

# ATTACHMENT B



*Facilities Maintenance Section*

# Lockout/Tagout Procedure for Machines and Equipment



January 2004

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## Introduction

The Nebraska Department of Roads' (NDOR) Lockout/Tagout (LO/TO) Program designates practices and procedures to prevent injury to employees who service or maintain machines or equipment capable of unexpected energization, startup, or release of stored energy. Such equipment must be locked and tagged-out or tagged-out prior to conducting service or maintenance.

Lockout devices are designed to form a physical barrier between the equipment and its energy source, thereby preventing operation. Lockout devices are used in conjunction with tagout devices. Some equipment, particularly older equipment, may not be designed to accommodate a lockout device. In such cases, warning tags, also referred to as tagout devices, are affixed to the equipment to alert people not to energize the equipment. Tagout devices, when used alone, do not physically prevent accidental start-up.

The terms "equipment" and "machines" have broad meanings in the context of this document and are used interchangeably. Equipment may include such things as air handlers (*building HVAC systems*), elevators, steam or sewer lines, and other utilities. The term equipment may also be used in the more traditional fashion when referring to things like lathes, presses, drills, etc. While it is common to think of equipment and machines as having an electrical energy source, they may be associated with other types of energy sources, including hydraulics, pneumatics, mechanical, gravity, thermal, chemical, fluids and gases, water under pressure, or steam. The terms "service" and "maintenance" are also used interchangeably for the purposes of this document.

## Regulatory Authority

The NDOR LO/TO Program is designed to ensure compliance with the Federal Occupational Safety and Health Administration (OSHA) standards on the Control of Hazardous Energy, 29 CFR 1910.147 (*General Industry Standard*) and 29 CFR 1928.57 (*Agricultural Operations*).

## Scope

The focus of the NDOR LO/TO Program is equipment/machines. This program does not apply to work conducted on high voltage electrical supply and distribution systems. In the case of certain equipment or machines, additional LO/TO requirements may apply under other OSHA standards (*i.e., cranes/hoists, cement finishing tools, etc.*).

The NDOR LO/TO Program applies to all NDOR employees that service or maintain covered machinery or equipment. Contractors are required to develop, implement, and maintain their own LO/TO Program when conducting work for the NDOR.

The NDOR LO/TO Program is applicable to task or situations requiring or involving:

- Placement by an employee of any body part into or near a machine's point of operation or the danger zone associated with the machine's operation.
- Constructing, installing, setting-up, cleaning, lubricating, adjusting, inspecting, modifying, maintaining, and/or servicing machines or equipment.
- Clearing blocked or jammed equipment.
- Removing or bypassing a guard or other safety device.

Specific examples of equipment that may be subject to the NDOR LO/TO Program during service, maintenance, or set-up configuration changes are listed below. This list is demonstrative ... it is not inclusive.

- Condensate lines
- Power tools, such as lathes, saws, presses
- Autoclaves
- Tractors and associated PTO equipment
- Elevators
- Lasers
- Printing presses
- HVAC systems
- Pneumatic tools
- Miscellaneous fans, motors, etc.

Not all equipment or machines are subject to the full requirements of this program. In general, a piece of equipment that does not store energy and that can readily be disconnected from its energy source (*i.e., key removed, unplugged, etc.*) is not subject to the requirements of this LO/TO Program (*Section X*).

## **Program Summary**

Under the provisions of the NDOR's LO/TO Program, certain requirements must be met prior to servicing or repairing certain equipment. In particular, employees and/or their supervisors are required to follow established generic procedures or develop equipment-specific, written energy control procedures (*Section V*), participate in training (*Section VII*), and ensure that periodic inspections of energy control procedures are performed and documented (*Section VIII*). Employees and their supervisors must also be familiar with other elements of the program such as the requirements for work conducted on covered equipment by outside contractors, group LO/TO procedures when service or maintenance activities are performed by a crew, craft, department, or other group (*Section V*), responsibilities (*Section IX*), and exemptions to the NDOR LO/TO Program (*Section X*).

