SOP: Machine Operation and Lockout/Tagout Protocols

This SOP details **machine operation and lockout/tagout protocols** to ensure safe use and maintenance of machinery. It includes procedures for proper machine startup, operation, and shutdown, along with steps to identify hazardous energy sources. The lockout/tagout process is outlined to prevent accidental machine energization during maintenance or repair, thereby protecting workers from injury. Compliance with these protocols minimizes risks, promotes workplace safety, and ensures regulatory adherence.

1. Purpose

To outline the steps necessary for safe operation, maintenance, and servicing of machinery, and to prevent accidental energization during maintenance using lockout/tagout (LOTO) procedures.

2. Scope

This SOP applies to all personnel operating, maintaining, or servicing machines where the unexpected energization, start-up, or release of stored energy could cause harm.

3. Responsibilities

- **Supervisors:** Ensure implementation and compliance with this SOP.
- **Operators:** Follow machine operation protocols and comply with LOTO procedures.
- **Maintenance Personnel:** Apply and verify LOTO before servicing or repairing equipment.

4. Definitions

Term	Definition
Lockout/Tagout (LOTO)	A safety procedure to ensure machinery is properly shut off and not started up again before maintenance or repair is complete by securing energy-isolating devices with a lock and tag.
Authorized Employee	Person who implements LOTO procedures and maintenance tasks.
Affected Employee	Person who operates or works near machines subject to LOTO procedures.
Energy Source	Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

5. Procedure

5.1 Machine Operation

1. Inspect machine and surrounding area for hazards or obstructions.
2. Ensure all guards and safety devices are in place and functional.
3. Verify machine is in the â€œoffâ€ position before applying power.
4. Power up machine using designated controls.
5. Monitor machine for abnormal sounds, vibrations, or warning signals.
6. If abnormalities occur, shut down machine immediately and report to supervisor.
7. At completion, shut down machine according to manufacturer's instructions.

5.2 Identifying Hazardous Energy Sources

1. Identify all energy sources connected to the machine (electrical, hydraulic, pneumatic, etc.).
2. Refer to equipment manuals and labeling for guidance.
3. Inform all affected employees before commencing lockout/tagout.

5.3 Lockout/Tagout (LOTO) Protocol

1. Notify affected employees that a lockout/tagout will be applied.
2. Shut down the machine or equipment using established procedures.
3. Isolate energy sources by operating energy-isolating devices.
4. Lock out and tag energy-isolating devices using assigned locks and tags.
5. Release, restrain, or otherwise render safe all stored or residual energy (bleed, block, or dissipate as necessary).
6. Verify machine is de-energized and cannot be started (try to operate controls).
7. Perform servicing or maintenance.
8. Upon completion, remove all tools/materials, reassemble guards, and check that machine is clear.
9. Remove locks and tags (each by the person who applied them).
10. Notify affected employees that equipment is ready for re-energizing.
11. Restore energy and resume normal operation.

6. Emergency Procedures

- In case of accident or unexpected energization, immediately use emergency stop devices.
- Alert supervisor and follow the workplace emergency response plan.

7. Training & Records

- All authorized and affected employees must receive LOTO and machine operation training.
- Maintain records of training, incidents, inspections, and corrective actions.

8. References

- OSHA 29 CFR 1910.147 â€“ The control of hazardous energy (lockout/tagout)
- Manufacturer equipment manuals
- Company safety policies and procedures