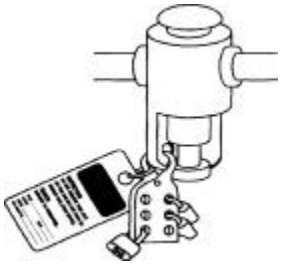
Dickinson College



Lockout/Tagout Program

March 7, 2006

I. Purpose

This document serves as the written guide for Dickinson College compliance to 29 CFR 1910.147, titled, "The Control of Hazardous Energy (Lockout/Tagout)" and the Lockout/Tagout Program requirements contained therein.

All employees at Dickinson College whose job duties expose them to the unexpected release of hazardous energy while servicing machinery or equipment are required to comply with this document.

II. Scope and Application

This program covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. It addresses the practices and procedures necessary to disable machinery or equipment, preventing the release of hazardous energy, including, but not limited to: electrical, mechanical, hydraulic, pneumatic, chemical, or thermal.

The following are EXEMPT from this program:

1. Cord and plug connected equipment that, when unplugged, contains no stored energy and cannot be unexpectedly energized, and for which the plug is under the exclusive control of the employee performing the service or maintenance. [NOTE: To be under the exclusive control of an employee the plug must be in the employee's possession or within arm's reach and in the line of sight of the employee]
2. Minor adjustments or servicing activities, which take place during normal production operations, that are routine, repetitive, and integral to the use of the machine or equipment, provided that:
    a. an employee is not required to remove or bypass a guard or other safety device, or
    b. an employee is not required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed, or where an associated danger zone exists.
3. Hot tap operations (e.g. – welding on a steam line) where the continuity of service is essential, a shutdown of the system is impractical, <u>documented</u> procedures are followed, and special equipment is used which provides proven effective protection for employees.

III. Responsibilities

A. The **President of Dickinson College** has ultimate responsibility for occupational safety within the institution. General oversight responsibility is assigned to the **Vice President of Campus Operations**.

B. The **Director of Environmental Health & Safety** will be responsible for administering the Dickinson College Lockout/Tagout Program. This includes:
   1. working with administrators and other employees to develop and implement the lockout/tagout program and procedures.
   2. assisting supervisors in assessing workplace hazards
   3. assisting supervisors in their periodic inspections
   4. scheduling training/retraining and maintaining training records

C. The **Supervisor** has a primary responsibility for implementing the Dickinson College Lockout/Tagout Program in the workplace. This includes:
   1. notifying employees of the Dickinson College Lockout/Tagout Program, and making the policy readily available to them
   2. identifying all authorized and affected employees who require training or retraining on Lockout/Tagout
   3. developing machine-specific lockout/tagout procedures
   4. conducting periodic lockout/tagout inspections
   5. providing authorized employees with individually assigned lockout and tagout devices
   6. enforcing the use of lockout/tagout procedures

D. The **Employee** will be responsible for maintaining a thorough understanding of the Dickinson College Lockout/Tagout Program and conducting each operation in accordance with the program. This includes:
   1. attending required training/retraining
   2. following lockout/tagout procedures as outlined in this program
   3. reporting changes in the workplace that prevent employees from following Lockout/Tagout procedures to their supervisor

E. The **Dickinson College Safety Committee** assists the Director of Environmental Health & Safety and:
   1. annually reviews the Lockout/Tagout Program
   2. conducts safety audits

F. **All Employees of the College** are responsible for ensuring that they follow the procedures and faithfully implement the appropriate responsibilities put forth in the lockout/tagout program. Failure to do so is a serious breach of college policy and subject to disciplinary action that might include termination of employment at the college. The procedures to be followed in the event of such action shall be in keeping with existing

guidelines as stated in the appropriate handbook for faculty, administrators, or staff.

IV. Training

A. Initial Training

Dickinson College shall provide training to ensure employees understand the purpose and function of the lockout/tagout program and that employees have acquired the knowledge and skills required for the safe application, usage, and removal of lockout/tagout devices. Training completion shall be documented using the form in Appendix A. A copy of this form must be sent to the Director of Environmental Health & Safety.

