
Oracle Enterprise Asset Maintenance

Implementation at Solid Energy New Zealand Limited

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Coal was the fuel of the 19th century Industrial Revolution, generating steam in boilers to drive engines in factories, ships and trains. In New Zealand coal mining began near Dunedin and was established on the West Coast and at Huntly by the 1870s.

Today coal produces 37% of electricity generated worldwide – 86% in Australia, 56% in USA, but only 5% in New Zealand – at Huntly power station.

In New Zealand agriculture, cement, timber and industrial processing all rely on coal to power their plants.

Coal is essential for iron and steel production – over 80% of coal produced by Solid Energy is used in the steel industry in New Zealand and overseas. As well as steel, coal is used to make a range of everyday products from golf clubs to mountain bikes, water filters to kidney dialysis machines and even cosmetics.

Solid Energy New Zealand Limited (Solid Energy) is a state owned enterprise that mines, markets and distributes around 3 million tonnes of coal per annum from its 8 opencast and underground mines. Annual turnover is over NZ\$250 million and over half of its annual output is exported as hard and semi-soft coking coals. Our major customers are in Japan, China, India, South Africa, and South America.

Our head office is in Christchurch with sites throughout New Zealand. We directly employ 500 people and over 200 more work as external contractors at the two largest opencast mines.

Today coal is won using modern high tech equipment and leading edge mining practices – the days of pit ponies and canaries are long gone. To support our business requirements we required a wide footprint ERP one that included Supply Chain, Financials, Asset Management and Business Intelligence.

SOLID ENERGY ORACLE ENTERPRISE ASSET MAINTENANCE STATISTICS

- Approximately 500 individual meters on plant
- 550 Asset Activities and Schedule definitions
- Work Orders are generated twice a week
- 3 sites are live
- 100 to 120 Work Orders are generated per week nationally
- 5,000 Plant items are maintained on Oracle Enterprise Asset Maintenance Module

BACKGROUND

Solid Energy used Oracle 10.7 for its core financials.

Solid Energy used different Plant maintenance systems throughout the company to plan, schedule, budget and undertake their plant maintenance. None of the systems were integrated with Oracle 10.7 core financials.

The Procurement function at Solid Energy was outsourced and detailed costing information was not being recorded on the Plant maintenance history.

There was a degree of separation between the maintenance and stores function. There was no ability for the Maintenance staff to see what was in the Store via the system provided by the procurement-outsourcing organisation

There was no national plant visibility due to the lack of systems integration between sites.

There was no visibility of the workload at each site especially preventative versus planned.

Management and operating reporting for the maintenance function was almost non-existent.

Decision making was being hampered i.e. how much of the downtime was due to travel, should I purchase the item or make it, actual versus budget, were not able to be answered as the information was not able to be compiled easily or was not being captured.

There was reliance on key members to maintain the existing maintenance systems. This increased the risk to Solid Energy especially at one site as the maintenance system only had one staff member accessing it and the software vendor no longer supported the software version.

SELECTION PROCESS

Solid Energy started the software selection process in late 2001. The software had to provide the following functionality and be integrated.

- Core financials
- Project Accounting
- Procurement
- Plant Maintenance
- Business Intelligence
- Order Management

The ability to support Plant Maintenance well was very important. Plant availability, plant productivity, integration with the financials, and capture of maintenance costs were all important value drivers. Solid Energy had tried to implement Engarde (a plant maintenance package) with Oracle in 1997. The implementation was not successful for a number of reasons including: -

- It had proved too complicated for users who had poorly developed computing skills.
- Integration with Oracle financials had never been successful. This requirement was essential.

We utilised demonstration scripts and specific requirement qualification requests to assist with the software selection process. For Oracle Enterprise Asset Maintenance we did site reference checks.

One site reference check was with an Oracle site in the States that was implementing Enterprise Asset Maintenance. We then spoke to Alcoa implementation team members. Alcoa at that point had provided the majority of the customer input into the Oracle Enterprise Asset Maintenance module.

We discussed with Oracle the additional support we would receive under The Enterprise Asset Maintenance (EAM) Early Adopter Program for the Oracle Enterprise Asset Maintenance module if we did select them.

Before our last demonstration I was able to spend a day with the Oracle Enterprise Asset Maintenance Pre-Sales person assisting him plan the next demonstration to our implementation team. During this time I was able to see the product without the ‘tinted glass’ of a planned demonstration. This session facilitated confirmation that the product was robust enough to support all our major requirements – albeit inelegantly in some areas.

IMPLEMENTATION

Oracle Enterprise Asset Maintenance can be difficult or easy. We took the minimalist approach and this had proved to be the correct build for Solid Energy. We implemented Enterprise Asset Maintenance without customisation.

There is a tight integration between Oracle Enterprise Asset Maintenance and other modules in Oracle – specifically for Solid Energy this means Inventory, Purchasing, Accounts Payable, iProcurement, General Ledger and Project Accounting. It is essential that the implementation team members are experienced in the other modules so that they understand the impact of their decisions.

We rolled out Oracle Enterprise Asset Maintenance 6 months prior to the procurement process going live. This meant that the maintenance staff used Oracle Enterprise Asset Maintenance for planning and scheduling work but not for cost collection. Full benefit of Oracle Enterprise Asset Maintenance is now being realised as material commitments and costs are being allocated to the work orders.

