

Standard Operating Procedure (SOP): Equipment Inspection and Condition Monitoring Procedures

This SOP details **equipment inspection and condition monitoring procedures**, encompassing regular visual inspections, operational performance assessments, maintenance scheduling, fault detection methods, and record-keeping standards. The objective is to ensure all equipment remains in optimal working condition, prevent unexpected breakdowns, enhance safety, and extend the lifespan of machinery through systematic monitoring and timely interventions.

1. Purpose

To outline the procedures for systematic inspection and condition monitoring of equipment, thereby ensuring equipment reliability, safety, and extended operational life.

2. Scope

This procedure applies to all personnel involved in the operation, inspection, and maintenance of facility equipment.

3. Responsibilities

- **Maintenance Team:** Carry out scheduled inspections, condition monitoring, and maintenance tasks.
- **Supervisors:** Ensure compliance and address issues promptly.
- **Equipment Operators:** Report faults or abnormal equipment behavior immediately.
- **Record Keeper/Administrator:** Maintain inspection and maintenance records.

4. Procedure

1. **Visual Inspection**
 - Inspect equipment surfaces, wiring, and safety shields for signs of wear, corrosion, leaks, or external damage.
 - Check for loose bolts, nuts, or fasteners.
 - Document any abnormalities or potential hazards in the inspection log.
2. **Operational Performance Assessment**
 - Verify equipment is operating within its specified parameters (e.g., temperature, vibration, speed, output).
 - Listen for unusual noises, vibration, or overheating during operation.
 - Test all safety features and emergency stop mechanisms.
3. **Condition Monitoring**
 - Use diagnostic tools and sensors for vibration analysis, thermal imaging, oil analysis, or other relevant methods.
 - Monitor and record equipment metrics on a regular schedule (daily, weekly, monthly, as appropriate).
4. **Fault Detection and Reporting**
 - Immediately report any signs of abnormal performance or potential failure to the maintenance supervisor.
 - Tag or isolate faulty equipment if safety is compromised.
5. **Maintenance Scheduling**
 - Schedule preventive and corrective maintenance based on inspection and monitoring outcomes.
 - Update the maintenance calendar and notify relevant personnel of upcoming maintenance activities.
6. **Record-Keeping**
 - Complete all inspection, condition monitoring, and maintenance records in accordance with documentation standards.
 - Store records in a dedicated logbook or electronic maintenance management system (EMMS).

5. Documentation and Records

Record Type	Responsible	Storage Location	Retention Period
Inspection Logs	Maintenance Team	EMMS/Logbook	3 years
Maintenance Schedules	Supervisor	EMMS	3 years

Condition Monitoring Reports	Maintenance Team	EMMS/Logbook	3 years
Fault Reports	Operators/Maintenance Team	EMMS/Logbook	3 years

6. Review and Continuous Improvement

- This SOP shall be reviewed annually or following any significant equipment change or incident.
- Feedback from inspections, breakdowns, or audits must be used to update and improve the procedures.