Additional instruction/guidance material is contained in the appendices, which include definitions (*Appendix A*), energy control procedure template (*Appendix B*), and energy control procedure review form (*Appendix C*).

## **Procedures**

Two general and four specific supplemental LO/TO procedures are discussed in this section. The two general procedures, which address most tasks/equipment encountered at the NDOR, provide instructions for single-point lockouts and tagouts. These general procedures, depending on specific circumstances, may need to be modified by incorporating specific procedures related to group lockout/tagout, work by outside contractors, lockout/tagout during shift or personnel changes, and removal of another employee's lock. Where multiple-point lockouts or tagouts are necessary, written equipment-specific procedures must be developed and implemented by authorized employees and their supervisors.

All procedures, including the general procedures described below and equipment-specific procedures must include the following steps:

1. Communicate with affected employees and prepare for shutdown;
2. Shutdown the machine/equipment;
3. Disconnect or isolate the machine from its hazardous energy source(s);
4. Apply the lockout or tagout device(s) to the energy-isolating device(s);
5. Release, restrain, or otherwise render safe all potential hazardous stored or residual energy; and if the possibility exists for re-accumulation of hazardous energy, regularly verify during the service and maintenance that such energy has not re-accumulated to hazardous levels;
6. Verify the isolation and de-energization of the machine; complete the service or maintenance required;
7. Communicate with affected employees and prepare for returning the machine to service.

## General Procedures

### 1. Single-Point Lockout

The following procedure is appropriate when servicing equipment that can be isolated from its hazardous energy source by the lockout of a single, readily identifiable isolation device, and there is no potential for re-accumulation/residual/stored energy after the equipment has been locked out. ***In this case, a supplemental, equipment-specific, written procedure is not required.***

- The authorized employee shall inform affected employees that service or maintenance is required on the equipment and that it must be shut down, locked out, and tagged.
- If the equipment is operating, the authorized employee will shut it down using the normal shutdown procedure (*i.e., depress the stop button, open the switch, close the valve, etc.*).
- The authorized employee will isolate the energy source (*i.e., turn off the breaker, apply blind flanges on a pipe, etc.*).
- The authorized employee will lock out the energy-isolating device with their lock and attach a tag to the lock or hasp. The tag should have the name of the employee affixing the tag and the date and time the tag was affixed.
- The authorized employee will ensure that stored or residual energy (*such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure*) is dissipated or restrained by methods such as grounding, repositioning, blocking, or bleeding down.
- The authorized employee will verify that the equipment is disconnected from the energy source. After confirming that no one is exposed to the hazardous energy source/machine, the authorized employee will verify that the equipment is isolated and residual or stored energy is dissipated/restrained by activating the start button/switch or other operating control(s), or by testing the equipment with properly operating and/or calibrated equipment (*i.e., voltmeter*). Following testing/verification, the authorized employee will return the operating control(s) to the neutral (*"off"*)

position. Authorized employees must ensure the integrity of the lockout/tagout procedure following any extended absence.

- When the equipment is ready to be returned to service, the authorized employee should check the equipment and the immediate area to ensure that nonessential items have been removed, that all components are operationally intact, and that all guards or other protective features are restored.
- The authorized employee will check the work area to ensure that all personnel are safely positioned away from the equipment and verify that the controls are in the Neutral, Off, or Safe position.
- The authorized employee will remove their lockout device and associated tag, re-energize the equipment, and notify affected employees that work is complete and the equipment is ready to return to service.

Removal of some forms of blocking devices may require re-energizing the machine before maintenance is complete (*i.e., the equipment must be energized to test or position any of its components prior to return to normal service*). If the lockout device or tag must be temporarily removed from the energy-isolating device, the authorized employee must follow the sequence of actions below:

- Clear the equipment of tools and materials and have all nonauthorized employees leave the equipment area;
- Remove the lockout from the energy-isolating device;
- Energize the equipment and proceed with testing or positioning;
- De-energize all systems and reapply the energy control measures. Continue service and/or maintenance activities.

