

Asset Assessment Form *(Condition, Vulnerability, Capability, Criticality)*

Site/Plant
Area

System

Asset No.

Asset description

Asset Mission *(primary function)*

Processed medium/output or service

Assessment *(score/rank/notes)*

Process hazards *(tick as applicable)*

- Flammable/explosive
- High pressure
- Low temperature
- Biological
- Toxic/asphyxiating
- High temperature
- Corrosive/caustic
- Mechanical/Electrical

Item is capable incapable of performing its present mission

Maintenance approach *(tick as applicable)*

- Major refurbishment desirable
- Planned preventive
- Running spares needed
- Modification desirable
- On-condition monitoring
- Insurance spares needed
- Better access desirable
- Run-to-failure
- Redundant item desirable

Item/Asset

Age

Years in service

Obsolete? Yes No

Condition

Good Fair Poor

Condition score (out of 10)

Reliability

- Very high failure rate, serious deficiencies
- Frequent failures/loss of adjustment
- Infrequent failure

Service/Operating point

- Usual operation is at item's nameplate rating/capacity
- Usual operation at c.75% rating
- Usual operation well below rating

Robustness

- Precision equipment, needs careful handling
- Special/customised design
- Normal, well-proven standard design
- Very robust, highly resistant to transients and abuse

Maintainability

- Very complex, access/surveillance difficult, special skills needed
- Complex, access/surveillance difficult
- Complex, surveillance easy
- Not complex, easy access and surveillance

Origin

- Foreign supply, associated software not available
- Foreign supply, no after-sales service
- Local supply, low volume production
- Local supply, high volume production

Country of origin

Acquisition cost

- Very high
- High
- Moderate
- Low

Operating Context

Operating pattern*

- 3 shift (24/7) operation
- 2 shift operation
- 1 shift operation

Frequency and length of routine operational (opportunity maintenance) outages within scheduled availability periods

Dependency*

- Continuous operation in primary production cycle, equipment not 'spared' (includes mandatory state of readiness for reasons of safety)
- Discontinuous operation in primary cycle, not spared
- Buffered (intermediate product stock forhours operation)
- Auxiliary cycle, not spared
- Duplicated/spared/redundancy:

No. units.....Capacity.....%

- Independent

Ambient conditions

- Arduous (corrosive emissions/splashes or mechanical shocks, etc)
- Dirty/dusty/fouling environment
- Average industrial environment
- Clean conditions

Installed:

- Outdoors/exposed Indoors/covered

General Notes

1. Maintenance is fundamentally an in-service failure avoidance activity which mitigates unacceptable risks to the business.
2. Before a preventive maintenance program can be reasonably applied to an asset in poor condition, it must first be refurbished to an adequate 'baseline' condition, that is, to state in which it can adequately achieve its mission.
3. An asset in good condition may still not be capable of doing what is expected of it because of unsuitable design. New types of product or new performance standards may have been introduced into the facility such that a previously capable asset becomes incapable of fulfilling the new criteria. The asset must then be modified or replaced. No amount of maintenance can solve the problem of inherent incapability.
4. The preventive maintenance plan applied to an asset is decided in consideration of a number of influences, including: the nature of the asset, its context of operation and the consequences of an in-service failure.
5. An asset (or its environment) can also be modified to increase maintainability, that is, to make easier or more economical to perform maintenance on the asset. Repair time (MTTR) and cost decreases
6. A multiplicity of influences affect an asset's criticality and vulnerability, including human factors. System modelling is imprecise and assessment is an indicative, not a definitive process. Parameters marked with an asterisk* have a very marked effect on an asset's criticality rating. Any change in these parameters requires a reassessment of an asset's criticality and maintenance approach.

Impact of Failure

Consider the effects of the asset's credible failure modes.

What would happen if the asset failed in service? What is the worst credible scenario?

Establish the failure modes and effects using failure history, engineering judgement and FMEA

System mission

- Complete loss of capability. Production stops immediately/essential services are curtailed (item is not 'spared')
- Production rate/essential services significantly impaired
- Quality impact, production must be reworked/service offering unacceptable
- Fault allows acceptable/saleable output to continue. Repairs deferrable

Equipment damage

- Collateral destruction or significant damage to other adjacent assets
- Destruction or high cost damage to the item alone
- Significant damage to the item requiring high cost repairs
- Minor degradation/moderate cost repairs
- Negligible

Market and customers*

- Definite deprivation and alienation of customers. Future adverse impact on sales. High business risk
- Promised OTIF deliveries in jeopardy
- Tight delivery program. Disruptive arrangements must be made to cope/logistics cost increases
- No immediate market impact. Manufacture is for stock

Health and Safety*

- Loss of life/general public placed at risk
- Severe injury or long term damage to health
- Moderate injury with full recovery
- Minor injury
- No injury

Environment*

- Emissions causing marked pollution/damage to flora/fauna
- Emissions in excess of current regulatory limits
- Negligible/containable

Assessor:

Date:

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