

Oil & Gas

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MARKET FUNDAMENTALS

Uncovering what really drove the oil markets crazy in 2008

MARINE MATTERS

Qatar Gas Transport Company general manager interview

QATAR IN FOCUS

Soaring to new heights in gas production

VIEW FROM THE TOP

EXCLUSIVE: Ali Al-Jarwan, general manager of **ADMA-OPCO** and chairman of the ADIPEC conference sessions





The main focus on Yokogawa's solutions is now coming from the oil and gas sector.

PREDICTING WHAT

PROBLEMS

Yokogawa's Raju Seshadri reveals the latest trends in predictive maintenance solutions

We all dream of being able to see into the future, of being able to predict what will happen before it has, and taking decisive action before something negative occurs later.

In the oil and gas industry this is particularly the case, as potential problems that lead to a production shutdown means costly downtime for a company. And now with the use of measurement instruments, data capture and data interpretation, the industry can make accurate predictions for when their equipment may need maintenance, preventing uninvited stops.

Predictive maintenance (PM) attempts to evaluate the condition of equipment by performing either periodic or continuous condition monitoring. In doing so, the operator will be able to perform maintenance on equipment at a scheduled point in time when it's most cost effective and before the equipment loses optimum performance.

The technologies required to have a glimpse into the mechanical future are not necessarily as sophisticated or fantastical as you might imagine. The most common of the technologies are infrared, acoustic and vibration analysis, all of which can record data on working parts, and once this is analysed, predict any imminent hiccups.

Without going into excessive technical detail, infrared is used to pick up heat where a mechanical or electrical failure may be occurring; acoustic measures the sonic or ultrasonic frequencies from mechanical parts; and vibration analysis measures any increases in mechanical vibration, most successfully on high speed rotating equipment.

According to Raju Seshadri, industrial automation marketing manager for Yokogawa Middle East, it is digital field instruments that have opened doors for more intelligent parameters seen on Yokogawa's process control system and in particular asset management system.

"Using these intelligent parameters, asset management is capable of doing predictive maintenance. The unplanned plant shutdown and production loss is greatly reduced by doing predictive maintenance and we can easily diagnose asset conditions, ensuring asset availability

while optimising maintenance," says Seshadri.

ASSET MANAGEMENT

Yokogawa is a Japan-based electrical engineering and software company, with businesses based on its technologies in measurement, control, and information. It has a workforce of over 19,000 in its 80 companies worldwide, and has been operating in the Middle East since 2001.

The company supplies the oil and gas industry not only with test measurement products but also with an entire asset management solution designed to minimise downtime of operations. It has a core platform provision named InsightSuite, which provides predictive maintenance package in the form of diagnostics, asset health navigator, and post analysis and reports. As part of that solution is the open asset management program PRM (Plant Resource Manager), which provides device diagnostics, process interface diagnostics, loop and

improved collaboration between operation and maintenance."

And no Yokogawa product will be released without adequate testing claims Seshadri, with field trials often conducted to ensure the maintenance solutions work properly.

"The best example is the testing we did on Impulse Line Blocking diagnostics, which is one of the predictive maintenance solutions released and out in the market. So case by case, one by one, only if we do a successful field trial will we release the product."

The company's website describes ImpulseLine Blocking as a transmitter equipped with a silicon resonant sensor that can rapidly detect both static pressure and differential pressure. By using a digital comms network, such as fieldbus, operators can determine whether an impulse line at a specific installation site has been blocked. Such information can significantly reduce maintenance workload and cost.

between the operation and the maintenance team for effective predictive maintenance," states Seshadri

He also claims that when releasing new technologies, it is often a case of scepticism from customers. "It is very hard to go and convince a user that the technology that I'm offering will definitely work, it's a complete cycle, it's not just I sell the product to the customer and forget about it. The service personnel need to go to the site tune the parameters properly and make it work, that's the challenge that we are facing," he explains.

Despite this, Yokogawa is experiencing massive growth in the Middle East region as oil and gas companies look to maximise production. The company has offices in "nearly all the countries in the Middle East", and has many major customers, including Saudi Aramco and SABIC.

"The biggest growth can be seen in Middle East, and with soaring crude prices, there is

"Users are yet to embrace the true benefits of digital field instrumentation. The benefits of an open industrial device management continue to be an elusive goal"

Raju Seshadri, marketing manager, Yokogawa

equipment diagnostics, loop and equipment diagnostics, and performance diagnostics.

As Seshadri says, "The real benefits of PRM are shortened commissioning and start-up timeframes, eliminating unnecessary site trips, minimising planned downtime, shortened turnaround time and much

PM CHALLENGES

"The users are still yet to embrace the true benefits of digital field instrumentation. The user benefits of a truly open industrial device management continue to be an elusive goal in virtually every industry. It is our challenge to collaborate





Yokogawa is focusing its efforts on developing wireless technologies. Although the technology is still immature, Yokogawa already has working instruments.

enough growth potential in the region. We just opened a new office in Saudi Arabia, and we have our own offices in almost all the countries in the ME. We also recently opened our Engineering & R&D Office in Dahrnan Techno valley, in the KSA.

WIRELESS TECHNOLOGY

When it comes to the instrumentation deployed, often the technologies have been around for a while. Where there is real development for companies like Yokogawa is providing more accurate measurement, and improving the efficiency and delivery of information through better integrated solutions, for example by providing wireless connectivity.

“The new technology we are going to produce and the customer is expecting is wireless devices. We are developing this slowly as we feel the technology is still not mature, but we already have working instruments and prototypes for wireless technologies,” says Seshadri

“I would say that if you compare Yokogawa instruments with our competitors, then they are more accurate. For improvements in accuracy, it depends on the instrumentation, but it is certainly becoming more intelligent – for example information used to have to be sent back to the control system to be stored there, but now the information collected can be stored on the device itself.”

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Raju Seshadri, marketing manager, Yokogawa

Yokogawa currently spends roughly 8% of sales annually on R&D, one of the highest in the industry according to Seshadri.

There is a new office that is being opened in Saudi Arabia which will have an in house R&D centre, and will recruit local engineer graduates to train with the company. “PM will be a key

enabler for effective plant operation, effective maintenance optimisation and for maximum plant uptime. As plants are embracing digital instrumentation, the predictive maintenance business is sure to grow. The main focus now for Yokogawa is coming from the oil and gas sector,” concludes Seshadri. **Oil&Gas**