detailed inspection and testing, repair/replacement of worn components, replacement of bearings, seals, mechanical seals, joints, etc. with new re-assembly, workshop and site testing, re-installation, painting and re-commissioning.

### **Non-Routine Maintenance**

Any activity carried out outside of any programd planned preventative maintenance, e.g. the replacement of a glass window pane damaged through vandalism.

# **Protective System**

A method of protecting employees from cave-ins. Protective systems include; support systems, sloping and benching systems, shield or shoring systems and other systems that provide the necessary protection.

#### Overhaul

A fixed time based replacement which should be done for very critical machines and the percentage should be minimum.

# **Planned Inspection**

Equipment assessments made during performance of operations staff normal activities.

## **Planned Repair**

Repair resulting from planned inspection and/or preventative maintenance, as well as recommendations of operations staff arising from equipment assessments made during performance of normal duties.

# **Predictive Maintenance (History Trigger)**

A monitoring system that uses trend analysis and test data to help identify equipment condition and ensure repairs are planned for resulting in longer machine life. Predictive maintenance = Inspection = Condi. Mon. - finds problems, done on a schedule based on failure developing period. Condition of any equipment is monitored by taking vibration readings.

## **Preventative Maintenance** (Time Trigger)

This is time based maintenance program. PM frequency is decided on the basis of Criticality of equipment and nature of fluid it is handling. Preventive Maintenance are actions that prolong life such as lubrication, cleaning and alignment. Verification and/or maintenance and/or adjustment of equipment to correct any detected performance problems. Isolation of out-of-specification equipment. Re-testing equipment to verify performance. Typical tasks will include:

Replace oil; check bearing floats, replace grease (bearing/gear coupling); clean filters and strainers; dismantling of coupling to check coupling shims and carrying out alignment check and correction (as alignment is cause for many failures).

#### **Reactive Maintenance**

An activity requiring the 'reaction' of the Contractor to an unscheduled activity and which only requires his or his sub-contractors attendance to rectify. Typically a pump failure or the temporary installation of a mobile generator to allow pumping to continue in the event of a prolonged power outage. Reactive Maintenance = No planning, when it breaks fix it.

## Refurbishment

Correction of defects, enhancement of the equipment's condition resulting in an extended useful life.

### Repair

Correction of a defect without extending the equipment's useful life.