CNR International extracts more value from maintenance processes

Targeting significant savings with IBM Enterprise Asset Management solutions

Canadian Natural

Overview

Business challenge

To reduce breakdowns, enhance safety and improve efficiency for its five North Sea Oil platforms, Canadian Natural Resources Limited (CNR) wanted to optimise its maintenance processes – but with two different maintenance systems and a separate purchasing and inventory system, standardisation was proving difficult.

Solution

The company reengineered its maintenance and purchasing processes to align with industry best practices, and worked with BPD Zenith, an IBM® Premier Business Partner, to replace its existing systems with IBM Maximo® Asset Management. The solution is already live at one platform, and will be rolled out to the other four over the coming months.

Canadian Natural Resources Limited (CNR) is a Canadian-based exploration and production company with international exposure, and is one of the largest independent crude oil and natural gas producers in the world. The company employs nearly 4,700 people, is listed on the New York and Toronto stock exchanges (as CNQ), and generated annual revenues of approximately C$14.3 billion in 2010.

Outside North America, the company's operations are managed by its international division, which employs more than 370 people, and is headquartered in Aberdeen, Scotland. CNR oversees five fixed platforms in the North Sea and three floating production, storage and offloading units (FPSOs) off the coast of West Africa. Maintaining these platforms is a highly complex challenge, as hundreds or even thousands of components must be kept in good working order to support day-to-day operations.

Safety and logistics

"Maintenance is a challenge in any industry where complex equipment and machinery is used, but it's particularly challenging in the oil and gas sector," comments Richard Dyson, Maintenance Management Team Leader for CNR. "Logistics are more complicated: spare parts and materials need to be delivered by boat, and all personnel are flown out to the platforms by helicopter."

The need for a standardised approach

In its North Sea operations, CNR relied on two different maintenance management systems: DataStream MP5 on the Tiffany platform, and Maintenance Controller on the Murchison platform and the three Ninian platforms. The MP5 solution was out of support and could not be customised, while the Maintenance Controller solution was limited because materials management and purchasing were handled by a separate Oracle ERP system. As a result, it was difficult to optimise maintenance processes or prioritise workload.

Business Benefits

- Improves maintenance scheduling and prioritises the most important or safety-critical repairs, supporting a move from break/fix maintenance to a more preventative model.
- Improves efficiency of maintenance by ensuring that the right equipment and engineers are available in the right place at the right time.
- Reduces unnecessary expenditure on spare parts and external contractors, resulting in savings in future years.

Moving towards best practices

Based on its deep experience of the maintenance management sector, the CNR team developed a plan for re-engineering the company's maintenance processes to align them with current best practices in the oil and gas industry. CNR also saw an opportunity to align inventory and purchasing. To support these new processes, the company needed to replace its existing IT systems with a single standardised solution that could be rolled out to all five platforms.

"We had reached stalemate with our old systems – we had done what we could, but they just didn't have the flexibility that we needed to move forwards," says Dyson. "We decided to migrate to a new software platform, and began evaluating the alternatives. In many cases, the available solutions were really ERP systems with maintenance management modules, and would have required us to replace our Oracle Financials system, which we did not want to do.

"A better option was IBM Maximo Asset Management, which has an excellent reputation in the oil and gas industry and is used by many other companies in the North Sea and worldwide. Because Maximo is designed to support the kind of best-practice approach that we wanted to introduce, we realised that we could implement it more or less out-of-the-box, with relatively minimal need for custom development. This would help us get up and running quickly, and would reduce the risk of a long and expensive deployment."

Finding the right partner

To support the design and implementation of the Maximo solution, CNR decided to work with BPD Zenith, an IBM Premier Business Partner that specialises in enterprise asset management software.

"The BPD Zenith team has a great deal of experience in Maximo implementations, and they are well known and respected in the oil and gas sector in Aberdeen," comments Dyson. "Their proposal was the best that we received, and we were very confident that they would do a good job. In the event, we were proved correct: BPD Zenith made a major contribution to the project, not only on the technology aspects, but also in helping us plan the project and refine our designs for maintenance processes and workflows."

A phased implementation

Using CNR's project delivery process (PDP), all of the options were evaluated. One of the first major decisions was to handle the majority of the purchasing and inventory management processes in Maximo, which involved building an interface with the company's Oracle ERP system and defining new processes for ordering. The new purchasing processes were then rolled out to all five North Sea platforms.

Solution Components

Software

- IBM® Maximo® Asset Management

IBM Business Partner

- BPD Zenith

"We see Maximo as a strategic platform for our business, and are looking to maximise its potential. With a world-class maintenance management platform, we will be able to extract maximum advantage from our offshore assets."

