

Case Study

Test and Trial Chemical Production Facility

Business Need

The client had recognised the need for a Reliability assessment of the new test and trial production facility. The plant was designed to create small batches of new product for test and trial prior to going into full production. The facility was mainly single stream with very little redundancy and had

been offline for several years. The purpose of this study was to determine the optimum maintenance strategy for running a 24/7 operation versus running the facility for only 3 months per year. The study did also identify commissioning and shutdown routines for the assets.

Solution

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

An improvement team made up of a mechanical, production and process engineer were brought together to perform the study.

The process began with a failure mode and effects analysis (FMEA) that identified the facilities 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 impact 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.

Results

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

- Strategy Comparison
- Maintenance Budget Prediction
- 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.



isograph

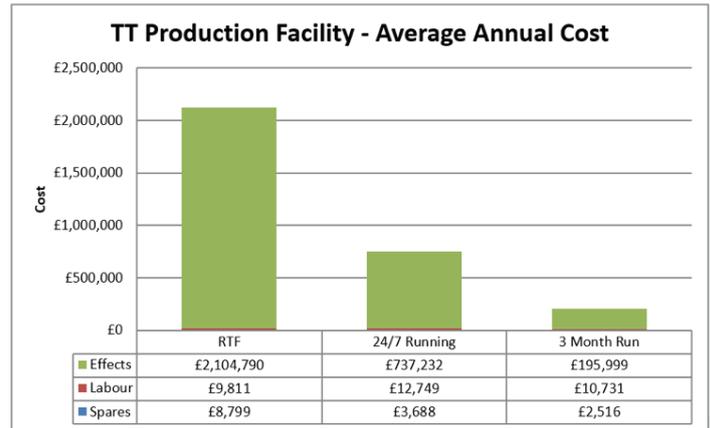


Fig 1 – Strategy comparison – between Run to Failure, 24/7 Operation and 3 Month Run Operation.

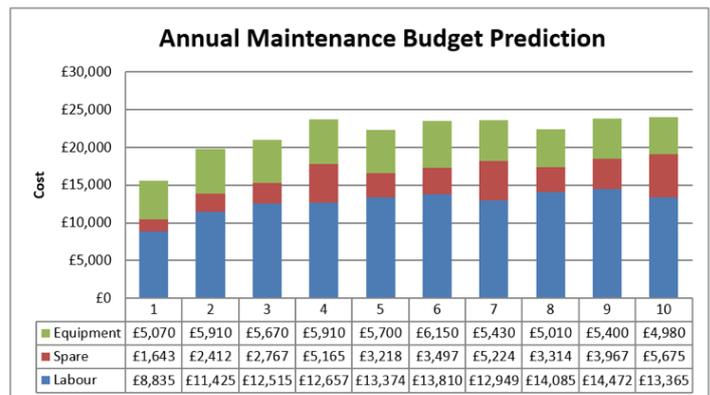


Fig 2 – Annual Maintenance Budget:

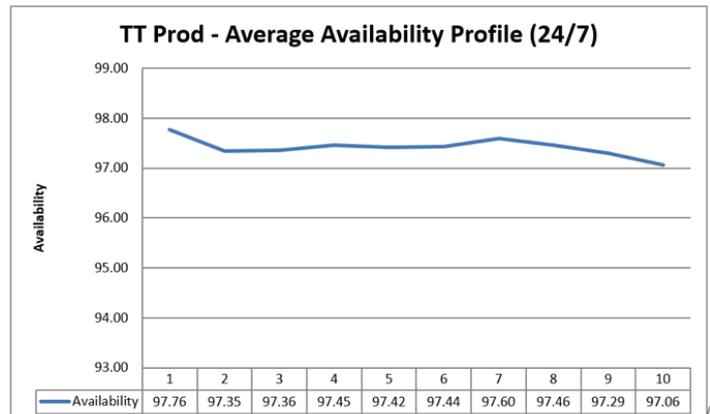


Fig 3 – Average Annual Availability

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Contact Pro-Reliability Solutions to see how they can support your Reliability Journey.

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