## 2. Single-Point Tagout

A tagout device does not provide the authorized employee with the same protection as a lockout device. Rather than isolating the energy source, a tag is essentially a warning device. Therefore, in addition to the procedures below, the equipment must be under the direct and sole control of the authorized employee conducting the service or a second authorized employee must provide surveillance of the equipment during service; and, at least one additional, effective secondary precaution must be implemented (*i.e., removal of operating handles, blocking of start switches, etc.*). **When these conditions are met, a supplemental, equipment-specific, written procedure is not required.**

The following procedure is appropriate when servicing equipment that has a single, readily identifiable hazardous energy source control, and there is no potential for re-accumulation/residual/stored energy after the equipment has been tagged out.

- Follow the procedures described for a single-point lockout, except that a tag is applied rather than a lock and tag and a supplemental secondary precaution is implemented.
- Attach the lockout tag as close to the isolation device as possible using a tie wrap capable of withstanding at least fifty pounds of force.
- Use pliers or snips to remove tie wraps upon completion of service. Do not use a knife or razor.

### 3. Multiple-Point Lockout or Tagout

Equipment-specific, written procedures must be developed and implemented for equipment with multiple isolation points or that otherwise does not meet the conditions for single-point lockout or tagout. The written procedure must identify all the hazardous energy sources for the equipment item or process, and the technique(s) required to isolate each source. An authorized employee or their supervisor must develop the procedure. If developed by an authorized employee, their supervisor must approve the procedure. The Energy Control Procedures Template in Appendix B can be used to develop and document the procedure.

## Specific Procedures

### 1. Group Lockout or Tagout

This supplemental procedure is applicable when more than one employee will be simultaneously servicing the same piece of equipment. Equipment-specific, written procedures must be developed and implemented for a group lockout. The written procedure must identify all hazardous energy sources for the equipment item or process, and the technique(s) required to isolate each source. An authorized employee or their supervisor must develop the procedure. If developed by an authorized employee, their supervisor must approve the procedure. The Energy Control Procedures Template in Appendix B can be used to develop and document the procedure. The general process that must be followed is described below and must be incorporated into the written, equipment-specific procedure.

- An authorized employee, designated by the supervisor, shall inform affected employees that service or maintenance is required on the equipment and that it must be shutdown, locked out, and tagged.
- The designated authorized employee will shut down the equipment using the normal shutdown procedures (*i.e., activate the stop button, open the switch, close the valves, etc.*).
- The designated authorized employee will isolate all sources of energy (*i.e., turn off the breaker, apply blind flanges on a pipe, etc.*). Specific energy sources and isolation operations should be described in the written procedure.
- The designated authorized employee will attach a group lock and tag on each isolation point.
- The designated authorized employee will place a copy of the procedure and the key to the group locks into a lockbox under the supervision of at least one other authorized employee or supervisor. The designated authorized employee will then place a hasp and tag on the lockbox and place their employee lock on the hasp.
- The designated authorized employee will test the equipment to verify the effectiveness of the lockout device, if applicable. Specific test procedures should be described in the equipment-specific lockout/tagout procedure.
- Each authorized employee should visually inspect the isolation of the equipment and when satisfied that it is correctly and safely isolated, place their lock on the hasp prior to beginning work. When an authorized employee completes their work, they are responsible for removing their lock from the lockbox.
- When the equipment is ready to be returned to service, the designated authorized employee should check the equipment and the immediate area to ensure that

nonessential items have been removed, that all components are operationally intact, and that all guards or other protective features are restored.

