

ASSET PERFORMANCE MANAGEMENT



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Overview

Asset performance management (APM) is a paradigm that encompasses the next generation of approaches for ensuring optimal performance through the asset lifecycle. Arrelic is redefining asset performance management by adopting a risk-based, holistic approach to design and operations. This entails integrating well established approaches into both short- and long-term decision-making processes, leveraging market experience and standards. Asset performance management at Arrelic entails the application of data collection, integration, visualization, and analytics with the explicit goal of enhancing the operational performance of physical assets. Condition tracking, predictive forecasting, and reliability-centered maintenance (RCM), risk-based inspection (RBI), quantitative risk assessment (QRA), safety integrity level (SIL), and integrity operating window are all concepts covered by APM (IOW).



Introduction

Many oil and gas industries around the world are becoming increasingly interested in Asset Performance Management (APM). APM success necessitates a smooth flow of data through all activities that affect asset efficiency. For several years, businesses have operated in silos, with divisions operating entirely separately. The flow of data and information was inefficient as a result. Usually, the same data is fed into different systems without being fully realized. Information, known as post-processed data that results in useful information, is only routed through specific departments, limiting its potential value.

Design Phase

With design optimization, the potential to influence cost becomes restricted as the project progresses through the design process. In the oil and gas industry, methodologies including reliability, availability, and maintainability analysis (RAM analysis) and operational forecasting are critical in the development of capital projects. The earlier in the project that a decision is taken to change something, the more cost-effective it would be.

Operations and Maintenance Phase

To rank system and equipment criticality and build maintenance and inspection strategies to handle the risks, risk-based approaches such as risk-based inspection (RBI), safety integrity level (SIL), evaluation, and reliability-centered maintenance (RCM) may be used. Taking the risk approach has a major effect on a variety of factors, including expense, employee morale, maintenance resource allocation, maintenance budget management, productivity, and production scrap reduction, to name a few. Quantitative and more sophisticated approaches, such as quantitative risk-based inspection or failure mode impact and criticality analysis, are commonly used by companies with mature reliability and safety systems.



Intelligent Analytical Solutions in APM

- Risk-based inspection (RBI)
- Plant integrity management
- Reliability centered maintenance (RCM)
- Performance forecasting
- Safety integrity level (SIL)

Effective Information management with a Digital Twin

Poor data management is a hidden expense that can consume up to a fifth of an organization's operating budget. This flaw is addressed by the digital twin. The digital twin is a digital, interactive image of an asset that is kept up to date and available at all times during its lifecycle. The development of a digital asset ecosystem is at the heart of this new paradigm. The digital asset ecosystem is a web of interconnected and interacting data, software, and hardware that are all related to the asset and its system. One of the most effective aspects of this strategy is that it enables a new generation of advanced predictive analytics, which are critical for improving asset performance management.



Plant Integrity Management

Arrelic's asset performance management (APM) offering also includes Synergy Plant for plant integrity management. It empowers companies to capture, integrate and visualize data, which can be further integrated with analytical tools such as reliability-centered maintenance (RCM), risk-based inspection (RBI), performance forecasting (RAM analysis) and safety integrity level (SIL) with the clear objective of improving the reliability and availability of assets.

RAM Analysis - Reliability, Availability and Maintainability

Reliability, Availability and Maintainability (RAM) analysis allows you to simulate the entire life time performance of an asset in terms of availability, production efficiency and profitability. By using this well-established analytical method, you are able to predict problems before they occur. RAM analysis is performed in design and operation, from upstream oil and gas extraction through processing and transport logistics to the delivery of refined products to the customer.

Process Hazard Analysis

Oil and gas, for example, may pose a major threat due to their high energy content. Pharmaceuticals and petrochemicals can be volatile, poisonous, and flammable. To compound the danger, dangerous pressures and temperatures are often required to turn these materials into usable items. As a result, the process industry poses significant risks to humans, land, and the environment. Process safety experts all over the world are constantly working to mitigate these risks. The hazard analysis tools from Arrelic include world-leading, experimentally validated models for simulating the action of hazardous material loss of containment.



Conclusion

Asset performance management is critical to any organization's success, particularly because infrastructure assets with a long life cycle and a large capital outlay provide a base for economic activity. The more complicated the business, the more important it is to have a good asset management system in place. Arrelic can help you handle an asset effectively at any point of its existence. For clients, our asset management services provide the best combination of efficiency, expense, and risk.

Although manual asset management practices can get the job done, workers would have to manually wrinkle and hammer out a lot of information to ensure their company gets the best out of its properties. Businesses can easily control assets and execute asset management strategies by incorporating an asset management tool.

