

POLICY

E & B Oilfield Services Inc. has adopted this lockout/tagout (LOTO) program (also referred to as hazardous energy control) to establish engineering controls and work practices to prevent the unintentional release of hazardous energy during maintenance and servicing of machinery and equipment. Controlling hazardous energies does not just address electrical energy. Other energies include pressurized systems of either gas or liquid such as pneumatic or hydraulic systems, chemical, thermal, radiation, mechanical (such as under tension) and gravity. Control systems are required for all.

E & B Oilfield Services Inc. requires that all employees involved in the maintenance activity will place individual locks and/or tags on each energy isolation device.

REFERENCES

- 29 CFR 1910.147—The Control of Hazardous Energy (Lockout/Tagout)
- NFPA 70E Handbook for Electrical Safety in the Workplace (Arc Flash Protection)

EMPLOYER RESPONSIBILITIES

E & B Oilfield Services Inc. will:

- Establish a program for affixing LOTO devices to energy isolating devices and otherwise disable equipment to prevent unexpected release of energy.
- Ensure the use of safe LOTO procedures by authorized employees.
- Provide all hardware for isolating, securing or blocking equipment from energy sources.
- Conduct and certify inspections of the LOTO procedures at least annually.
- Provide training to ensure the purpose and function of the LOTO program are understood by employees and that the knowledge and skills required for the safe application, use and removal of the energy controls are acquired by authorized employees.
- Ensure training includes limitations of tags in the energy control program (if applicable).
- Inform outside employers who may have employees engaged in activities involving hazardous energy about the LOTO procedures.
- Certify that employees complete and repeat training as needed.

EMPLOYEE RESPONSIBILITIES

Authorized employees (employees who perform maintenance or servicing on equipment that will be locked-out or tagged-out) are expected to:

- Participate in training related to LOTO procedures.
- Comply with all LOTO procedures when maintaining or servicing equipment that requires such controls.
- Only the authorized employees performing the servicing or maintenance will perform the LOTO procedures.
- Review LOTO procedures with the inspector during periodic evaluation.

Affected employees (employees who operate or use equipment where maintenance and servicing require LOTO) will participate and comply with the following:

- Training on the purpose and use of the LOTO procedure.
- Training about the procedure and the prohibition against attempting to restart or reenergize equipment that has been locked-out or tagged-out.

HAZARDS

The unintentional release of hazardous energy during maintenance and servicing of machinery and equipment can present numerous hazards to employees, including:

- Electrocution
- Arc flash
- Being caught in or by equipment
- Crushing
- Amputations

SAFE PRACTICES

Intended Use of Procedure

This procedure establishes the minimum requirements for the lockout of energy-isolating devices on machines or equipment. Any main electrical power disconnect that controls a source of power or material flow will be controlled with a lockout device when employees are maintaining, cleaning, adjusting or servicing machinery or equipment, if the disconnect is not in clear sight of the employee. Employees will also affix a 'do not start' tag to all operating controls.

The process stops, isolates from potentially hazardous energy sources and locks out equipment before employees proceed with their work. It also prevents the unexpected start-up or energizing of the machine or equipment from causing injury.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. Authorized employees will perform the lockout in accordance with this procedure. No employee will attempt to start, energize or use a piece of locked-out equipment.

LOTO is a lifesaving process only. If a piece of equipment, a machine, a system is not being used or not operating properly, it is not to be used until repair or other work is completed. Use a 'red tag' process for repair. Once it is being repaired or maintained, then the LOTO procedure is required for lifesaving. Any equipment, tools, machines or systems that are taken out of service for any non-use or discrepancies require a 'red tag' not a LOTO procedure (until repair or maintenance).

These procedures do not apply when servicing or maintaining equipment during normal production operations unless:

- The activity involves removing guards or other safety devices
- An employee places themselves in an area where work is being performed
- An employee places themselves in a dangerous area during the normal operating cycle

Authorized Employees

LOTO is first line of defense, if not feasible only perform energized electrical work with an approved energized electrical work permit. Any employee whose job requires them to perform LOTO to service or maintain a piece of equipment is an 'authorized employee' and will comply with all expectations of authorized employees regarding safe LOTO procedures. Other employees who use equipment that require LOTO for maintenance and service, work in areas where such work is being performed or will be affected by LOTO procedures will require training regarding LOTO procedures but are forbidden to perform the work of an authorized employee.