- The designated authorized employee will check the work area to ensure that all personnel are safely positioned away from the equipment.
- The designated authorized employee will verify that the controls are in the Neutral, Off, or Safe position.
- All authorized employees will remove their locks from the lockbox.
- The designated authorized employees will remove their lock, the group locks, and associated tags, and then re-energize the equipment.
- The designated authorized employee will notify affected employees that work is completed and the equipment is ready to be returned to service.

## 2. Contractors

Outside contractors or vendors performing service, maintenance, and/or construction work at the NDOR are required to have in place and follow their Lockout/Tagout Program. Facilities Management personnel are responsible for overseeing contractors to verify compliance with this requirement. Departments that hire and supervise contractors directly are responsible to verify compliance with this requirement (*i.e., equipment or service maintenance contracts*).

**Note:** Other information may need to be exchanged at this time (*i.e., Chemical Safety, Confined Space Program, etc.*).

When outside service personnel (*i.e., independent contractors or service vendors*) are to be engaged in a group lockout with NDOR employees, NDOR authorized employees will follow the NDOR Lockout/Tagout Program for group lockouts and contractors will apply their locks to the lockbox hasp. Communication between/among groups must take place to ensure all affected and authorized employees are protected.

## 3. Shift or Personnel Changes

To maintain continuity in the protection provided for those involved in the lockout/tagout procedures, and for the orderly transfer of the lockout/tagout devices, the steps below are necessary during personnel or shift changes.

- Personnel Changes. The arriving authorized employee's lock and tag should be applied before the departing authorized employee's lock and tag are removed. The departing personnel will inform the arriving personnel of the status of the equipment and the work in progress.
- Group Lockout Shift Changes. The lock and tag of at least one authorized employee on the arriving shift should be applied before the last crewmember of the departing crew removes their lock. The departing crew will inform the arriving crew of the status of the equipment and the work in progress.

## 4. Removal of Another Employee's Lock

When the authorized employee who applied the lockout devices and associated tags is not available to remove them, the devices may be removed by the authorized employee's supervisor in accordance with the process described below:

- The authorized employee's supervisor must verify that the authorized employee who applied the lockout device(s) and associated tag(s) is not on duty and that their work

is no longer in progress by taking all reasonable efforts to contact the authorized employee to inform him/her that the devices need to be removed.

- An authorized employee/supervisor returns the equipment to service and notifies the affected employees that service or maintenance is completed and the equipment is ready for use.
- When the employee returns to work, the supervisor notifies him/her that their lock(s) and tag(s) were removed.

## **Equipment**

### **Protective Materials and Hardware**

Locks and tags used for lockout/tagout must be easily recognizable as locks or tags used for lockout/tagout purposes. Locks must be either a different color, shape, or size than locks used for any other purpose within the department. Tags should be plastic; red, white, and black in color; and labeled with the words "Danger, Do Not Operate," or equivalent.

Supervisors are responsible for providing authorized employees under their supervision with locks and tags and any special chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware required for isolating, securing, or blocking equipment from energy sources. These materials must be of durable construction and capable of withstanding the conditions in which they are placed.

### **Lockable Energy-Isolating Device Installation**

Whenever possible, equipment that is not capable of receiving a lockout device should be retrofitted to accommodate a lock. Newly purchased equipment must be capable of accommodating a lockout device.

## **Training**

### **Authorized Employees and Their Supervisors**

Upon request, the NDOR will provide or arrange Lockout/Tagout training to include information on the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means available for energy isolation and control. The training will cover the requirements of the NDOR Lockout/Tagout Program. Supervisors must supplement this general training with equipment-specific training for authorized employees under their direction.

### **Equipment Specific Lockout/Tagout Training**

Supervisors are responsible for developing and/or approving equipment-specific lockout/tagout procedures, as well as associated employee training. Equipment-specific training can be accomplished by presenting applicable written procedures to authorized employees, assuring that they understand the requirements of the procedure, and observing correct performance of the procedure(s).

