

MANAGING SITE DOWNTIME WITH A MAINTENANCE PROGRAMME



Luke Perry, Rotork, UK explains how maintenance of flow control assets can not only prevent failure, but also improve overall plant efficiency.

Poor flow control maintenance can lead to operational disruption. The term ‘flow control’ describes how liquids and gases are managed in various applications. Actuators are essential pieces of equipment used across a number of industries, including oil, gas, water, power, chemicals, industrial, and process control, and they can be found all over the world.

Keeping flow control assets such as actuators in peak condition is critical. Inefficient asset management will increase the potential for

faults that may incur disastrous environmental and financial costs.

Failure of the key assets that keep a site running can result in operators' reduced productivity, poor performance, and a drop in quality. Unintended downtime is the most serious consequence of ineffective maintenance. For example, according to a Markets and Markets study in 2016, a supertanker stuck in downtime can cost as much as £100 000/hr.¹ At chemical plants, the potential losses are even more significant. 13% of businesses experience serious monthly downtime, so figuring out what causes this and how best to prevent it is essential.

Therefore, effective management of flow control assets is an essential consideration for long-term reliability and viability.

The ultimate aim is to reduce downtime and optimise the required maintenance. The problem can be that taking the equipment out of operation is costly, in addition to the cost of parts and labour. On the other hand, insufficient maintenance increases the risk of breakdowns, leading to loss of yield, environmental damage, and potential health and safety hazards.

An asset management service and maintenance plan that concentrates on an asset's complete life cycle is vital in order to guarantee the long-term dependability and



Figure 1. An effective asset maintenance programme ensures that actuators always operate at optimum performance level.



Figure 2. A large number of electric IQ intelligent actuators installed at a tank farm.

viability of the flow control assets onsite. Critical assets can run optimally with the help of a thorough maintenance programme, always guaranteeing their availability. Such a programme should be comprehensive, considering the full life cycle of each asset, how to handle any possible obsolescence, and the effects on the entire site. A complete life cycle asset management programme will likely provide improved performance, increased uptime, and a decrease in unexpected expenses.

A tiered approach

An effective and holistic site service programme is fundamental to approaching any potential issues that actuators might face. The programme must be accessible, provide value for money, and be flexible and malleable enough to cater to multiple businesses.

Rotork provides a tiered approach to maintenance, segmenting the service into three levels that provide progressively-improved coverage and support. The bespoke nature of these programmes increases reliability and availability while reducing possible downtime. Additionally, there are a variety of optional extras to fit the customer's needs. Having this sort of flexibility can improve a site's overall performance.

Service programmes of this kind provide a set cost to operators, allowing for easy management of budgets. They offer maintenance programmes that will not simply send an engineer to fix a broken or underperforming actuator; rather, they plan for the likelihood of such an event, focusing on long-term maintenance and support.

The most important part of such a service programme is the consideration of the entire life cycle of an asset. The risks of ageing equipment can be considerable. Still, with dedicated service and maintenance programmes, operators can manage potential obsolescence and keep a site running at an optimum level, with minimal-to-no unplanned downtime.

Intelligent asset management

Prevention through sound asset management and maintenance is the key to site uptime. One of the ways to do this is through analytical insights from data. Regular, accurate information about site assets will allow for lower costs from maintenance in the long-term, and a better idea of how the operation is performing holistically.

Intelligent asset management is a key component of asset operations, and it allows for the coordinated activity of an organisation to realise the true value of its assets.

A system such as Rotork's Intelligent Asset Management (iAM) cloud-based system can be used to collect information from the data within the intelligent actuators. It is a reliable, secure and easy-to-use web platform that works with all operating systems and has a user-friendly, intuitive layout. Colour-coded maps and summary displays condense complicated statistics into simple images. The user may quickly and easily view a complete picture of the condition of the valves and related flow control equipment.

These service programmes offer operators a fixed cost, making budget management simple. They also provide plans focusing on long-term maintenance and support rather than merely dispatching an engineer to repair a damaged or failing actuator. This strategy helps with the management of long-term sustainability of a whole facility, and boosts uptime while reducing unexpected repair expenses.



Figure 3. Actuators providing an airport in India with critical performance data.



Figure 4. A CVA process control actuator being inspected by a Rotork engineer.

Case study

A service programme helped improve a site's uptime and optimised its processes at a major aircraft fuelling station in India.

The end user wanted to upgrade to intelligent actuation technology so that they could take advantage of its high degree of accuracy and dependability, as well as benefitting from the ability to gather data to plan for maintenance activities in advance.

Local engineers demonstrated the features of IQ3 actuators to Indian Oil Corp. Ltd (who run the aviation fuel network at Netaji Subhas Chandra Bose Airport), highlighting operational accuracy, data logging functions, and power supply options – including the ability to install without a power supply. IQ3 actuators are ATEX certified as explosion-proof, suitable for use in Safety Integrity Level 2/3 applications, and watertight to IP66/68.

The end user signed a service agreement as part of Rotork's Lifetime Management programme, ensuring ongoing service support and reduced downtime for maintenance activities through health checks and periodic maintenance.


Conclusion

The importance of an efficient and functional site service programme cannot be understated. Beyond the importance of financial and efficiency considerations, maintaining smooth operations at a site is paramount. The maintenance of site assets through intelligent actuation is a strong and proven solution to potential unplanned downtime.

A system is future-proofed when the asset's whole life cycle is considered. It eliminates the need to upgrade current cables or control systems, reduces the danger of failure, and enhances the capacity to continue operating. Customers have greater access than ever to the most recent flow control technologies.

We all depend on certain companies, such as those that deal with manufacturing, power and water – and flow control technology is essential to those industries. An efficient asset management plan must address obsolescence issues in order to boost dependability and ensure ongoing operation.

Understanding what a customer needs is essential; once understood, it is possible to create a plan to keep assets continuously available in order to reduce their downtime and improve performance. Asset management programmes should include bespoke spares programmes, site surveys, and maintenance options.

Considering an asset's whole life cycle cannot be overstated in such a servicing programme. The dangers associated with outdated equipment can be significant. Still, operators can control possible obsolescence in addition to the crucial work of maintaining a site's operation at a peak level with little to no unexpected downtime with the use of specialised service and maintenance programmes. 

Reference

1. 'Industrial Analytics Market by Component (Software, Service), Analytics Type (Descriptive, Diagnostic, Predictive, and Prescriptive), Deployment Model, Organization Size, Industry Vertical, and Region – Global Forecast to 2022', MarketsandMarkets, <https://www.marketsandmarkets.com/Market-Reports/industrial-analytics-market-90118141.html>