

their respective strengths in order to optimize facility and equipment operability and efficiency within the given constraints.

Advantages:

- a) Can be the most efficient maintenance program
- b) Lower costs by eliminating unnecessary maintenance or overhauls
- c) Minimize frequency of overhauls
- d) Reduced probability of sudden equipment failures
- e) Able to focus maintenance activities on critical components
- f) Increased component reliability
- g) Incorporates root cause analysis

Disadvantages:

- a) Can have significant startup cost, training, equipment, etc.
- b) Savings potential not readily seen by management

The RCM philosophy employs Preventive Maintenance (PM), Predictive Testing and Inspection (PT&I), Repair and Proactive Maintenance techniques in an integrated manner to increase the probability that a machine or component will function in the required manner over its design life cycle. The goal of the philosophy is to provide the stated function of the facility, with the required reliability and availability at the lowest cost. RCM requires that maintenance decisions be based on maintenance requirements supported by sound technical and economic justification. As with any philosophy, there are many paths, or processes, which lead to a final goal. This is especially true for RCM where the consequences of failure can vary dramatically.

The DMAT has adopted a streamlined approach to the traditional, or rigorous, RCM process practiced in some industries. This is due to the high analysis cost of the rigorous approach, the relative low impact of failure of most drainage systems where the amount of redundant systems is significant. This redundancy reduces the probability and consequences of possible failure.

Underlying the DMAT'S RCM approach is the concept that maintenance actions should result in real benefits in terms of improved safety, required operational capability, and reduced life-cycle cost. It recognizes that unnecessary maintenance is counterproductive and costly and can lead to an increased chance of failure.

3.5.2 RCM Principles

The primary principles upon which RCM is based are the following:

- a) RCM is function oriented. It seeks to preserve system or equipment function, not just operability for operability's sake. Redundancy of function, through multiple equipment, improves functional reliability but increases life-cycle cost in terms of procurement and operating costs.
- b) RCM is system focused. It is more concerned with maintaining system function than individual component function.
- c) RCM treats failure statistics in an actuarial manner. The relationship between operating age and the failures experienced is important. RCM is not overly concerned with simple failure rate; it seeks to know the conditional probability of failure at specific ages (the probability that failure will occur in each given operating age bracket).
- d) RCM acknowledges design limitations. Its objective is to maintain the inherent reliability of the equipment design, recognizing that changes in inherent reliability are the province of design rather than maintenance. Maintenance can, at best, only achieve and maintain the level provided for by design. However, RCM recognizes