— Richard Dyson, Maintenance Management Team Leader, CNR

At the same time, the CNR and BPD team rolled out the new maintenance processes to the first of the platforms – Tiffany. This involved migrating data from the old MP5 solution into Maximo, developing new workflows for repair assessment forms (RAFs) and deferral assessment forms (DAFs), and creating Start Centres for different groups of users. Electra Training, a company that often partners with BPD Zenith, helped to train the onshore and offshore users on how to work with the new processes. Following a successful go-live for the new system, the team began working on rollouts to the other four platforms.

"Maximo's Start Centres are an absolutely crucial enhancement to the way we work," explains Dyson. "They are basically dashboards that show each type of user the information that is most relevant to their role. Technicians see a prioritised list of the jobs they need to complete over the next five days, with all the details of the job including location, what materials are required, and so on. Supervisors can keep an eye on overdue jobs, review recently completed work orders, and manage purchase orders. And the onshore superintendants can oversee the whole situation across all the platforms and ensure that all safety-critical preventative maintenance work is being handled correctly."

Greater control over maintenance processes

The new maintenance process is governed by a sophisticated workflow system that sends all work orders through a chain of approvals, automatically schedules them according to their level of urgency, and assigns them to the appropriate technicians depending on their special requirements (for example, whether they are mechanical, electrical, instrument-related, etc.)

"The system weeds out duplicate or incomplete work orders and ensures that all jobs must be properly specified before they can be scheduled," says Dyson. "When the parts are in place, the job is scheduled and the technician sees it on his Start Centre. There's no more cherry-picking of jobs – each technician has to do the work that is assigned to him within a certain time limit, so we avoid a situation where important but unpopular jobs are left until last or allowed to form a backlog."

The introduction of the RAF and DAF processes helps improve the management of safety-critical repairs by ensuring that planned maintenance is carried out effectively, and any corrective work is scheduled with the highest priority. These assessment forms are reviewed onshore at the highest level to ensure that all work is completed and the highest safety standards are maintained.

Significant results

By helping to eliminate duplicate work orders, unnecessary purchases of materials and scheduling errors, CNR expects to achieve considerable savings.

"According to our cost-benefit analysis, the Maximo solution should enable significant savings over the next five years," comments Dyson. "For example, the cost of flying in a contractor and then having him sit around unable to do the job because the parts aren't available can be considerable, and used to be a fairly common occurrence. By taking greater control of our maintenance processes and eliminating these types of mistakes, we will definitely save a considerable sum, as well as enhancing the efficiency and safety of operations."

The success of the North Sea project has led CNR to implement Maximo for its offshore West Africa operations too, and BPD Zenith has been working with the in-house team to plan an implementation in Gabon and Côte d'Ivoire.

"We see Maximo as a strategic platform for our business, and are looking to maximise its potential," concludes Dyson. "With a world-class maintenance management platform, we will be able to extract maximum advantage from our offshore assets."

About BPD Zenith

BPD Zenith Limited is an IBM Premier Business Partner that specialises in IBM Maximo Asset Management software. The company is also an authorised Tivoli reseller, and offers Level 1 support. More than 60 percent of its technical staff hold current Maximo Deployment Professional certifications. This technical expertise, combined with more than 15 years' experience of successful deployments, upgrades and transitions, enables BPD Zenith to offer the complete package for all IBM Maximo Asset Management software, services and support.

To learn more about solutions from BPD Zenith, visit: **bpdzenith.com**

For more information

To learn more about IBM Enterprise Asset Management solutions, contact your IBM sales representative or visit: **ibm.com**/software/tivoli/maximo

Tivoli® software

© Copyright IBM Corporation 2011

IBM United Kingdom Limited
PO Box 41
North Harbour
Portsmouth
Hampshire
PO6 3AU

Produced in the United Kingdom
November 2011
All Rights Reserved

IBM, the IBM logo, ibm.com and Maximo are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. A current list of other IBM trademarks is available on the Web at "Copyright and trademark information" at: ibm.com/legal/copytrade.shtml.

IBM and BPD Zenith are separate companies and each is responsible for its own products. Neither IBM nor BPD Zenith makes any warranties, express or implied, concerning the other's products.

References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program or service is not intended to imply that only IBM's product, program or service may be used. Any functionally equivalent product, program or service may be used instead.

All customer examples cited represent how some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

This publication is for general guidance only.

Photographs may show design models.

Please Recycle

TIC14202-GBEN-00