

Brunei LNG

New ways of Working – Maintenance Execution

Brunei Liquefied Natural Gas (BLNG) is the first LNG plant of its kind in the western pacific, an ambitious joint venture between the Brunei government, Shell and Mitsubishi. Completed in 1972, the 5-Train, 130 hectare facility with more than 500 working personnel focuses on large scale liquefaction and transportation of natural gas which commands a sales volume of 6.71 million tonnes of LNG annually. BLNG has established itself as one of Brunei's major revenue earners and is expected to have a plant life until the year 2070.

"We are in a totally different place from 6 months ago...I can now effectively manage the performance of my department..."

**Engineering Business
Support Manager**

Key Results

75% Reduction of Maintenance Work Order Backlogs from 5361 to 1298

Increase in workforce Productivity from 18% to 50%

63% Increase in YoY completed maintenance jobs

Implementation of MCS in Maintenance Execution, Planning and Materials Procurement Departments

Clear departmental KPIs and Work Processes

Increase Materials Availability and Stock Accuracy

ANALYSIS

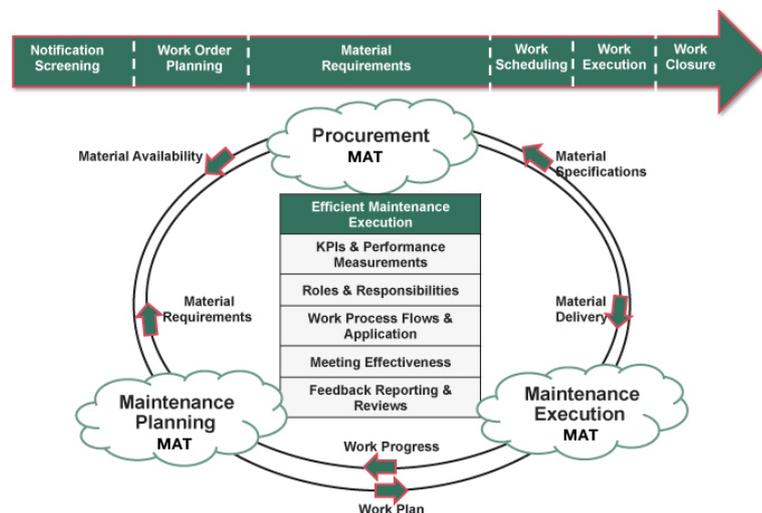
Renoir was approached to conduct an improvement project to revise working practises and increase productivity and performance of BLNG's Maintenance Execution (EME) department. Emphasis was placed on sustainably changing behaviours of EME personnel to enable productivity improvement and at the same time, implement a reduction program on the ever increasing EME work order backlog.

The focus was to design, develop and install changes in (1) Maintenance Planning and Work Order Backlogs, (2) Maintenance Execution Supervisory Routines & Execution Information Systems and (3) Materials Management Practices.

PROJECT APPROACH

The Project kicked off with Renoir's Focus Process® and Implementation, developed over many years and based on experiences with hundreds of successful assignments. It ensured that consistent and sustainable outcomes were achieved. The process took BLNG's staff through a learning experience that promoted commitment and ownership of the solutions being implemented, whilst retaining the company's essential organisational goals and corporate identity.

To achieve maximum impact and buy in, "Management Action Teams" (MATs) were set up, led by BLNG's Business Improvement, Maintenance Planning, Maintenance Execution and Material Procurement managers to directly engage the EME team in implementing the required improvements.



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PROJECT DELIVERABLES

Renoir, together with the BLNG MATs, were able to design, develop and install improved Management Control Systems (MCS) and work processes in Maintenance Planning, Execution and Materials Procurement. The MCS and work processes provided complete information loops from the start to completion of maintenance execution jobs, empowering managers to take effective management actions and monitor departmental performance.

The BLNG project provided the respective departments with key performance indicators that are applicable not just at ground level but also reported to BLNG board of directors. Clear work processes, roles & responsibilities and performance reviews were established for Planners, Supervisors and Technicians, enabling the identification of improvement areas and the appraisal of high performing individuals. EME workforce productivity, a mere 18% at project start, increased to an average of 52%, five months after project implementation. This enabled EME to achieve a 63% increase in job completion compared with the previous year (see diagram below). Total Maintenance Backlog was also significantly reduced from a high of 5361 down to 1298. The diagram below shows the reduction in daily maintenance backlog.

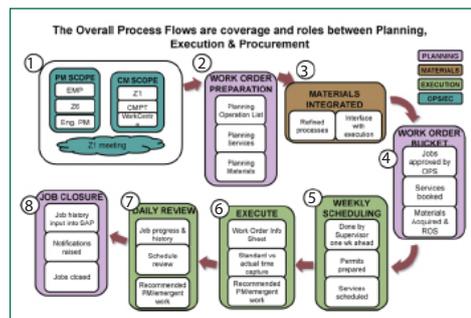
The Project has also resulted in the advancement of BLNG as a whole. BLNG's Maintenance Execution compliance to GAS-GAME, a Shell Global Solutions Assets Management audit, increased from 44% to 72% (preliminary results). The EME department's ability to improve the timely execution of maintenance jobs ultimately contributed to the improvement of BLNG's plant integrity.

In conclusion, the MCS is now an integral unit of BLNG's EME department; it has enabled and empowered the Planning, Maintenance Execution and Procurement Teams to take actions to improve the performance of their respective departments.

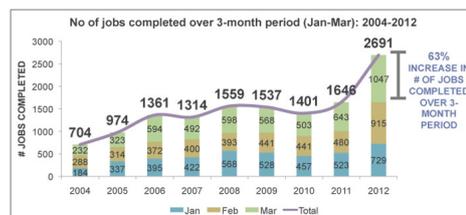
THE RENOIR GROUP

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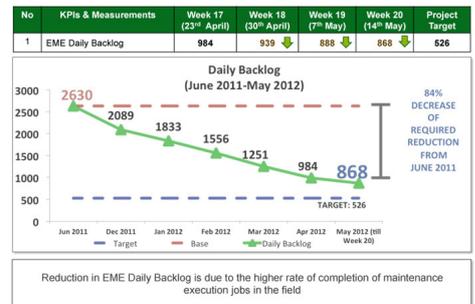


NEW WAYS OF WORKING



Source: JWB Transactions from SAP, 2004-2012
Over a three-month period from January to March 2012, the number of jobs completed by Maintenance Execution increased 63% over the previous year (from 1646 to 2691). This is a clear demonstration that the new way of working is allowing more jobs to be executed on a weekly and monthly basis.

INCREASED JOB COMPLETION



BACKLOG REDUCTION

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