

3.5.5 Define the Maintenance Task

The following factors should be considered when defining the maintenance task:

- a) Once it has been determined that the failure of a facility or equipment item will have a direct effect on the safety or mission operation and redesign cannot improve its reliability, then a PT&I, PM, or PGM task or combination of tasks should be identified that will lessen the chances or consequences of a failure. Where applicable, predictive technologies should be used to monitor the condition of the facility or equipment. If the technology or local expertise is not available, a preventive maintenance program is normally applicable.
- b) Maintenance tasks can be time directed, e.g. every 8 weeks, condition directed, e.g. when pH is greater than 7.3, or inspection directed, e.g. if a component is found worn. A particular bearing can be monitored for vibration (PT&I), routinely lubricated and checked (PM), or replaced prior to its expected failure point.
- c) The total system should be evaluated to ensure that all the individual tasks maintain the system at the same degree of reliability. The tasks should also be grouped to ensure that they can be executed in the most economical manner. This may be by multiple tasks on an individual equipment item or like tasks on numerous items of equipment in a given facility or zone of several facilities.

Refer to Appendix B for typical maintenance tasks and frequency.

3.5.6 Install Redundant Unit

Situations exist where, despite all effective maintenance efforts, the risk of a potential failure is still unacceptable. Very critical areas such as a mission control or communication center may require uninterrupted facility equipment to maintain power or climatic control. The criticality may preclude shut down for maintenance purposes. In these situations, redundancy is justified and recommended. The problem may be corrected through additional distribution or switching of power or ventilation ducts, provided the system can accept the additional loads.

The need for a redundant system should be determined before the situation becomes critical. This will preclude premature failure resulting from a lack of maintenance on a system that cannot be shut down. Often the loss to the mission would be of much greater cost than the redundant system. This need requires close coordination and communication with the customer.

3.5.7 Accept the Risk

It may be that further safety or environmental precautions are not possible or that the economic or operational cost of a failure is insignificant or substantially less than the cost of any effective redesign or maintenance procedure. In the former case, the accepted risk should be identified and quantified, and all parties concerned should be made aware of the risk and appropriate recovery procedures. In the latter situation, it does not make business sense to implement a PM or PGM task. This philosophy is known as 'run-to-failure.'