants can become proactive to achieve less unplanned downtime and greater reliability. "Companies are often inundated with mountains of diagnostic data, with little idea how to analyze and understand it," says Cahill. "They're faced with an aging workforce, data overload, and too much work to do." Data and diagnostic expertise is critical, but these competencies can be costly to develop in-house, and experts often change jobs—taking their expertise with them. By combining advanced diagnostics from process equipment with expertise from Emerson, companies are getting the effective data analysis and recommendations they need to shift from a reactive mode to proactive planning.

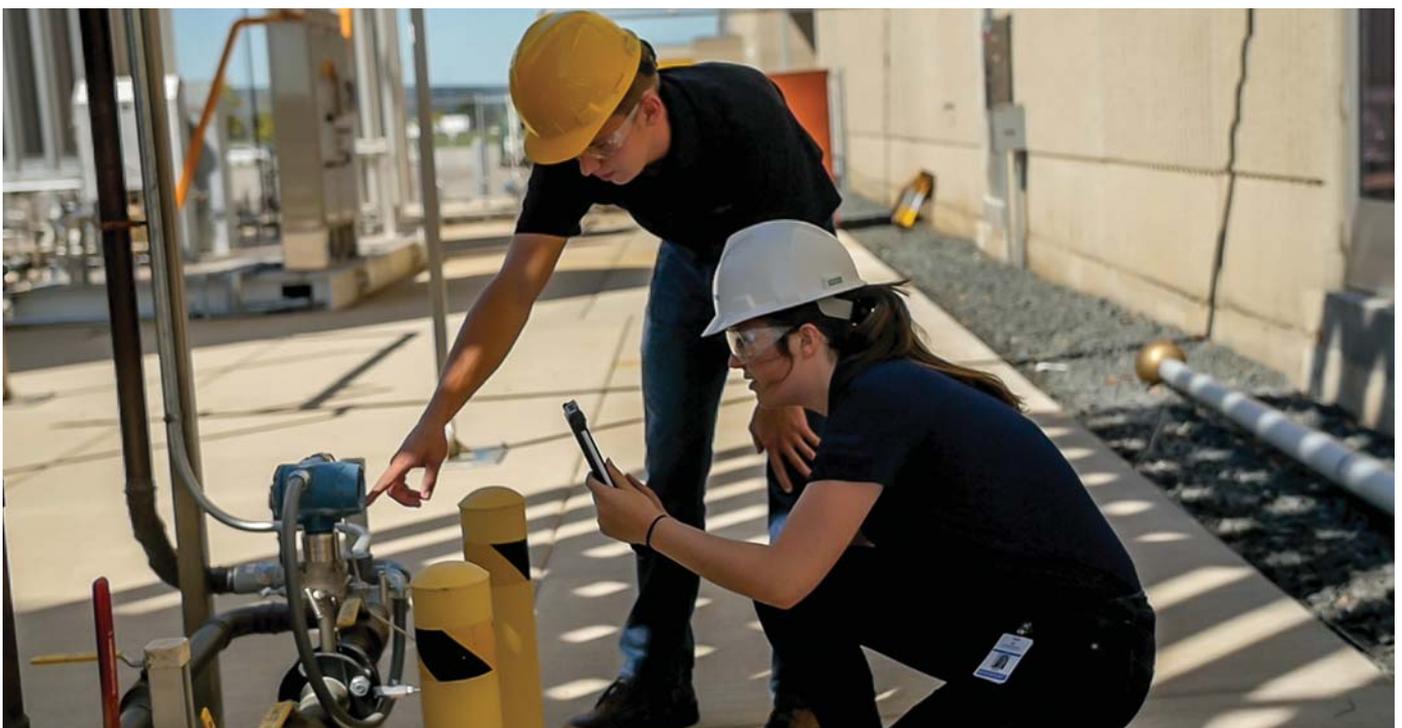
### The Advantage of Planning STO Lifecycles

