CONTROL OF HAZARDOUS ENERGY/ LOCKOUT/TAGOUT PROGRAM

Northern Illinois University

Department of Environmental Health and Safety
October 10, 2017, Rev 1

Review and Updates

Date	Reviewed by	Changes Made
October 10, 2017	Dave Scharenberg	None

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I. PURPOSE

Northern Illinois University (NIU) strives to maintain safe living, learning, and working conditions free of environmental, health, and safety hazards. All members of the university community must conduct university operations in a safe and healthy manner to achieve this goal. Compliance with all federal, state, and local regulations is essential in providing such an environment for the university.

This policy is intended to help prevent accidents and injuries, to increase safety awareness, to comply with the requirements of health and safety regulations, to reduce institutional liability, and to establish safety responsibilities for the university community and visitors to all locations of university owned property. This also includes property not owned, but associated with Northern Illinois University.

The purpose of this Lockout/Tagout Program is to establish rules and procedures for the protection of employees and contractors against the unexpected energizing, start-up or release of stored energy from any machine or piece of equipment. This will be accomplished by affixing appropriate lockout and tagout devices to energy isolating devices.

In addition, this program is designed to establish standards for electrical safety related work practices which are to be used when performing work on, or near energized electrical parts or equipment, as well as de-energized parts of permanent electrical equipment.

II. REFERENCES

- OSHA 29 CFR 1910.147 – The Control of Hazardous Energy (Lockout/Tagout)
- OSHA 29 CFR 1910.331 – 29 CFR 1910.335 – Electrical Safe Work Practices
- NFPA 70E – Handbook for Electrical Safety in the workplace

III. DEFINITIONS

Administrative Personnel: Those NIU personnel with responsibility for overseeing and enforcing the effectiveness of the Lockout/Tagout program. These personnel include Associate Director of Physical Plant, and the Chief Operating Engineer.

Affected Employee: A person who works in an area where lockout and tagout is used, but is not required or permitted to implement or work on the locked out equipment. Affected employees include support staff, students, faculty, and contractors.

Authorized Employee: A person who has been trained to implement Equipment Specific Lockout/Tagout Procedures (ESLPs) to perform the servicing or maintenance of machines or equipment. This is the person who actually performs the lockout/tagout of the machine or equipment. For example: Heating Plant and Physical Plant employees.

Capable of Being Locked Out: An energy-isolating device is capable of being locked out when its design includes a part to which a lock can be affixed to prevent energization of the machine and

removal of the lock. This part may be in the form of a hasp or other attachment/locking mechanism.

Danger Zone: Any area in or on a machine or piece of equipment, which has the potential to cause injury from the unexpected energization or startup of the equipment or release of hazardous energy.

Energized: Connected to an energy source or containing residual or stored energy.

Energy Isolation 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 slide gate.
- A slip blind.
- A line valve.
- A block.
- Any similar device used to block or isolate energy. The term does not include a push button, selector switch and other control circuit type devices.

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

ESLP: Equipment Specific Lockout Procedure

Hot Tap: A procedure used in the repair, maintenance and service activities, which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure in order to install connections. (Non-electrical)

Kinetic Energy: Energy in motion.

Live Parts: Energized conductive components. (Working on live parts is NOT authorized under this program)

Lockout: The placement of a lockout device on an energy isolating device in accordance with an established procedure. This will ensure 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 lock to hold an energy isolating device in the safe position and prevents the energizing of a machine or piece of equipment.

Normal Production Operations: The utilization of a machine or equipment to perform its intended production function.

Potential Energy: Energy at rest (stored energy).

Qualified Person: Personnel who have received specific training on and are familiar with:

- Skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment;
- Skills and techniques necessary to determine the nominal voltage of exposed live parts;
- The clearance distances specified in this program and 29 CFR §l 910.333 (c) and the corresponding voltages to which the qualified person will be exposed;
- Precautionary techniques;
- Personal protective equipment required;
- Insulating and shielding materials;
- Use of insulating materials.

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 energizing or start-up of the equipment or release of hazardous energy.

Setting Up: Any work performed to prepare machines, equipment, or processes to perform its normal production operation.

