Success Story

YOKOGAWA
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FDT Technology Gives Users Centralized Access to All Devices

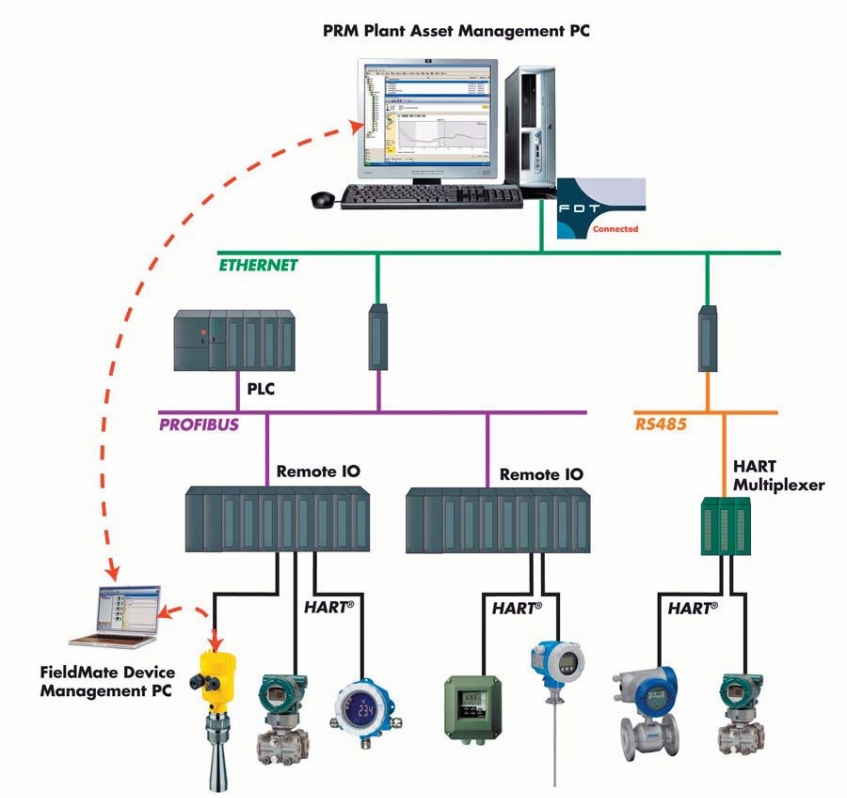
NEDMAG

Location: Veendam, The Netherlands
Order date: January 2010
Completion: June 2010
Industry: Mining

Executive Summary

Two kilometers underground in the north of The Netherlands lies a unique formation of magnesium salt of unequalled purity. Nedmag Industries Mining & Manufacturing B.V. extracts approximately half a million tons of these magnesium salts each year. Close by, almost on top of these salt formations, sits a Nedmag plant that produces dead burned magnesia, a highly heat resistant substance that is used as a primary component in refractory materials. Nedmag is the world's leading producer of high-purity synthetic dead burned magnesia. Today, the company employs approximately 140 people and sells high-purity synthetic dead burned magnesia as well as magnesium chloride and calcium chloride, both in solution and solid form.

Nedmag is using an integrated asset management system that combines FDT technology with a device management tool to achieve real productivity advantages and savings in its maintenance and service operations. Three years ago, Nedmag had only a vision of modern asset management. Today, the company takes pride in a user-friendly, future-proof plant asset management system that provides central access to all instruments.



The Challenges and the Solutions

1. Harmonization

Decades of operation, modernization, and expansion have left many chemical plants a somewhat haphazard automation mix of different controls, process control systems, remote I/Os, and field devices. The components may use different communication protocols such as HART, PROFIBUS, or FOUNDATION™ fieldbus, and be based on different device integration technologies. The situation is no different at Nedmag. This was why Nedmag set the ambitious goal of harmonizing the automation on its three production lines and thus paving the way towards efficient plant asset management.

2. Productivity

The use of state-of-the-art automation technology will help any organization operate with fewer employees. This is becoming increasingly important as the number of specialized personnel available to manufacturing companies is constantly decreasing. Furthermore, the external maintenance provider with which the manufacturing company is working must understand the technology and be able to use it, even when there is regular turnover in personnel. There are other areas where major savings can be made. Not only does a team save time on maintenance tasks if they can access a device directly from a PC, so too does the service provider. With its standardized and integrated interfaces, FDT technology provides a common environment for configuring, operating, or maintaining any device, regardless of vendor, type, or communication protocol. Nedmag was initially using a complex, non-Windows based system for plant asset management. In Yokogawa's Plant Resource Manager (PRM), Nedmag found a system that completely satisfied their requirements. PRM is much less complicated, and everyone in the company can work with it. And with FieldMate, Yokogawa's integrated device management tool, the perfect solution is provided for portable device maintenance. An important advantage of this tool is that it can be synchronized with PRM, resulting in a single maintenance information database. FieldMate was the first tool to fully embrace both the FDT and EDDL device integration technologies, and it supports all the important fieldbus protocols used in the process industries.