LOTO procedures will not be implemented without appropriate training authorized by management.

LOTO Procedures

See Figure 1 for an outline of the LOTO procedure.

Notify Employees

Before an authorized employee applies LOTO devices, they will notify affected employees to prevent unexpected changes to work conditions that will introduce needless risk and to allow affected employees to clear areas that may be hazardous.

Prepare for Shutdown

Before any employee turns off any equipment, the authorized employee will be aware of the type and magnitude of the energy, the hazards of the energy and the means to control it.

Authorized employees will review LOTO procedures for the piece of equipment and all the possible hazardous energy sources to help ensure an understanding of the controls that are necessary to prevent an injury.

The authorized employee will be especially mindful of energy that can be stored or accumulated after a shutdown.

Equipment Shutdown

Shutdown of machinery and equipment will occur in an orderly manner using the shutdown steps from the LOTO procedure associated with each machine or piece of equipment.

Equipment Isolation

All energy isolation devices necessary to control energy to the equipment will be physically located and operated to completely de-energize the equipment and isolate it from energy sources. The authorized employee or team leader will verify the operation of each energy isolation device.

- Disconnect or shut down engines or motors.
- De-energize electrical circuits.
- Eliminate the pressure from the line and lock out the valve holding back the activating substance in hydraulic or pneumatic systems.
- Block machine parts against motion.

Zero energy state is the point at which machinery or equipment has no energy flowing to or from it and as a result, does not have the potential to cause accidental physical harm or injury if handled in this state. Zero energy state is a safety standard set out by the Occupational Health and Safety Act (OSHA) as part of safety procedures to help protect employees from accidental injury or death. Zero energy state is not just turning off a machine and removing the keys. There can be no energy left for the machine to utilize, even if turned off at the time.

De-energizing Lines

If a system operator is in charge of the lines or equipment and their means of disconnection, the employer will designate one (1) employee in the crew to be in charge of the clearance and ensuring procedures are followed.

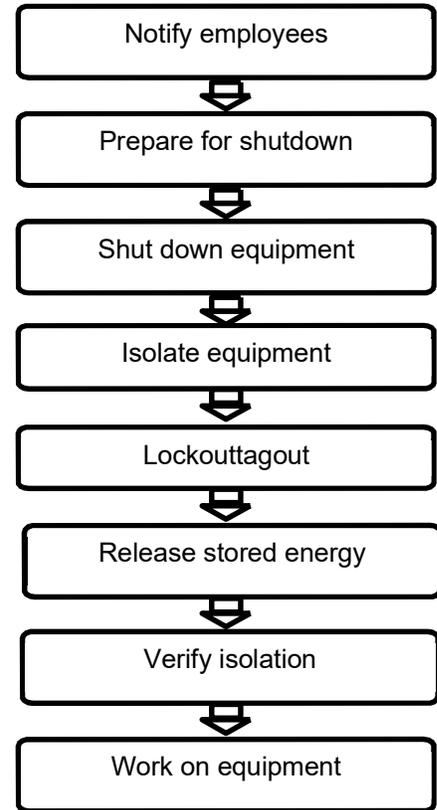


Figure 1

LOTO

The authorized employee will affix a LOTO device to each energy-isolating device. Lockout devices will hold the energy-isolating device in a “safe” position and the authorized employee will affix tagout devices to indicate the prohibition on moving energy isolating devices from a safe position. If it is possible to lock the device, but only tags are used, attach the tag where the lock would have been; otherwise, locate the tag as close as possible so that it is clear to anyone who might want to operate the equipment.

Locks and/or tags will identify the company employee that applied the locks and/or tags and name of authorized person, time/date of LOTO; reason; cell phone number or a way to contact the authorized person.

