

## Why is Criticality Analysis important?

Have you ever wasted time and money replacing one electrical component after another on your car, only to find a loose ground wire? The problem would have been located sooner with less cost by using the recommended code analysis tool and information. Not utilizing analysis tools and information to manage plant assets also results in wasted time and money. Criticality analysis is the tool to use if you want to improve reliability and manage plant assets based on risk instead of perception.

The asset criticality ranking is used to help prioritize maintenance work and to identify the most critical assets -- the top 10 or 20% -- for further analysis using Simplified Failure Modes and Effects Analysis (SFMEA). Criticality analysis can be used for more than just ranking each asset. By identifying the characteristics that make each asset critical, the analysis will also provide valuable information to decide what actions will reduce risk for all plant assets.

Gathering input from operations, maintenance, engineering, materials management and EH&S representatives can replace individual perceptions of criticality with agreement and better understanding. As the cross-functional team identifies characteristics significant to the business, everyone learns from others' points of view. Examples of characteristics that could be used to analyze assets include:

- Mission impact
- Customer impact
- Environmental, Health, and Safety impact
- Ability to isolate/recover from single-point-failures
- Preventive Maintenance (PM) history
- Corrective Maintenance (CM) history
- Mean-Time-Between-Failures (MTBF) or "Reliability"
- Spares lead-time
- Asset replacement value
- Planned utilization rate

Saving the worksheet after scoring each asset across all characteristics helps you develop actions that will reduce risk and improve reliability. If the Reliability or MTBF is the characteristic that is making an asset critical, the root cause analysis or failure history can be reviewed to determine the primary failure mode. If possible, eliminate the failure mode or improve the preventative maintenance plans, PdM inspections or operating procedures to improve the MTBF. If mission impact and/or single-point-failure is the characteristic making an asset critical then taking action to reduce the Time To Repair or evaluating the justification for an installed spare should be considered to reduce the risk. As actions are completed to reduce the risk, re-evaluate the Criticality Analysis to keep it current.

Criticality analysis is an important tool that provides valuable information for decisions about work priority, justifying resources to conduct SFMEAs, and developing reliability strategies.

Instead of hoping asset availability and reliability will improve by spending money and time on them, use criticality analysis to ensure resources are being spent in the most efficient way.