	LOCKOUT TAGOUT
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PURPOSE

This procedure establishes the minimum Energy Isolation requirements in order to prevent the unexpected energization, start-up, or release of stored energy which could cause injury or equipment damage when servicing or performing maintenance on certain equipment. This Energy Isolation policy includes guidance on energy control procedures, employee training, and periodic inspections to confirm that hazardous energy sources have been isolated and rendered safe before personnel perform servicing or maintenance activities on certain equipment. These activities include, but are not limited to, installing, constructing, repairing, trouble-shooting, and testing.

SCOPE

This policy shall apply to all Rival Services ("Rival") personnel, unless compliance would violate local law or regulation. For the purposes of this document, "personnel" include any agency or leased laborers under direct supervision of the Company where we collect and report their man-hours.

DEFINITIONS

***Affected Employee*:** A person whose job requires him/her to work in an area in which this lockout procedure is used to attain a zero energy state.

Authorized Employee: A person who locks out and tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

Clear: Before starting equipment, clear tools, materials, and personnel from the immediate area.

Energized: Connected to an energy source (mechanical, electrical, hydraulic, etc.) that has not been isolated.

Energy Isolating Device: A device that physically prevents the transmission or release of energy including, but not limited to, the following:

- A manually operated circuit breaker; a disconnect switch; a slide gate; a slip blind; a line valve; blocks (any device that prevents movement due to potential energy in springs, gravity, mechanical tension, etc.); and similar devices used to block or isolate energy. These devices must be properly placed, or in the correct position (on/off; open/closed) to ensure that de-energization occurs.
- An energy isolating device is <u>not</u> a pushbutton, selector switch, or other such circuit control devices.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, potential, chemical, thermal, or other energy.

Lock Box: A sturdy container with the capability of being locked that secures the keys used to lock out equipment. A copy of the lockout plan is always affixed on or near the lockout box.

Lock Box Lockout: A situation in which at least one worker, usually a foreman or higher level supervisor, with the help of a lockout plan and coordination with the appropriate client representative (if applicable), locks out a system at each separate isolation point and places the key(s) in a lock box. Each person working on the job then attaches their personal lock and tag to the lock box, securing the supervisor's key(s) in the box.

Lockout/Tagout: The placement of a lock and tag on the energy isolation device in accordance with an established procedure, indicating that the energy isolating device or the equipment to be controlled shall not be operated until removal of the lock and tag.

Lockout Plan: A written procedure that lists all switches, controls, and/or valves that must be secured in the de-energized position to control energy sources. A lockout plan is attached to a lock box for lockouts that involve more than one energy source. The lockout plan must be thoroughly reviewed and validated before the lockout is completed and work begins.

Try: Verifying equipment zero energy state by attempting to operate it.

Walk-Down: A physical inspection of the locked system with reference to the lockout plan and a thorough review of the entire system to ensure that all energy is isolated, whether or not it was listed on the lockout plan.

Zero Energy State: Commonly abbreviated as ZES, it is the neutralization of all energy sources to afford maximum protection against unexpected movement.

RESPONSIBILITY

All employees are responsible for ensuring the complete and proper application of lockout and tagout procedures. However, the primary responsibility for preventing accidental operation or energization of equipment rests with the supervisor or designee who assumes responsibility for the work in progress.

The supervisor or designee is responsible for clearing of pipes (line breaking procedure), immobilization of valves, removal of radiation sources, and blocking of other equipment to ensure that the system is safe to repair.

A lockout plan is always completed when more than one energy isolation point is involved in the lockout sequence. The supervisor must also prepare a lockout plan for the following conditions:

- When the equipment specified for lockout/tagout is high voltage electrical gear (480V or higher), a qualified electrician (typically third-party) will be responsible for ensuring proper de-energization and lockout/tagout of all energy sources.
- When the purpose of the lockout is to de-energize electrical circuits so personnel can safely work in close proximity to or on exposed electrical parts, a qualified electrician must use test equipment to verify that the exposed parts or elements are not energized. This will always be done after the system has been de-energized, locked out, and tried, but before work on exposed electrical parts is initiated.

ELEMENTS OF LOCKOUT / TAGOUT

Personal Locks: Every individual needing protection from the inadvertent energization of equipment will have a personal lock and tag in place on each energy isolation point identified on the lockout plan or, in the case of a lock box lockout, on the box that contains the keys used to lock out each energy source.