Authorized Employees will receive training including, but not limited to the following:

- how to recognize hazardous energy sources
- the type and magnitude of energy available in the workplace
- the necessary lockout/tagout procedures to be followed for energy isolation and control

Affected Employees will receive training including, but not limited to the following:

- the purpose and use of lockout/tagout procedures
- prohibitions relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

Authorized and Affected Employees Using Tagout Procedures will receive training on the limitations of tags including, but not limited to the following:

- 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 responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- Tags must be legible and understandable by all employees whose work operations are or may be in the area, in order to be effective.
- Tags and their means of attachment must be made of materials which will 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 must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

B. Retraining

Authorized and Affected Employees will be retrained whenever:

- changes in their job assignment presents a new hazard
- a change in machines, equipment, or processes presents a new hazard
- lockout/tagout procedures change
- inadequacies in the employee's knowledge or use of lockout/tagout procedures indicates the employee has not retained the requisite understanding and skill

V. Energy Control Procedures

Lockout/Tagout procedures which isolate machines or equipment from the energy source and render them inoperative shall be developed and utilized for the control of potentially hazardous energy before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup, or release of stored energy could occur and cause injury.

These procedures shall be **documented**, EXCEPT when <u>all</u> of the following elements exist:

1. the machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees;
2. the machine or equipment has a single energy source which can be readily identified and isolated;
3. the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;
4. the machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
5. a single lockout device will achieve a locked-out condition;
6. the lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;
7. the servicing or maintenance does not create hazards for other employees; and
8. Dickinson College, in utilizing this exception, has had no accidents involving the unexpected activation or

reenergization of the machine or equipment during servicing or maintenance.

A. General Lockout Procedures

The following general lockout procedures apply when all the above elements exist. The procedures shall be performed in order only by the **authorized employee** who is performing the service or maintenance.

Shutdown Procedures (establishing lockout)

1. Preparation for Shutdown

   Locate and identify all energy isolating devices that apply to the machine or equipment to be locked out. (If more than one energy source is involved, follow the machine specific lockout procedures below).

2. Notification

   Notify all affected employees that a lockout will take place.

3. Machine or Equipment Shutdown

   Shut down the machine or equipment by its normal shut down procedure.

4. Isolate

   Isolate (disconnect) the machine or equipment from its energy source by operating the energy control device (e.g. – disconnect switch, circuit breaker, valve, etc. . .) to the “safe” or “off” postion.

5. Lockout

   An individually assigned lockout device shall be applied by the authorized employee so that the energy isolating device remains in the “safe” or “off” position.

6. Relieve/Restrain Stored Energy

   All potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe by grounding, blocking, bleeding down, etc. . .

NOTE: If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

7. Verify Isolation

Before starting work on machines or equipment that have been locked out, the authorized employee shall verify that isolation and deenergization of the machine or equipment has been accomplished. First clear the machine or equipment of tools and materials and ensure employees are safely positioned or removed from the machine or equipment area. Then test all the operating controls by putting them in the "on" position to ensure that the energy source has been successfully disconnected.

CAUTION: Return the operating controls to the "off" or "safe" position before proceeding with servicing or maintenance.

Restart Procedures (removing lockout)

8. Machine/Equipment Check

Inspect the machine or equipment and the surrounding area to ensure that all nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

9. Verification

Verify that operating controls on the machine or equipment are in the "off" or "safe" position and that all employees are safely positioned or removed from the area.

10. Remove Lock(s)

Remove the lockout device

11. Remove Isolation

Reenergize by connecting the energy source.

12. Notification

Notify all affected employees that the lockout device(s) have been removed.

B. Machine Specific Lockout Procedures

When any one of the eight elements listed in section V does not exist, machine-specific lockout procedures must be developed, documented, and utilized for the control of potentially hazardous energy before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup, or release of stored energy could occur and cause injury.