OSHA has stated that companies will have adequate LOTO procedures for each specific machine or piece of equipment. These will be written procedures that are on site and readily available to employees. Training will be provided on LOTO to both authorized and affected employees. Interlocks may not be used as lockout or as equivalent lockout protection.

Release of Stored Energy

Immediately after applying LOTO devices, the authorized employee will ensure all potentially hazardous stored or residual energy is relieved, disconnected, restrained and rendered safe.

- Discharge capacitors
- Block, clamp, secure in position or totally relieve the compression or tension in applicable mechanisms
- Lower to the lowest position all suspended mechanisms or parts that normally cycle to a lower position and clamp, block or secure the mechanism or parts in position
- Vent fluids from pressure vessels, tanks or accumulators— but never vent toxic, flammable or explosive substances directly into the atmosphere

If stored energy can be re-accumulated, the authorized employee will verify that the energy is isolated until maintenance is complete or the energy no longer exists.

Verify Isolation

The authorized employee will verify the machinery or equipment is actually isolated and de-energized before starting work on locked-out or tagged-out equipment.

A zero-energy state will be achieved and checked with a multimeter.

Steps for Release from LOTO

See Figure 2 for an outline of the steps to release equipment from LOTO.

Check equipment

Make sure machinery or equipment is properly reassembled. Inspect machinery or equipment to ensure removal of nonessential items.

Check Employees

Make sure all employees are safely outside danger zones. Notify affected employees about the removal of LOTO devices and that energy is going to be re-applied. Verify controls are in neutral.

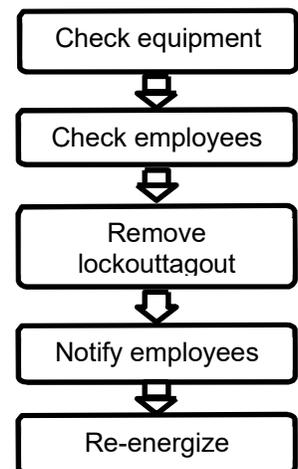


Figure 2

Remove Devices

Only the authorized employee who applied the LOTO device may remove the device. If unavailable, follow the process detailed in 29 CFR 1910.147e (3). Re-energize the equipment.

Notify Employees

The authorized employee will notify all affected employees that the LOTO devices have been removed and the equipment is back in service.

REQUIREMENTS

Employee Leaves Before Returning System to Service

If the authorized employee is not available to remove their LOTO device, another authorized employee may begin the following suggested procedure:

1. Verify that authorized employee who applied the device is not on the facility.
2. Make all reasonable efforts to inform them that their LOTO device has been removed.
3. Verify repair to equipment is complete.
4. Inform affected employees.
5. Ensure all tools or devices are removed from the equipment/machine.
6. Ensure all guards are in place and function.
7. Ensure no employee is in harm's way.
8. Cut/remove lock and tag.
9. Re-energize.
10. Explain the reason for removal, document who gave authorization for removal, document that the authorized person has been notified.
11. Document all the above.

Temporary LOTO Removal

Whenever authorized employees remove LOTO devices to test or position machines and equipment or their components, the authorized employee will complete the following procedures in the sequence presented:

1. Clear the machine or equipment of tools and materials.
2. Remove employees from danger zones.
3. Remove LOTO devices.
4. Energize and proceed with testing or positioning.
5. De-energize all systems and re-apply LOTO devices.

Outside Employee

Employees of another company engaged in servicing or maintenance of equipment that requires LOTO will follow LOTO procedures that provide at least as much protection as E & B Oilfield Services Inc.'s established procedures for that equipment. To ensure safety, management from our company and representatives from the outside employer will inform one another of their respective LOTO procedures.

The owner also will ensure employees understand and comply with contracted employees LOTO procedures as appropriate.

Group LOTO

When a group (or groups) of employees performs servicing, the group(s) will use a procedure that provides protection equivalent to the protection provided by the personal LOTO device(s). This

includes situations involving multiple groups of employees, shift changes and other contractors within the area. An authorized person will be in charge of all group lockout operations to ensure the proper procedures are followed.