3. Central access

At Nedmag, it often took days of downtime before plant failures could be fixed. The analog technology that was used often meant that engineers had to undertake a lengthy process of searching for and systematically ruling out possible causes of faults. FDT technology, on the other hand, allows the user to look into a device directly from a PC. Central access means that incorrect parameters can be identified and a diagnosis given immediately. In the past, if there was a problem with a level measurement, for example, the automation team had to ask the external service provider to take a look at the device. The maintenance engineer would then check on-site to see if a cable or input card, for example, was faulty. Now Nedmag opens the PRM system and checks to see what the problem is. The engineer can immediately identify that the instrument is not correctly configured, even though the device is kilometers away.

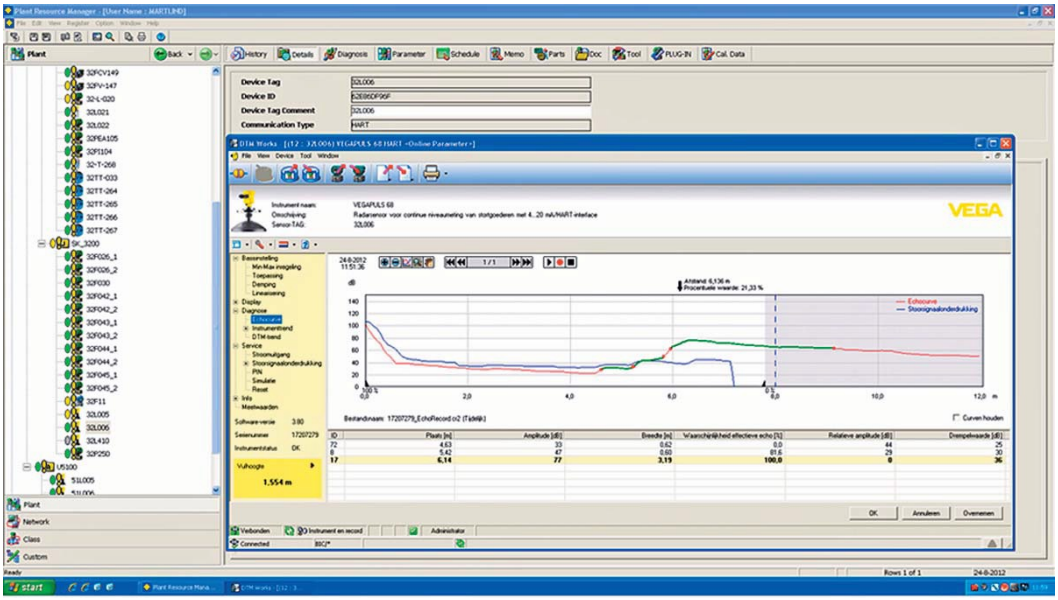
Nedmag has high hopes of implementing features such as predictive maintenance in the future. This may not be too far off as all the necessary ingredients are in place. PRM has only been running for a few months, and the main focus in this initial stage has been on saving time in service and maintenance tasks. The more tasks the automation team can solve directly from the PC, the greater the company's savings.

4. Added value

Automation experts also appreciate other system features that make day-to-day work so much easier. For example, an audit trail enables detailed tracking of any changes to a device. Who did what, why, and when? If a device issues a warning, the history shows the number of previously issued warnings and faults. Nedmag also reaped the benefits of FDT technology when commissioning the automation for the first of two sintering furnaces. The team was required to test a large number of instruments within a short time frame. By using PRM to test and simulate the instruments, and to check whether they were "alive," they were able to simplify and speed up work during the commissioning stage.

5. The future

The technology works. Now it is time for the next generation to roll out these state-of-the-art solutions at other plants and to take advantage of the opportunities they offer. Nedmag can already report initial success in device management and time savings. The first steps have been taken. The combination of digital communications and FDT technology gives users centralized access to all devices. Thanks to Yokogawa's FieldMate device management assistant and PRM package, Nedmag is well prepared for the future.



PRM Device Patrol screen

Customer Satisfaction

Wim Zomer, project leader at Nedmag, explains, “We had a concept to modernize our installations, to digitize the old controls, and to make intelligent devices accessible from one central point. Developing the system is just the first step; the next step is to ensure that it can actually be implemented in each of the locations. The technology is available and it works; now it is up to us to implement it in our three production lines.”

“By using HART and end-to-end FDT technology, we can now resolve most issues much more quickly and efficiently than before. We look at the PC and the instrument tells us what is wrong.”

“If somebody has to travel there, it takes up to half a day to get into the car, drive to the other side of Veendam, arrive at the reception desk, set up the laptop, and carry out the tests. This is far too time-consuming.”

“At the PC, we usually know what to do within a short time and can correct most issues, including configuration problems, right away. Thanks to FDT technology, it is not necessary to send somebody to the plant, leading to saving in time and travel costs.”

“Central access makes work so much more convenient.”

“We can say today that we want to proceed with plant asset management, but it can not be done overnight. Everything takes time. The main thing is to dare to take the first step. We are perfectly prepared for the future thanks to the FieldMate device management assistant and the PRM package from Yokogawa.”

Martijn den Dulk explains, “I check PRM once or twice a week to ensure that everything is OK. A key function of the PRM system is Device Patrol, which continuously monitors the status of all the devices in the system. If any of the devices are not indicated as green, I can check immediately to see what is wrong. Previously we would simply wait until something happened or the operator reported that pressure, temperature, or flow was not right. Only then we would take action.”

“For example, one device may have indicated a critical fault. It is a straightforward problem, if a device simply stopped working, but it is different if the problem is intermittent. In this case, correct parameter configuration was the answer.”

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