If the methods to control energy sources are identical for a group of machines, then one set of procedures may be developed for the group. The Director of Environmental Health & Safety can assist supervisors in developing machine-specific procedures.

Machine-specific lockout procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:

- a specific statement of the intended use of the procedure
- specific procedural steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy.
- specific procedural steps for the placement, removal, and transfer of lockout devices and the responsibility for them
- specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices and other energy control measures.

C. Tagout Procedures

If an energy isolating device is not capable of being locked out, authorized employees shall utilize a tagout system. Tagout without a lock is **ONLY** allowed when machinery or equipment is incapable of being locked out.

The following tagout procedures shall be performed in order only by the **authorized employee** who is performing the service or maintenance.

Shutdown Procedures (establishing tagout)

1. Preparation for Shutdown

   Locate and identify all energy isolating devices that apply to the machine or equipment to be tagged out. (If more than one energy source is involved, follow the machine specific lockout procedures above, substituting tagout for lockout).

2. Notification

Notify all affected employees that a tagout will take place.

3. Machine or Equipment Shutdown

Shut down the machine or equipment by its normal shut down procedure.

4. Isolate

Isolate (disconnect) the machine or equipment from its energy source by operating the energy control device (e.g. – disconnect switch, circuit breaker, valve, etc. . .) to the “safe” or “off” postion.

5. Tagout

A tagout device shall be affixed by the authorized employee in such a manner as will clearly indicate that the operation or movement of the energy isolating device from the “safe” or “off” position is prohibited.

When a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

6. Relieve/Restrain Stored Energy

All potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe by grounding, blocking, bleeding down, etc. . .

NOTE: If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

7. Verify Isolation

Before starting work on machines or equipment that have been tagged out, the authorized employee shall verify that isolation and deenergization of the machine or equipment has been accomplished. First clear the machine or equipment of tools and materials and ensure employees are safely positioned or removed

from the machine or equipment area. Then test all the operating controls by putting them in the "on" position to ensure that the energy source has been successfully disconnected.

CAUTION: Return the operating controls to the "off" or "safe" position before proceeding with servicing or maintenance.

Restart Procedures (removing tagout)

8. Machine/Equipment Check

   Inspect the machine or equipment and the surrounding area to ensure that all nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

9. Verification

   Verify that operating controls on the machine or equipment are in the "off" or "safe" position and that all employees are safely positioned or removed from the area.

10. Remove Tag(s)

    Remove the tagout device

11. Remove Isolation

    Reenergize by connecting the energy source

12. Notification

    Notify all affected employees that the tagout device(s) have been removed.

D. Special Lockout/Tagout Procedures

1. Group Lockout/Tagout

   Primary responsibility shall be vested in one authorized employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock).

   Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and

shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained. Employees must NEVER depend upon someone else's lockout/tagout device, and must ALWAYS use their individually assigned lockout/tagout device.

When more than one crew, craft, department, etc. . . is involved, assignment of overall job-associated lockout or tagout control responsibility shall be assigned to one authorized employee designated to coordinate affected work forces and ensure continuity of protection.

2. Shift or Personnel Changes

When machines or equipment must be serviced by more than one shift or personnel, specific procedures shall be utilized to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees.

Employees must NEVER depend upon someone else's lockout/tagout device, and must ALWAYS use their individually assigned lockout/tagout device.

Lockout/tagout devices must NEVER be left on beyond an authorized employee's work shift without supervisor approval.

3. Contractors

Whenever outside servicing personnel (contractors) are to be engaged in activities covered by OSHA's Lockout Tagout standard (29 CFR 1910.147), lockout/tagout procedures must be exchanged and coordination of procedures must be discussed between the contractor and the college.

All affected college employees shall be informed of the restrictions and prohibitions of the contractor's lockout/tagout procedures.

4. Lockout or Tagout Device Removal

The key/combination to each lockout device must be in the sole possession of the employee to which it was assigned. Only the authorized employee who applied the lockout or tagout device may remove it, except as noted below.