Lockout Plans: Lockout plans (See Rival HSE Policy 10.5.1) are required to be prepared for each lockout. The Supervisor is responsible for in-place equipment lockout plans when initial start-up has been completed. The supervisor responsible for the lockout will thoroughly review the lockout plan prior to locking out energy sources.

Equipment Walk-Down: The supervisor responsible for the lockout will walk-down the entire system or equipment to be locked out and refer to the lockout plan as this review is accomplished. An employee knowledgeable of the equipment should always accompany the supervisor during this review.

Clear**:** Make sure that excess equipment, tools, and people are removed from the immediate area before trying to start the equipment.

Try**:** It is imperative that each switch or energy control be activated after the lockout to ensure that the equipment will not operate. This serves as a cross-check of the lockout plan to ensure that no mechanism remains to energize a system or equipment.

Lockout Requirement**:** Workers must always be protected by at least one lock on each energy isolation point, whether by the supervisor or by each worker.

Locks and Tags**:** Both a lock and a tag be used for all lockout situations including the application of locks and tags on lock boxes. Locks and tags must always be used in field applications.

Subcontractors: Subcontractor personnel who may be affected by the lockout and tagout procedures must submit their energy control procedures to the Safety Coordinator. Affected subcontractor employees will be trained before working on the location.

Lock Box Lockout (Group Lockout) Procedure: This procedure will be reviewed with all affected and authorized personnel prior to the implementation of any job.

- One authorized employee or supervisor trained as an authorized employee will coordinate the lock box lockout/tag out procedure for all such operations.
- Each employee will affix his or her lock and tag to the lock box containing a supervisor's key(s).
- No employee will be allowed to remove another employee's lock or tag.
- Each employee will remove their lock and tag when their part of the operation is completed or at shift change, whichever is earlier.
- When the lockout extends to more than one shift, the off-going shift will remove their locks and/or tags as the oncoming shift applies their lock or tags.

STEPS FOR CONDUCTING LOCKOUT / TAGOUT

1. **Planning the Job**

   Always complete a JHA form before work begins. Ensure familiarization with the energy sources by reviewing the lockout plan and identifying potential hazards. Make sure all switches, controls, and/or valves that must be locked out and tagged for the job are identified in writing on the Lockout Plan, a checklist, a specific procedure, or other form of written documentation.

2. **Inform Affected Employees**

   Employees affected by the equipment or system isolation (who may not be a part of the lockout/tagout crew) must be notified of the lockout and tagout procedures and understand why the procedures are being accomplished. This includes all affected employees, subcontractors, and client employees.

3. **Turn Off the Machine or Equipment**

   Shut down equipment using normal control measures. This will vary according to the type of machinery or equipment, and will be performed by a supervisor or delegated personnel.

4. **Eliminate Stored (Potential) Energy**

Potential energy in springs or blades under tension, residual hydraulic or air pressure, cam rollers, or steam under pressure must be made safe. The equipment must be engineered or otherwise configured so that it cannot re-accumulate energy. The equipment must be periodically observed in order to ensure that stored energy is not re-accumulated and allowed to spontaneously release.

5. Locate, De-Energize, and Isolate All Energy Sources

Use a lockout plan that is up-to-date with current P&ID drawings to identify and de-energize all energy sources. Visually inspect the entire system to ensure that energy isolation devices (breakers, disconnects, valves, etc.) are isolated. Use a lockout plan that has been verified to be current with P&ID drawings to identify and de-energize all energy sources. Walk-down the entire system to ensure the energy is isolated.

6. Lockout and Tagout Switches, Chained Valves or Other Energy Controls

Electrical switches are locked with the assistance of a qualified person from the electrical department.

Valves will always be chain locked or wrapped with the valve handle or fitting secured by the chain so the valve cannot be opened. Valves with positive locking mechanisms where a padlock can secure the valve handle need not be chained.

Automatic valves must be locked out and tagged (or disabled) so they will not activate.

Pipelines that contain chemicals, steam, natural gas, air under pressure or hot water over 140ºF must be isolated by draining the line at the lowest point, closing and locking two valves upstream, opening a drain in between the valves (double block and bleed) or installing a blind flange in the line upstream from the work area.

The tag (“Danger, Do Not Operate” in the ‘OSHA Danger’ format with black, white, and red coloring) is completed with the employee’s name and date written legibly on the tag.

All lockout tags used by employees or subcontractors on the location will be the same OSHA Danger format and construction. A tag attachment device that withstands a 50 pound pull is required.

