

## **Operating Philosophy and Reliability**

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Operational reliability – that is what we actually achieve in our Plants, is almost always lower than the intrinsic reliability that the Plants were designed and built to achieve. To bridge this gap, some managers look for silver bullets. Thus RCM, TPM, Six Sigma or some other process is selected to improve reliability performance. If these are not part of a well thought out plan, sustained results are hard to achieve. The plan will follow steps such as those described below.

1. Get the basics right, viz., keeping machines clean, dry and lubricated
2. Define, communicate and enforce the Operating Philosophy correctly. In the process get operators and maintainers to work together as a team. Jointly define priorities, using a risk matrix.
3. Identify the correct maintenance strategies, using processes such as Risk Based Inspection or Reliability Centered Maintenance if required.
4. Provide training to improve staff skills and competence; evaluate and if required take steps to improve morale and motivation.
5. Map the maintenance process and understand it; use it as a communication tool.
6. Use the maintenance process map to define the right Performance Indicators and use them to improve performance
7. Acquire a Computerized Maintenance Management System which matches your maintenance process and enables performance monitoring. Use the CMMS to plan and schedule work, using defined priorities.
8. Provide the required infrastructure; drawings, procedures, documents, supervision, spares, materials, tools, vendor services and logistics support.
9. Implement changes keeping people's fears in mind. Managing change properly is critical to success.
10. Execute work to the required quality standards. Ensure compliance of scheduled maintenance work at 90% or higher.
11. Encourage a culture that refuses to accept failure. Failure analysis methods such as Root Cause Analysis should be part of the normal work practices.
12. Periodically revise/renew steps that are outdated.

A holistic approach where the importance of achieving high levels of reliability through a properly defined Operating Philosophy is not often recognized. As stated above, this in itself is only one step along the way, but an important one that is sometimes forgotten. The Operating Philosophy describes how we plan to operate our equipment, and provides guidance on the choices to make in running the Plant. Some examples of these are:

- I. Duty/Standby operation of (installed) spare equipment versus alternate running (50:50) or unequal running (90:10 or 75:25 or similar).
- II. Hot or cold standby status of major static equipment such as Boilers.
- III. Spinning reserve of major rotating equipment such as Power Generators.
- IV. Interlocked operation of installed spare Relief Valves.
- V. Steady-state loading or fluctuating loading of Plant, system or equipment.
- VI. In batch processes, whether the batch size is constant or variable, and whether there is a minimum batch size.
- VII. Controls on operational deviations from the design envelope.
- VIII. Practices such as starting up of newly repaired equipment as soon as they are installed and ready.
- IX. Maintenance activities that operators will normally perform, such as testing of safety devices and recording the associated data in the right formats.

Each of these decisions affects the operational reliability of the Plant or system, some quite significantly. Decisions, such as those relating to items II, III, V and VI above may be entirely market-driven in some situations. Where they are in our control, the wrong operating philosophy can reduce operational reliability significantly.

The good news is that Operating Philosophies can be reviewed and where justified, corrected with relatively little effort. Large improvements can be achieved within 6 –12 months of implementation. Unlike some of the other steps, they don't need large inputs of resources or cost a lot of money. They can be implemented within days of taking the decision. However, before making any changes, it is necessary that current reliability and cost performance is measured and that steps 6 and 10 above are in place.

Is there an Operating Philosophy written down, communicated and practiced in your Plant? If there isn't one, you can be sure that the Plant operators will create their own versions, in several makes, models and sizes! So get your Operations Manager on board to help you to improve on your operational reliability. This is low hanging fruit you cannot afford to miss!

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