EXCEPTION:

When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed ONLY under the direction of a supervisor and with the permission of the Director of Environmental Health & Safety provided that:

1. Verification has been made that the authorized employee is not at the college.
2. All reasonable efforts have been made to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed.
3. The authorized employee is informed before returning to work that his/her lockout/tagout device has been removed.

VI. Lock and Tag Requirements

Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by the college for isolating, securing or blocking of machines or equipment from energy sources.

Lockout devices and tagout devices shall be singularly identified; shall be the only devices used for controlling energy; shall not be used for other purposes; and shall meet the following requirements:

A. Lockout Devices

1. Lockout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
2. Lockout devices shall be standardized within the facility in at least one of the following criteria: color, shape, or size.
3. Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual

techniques, such as with the use of bolt cutters or other metal cutting tools.

4. Lockout devices shall indicate the identity of the employee applying the device(s).

B. Tagout Devices

1. Tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
2. Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
3. Tags shall not deteriorate when used in corrosive environments such as areas where acids and alkali chemicals are handled and stored.
4. Tagout devices shall be standardized within the facility in at least one of the following criteria: color, shape, or size; and additionally, print and format shall be stardardized.
5. Tagout devices, including their means of attachment shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.
6. Tagout devices shall indicate the identity of the employee applying the device(s).
7. Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: **Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate.**

VII. Periodic Inspections

Documented periodic inspections shall be conducted at least annually by supervisors to ensure that lockout/tagout procedures are understood by employees and are being followed. A periodic lockout/tagout inspection form is attached in Appendix B. A copy of this form must be submitted to the Department of Environmental Health & Safety.

VIII. Record Keeping

A. Training Records

Training records shall be maintained for the duration of an employee's employment. Training certifications shall be kept in the department files and a copy shall be sent to the Department of Environmental Health & Safety.

B. Periodic Inspections

Periodic Inspection records shall be maintained for the duration of the machine or equipment's installation or use. Periodic inspections shall be kept in the department files and a copy shall be sent to the Department of Environmental Health & Safety.

IX. Glossary

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 out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing 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, or other energy.

Hot tap. A procedure used in the repair, maintenance, and services activities which involves welding a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring 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 lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or 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 production operation.

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 controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and 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.

Appendix A

DICKINSON COLLEGE LOCKOUT/TAGOUT PROGRAM

TRAINING CERTIFICATION

Training Date:_____Department:_____

Attendees:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

I certify that the employees above have received Dickinson College Lockout/Tagout Training as required by 29 CFR 1910.147 and the Dickinson College Lockout/Tagout Program.

NAME OF TRAINER:_____

TITLE OF TRAINER:_____

TODAY'S DATE:_____

SIGNATURE OF TRAINER:_____

Distribution: Department File
Department of Environmental Health & Safety

Appendix B

Periodic Lockout/Tagout Inspection

Directions:

1. conduct periodic inspections at least annually
2. use one form for each machine or equipment that has a lockout/tagout procedure
3. inspections must include a review of the lockout/tagout procedures between the inspector and **each** authorized employee (reviews must also include affected employees where tagout is utilized)
4. keep the original on file in the department office, and send a copy to the Department of Environmental Health & Safety.

Department _____Date_____

Machine/Equipment Inspected _____

Employees Included in the Inspection (list all authorized and affected employees)

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.
11.	12.
13.	14.
15.	16.
17.	18.
19.	20.

1. Do the employees understand the lockout/tagout procedures and their responsibilities under the Dickinson College Lockout/Tagout Program?

[ ]Yes [ ] No If no, indicate corrective action taken.

_____

_____

_____

(continued on back)

2. Do the employees follow the lockout/tagout procedures?

[ ] Yes [ ] No If no, indicate corrective action taken.

_____

_____

_____

3. Are the established lockout/tagout procedures effective to provide full protection?

[ ] Yes [ ] No If no, indicate corrective action taken.

_____

_____

_____

Comments:

_____

_____

_____

Inspector Name	Job Title
Signature	Date