### **Affected Employees**

Training for affected employees is accomplished in two ways: 1) those employees who participate in the NDOR Lockout/Tagout Program and instructed that they must never attempt to restart equipment that is locked out or tagged out; 2) prior to initiating service and the

lockout/tagout procedures, authorized employees must inform affected employees of their activities and that they are not to restart the equipment, remove tags or locks, or otherwise engage in any equipment-related activity until the service is complete and they are so notified by the authorized employee.

## **Retraining**

Retraining is required when:

- There is a change in task assignment that involves use of different LO/TO procedures than for which the authorized employee has been previously trained;
- There is a change in the machine, equipment, or processes that presents new hazards;
- There is a change in the energy control procedures;
- The supervisor has reason to believe or determines through a periodic inspection or observation that an authorized employee has deviated from or lacks sufficient knowledge of established procedures.

## **Recordkeeping**

### **Periodic Review**

Supervisors of authorized employees must periodically review (*prior to use of a newly-developed or revised written procedure and annually thereafter*) written procedures and observe implementation of the procedures by authorized employees. The purpose of this review is to ensure that the procedures are adequate and that they are followed. Supervisors may delegate review authority to another authorized employee other than the one using the specific procedure, but the supervisor remains accountable for the outcome of the review. Reviews must be documented. The Energy Control Procedure Review form in Appendix C can be used to document procedure reviews. The supervisor or department should maintain records of the most recent review of each machine/equipment.

### **Training**

Staff Development will maintain training records of general LO/TO training if training is conducted by our office. If general training is obtained elsewhere, supervisors or departments are responsible for maintaining general training records. Supervisors or departments must maintain equipment-specific training records.

## **Responsibilities**

### **Employee Development**

- Develop, review, and update the NDOR Lockout/Tagout Program.
- Provide or arrange for general Lockout/Tagout training, upon request.
- Provide technical guidance, upon request.

### **Department Heads**

- Support implementation of all aspects of the LO/TO Program.
- Provide the resources necessary for implementing the LO/TO Program.

- Ensure that outside contractors implement a LO/TO Program while conducting relevant work in the department.

### **Supervisors of Authorized Employees**

- Ensure full implementation and compliance with the NDOR LO/TO Program within their area of supervision.
- Participate in LO/TO training.
- Ensure that all authorized employees under their supervision participate in general LO/TO training.
- Provide authorized employees with equipment-specific, written LO/TO procedures and training; maintain associated records.
- Review and approve all equipment-specific LO/TO written procedures before use and periodically thereafter; maintain associated records.
- Provide authorized employees with the necessary LO/TO equipment, such as locks and tags, chains, wedges, blank flanges, key blocks, adapter pins, self-locking fasteners, or other hardware as required by the written procedure for isolating, securing, blocking, or dissipating energy sources on a specific piece of equipment.
- Remove lockout/tagout devices of employees under their supervision, when necessary.
- Investigate and report any lockout/tagout accidents or near misses to Staff Development.
- Coordinate implementation of supplemental LO/TO procedures, such as group LO/TO, contractor/NDOR LO/TO, shift or personnel changes, and removal of another employee's lock/tag.

### **Authorized Employees**

- Participate in LO/TO training and retraining, as required.
- Notify affected employees of LO/TO prior to servicing and upon completion of service on covered equipment.
- Perform general and supplemental LO/TO procedures in accordance with NDOR's LO/TO Program; adhere to supervisor-provided, equipment-specific LO/TO procedures.
- As instructed by a qualified supervisor, coordinate with other authorized employees during group LO/TO, contractor/NDOR LO/TO, and shift or personnel changes.
- Report any LO/TO accidents or near-misses to their supervisor.

### **Affected Employees**

- Never remove a lock or tag, or otherwise energize or operate any controls on a machine that has been locked or tagged out.
- Adhere to all instructions provided by authorized employees or their supervisors with regard to LO/TO procedures.
- Do not conduct any maintenance or service activities requiring the use of LO/TO procedures without first being designated as an authorized employee, participating in applicable training, and adhering to all provisions of the NDOR LO/TO Program.
- Report LO/TO accidents or near-misses to their supervisor.

