

Maintenance Optimization

DESCRIPTION

Maintenance optimization is a process that attempts to balance the maintenance requirements (legislative, economic, technical, etc.) and the resources used to carry out the maintenance program (people, spares, consumables, equipment, facilities, etc.). The goal of the maintenance optimization process is to select the appropriate maintenance technique for each piece of equipment within a system and identifying the periodicity that the maintenance technique should be conducted to achieve regulatory requirements, maintenance targets concerning safety, equipment reliability, and system availability/costs. When maintenance optimization is effectively implemented it will: (1) improve system availability, (2) reduce overall maintenance costs, (3) improve equipment reliability, and (4) improve system safety.

The maintenance optimization process will effectively blend predictive, preventive, proactive, and corrective maintenance strategies, often through the use of Reliability Centered Maintenance techniques. This will allow the system's maintenance program to move from a "reactive" approach or a "preventive" approach to a "planned" approach. The "planned" approach conducts maintenance at the most optimum time, which is often before the equipment fails, whereas the "reactive" approach performs maintenance as a result of unexpected failures and the "preventive" approach performs maintenance strictly on a scheduled basis.

A true maintenance optimization process continually monitors and optimizes the current maintenance program to improve its overall efficiency and effectiveness. The effort to initiate the maintenance optimization process can be eliminated over time if additional effort is not taken to sustain the process. The following activities support the sustainment of the maintenance optimization process:

- Removing unnecessary requirements
- Identifying adverse failure trends
- Conducting root-cause analysis of component failures resulting in system events
- Reporting maintenance feedback
- Conducting predictive maintenance analysis
- Monitoring system performance
- Trending preventive maintenance and corrective maintenance historical data
- Conducting surveillance test optimization studies
- Introducing equipment design modifications

The Alion SRC staff has the ability to assess maintenance and reliability data to determine the optimum time for replacement of components before failure. We use Reliability Centered Maintenance techniques to determine the optimal mix of applicable and effective maintenance activities needed to sustain the desired level of operational reliability of systems and equipment while ensuring their safe and economical operation and support. Whether optimizing maintenance before or after the design is fielded the SRC staff has the experience and expertise to ensure the proper mix of corrective and preventive maintenance is identified for any defense or commercial product.