LESSONS LEARNT

Solid Energy had two experienced full-time resources allocated to the implementation – one Oracle consultant who is experienced in manufacturing and one external consultant with development experience. The allocation of experienced staff improved the decision-making and the rapport between Oracle development and Solid Energy.

We joined the Oracle Early Adopter programme and this provided us with visibility and direct access to the Oracle Enterprise Asset Maintenance development team.

We had to plan the cutover well as we had preventative maintenance schedules that had to be synchronised with the existing legacy systems. We found that the Preventative maintenance schedules had ‘lapsed’ in the Legacy system so that there was a backlog of work when we transferred the information to Oracle.

Oracle Enterprise Asset Maintenance was not built for paper Work Orders and some of the functionality to support paper work orders is missing. An example is the ability to identify if a work order has already been printed or not. Additional business procedures were required to ensure that work orders were not doubled up or missed.

If budgeting per plant asset is required then the Project Accounting module will need to be implemented as Oracle Enterprise Asset Maintenance utilises the budgeting functionality in Project Accounting. This adds another level of complexity and the testing for Enterprise Asset Maintenance and Projects is increased substantially.

If Rebuildable items are to be tracked ensure that the business procedures are agreed and your financial team and implementation team understands the financial implications of Rebuildable item transactions.

Have clear definitions of what a Rebuildable is and record it as such. When we started to reconcile the plant we were not sure which items had been expensed and which were sitting in the Fixed Asset register. Also each site had a different naming convention so difficult to start with conformity.

Ensure the users are computer literate. Not all our users were comfortable with Windows, as they had been using character-based systems. Upgrade their computer skills before putting them on the system.

Oracle Enterprise Asset Maintenance separates functionality that Inventory Store people would undertake so that previously the maintenance staff worked autonomously but now they have to work closely with the stores people to complete and close their Work Orders.

There are limited standard reports within Oracle Enterprise Asset Maintenance so we had to build the Oracle Enterprise Asset Maintenance End User Layer in Discoverer to enable the users to gain access to their data. The reports written so far: -

- Asset Hierarchy Detail
- Cost Versus Budget per Period
- Asset Work History
- Meter Readings Recorded
- Work Order Document
- Rebuild Work Orders by Site
- Planned versus Unplanned Work

There is currently no integration of Oracle Enterprise Asset Maintenance with Oracle Fixed Assets so manual workaround is required to keep both reconciled.

We had issues with screen sizing running Citrix on some of our older hardware. This meant that Oracle was perceived to be difficult to use at the remote sites. This affected the acceptance of Enterprise Asset maintenance. We have upgraded the hardware at these sites.

Scheduled preventative maintenance work orders cannot be released until the prior one has been completed. As Solid Energy maintenance work order movement is paper based we need to ensure that the work orders are returned promptly.

Oracle Enterprise Asset Maintenance has been built by reusing functionality from other existing modules. This provided functional stability to Oracle Enterprise Asset Maintenance but makes navigation cumbersome for some functionality.

RETURN TO SOLID ENERGY OF EAM IMPLEMENTATION

- Less reliance on Key staff members within Maintenance division to run the system as knowledge has been transferred to other staff.
- Maintenance procedures have now been documented.
- Reports written so far have provided the planners with tools to improve performance
- Maintenance staffs now have visibility of what inventory items are on hand.
- Maintenance staffs now have visibility of the status of their Purchase Orders.
- Can now compare actual versus budget costs per plant item.
- Have a complete history of all work completed on all the plant.
- Standardised procedures throughout the company.
- Asst Hierarchies have been cleansed during the transfer to Oracle Enterprise Asset Maintenance
- Rebuildable Items now have a standardised naming convention and item attributes
- Rebuildable items have been reconciled with the Fixed Asset register
- Stores and Maintenance staff now work closer together
- Finance staff have greater understanding of what impact the Maintenance transactions have on the General Ledger
- Able to do preventative maintenance on the 'Ropeway' without having to implement bar coding
- Integration of Maintenance with the financial system
- Visibility of Maintenance team performance to Management team
- Improved discipline within the Maintenance team i.e. lapsed preventative Work Orders now have visible impact
- Preventative maintenance planning and scheduling of work to be performed is now structured
- Less downtime due to high cost unplanned maintenance being minimised
- With more information being captured can move to predictive maintenance
- Have the information to create an effective plan that maximises the performance and availability of an asset for its life span at an effective cost

About the Author

Linda Glucina is the Systems Accountant for Solid Energy. During the last year Solid Energy have upgraded their financials from 10.7 to 11i and implemented iProcurement, Enterprise Asset Maintenance, Projects and Business Intelligence.

Previously Linda was a Senior Manager with Deloitte Touche Tohmatsu where she specialised in financial systems and surrounding applications. At Deloitte she played a pivotal role in the successful delivery of core systems for many prominent New Zealand organisations.

Before returning to New Zealand, Linda was based in Australia where she worked for a number of financial system vendors and accounting firms. Here she was involved with the sale, support, project management and implementation of numerous financial packages in a range of industries including retail, wholesale, manufacturing, and service. .

Linda is a Certified Practising Accountant (CPA) and also has American Production and Inventory Control (APICS) certification. Linda has 20 years commercial experience, the last eight of which has been solely with financial accounting software.