Transfer of Control

Procedures during shift changes or changes to employees will provide for an orderly transfer of LOTO device protection and minimize exposure to hazards from the unexpected energizing or start-up of the machine or equipment, or the release of stored energy for both the oncoming and off-going employees.

Control will not be removed during the transfer. The oncoming authorized person will meet with outgoing authorized person (if possible). The oncoming individual will first place their lock and tag for control. The outgoing authorized person will then remove their lock and tag.

Tag Out Only

If an energy isolating device is capable of being locked-out, the employer's energy control program will utilize lockout, unless the employer can demonstrate that the use of a tagout system will provide full employee protection. When a tagout device is used on an energy isolating device that is not capable of being locked out, the tagout device will be attached at the same location that the lockout device would have been attached, and the employer will demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

In demonstrating that a level of safety is achieved in the tagout program equivalent to the level of safety obtained by using a lockout program, the employer will demonstrate full compliance with all tagout-related provisions of the standard, together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration of full employee protection will include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device or the removal of a valve handle to reduce the likelihood of inadvertent energization.

After January 2, 1990, whenever a major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment will be designed to accept a lockout device.

When LOTO is not Feasible

If there is no possible way to control the energy, nor hang a tag, the employer will document with a process that provides a level of protection to all involved. If the system will have work done while energized, the direction of NFPA 70E will be followed for energized work.

LOTO Devices and Equipment

Employees will be provided with protective hardware and materials (locks, tags, wedges, adapter pins, self-locking fasteners, etc.) for isolating, securing or blocking equipment from energy sources. If a device is altered, damaged or destroyed in a way that compromises its ability to protect the authorized employee, the authorized employee will inform a supervisor immediately and not attempt to use the device.

Whenever replacement or major repair, renovation or modification of a machine or equipment is performed and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment will be designed to accept a lockout device.

Singularly Identified

Devices used in lockout and tagout procedures will not be used for any purpose other than for isolating, securing or blocking equipment from energy sources and no devices other than those specified in the LOTO procedure will be used to that end.

Durable

The devices used for LOTO will be able to withstand the environmental and weather conditions present during use. Tagout devices need to remain legible and not deteriorate regardless of weather conditions or corrosive environments.

Standardized

At the worksite, devices used to isolate, secure or block equipment from energy sources will be consistent in color, shape or size. Tagout devices will have a standardized design.

Substantial

Lockout devices will have structural integrity to require excessive force or specialized tools to remove them. Tagout devices and their means of attachment are needed to prevent inadvertent removal. The means of attachment will not be reusable and need to have an unlocking strength of at least 50 lbs. The general design and basic characteristics of tagout attachment means will be at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

Identifiable

Any device used to isolate, secure or block equipment from energy sources will indicate the identity of the employee applying the device.

Risk Assessments, Periodic Inspections and Program Review

Kirk Duncan, or a designee, will conduct risk assessments and periodic inspections of the LOTO procedure to ensure the employees are following procedure and meeting all applicable standards. An annual program review (audit) will also be conducted. If Kirk Duncan uses the inspected energy control procedure, another authorized employee who does not use the energy control procedure will perform the inspection. The inspector will review with each authorized employee that employee's responsibilities under the LOTO procedure and correct any identified deviation or inadequacy in the procedure. Where tagout systems are used, the review will include a detail of the limitations of tags relative to locks in hazardous energy control.

E & B Oilfield Services Inc. will conduct an annual inspection of the energy control procedure to ensure that the procedure and the requirements are being followed. This annual inspection will be performed by an authorized company employee other than the ones utilizing the energy control procedure being inspected. This inspection will be conducted to correct any deviations or inadequacies identified. Where lockout is used for energy control, this inspection will include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. Where tagout is used for energy control, this inspection will include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected.

Certification

Each periodic inspection will be certified. The certification will identify the following:

- The machine or equipment on which the LOTO procedure was used
- The date of the inspection
- The employees included in the inspection

- The person performing the inspection

ELECTRICAL EMERGENCY RESPONSE STRATEGIES

Electrical emergencies pose significant risks in the workplace, including electric shock, arc flash, burns, and fire. A well-structured emergency response strategy is essential to protect workers and minimize damage. This section outlines key components of an effective electrical emergency response plan, aligned with OSHA standards.