Supervisory Personnel: NIU employees reporting directly to administrative personnel. Supervisory personnel have the responsibility for overseeing Heating Plant and Physical Plant employees. Supervisory personnel include Assistant Chief Engineer, Physical Plant Foremen, and Lead Engineers.

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 and means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure. This is to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.


DANGER

IV. GENERAL PROGRAM MANAGEMENT

A. Environmental Health and Safety (EH&S) Staff Responsibility

The EH&S Staff is responsible for:

1. Ensuring that all elements of the program are implemented completely for the protection of all employees.
2. Providing and/or ensuring that training and procedures are provided to all appropriate employees, so that employees can perform maintenance and repair and/or service operations/activities correctly.

B. Administrative Responsibility

Administrative personnel are responsible for:

1. Ensuring that NIU employees are following the procedures established in this program.
2. Reporting, to the EH&S Department, deficiencies in the Lockout/Tagout program.
3. Counseling NIU employees if procedures are being violated.

C. Supervisory Responsibility

Supervisory personnel are responsible for:

1. Ensuring that all employees have received proper training for the Lockout/Tagout program.
2. Reporting, to Administrative Personnel, deficiencies in the Lockout/Tagout program.
3. Maintaining LOTO training records for their personnel.
4. Counseling NIU employees if procedures are being violated.

D. Physical/Heating Employee Responsibilities

Authorized employees are responsible for:

1. Being instructed in the purpose, utilization and safety of the Equipment Specific Lockout/Tagout Procedures (ESLPs) and appropriate electrical safety-related work practices.
2. Using, storing and inspecting locks, keys, and electrical safety protective and testing equipment issued in accordance with the instructions received.
3. Using designated personal protective equipment.
4. Following all established procedures in accordance with this written program and training provided.

Affected employees are responsible for:

1. Participating in scheduled mandatory lockout/tagout training sessions as directed.
2. Not restarting or re-energizing any piece of machinery or piece of equipment, which is either locked or tagged out. Not moving or removing any tag from any equipment.

E. <u>Program Review and Update</u>

The Lockout/Tagout & Electrical Safety Program will be reviewed under these circumstances:

1. Annually
2. Whenever Federal OSHA, State OSHA (IDOL), and/or NIU requires additional provisions to remain in compliance with new or revised safety standards.
3. If current practices may affect written ESLP's. However, ESLP's will be reviewed periodically to ensure they are consistent with current practice.

Periodically the lockout/tagout & electrical safety program will be audited to ensure provisions of the program are being implemented and understood. To assist and document this audit **LOTO 1 - Lockout/Tagout Audit Certification** will be utilized.

V. METHODS OF COMPLIANCE

A. Training

1. <u>Employee Training</u>

As part of our Lockout/Tagout & Electrical Safety Program, we train our employees under the following circumstances:

a. At the time of initial assignment.
b. Changes in job assignment, change in machines, equipment or processes that present a new hazard, or change in procedures.
c. Whenever audits, inspections or other information indicates a lack of employee knowledge and/or understanding of their safety responsibility under any applicable program.

A copy of this written program will be kept in foremen's' offices and be made available for the employees to review upon request. Training will be given at the awareness (affected employee) and authorized levels.

2. <u>Awareness Level Training:</u>

All applicable employees and contractors will receive initial awareness level training at time of hire. This training will be conducted prior to the employee beginning work. The training will consist of the following:

a. Recognition of applicable hazardous energy sources.
b. Type and magnitude of the energy available in the workplace.
c. Methods and means necessary for energy isolation and control.
d. Purpose and use of the ESLP's.
e. Instruction regarding the procedure and disciplinary action.
f. Limitations and uses of tags in the lockout/tagout procedures.
g. Hazards of electricity and normal methods for safeguarding.

3. <u>Authorized Level Training:</u>

All employees authorized to perform lockout/tagout will receive training that consists of:

a) Authorized level training prior to being placed on any job in accordance to this program.

b) The elements for Affected Employees plus a review of all written ESLP's the employee will be required to implement. The employee will be required to demonstrate proper lockout/tagout methods for each piece of equipment prior to operating that equipment.

