

Macquarie Generation Implementing Work Clearance Management

[Macquarie Generation](#) – the largest electricity generator in Australia – has completed a trial of Work Clearance Management ([WCM](#)) and is now working towards full implementation.

Macquarie Generation owns and operates Bayswater and Liddell Power Stations in the Hunter Valley of New South Wales, about 130 km northwest of Newcastle. Their eight black coal-fired steam turbine generator units have a combined capacity of 4,640 Megawatts and supply the competitive National Electricity Market.

Macquarie Generation is a State-Owned Corporation, formed following disaggregation of the Government-owned electricity sector in 1996. As a consequence, safety rules have been developed over a number of decades and there is a high degree of confidence attached to them in terms of safety and suitability.

Macquarie Generation cooperates with two other State-owned electricity corporations to maintain consistent safety rules across all power stations in New South Wales. Macquarie Generation's implementation of [WCM](#) reflects the importance of minimizing changes to existing safety rules.

History

In November 1998, Macquarie Generation implemented SAP version 3.1H including the Plant Maintenance Module. An upgrade to version 4.6C was completed in November 2000.

In June 2001 preparations began for a trial of [WCM](#) in the Ash and Dust Plant at Bayswater Power Station. In June 2003 the 'live' trial commenced, but was restricted to the Plant's Fabric Filter cells.

Towards the end of the trial we conducted a user survey to gauge reaction. The survey confirmed that [WCM](#) was not only considered safe but also was viewed as encouraging more uniform compliance with the safety rules. It did not score so highly on the user-friendliness scale and in this respect the team is now focused on enhancing the user interface and training to maximize end user acceptance. In January 2004, the trial was declared a success.

Plan for the Future

Work towards full implementation at Bayswater Power Station is underway. We make extensive use of WCD templates. Our aim is to have almost all Operational WCDs

created as copies of pre-approved WCD templates and to have them used without alteration.

Of course, this requires that WCD templates for all anticipated isolations in an area of plant be created in SAP before implementation of [WCM](#) in that plant area. There is a very significant quantity of work in creating new functional locations for all the points of isolation and in creating the WCD templates (i.e. approved isolations).

Accordingly, we plan to implement [WCM](#) for plant areas sequentially rather than simultaneously. This means that for a significant period, we will have [WCM](#) and our legacy (paper-based) system running in parallel. Of course for each plant area only one of the systems ([WCM](#) or paper-based) will be in use at any time.

Key Features of the Macquarie Generation Implementation

- SAP offers a choice of two models for [WCM](#) – standard and enhanced. We use the standard model.
- We make use of both multiple use tagging and conflict checking.
- We use links between WC applications and documents in the Document Management System (DMS) to control and record compliance with procedures for working in confined spaces and carrying out hot work in high risk areas.
- We have made a lot of modifications in order to achieve a system that is inherently safe (and in compliance with our Rules) rather than depending heavily on the users to use the system in a safe manner. Of course, deciding what needs to be isolated to allow work to proceed safely and actually carrying out the isolation is still entirely up to the users and requires skill, detailed plant knowledge and care.
- We are now collaborating with SAP with the goal of having these enhancements included as part of the standard [WCM](#) product.

Conclusion

While implementation has proved to be a relatively long process, it has been handled largely with in-house resources, including a small, mostly part-time team.

At Macquarie Generation we see significant potential in [WCM](#) – more than enough to justify the effort involved in implementation.