## **Facilities Management Department**

- Ensure that outside contractors hired by FM implement a LO/TO Program while conducting relevant work at the NDOR.

## **Exemptions and Global Specific Procedures**

### **Cord/Plug Equipment**

Work on an electrical cord and/or plug-connected equipment is exempt if exposure to the hazards of unexpected energization or start up of the equipment is controlled by unplugging the equipment from the energy source, and if the plug is under the exclusive control of the employee performing the service or maintenance activity. Pneumatic tools may also fall into this category provided that they can be completely isolated from their energy source and bled of stored energy.

### **Ignition Key Control**

Motorized equipment (*automobile, tractor, mowers, forklift, etc.*) is exempt during repair or service, provided that the operator has the only key on their body, the engine is shut-off, the brake is set, and a tag is attached to the steering wheel. If energization is possible, even with the key removed, the negative battery cable must also be disconnected prior to commencing service or maintenance work. Where applicable, motorized equipment must also be isolated from other hazardous energy sources (*i.e., hydraulic oil pressure, mechanical, blocking of equipment to prevent equipment from falling, etc.*).

**Affected employee** – An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

**Authorized employee** – A person who locks or tags out machines or equipment in order to perform service or maintenance.

**Capable of being locked out** – An energy-isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy-isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

**Energized** – Connected to an energy source or containing residual or stored energy.

**Energy-isolating device** – A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy-isolating devices.

**Energy source** – Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravity, steam, fluids or gases under pressure, radiation, or other energy.

**Equipment** – Includes, but is not limited to, machines (*lathes, presses, etc.*), facility mechanical systems (*air handlers, elevators, utility lines, etc.*), research equipment, equipment components, and agricultural equipment.

**Employee supervisor** – An individual administratively in charge of an authorized employee assigned to perform maintenance or service requiring the use of locks or tags.

**Group lock** – A set of identical locks, all keyed identically, and used only for a group or crew lockout.

**Lockbox** – A toolbox style box of rugged construction that is capable of receiving a hasp when the box is shut. When the hasp is attached, a person cannot enter the box until the hasp is removed.

**Lockout** – The placement of a lockout device and tag on an energy-isolating device in accordance with an established procedure that ensures that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lockout device** – A device that utilizes a positive means such as a key-operated padlock to hold an energy-isolating device in the safe position and prevent the energizing of a machine or equipment.

**Servicing and/or maintenance** – Workplace activities, such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, and/or servicing machines or equipment. These activities include lubrication, cleaning, unjamming of machines or equipment, and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

**Setting up** – Any work performed to prepare a machine or equipment to perform its normal operation.

**Appendix A – Definitions (Continued)**

**Tagout** – The placement of a tagout device on an energy-isolating device in accordance with an established procedure to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout device** – A prominent warning device, such as a tag with a means of attachment, which can be securely-fastened to an energy-isolating device in accordance with an established procedure to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Testing** – A determination that machinery, equipment, or equipment parts are de-energized. This involves the use of properly operating test equipment designed for and capable of determining if any energized conditions exist.

**Verification** – Operation of equipment controls for the purpose of determining that equipment cannot be restarted after an energy-isolating procedure has been performed and before maintenance or repair work is initiated.

**Appendix B – Energy Control Procedure Template**

This checklist documents the specific lockout/tagout procedures to be followed when servicing/maintaining the equipment/machine/utility listed below.

Unique Procedure Reference Number:.....

Equipment/Machine/Utility Reference: .....

Equipment/Machine Location:.....

Prepared By/Date: .....

Approved/Reviewed By/Date: .....

Procedure Type (*check all that apply*)

- Multi-point lockout and tagout
- Multi-point tagout only
- Group lockout or tagout  
*(Name, title, contact information of designated authorized employee):* .....
- Coordination with outside contractor  
*(Name, title, contact information of contractor):*.....

