Job hazard analysis (JHA): Lockout

Task: Lockout	**Site or job:**
Crew:	**Date:**
Supervisor:	

No.	Job step	Hazard	Controls (most effective first)
1	Know the machine and its energy sources	A hidden energy source is missed	**Administrative control:** Use the written energy control procedure for the machine; it must outline the scope, purpose, authorization, rules and techniques. (29 CFR 1910.147(c)(4)(ii)) **Administrative control:** Before shutdown, learn the type and size of the energy, the hazards and the method to control it. (29 CFR 1910.147(d)(1)) **Administrative control:** Walk the machine and list electrical, hydraulic, pneumatic, gravity, spring and thermal sources, including any that feed from other machines.
2	Notify people and shut down	Operator or a nearby worker is surprised by the shutdown	**Administrative control:** Tell affected employees that a lockout is about to happen and why. **Administrative control:** Shut the machine down in an orderly way using its established procedure to avoid creating a new hazard. (29 CFR 1910.147(d)(2)) **Administrative control:** Use the operator to confirm the process is safe to stop before isolating.
3	Isolate the machine	Machine can still receive power	**Eliminate:** Locate and operate every energy isolating device so the machine is isolated from its sources. (29 CFR 1910.147(d)(3)) **Engineering control:** Use the machine disconnect, valve or breaker; a control switch such as a push button is not an isolating device. **Administrative control:** Isolate the equipment from all sources, including from other equipment that could feed it.
4	Apply your lock and tag	Someone else restarts the machine	**Administrative control:** Have the authorized employee affix lockout or tagout devices to each energy isolating device. (29 CFR 1910.147(d)(4)(i)) **Administrative control:** If an energy isolating device cannot be locked out, use a tagout system under the energy control program. (29 CFR 1910.147(c)(2)(i)) **Administrative control:** Use the employer-provided locks, tags, chains, wedges and blocks. (29 CFR 1910.147(c)(5)(i)) **Administrative control:** For crew work, use a group lockout procedure that gives each person protection equal to a personal lock. (29 CFR 1910.147(f)(3)(i))

No.	Job step	Hazard	Controls (most effective first)
5	Relieve stored energy	Stored or residual energy releases during work	**Engineering control:** Bleed, block, ground, vent or restrain all stored or residual energy, such as springs, pressure and raised parts. (29 CFR 1910.147(d)(5)(i)) **Administrative control:** Recheck for build-up of stored energy while the work is under way. **PPE:** Wear eye and face protection when bleeding pressurized lines.
6	Verify isolation	The machine is not actually dead	**Administrative control:** Verify isolation and deenergization before work starts. Trying the start control with everyone clear is a common way to check. (29 CFR 1910.147(d)(6)) **Administrative control:** Return controls to off after the test.
7	Perform the service work	Pinch points, hot parts and surprise movement while working	**Administrative control:** Keep your own lock on until the job is done, and do not let anyone else remove it. **Administrative control:** Only the authorized employees doing the servicing may perform the lockout. (29 CFR 1910.147(c)(8)) **PPE:** Wear gloves, safety glasses and other PPE for the task.
8	Remove devices and restart	Machine restarts with someone inside or clamped to it	**Administrative control:** Inspect the work area, remove nonessential items and confirm machine parts are intact. (29 CFR 1910.147(e)(1)) **Administrative control:** Have the employee who applied each lock or tag remove it. (29 CFR 1910.147(e)(3)) **Administrative control:** Tell affected employees the machine is going back into service, and do a visual check that everyone is clear.

Required PPE

- Personal lock and tag (29 CFR 1910.147(c)(5)(i))
- Safety glasses
- Gloves for the task
- Hard hat where overhead hazards exist
- Insulating gloves and tester when electrical work is involved

OSHA sections

29 CFR 1910.147 The control of hazardous energy (lockout/tagout); 29 CFR 1926.702 Requirements for equipment and tools

Reviewed with the crew. Names and signatures

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