



Case Study

Tanker Washing Process

Business Need

The client had recognised the need for an assessment of the Tanker Washing Process within their 14 stage single series production line. The TWP was a critical asset within the production process and had been identified as one of the contributors to production backlog due to unavailability of the TWP itself. Most stages of the

production line did have 'buffer' capacity between stages, except for the TWP.

The Tanker Washing Process was used for cleaning finished products before the next stage of the production process which was component painting.

Solution

It was agreed to perform an RCM (Reliability Centred Maintenance) study on the TWP in order to recognise the modes of failure and contributors to the unavailability losses.

An improvement team made up of an electrical technician, mechanical technician, quality technician and plant operator were brought together to perform the study.

The process began with a failure mode and effects analysis (FMEA) that identified the TWP failure modes in a systematic and structured manner. The team then examined each failure mode to determine the optimum maintenance policy to reduce the severity of each failure.

The chosen maintenance strategy considered the cost, safety, environmental and operational consequences. The effects of redundancy, spares costs, maintenance crew costs, equipment ageing, and repair times were also considered.

Once the optimal maintenance policies had been identified within the RCM process, the team were then able to see the performance predictions and costs, expected spares requirements and maintenance crew manning levels.

The optimised strategy was signed off and uploaded into the CMMS (Computerised Maintenance Management System)

Results

The optimised maintenance strategy was also used to determine several outputs including:

- Maintenance Budget Analysis
- Safety Criticality
- Top Ten Failure Mode
- Availability Prediction

Conclusion

The implementation of the recommended maintenance strategy will reduce business effects by minimising losses to production through unplanned outages and increase plant availability. With a combination of simple methodologies and practical training delivery, Pro-Reliability Solutions support Asset and Continuous Improvement Managers to proactively manage their assets and ensure their equipment delivers the required level of availability while minimising risks to the business.

Whether it is a new project in the design phase or an existing facility that needs improvement, Pro-Reliability Solutions can help customers realise bottom-line results.

This Reliability Study was performed using Isograph Availability Workbench Software.

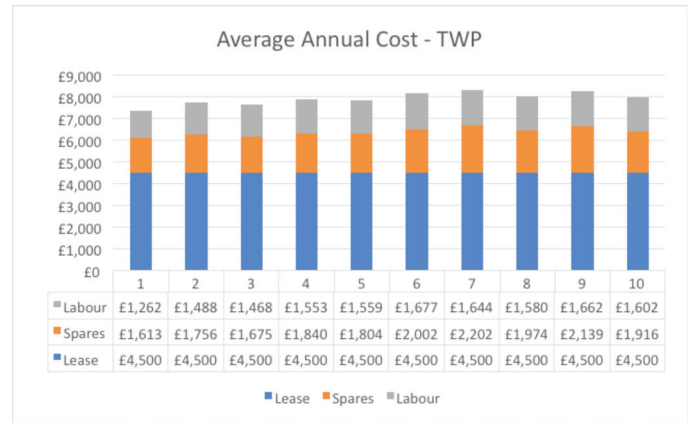
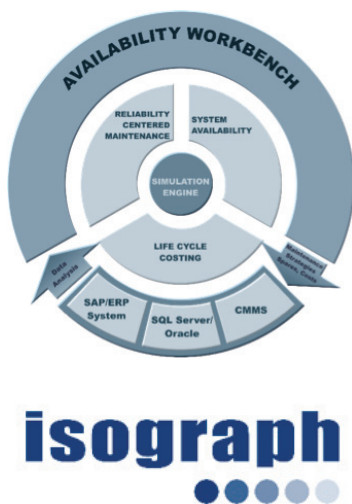


Fig 1 – Maintenance Budget Average Annual Cost

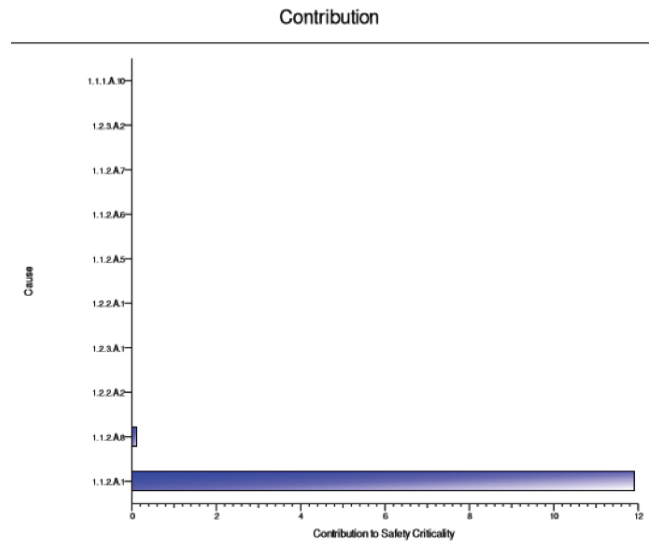


Fig 2 – Safety Criticality

Two failure modes were identified that posed a safety risk

- Spray Jets Blocked – current run to failure maintenance task requires entry into tank to clear blockage.
- Encoder Failure – No commissioning routine exists for replacement of encoder, risk of injury is present if installation is not followed.

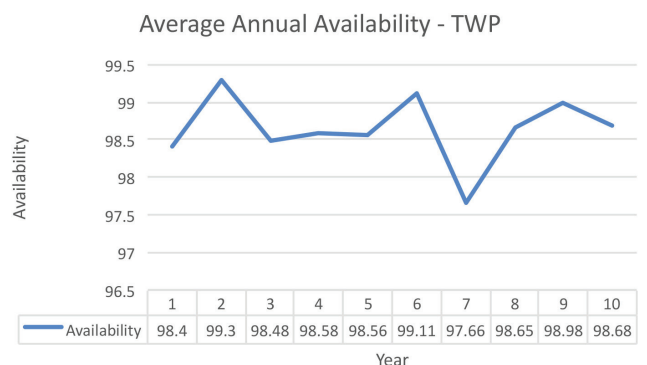


Fig 3 – Average Annual Availability
The average availability was 98.64%