**Service/maintenance activities requiring use of this lockout/tagout procedure:**

.....  
 .....

**Summary of energy sources and lockout/tagout required:**

In space below, list each energy source of concern, the magnitude of the energy, the means and location for lockout of the source, and the lockout device needed. Include special precautions needed to bleed, ground, or otherwise disengage energy sources. This information will be addressed in greater detail in the specific procedures on the next page. *Attach equipment schematic or drawing depicting the information provided.*

Hazardous Energy Type/Source	Magnitude	Isolation point/device, location, schematic reference	Special precautions for bleeding, grounding, disengaging, etc.	Required lockout/tagout device(s)

*Appendix B – Energy Control Procedure Template (Continued)*

**Specific Procedures**

In the space provided below each numbered step, describe the process for accomplishing the stated objective.

1. Notification of affected employees.

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2. Equipment shutdown operating procedures.

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3. Isolation of the energy source(s) *(all line items in the summary table must be addressed)*.

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4. Application of lock(s) and/or tag(s) to all isolation points *(all line items in the summary table must be addressed)*.

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5. Dissipation or isolation of stored or residual energy *(all line items in the summary table must be addressed)*.

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6. Verification of equipment isolation *(list necessary test equipment and functionality test)* and dissipation or isolation of stored or residual energy.

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7. Return operating controls to the Neutral or Off position.

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**Appendix B – Energy Control Procedure Template (Continued)**

8. Perform needed maintenance/service/repair.

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9. Check the equipment area to ensure that all non-essential items have been removed; that all components are operationally intact; all guards or other protective features are restored; non-essential personnel are not in the equipment area; and that controls are in the Neutral or Off position.

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10. Remove lock(s), tag(s) and all isolation devices.

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11. Notify all affected employees that work is complete and the equipment is ready to return to normal service.

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Record additional information and comments in the space below.

- ◆ Authorized employees must verify the integrity of the lockout/tagout procedure following any extended absences.

**Appendix C – Energy Control Procedure Review Form**

This form is used to conduct and document periodic inspections of equipment-specific energy control procedures. In the space below, record the unique procedure reference number and the equipment description (see Appendix B):

Unique Procedure Reference Number:.....

Equipment/Machine/Utility Reference: .....

Equipment/Machine Location:.....

Reviewed By/Date:.....

Authorized employee(s) observed (if necessary, attach additional sheet):.....

Review the current lockout/tagout procedures and indicate whether procedures are satisfactory. Any item marked **No** must be explained (use the back of the inspection form to record explanations).

	<b>Satisfactory?</b>	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
1. Has the equipment specific procedure been reviewed within the past 12 months?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Were affected employees informed by the authorized employee prior to initiating service/maintenance?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Equipment shutdown?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. Equipment isolated following written procedure?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. Equipment locked/tagged out (tag properly filled out)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. All energy bled-off or reduced to a zero energy state?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. Isolation and de-energization verified?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. Operating controls returned to Neutral or Off position?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
9. Equipment area checked prior to removing locks/tags?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
• Non-essential items removed	<input type="checkbox"/> Yes	<input type="checkbox"/> No
• Components operationally intact	<input type="checkbox"/> Yes	<input type="checkbox"/> No
• Guards or other protective features restored	<input type="checkbox"/> Yes	<input type="checkbox"/> No
• Area cleared of non-essential personnel	<input type="checkbox"/> Yes	<input type="checkbox"/> No
• Controls in Neutral or Off position	<input type="checkbox"/> Yes	<input type="checkbox"/> No
10. All affected employees notified that work was completed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
11. Other?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**Certification:**

This energy control procedure is adequate (or modified as noted above). The inspector has reviewed appropriate responsibilities with the authorized employee(s). Tag limitations were inspected and appropriate affected employees included in this review where tagout devices are used.

Inspector's Signature: ..... Date: .....

Authorized Employee's Signature: ..... Date: .....