Access to First Aid

Immediate medical response is critical in electrical emergencies. OSHA requires employers to ensure that medical personnel are readily available for advice and consultation.

Key practices include:

- **First Aid Training:** Employees, especially those working with or near electrical systems, should be trained in CPR and basic first aid. Training should include how to respond to electrical burns, cardiac arrest, and shock.
- **First Aid Kits:** Kits must be easily accessible, clearly marked, and regularly inspected. They should include burn dressings, sterile gauze, antiseptics, and automated external defibrillators (AEDs).
- **Emergency Contact Protocols:** A list of emergency contacts, including local emergency services and on-site medical personnel, should be posted in visible locations.

Access to Emergency Equipment

Proper emergency equipment can prevent injuries and save lives during electrical incidents. OSHA mandates that employers provide and maintain appropriate protective equipment.

- **Personal Protective Equipment (PPE):** Workers must have access to insulated gloves, arc-rated clothing, face shields, and dielectric footwear. PPE should be inspected before each use.
- **Fire Extinguishers:** Class C fire extinguishers (for electrical fires) must be available in areas with electrical equipment. Employees should be trained in their use.
- **Emergency Shutoff Devices:** Clearly labeled and easily accessible shut-off switches or circuit breakers should be installed to quickly de-energize equipment in an emergency.

Emergency Action Plans (EAP)

An Emergency Action Plan is a written document required by 29 CFR 1910.38 that outlines procedures for reporting emergencies, evacuating personnel, and accounting for all employees after an evacuation.

- **Evacuation Routes and Assembly Points:** Clearly marked evacuation routes and designated assembly areas must be established and communicated to all employees.
- **Roles and Responsibilities:** Assign emergency response roles, such as evacuation coordinators, first aid responders, and fire wardens.
- **Drills and Training:** Conduct regular emergency drills to ensure all employees understand procedures and can respond quickly and safely.

Hazard Identification and Risk Assessment

Before an emergency occurs, employers must identify potential electrical hazards and assess the risks.

- **Job Hazard Analysis (JHA):** Conduct JHAs for tasks involving electrical systems to identify risks and determine appropriate controls.

- **Labeling and Signage:** Use standardized labels and warning signs to indicate high-voltage areas, arc flash boundaries, and PPE requirements.
- **Lockout/Tagout (LOTO):** Implement LOTO procedures to ensure equipment is de-energized and cannot be restarted during maintenance or emergencies.

Communication and Coordination

Effective communication is vital during an emergency.

- **Alarm Systems:** Install audible and visual alarms to alert workers of electrical hazards or the need to evacuate.
- **Two-Way Communication:** Equip emergency response teams with radios or other communication devices to coordinate actions during an incident.
- **Coordination with Local Authorities:** Establish relationships with local fire departments, emergency medical services, and utility companies to ensure a coordinated response.

Post-Incident Response and Reporting

After an electrical emergency, a structured response helps prevent recurrence and supports recovery.

- **Incident Investigation:** Conduct a thorough investigation to determine the root cause and implement corrective actions.
- **Medical Follow-Up:** Ensure affected workers receive appropriate medical evaluation and treatment.
- **Documentation and Reporting:** Maintain records of the incident, response actions, and any injuries, as required by OSHA.

Continuous Improvement

Emergency response strategies should be reviewed and updated regularly.

- **Audit and Review:** Periodically audit emergency procedures and equipment to ensure compliance and effectiveness.
- **Feedback Mechanisms:** Encourage employee feedback after drills or real incidents to identify areas for improvement.
- **Training Updates:** Refresh training programs to reflect changes in equipment, procedures, or regulations.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Due to the wide variety of machines and equipment that employees may be required to repair or maintain, the PPE needed for the task may vary. At a minimum, PPE will include:

- Hard hats (class "E")
- Safety glasses or goggles
- Safety-toed electrically rated safety shoes or boots
- Work gloves (non-conducting or chemical resistant if needed)
- Respiratory and/or fall protection (depending on the type of work being performed and the location)

TRAINING

Every employee will be trained in LOTO procedures as appropriate to the employee's duties at no cost to the employee during working hours.

