Permit to work: The integrated safe system of work

Ally Oliver, Operations Manager – Projects, Woodside Energy

The Need

Permit to Work – The Integrated Safe System of Work

Woodside's Integrated Safe System of Work (iSSoW) is an innovative approach to the safe management of work. Already in place across all Woodside's operating facilities, the system uses a purpose-built software package to assist with risk assessment, isolation management, coordination of multiple activities, and the approval and authorisation of work.

iSSoW has already demonstrated its value through a significant improvement in the quality of risk assessment, and is helping to drive changes in safe work behaviours throughout the organisation.

The Starting Point

Woodside's work management processes had evolved and diverged over 25 years. There was no single "Woodside way of doing things".

This approach generated significant barriers to effective work management, and impeded the company's learning ability. There was room for improvement:

- More than 60% of incidents had permit-related causal factors.
- Top-heavy bureaucracy – Around 5000 pages of permit procedures.
- Over-use of permits.
- Ineffective learning of lessons across the organisation.
- Inconsistent interpretation and application of the rules.
- Mobility of personnel between sites was made unnecessarily difficult.

The Development Process

Stakeholder Engagement

With approximately 4000 stakeholders, it was important to ensure consistent expectations throughout the company. Through Senior Management endorsement, setting clear and ambitious expectations, and continuous 2-way stakeholder engagement, a successful end product was achieved with minimal effort.

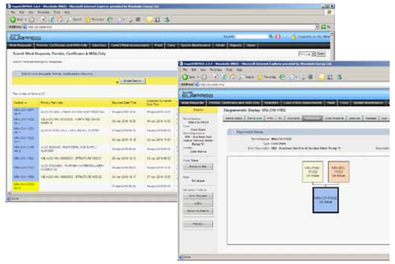
Selection of the Team

Each facility was represented within the small development team. The members were fully conversant in permitry systems, disciplined in the application of system rules, and capable of innovating and seeking improvements in every area. They engaged end-users to ensure system design was optimal.

Research

Other permitry systems were deconstructed and assessed allowing fast-track identification of best practice. Innovative solutions were developed where existing systems were seen to be sub-optimal.

Key learnings from Piper Alpha (Cullen Enquiry), Texas City (Baker Report) and other major incidents were critical to the design process.



System Development

The system consists of business rules enforced through software, integrating the 3 elements of Risk Management, Isolation Management, and Permitry. Development of a simple, robust and effective system was essential to ensuring successful implementation.

1 **Business Rules**

Simple Business Rules were established to provide clarity and understanding. The rules were consolidated into a workflow, and tested for their effectiveness.

2 **Software**

New-build software was the chosen solution. Business rules were converted into software code. System usability was ensured through intuitive screen design and ergonomics. The system was fully tested throughout to ensure its functionality, integrity, reliability and robustness. It was built to be highly configurable to allow rapid ongoing optimisation.

3 **Risk Assessment Database**

The key to iSSoW's functionality is the HIRA (Hazard Identification Risk Assessment) database. This links Work Categories to Hazards and Controls. To build this large database Woodside engaged system experts and end users.

The Implementation Process

Training

A detailed training programme was developed to ensure application of system rules, and the use of the hardware/software was understood. The training programme was important in ensuring consistent application of the system.

Implementation of the System

Implementation was carried out on one facility at a time managed by the development team. Pre-implementation engagement with site personnel was important to ensure alignment of all stakeholders.

All site practices were open to challenge as part of the introduction of iSSoW.

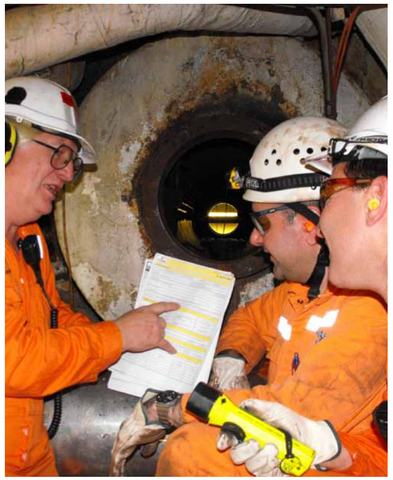
Continuous Improvement

Users were encouraged to provide ongoing feedback. Improvement opportunities were identified, leading to improved business rules and further software development.

Focal Point meetings are held every 6 months to assess system effectiveness and efficiency, and ensure consistency between sites.

Cultural Change

As well as being a powerful tool in ensuring safe work management, iSSoW can be best viewed as a catalyst for further cultural change. Frequent reviews of the iSSoW implementation process were held with other change managers to ensure continual mutual alignment.

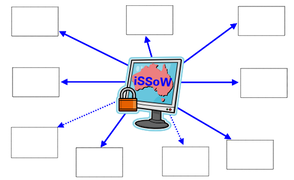


The Result

Results Achieved

While there are undoubtedly significant improvements in permit-related safety performance across the company, it is too early to provide reliable quantification of the results. There are, however some changes that are beyond doubt:

- Nearly 4000 iSSoW users.
- Standard working practice across the company.
- System documentation reduced from 5000 pages to 100 pages (98% reduction)
- An ability to learn lessons rapidly between facilities.
- Increased security of isolation schemes, permit hierarchy and work control.
- Greater hazard awareness among the workforce.
- Spin-off improvements to Emergency Response, organisational structure, etc.
- Increased mobility of personnel due to common systems.
- Significant efficiency gains (eg.isolation scheme preparation reduced from 6 hours to 15 minutes).
- Permit-related incidents reduced from >60% of total incidents to <20%, and continuing to fall.
- Same volume of work being achieved more safely, and with fewer permits.



The Vision

With another skills shortage looming in the Oil & Gas sector, and the high level of transient workforce, there is a good case to be made for standardising safety-critical working practices across the industry.

In developing the system, we have ensured it is equally applicable to other industry sectors. The software has now been adopted within the Power industry in Australia.