Each supervisor’s lock may be keyed alike or individually, but the only keys to those locks must always be in the supervisor’s possession when the locks are not being used and secured in the lock boxes during a lockout. Never leave the keys unsecured.

Combination locks must never be used for lockout purposes.

7. Verify Equipment Isolation (Try)

Ensure that the area is safe, and put each control or switch in the "ON" position to verify that the equipment will not operate.

8. Put Operating Controls and/or Switches in the OFF or SAFE Position

Always return the control to the "OFF" position after trying the energy source.

9. Perform Necessary Service or Maintenance

At the end of the shift, personal locks and tags must be removed from the lock box or equipment. The shift lockout supervisor's locks may remain on the field equipment with the keys in the lock box if the work will continue into the next shift. The new shift supervisor assuming control of the equipment/work must review the Lockout Plan, then place his/her locks on the lock box as the outgoing supervisor removes his/her locks.

10. Remove Loose Objects/Equipment from the Machine or Equipment

Tools or foreign object debris must be removed from the equipment in order to prevent damage to the equipment or injury to personnel upon start-up.

11. Reinstall Machine Guards

12. Notify Affected Employees

Employees must know that safety locks are about to be removed and that the machinery or equipment will be capable of re-energization. Check the work area to ensure all employees are safely positioned or removed from the area.

13. Ensure All Controls are in the Neutral or Off Position.

14. Remove Safety Locks and Tags

Each lock must only be removed by the employee who locked it in place.

15. Re-energize the Machine or Equipment

Make sure all affected personnel are a safe distance from the equipment. In most cases, turn the equipment over to the supervisor for re-energizing.

16. Notify All Affected Employees

When servicing or maintenance is completed and the machine or equipment is ready for use, notify all affected personnel that the lockout/tagout procedure has been completed.

REMOVAL OF PERSONAL LOCK AND TAG

Once a personal lock and tag has been placed by an employee, only that employee has the authority to remove the lock. If a lock is inadvertently left on and must be removed, and the employee no longer being on location, the following actions must be completed:

- Ensure that the employee accountable for the lock has actually left the location. This must be done by the Supervisor. If the lock must be removed after the Supervisor's shift, he/she will be called back to the location to assist in determining the reason for the lockout and whether it is safe to remove the lock (if the worker still cannot be contacted).
- Inspect the equipment to be energized to be sure it is safe to remove the lock.
- Exhaust all reasonable efforts to locate the employee who left the lock on the equipment.
- Complete the Personal Lock Removal Authorization form (see Rival HSE Policy 10.5.2, *Personal Lockout Lock Removal Authorization*). The Supervisor or his/her designee must authorize the removal of an abandoned lock and tag.
- Positively advise the employee that his/her lock has been removed before he/she reports to the next shift.

TRAINING

All employees will be given lockout and tagout awareness training during safety orientation. However, authorized and affected employees will be given additional training in the following procedures before any involvement in lockout or tagout:

- The requirements of 29 CFR 1926 and/or 1910 as appropriate.
- The types and magnitudes of energy sources.
- Lockout and tag out procedures for the isolation of energy sources.
- Procedures for both placement and removal of locks and tags.
- Procedures for restoring energy.

Retraining will be given whenever there is a change in job assignment, a change in equipment or processes that would create a new hazard, or whenever a change in procedures is instituted. Refresher training will be given once each year unless the above conditions occur.

This training can be accomplished by using this procedure as a "Toolbox Topic." It will be necessary to include company specific information on the types and size of the energy sources to be locked out. Maintain the original materials utilized for instruction along with completed sign-in sheet with employees' signatures in order to satisfy the recordkeeping requirement.

A list of employees trained and the dates of their training will be maintained by the HSE Department.

ANNUAL EVALUATION

Each year, or as necessary to ensure safety compliance, a review of the Hazardous Energy Control Procedures must be conducted to ensure conformance to this policy. The evaluation should be performed either by a qualified HSE Coordinator or a supervisor who has used this procedure and is familiar with the equipment and lockout system, but is not involved with the procedure being evaluated. The most valuable input comes from the employees using the lockout procedure on the equipment (See Rival HSE Policy 10.5.3, *Lock, Tag and Try Evaluation Form*).

The evaluation results - including the date, equipment inspected, employees included in the inspection, and the name of the inspector - shall be documented and maintained on file within the HSE Department. The evaluation shall also be presented to the Supervisor and action taken to correct deficiencies. The procedure may require changes to prevent further deficiencies.