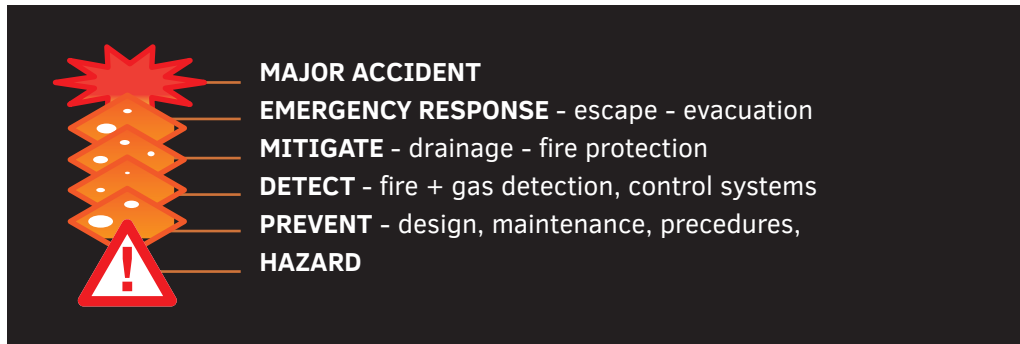


# RELIABILITY ENGINEERING DELIVERABLES

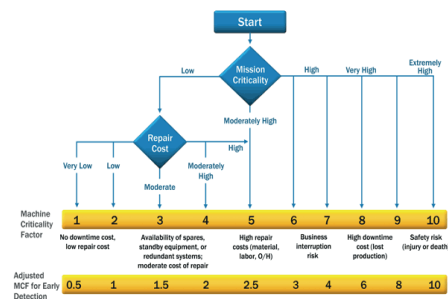
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At PSW Integrity, our certified reliability engineers are professionals who fully understand the principles of performance evaluation and prediction to optimise product, systems, reliability and maintainability.



The optimum approach to implementing and improving Reliability Engineering Programmes.



PSW Integrity is a body of knowledge and applied technologies which deliver, however, are not limited to, Failure Modes and Effects Analysis, understanding human factors in Reliability, Planning and Scheduling,

KPI Dashboard Development, training and the ability to develop Reliability facilitation over the entire product and system.

The best way to predict the future is to create it with PSW Integrity Reliability Programs.

## Reliability Engineering Deliverables

- Asset Catalogue Development
- Criticality Analysis
- RCA—RCM • FMA—FMECA
- Equipment Maintenance Plans
- Consequence Classification
- Spares Optimisation
- Workflow Optimisation
- Maintenance Optimisation
- Lean Manufacturing
- Gap Analysis (Operations & Maintenance)
- Reliability Excellence

## Condition Monitoring Deliverables

- Vibration Analysis
- Ultrasound Analysis
- Infrared Analysis
- Steam Trap Analysis
- Oil Sampling and Analysis
- Grease Handling
- Fluid Management
- Remote Control
- Operational checks
- CM Assessments

# RELIABILITY ENGINEERING DELIVERABLES

V 001

10.19

## Reliability Engineering Deliverables

- ➔ Walk down/Asset Catalog Equip Maint. Plans EMP
- ➔ RCM-RCA-FMA-FMECA
- ➔ PM Evaluations
- ➔ Spare Parts Optimisation
- ➔ Criticality/ Consequence Classification
- ➔ BOM...

### Walk down - Asset Catalogue

An accurate and 'live' Asset Catalogue, developed by the relevant personnel and verified in the field is considered best practice. An asset catalogue is the foundational element of any maintenance or reliability initiative and consists of not only the list of assets but also includes system descriptions, component configurations, component attribute data, hierarchy structure, etc. The reason an asset catalogue is considered 'foundational' relates to the effective management of assets. If there are errors, all maintenance and reliability initiatives will be flawed, leaving the asset without effective management.

## Equipment Maintenance Plan

An Equipment Maintenance Plan Identifies what tasks should be deployed/ implemented to most effectively manage the failure modes present in assets. Best practice programmes plan and schedule at least 80% of daily tasks to drive efficiency and proactive work. It is proven that planned work is 50% more efficient and causes less infant mortality than reactive. A high percentage of daily work hours should be Planned Maintenance (PM), Condition Monitoring and also follow up work created from those inspections. All tasks must be well written and designed to effectively eliminate, manage or inspect failure modes, reduce risk of human error and deliver optimum feedback and history into the CMMS.

### Criticality / Consequence Classification

Criticality Analysis / Consequence Classification is the relative ranking of equipment within a system/plant-based on specific criteria. It is important to carry out Criticality Analysis on all assets to identify which have the biggest impact on operations, safety and environment. Best practice approach is to involve personnel from each area of the business (cross- functional team) i.e. operations, maintenance, health and safety etc. to gain consensus. A Criticality Assessment must be executed by a cross-functional team and can be facilitated by PSW certified engineers. The results of the analysis enable the most effective deployment of the limited resources (spares, manpower, time, condition monitoring) within an organisation.

## PM Evaluations (PME)

PSW has proven that most existing Asset Management programmes contain tasks which are not value-adding, do not address failure modes, are highly dependent on experienced personnel and can be changed to condition monitoring tasks. A best practice asset management programme is a failure modes driven programme. PSW will optimise existing maintenance programmes and compare the PM tasks with world leaders or best practice PM/CM and ensure all tasks effectively address failure modes, reduce human error, drive repeatable and consistent results, maximise ability to plan and schedule/load level, identify the defect before it causes failure and enable senior personnel to make informed decisions based on scientifically proven technologies. Best practice asset management programmes have a balance of PM and CM and asset care routines to maximise reliability and operational integrity.

### Spare Parts Optimisation

Organisations require a different approach to that of the classical min/max method in order to optimise spare parts. Knowledge of MRO (Maintenance, Repair and Operations or Overhaul) items are critical for effective operations and cannot be merely left in the hands of a single person. It requires an integrated approach by all team members to solve the problem. PSW Integrity can facilitate this in helping you with the optimum approach in MRO analysis.

### RCM—RCA—FMA—FMECA

World-class organisations ensure that their maintenance programmes and tasks are failure modes driven. This approach enables them to understand the operation and optimise the performances and reliability. To develop these programmes there is a need for RCM, FMECA, RCA, etc. PSW Integrity has a proven track record of delivering best practice maintenance programmes using our methodologies and best in class tools for efficient and highly effective development.

