

Standard Operating Procedure (SOP)

Safety Protocols and Lockout/Tagout Procedures During Maintenance

This SOP details **safety protocols and lockout/tagout procedures during maintenance** to ensure the protection of workers from hazardous energy sources. It includes steps for identifying energy sources, applying lockout/tagout devices, verifying energy isolation, and safe equipment reactivation. The objective is to prevent accidental startup or release of hazardous energy, thereby minimizing the risk of injury or fatality during maintenance activities.

1. Purpose

To establish systematic safety procedures for lockout/tagout (LOTO) during the maintenance and servicing of equipment, thereby safeguarding personnel from hazardous energy releases.

2. Scope

This SOP applies to all employees and contractors involved in maintenance, repair, cleaning, or servicing of equipment where unexpected energization or release of hazardous energy could cause injury.

3. Responsibilities

- **Supervisors:** Ensure all personnel are trained and SOP is followed.
- **Personnel:** Comply with all steps in this SOP and report any unsafe conditions.
- **Safety Team:** Review and update this SOP as required.

4. Definitions

Term	Definition
Lockout	Physical application of a lock to an energy isolating device to prevent operation.
Tagout	Placement of a tag on an energy isolating device to indicate that equipment may not be operated.
Hazardous Energy	Electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other potentially harmful energy.

5. Procedure

1. **Preparation**
 - Identify all energy sources associated with the equipment (e.g., electrical, mechanical, hydraulic).
 - Review equipment diagrams and previous maintenance records.
2. **Notification**
 - Inform all affected employees of planned maintenance and LOTO procedures.
3. **Shutdown**
 - Shut down the equipment following standard procedures.
4. **Isolation**
 - Physically isolate all hazardous energy sources using disconnect switches, valves, or other devices.
5. **Application of Lockout/Tagout Devices**
 - Apply appropriate lock(s) and tag(s) to each energy-isolating device.
 - Each person involved in the maintenance must apply their own lock.
6. **Release of Stored Energy**
 - Safely relieve, disconnect, restrain, or otherwise render safe all stored or residual energy (e.g., bleed hydraulic lines, discharge capacitors).
7. **Verification of Isolation**
 - Test the equipment to ensure energy isolation before starting maintenance (e.g., attempt to start, check voltage).
 - **CAUTION: Always verify that no personnel are exposed before verifying isolation!**
8. **Maintenance/Serviceing**
 - Perform required maintenance or servicing tasks.
9. **Removal of Lockout/Tagout Devices**
 - Following completion, ensure all tools and personnel are clear of equipment.

- Remove each lock/tag by the individual who applied it.
10. **Equipment Reactivation**
- Restore energy sources and notify all personnel before re-energizing equipment.
 - Start equipment following standard operating procedures.

6. Training

- All personnel involved in maintenance and LOTO must receive periodic training in the recognition, application, and removal of LOTO devices.
- Refresher training must be provided annually or following an incident or a change in job assignment/equipment.

7. Documentation

- Maintain records of all LOTO procedures, personnel training, and incident reports for at least 3 years.

8. References

- OSHA Standard 29 CFR 1910.147: The Control of Hazardous Energy (Lockout/Tagout)
- Company Health and Safety Policy

9. Revision History

Date	Revision	Description
2024-06-01	1.0	Initial release