

What's the difference between Reliability and Maintenance?



Understanding the relationship between, and differences of, maintenance and reliability is crucial to understanding how to reduce the life cycle costs of heavy-asset equipment in industrial plants. The main difference between reliability and maintenance is that one is strategic and the other is tactical.

Reliability is a strategy, determined by the design of the asset, and is expressed as a probability of an asset performing an intended function for a pre-determined time. Reliability is designed and engineered into an asset, and terminates with a failure of the asset, whether a functional failure or a catastrophic failure. Plant leadership, working with the reliability engineer, determines when a functional failure, perhaps causing lowered product quality, occurs. When asset failure is catastrophic, or total failure results in unreliability, the equipment is leading the plant personnel to repair or replace the asset on its schedule. A proper industrial reliability strategy led by upper management is critical to sustainable plant operations, as safety, emissions, and finance (cost per unit) are directly affected by poor reliability.

Maintenance is the tactical activity of providing for continuity of service and output of quality manufactured products. Inspections and timely component repair or upgrades may extend the assets' useful life, lowering the failure rate and improving life-cycle costs. Once a functional failure is identified, performing prescribed maintenance activities may restore the asset to new or like-new condition before catastrophic breakdown. Maintenance and reliability are therefore interrelated by reduced cost per unit, lowered emissions, and increased safety for plant personnel. Reliability strategy is not a maintenance function, but instead must be driven by operations and led by upper management.

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White Paper
December 2019

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