Companies generally delay STOs and perform only the activities with the highest cost/benefit analysis. Though while no two STOs are the same, most follow similar phases and steps. "By engaging Emerson prior to the start of a planning phase," says Cahill, "proactive expertise can help define the event scope, giving priority to the assets that are in critical need of maintenance." Emerson's turnaround solution process uses early engagement to create a known, quantifiable, and supportive work scope before the execution of the STO takes place. Experienced Emerson personnel evaluate customer

key performance indicators, asset criticality, and maintenance strategies to find the maximum return on investment. Using intelligent diagnostics, Emerson technicians pinpoint problem assets in advance of the event to help prioritize turnaround assets, minimize emergent work, and focus on necessary maintenance. Cross-functional teams collaborate with the customer's management to justify capital investments, reduce risks attributed to maintenance events, and save costs through greater efficiency and reliability. This proactive planning also helps identify success factors and creates alignment with key performance indicators and business objectives. Moreover, when the scope of the project is clearly defined, it's possible to reduce procurement delays, potentially disruptive schedules, and inflated budgets.

### IIoT/Connected Services

Sensors are becoming omnipresent in industrial plants around the world, analyzing data while devices are in service to provide deeper understanding of a plant's health and status. Emerson has introduced the Connected Services Program in which experts review your complex device data and provide actionable recommendations to address potential issues. Emerson recently released Valve Connected Services to bring these services to some of the most critical devices in the plant. Cahill explains: "This service takes valve



diagnostic data collected from digital positioners and aggregates it on a regular schedule. The data is analyzed by control valve experts and the customer is given a report with valve health and recommendations that will help plant managers make informed maintenance, reliability, and performance choices." According to Cahill, this is a welcomed advancement considering that the ARC Advisory Group recently indicated that advanced maintenance models such as these can lead to a 50% savings in maintenance labor and maintenance, service, repair, materials, and near-zero unplanned downtime for critical equipment. "In fact," says Cahill, "using Valve Connected Services, it's possible to quickly switch from a reactive, break/fix approach, to a more preventative, proactive operation and identify areas of performance degradation before they impact a plant's reliability and availability."

**The Future**

Emerson is further complementing its valve and control products and



services portfolio through new product development and acquisitions, offering customers an even wider range of products, including control valves, pressure relief valves, isolation valves (gate, globe, check, butterfly, ball, triple offset valves), and actuators. Emerson continues to develop its extensive global service network using the highest integrity and safety standards to service an even broader range of products and

act as a comprehensive maintenance provider. Always aiming for customers' increased safety, Emerson also will help companies reduce manned operations through valve automation and asset integrity management. "As always, we're excited by the new solutions to come," says Cahill, "including more diagnostics, Connected Services and the use of additive manufacturing to enable faster delivery and innovation."

**Radio Frequency Identification (RFID)**

*Do you have data challenges?*

- Tracking assets during projects, shutdowns, turnarounds, and outages
- Difficulty entering data on mobile devices due to small form factors... and gloves



*Emerson's Solution to Data Challenges.*

Radio Frequency Identification (RFID) is an electronic device that stores information about an asset directly on the asset in digital format, enabling the information to be obtained wirelessly via an RFID reader. Benefits include:

- Improved work efficiency, eliminating the need to scrape nameplates and remove insulation to identify an asset
- Data read directly into a mobile device, eliminating key-strokes
- Asset tracking between a lay-down yard and the unit during a project, or STO

Emerson tags valve assemblies to enable these benefits and is developing additional RFID solutions to help customers improve operational efficiency.

**Walk Down App**

*Do you face these problems after site walks are performed at your plant?*

- Illegibly written or incomplete data from technicians using clipboards, paper, pencil, and digital cameras
- Not receiving data consistent with prior site walks
- Technicians returning to your plant to fill in gaps in collected data
- Long turnaround time between the site walk and receiving feedback
- Difficulty running analytics in asset management systems or other data sources because data is stored in paper form or in incongruent databases



Hand-written clipboard walk down processes continue to exist in plants not because they're sound, but because they were carried out this way long before major technological innovations. But there's a better way.

*Emerson's Solution to Walk Down Problems.*

Emerson's Walk Down App enables lifecycle services technicians and local business partners (LBPs) to collect active valve data and photos digitally, shortening the amount of time spent accumulating material and generating reports that can be used to prioritize maintenance. Collecting data digitally also allows Emerson consulting technicians to examine prior site walks, discover trends, and make recommendations to fix repetitive issues. This new method of data collection also allows Emerson and their LBPs to provide standard reporting that is consistent and intuitive.