All training material will be appropriate in content and vocabulary to the educational level, literacy and language of employees.

Training Components

Employees whose work operations are in an area where energy control procedures may be used will be trained in the following minimum elements:

- The purpose and function of the LOTO program
- The prohibition of attempts to restart or reenergize locked-out or tagged-out equipment
- When tag-out systems are used, the following limitations of tags for hazardous energy control will be considered:
 - Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock.
 - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person. It is never to be bypassed, ignored or otherwise defeated.
 - Tags will be legible and understandable by all authorized employees, affected employees and all other employees whose work operations are or may be in the area, in order to be effective.
 - Tags and their means of attachment will be made of materials that can withstand the environmental conditions encountered in the workplace.
 - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
 - Tags will be attached securely to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
 - The irregular removal of the lock and tag process will be part of training.

Training for employees authorized to service and maintain equipment will include the following:

- The recognition of hazardous energy sources
- The type and magnitude of energy available in the workplace
- The methods and means necessary for energy isolation and control

Training Records

Training records will include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of individuals conducting the training
- The names and job titles of all individuals attending the training sessions

Employee training records will be retained for the length of their employment.

Retraining

Retraining will reestablish proficiency and introduce new or different control measures whenever the following occur:

- A change in job assignment, equipment or process presents a new hazard
- There is a change in the LOTO procedures
- A periodic inspection reveals deviations from or inadequacies in employee knowledge or use of the LOTO procedures

FORMS AND ATTACHMENTS

On the following pages, please find the following documents:

- LockoutTagout (LOTO) Procedure
- LockoutTagout (LOTO) Inspection Certification Form

These forms may be reproduced freely for the purposes of implementing and maintaining a safety and health program.

LockoutTagout (LOTO)	
Company:	Equipment
<p>This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked-out before employees perform any servicing or maintenance where the unexpected energizing or start-up of the machine or equipment or release of stored energy will cause injury.</p>	
1. Notify Employees	
<p>Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment will be shut down and locked-out to perform the servicing or maintenance. (Document name or job title of authorized and affected employees)</p>	
Authorized Employees	Affected Employees
2. Prepare for Shutdown	
<p>The authorized employee will refer to the Company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, will understand the hazards of the energy and will know the methods to control the energy.</p>	
Type(s) of Energy	Magnitude
<input type="checkbox"/> Mechanical	
<input type="checkbox"/> Potential	
<input type="checkbox"/> Electrical	
<input type="checkbox"/> Thermal	
<input type="checkbox"/> Chemical	
3. Equipment Shutdown	
<p>If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).</p>	
Type of Operating Controls:	
Location of Operating Controls:	
Shutdown Procedure:	
4. Equipment Isolation	
<p>Set the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).</p>	
Type(s) of energy isolating device(s)	Location(s) of energy isolating device(s)
5. Lockout	
<p>The energy-isolating device(s) with assigned individual lock(s)</p>	
6. Release Stored Energy	
<p>Stored or residual energy (such as that in capacitors, springs, elevated/suspended machine members, hydraulic systems, etc.) will be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.</p>	
Type(s) of Energy	Method(s) to Dissipate or Restrain
<input type="checkbox"/> Mechanical	
<input type="checkbox"/> Potential	
<input type="checkbox"/> Electrical	
<input type="checkbox"/> Thermal	
<input type="checkbox"/> Chemical	
7. Verify Isolation	
<p>Ensure that the equipment is disconnected from the energy source(s) by first checking that no employees are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.</p>	
Method to Verify Isolation	
8. The Machine or Equipment is now Locked-out.	

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken:

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all employees have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices and reenergize the machine or equipment.

NOTE: The removal of some forms of blocking may require re-energizing of the machine before safe removal.

5. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

LockoutTagout (LOTO) Inspection Certification

I certify that _____ was inspected on this date using LOTO procedures.
The inspection was performed while working on _____.

Authorized Employee (Print)

Signature

Date

Inspector (Print)

Signature

Date