Authorized employees will be documented on **Form LOTO-2 Employees Authorized to Perform Lockout/Tagout Form.**

MCC Lockout

B. Procedures

1. <u>Hazard Assessment of the Facility</u>

The NIU campus has equipment using the following types of energy:

a. Electrical
b. Chemical
c. Hydraulic
d. Pneumatic
e. Gravity
f. Mechanical
g. Thermal

A standard or a generic lockout procedure shall be implemented if an ESLP has not been developed for the equipment being worked on. (See LOTO Form 3)

Standardized lockout procedures, by equipment type, shall be written detailing types and magnitudes of energy, as well as the specific procedure for energy isolation (ESLP).

2. Application of Standard Lockout Procedures

Authorized NIU employees will be required to follow written Standard Lockout Procedures when:

a. Guards are to be removed from powered machinery.
b. Work may require entrance of any body part into a "Danger Zone" or "Point of Operation".
c. Work may cause exposure to live electrical conductors (i.e., wire, contacts, etc.), or involve exposed energized parts.
d. Performing servicing and maintenance activities such as repair, erection, installation, construction, set-up, change over, and/or dismantling.
e. Production activities require bypassing a guard, or exposing employees to activities, re-activation, or unexpected release of energy (i.e. unjamming, adjustments, etc.), where employees are exposed to hazards that are greater than or different from normal production.

3. Exemption from Lockout/Tagout

NIU employees will not be required to implement lockout/tagout procedures under the following situations:

a. For routine, repetitive, integral activities to normal production, such as lubrication, provided that alternative measures offer protection (i.e., tools, guarding, etc.).
b. For operational testing.
c. For work on cord and plug electrical equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source. The plug must remain under the exclusive control of the employee performing the work throughout the duration of the operation. Exclusive control is defined as within arms reach.
d. For **hot tap** operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products, when they are performed on pressurized pipelines provided that it can be proven and documented that:
   ⇒ Continuity of service is essential;
   ⇒ Shutdown of the system is impractical, and;
   ⇒ Documented procedures are followed and special equipment is used which will provide proven effective protection for employees.

4. Equipment Lockout/Tagout Procedures:

Before the energy isolation procedure begins, the **affected** and **authorized** employees must be notified of the application of lockout and/or tagout devices. After the employee notification, lockout/tagout must be accomplished only by authorized employees according to procedures described in the following paragraphs.

a. The machine to be locked out is designated and a survey is conducted to locate and identify all isolating devices to be certain which switches, valves or other energy isolating devices apply.

b. All affected employees are notified that the machine/equipment is about to be shutdown and locked out.
c. Operating equipment shall be shut down by the normal stopping procedures. (depress stop button, automation computer point shutdown, etc.)
d. Energy isolating devices shall be used to physically isolate the equipment from all energy sources. Authorized employees shall affix locks and/or **"Danger - Do Not Operate"** tags to each energy isolation device. When it is necessary for more than one person to "lockout" a single energy isolation device, each person who will be working on the equipment must place their own lock and/or tag on the energy isolation device using a multiple lock hasp to accommodate every employees lock and/or tag.
e. Machine must be verified to be at a zero energy state. All machine controls should be set to "OFF" position when testing and/or verification of shutdown is complete. Verification can be done by using any of the following steps that are applicable to confirm that the equipment is isolated from all forms of energy:
   ⇒ Verify that the main supply disconnect switch or circuit breaker cannot be moved to the "ON" position.
   ⇒ Use a voltage tester or other approved test instrument to check systems and components on electrical equipment.
   ⇒ Press (actuate) all start buttons and other activating controls.
   ⇒ On other equipment (piping, springs, flywheels, etc.) attempt to actuate the isolating device (valve, flange, mechanical block, etc.) to verify that it is locked in place.
   ⇒ Verify that air, stored electrical energy, hydraulic, and/or other pressure has been relieved (bled) by observing gauges or other indicating devices.
   ⇒ Try starting the machine by automation computer point start-up.
f. Proceed with servicing or maintenance activities.
g. After servicing or maintenance is completed, inspect the work area to make sure equipment is fully assembled, safe to operate and tools have been removed from the work area. Ensure all employees are clear of and/or safely positioned around equipment. If the machine fails to operate properly, STOP IT, and LOCK as described above; then continue maintenance or servicing activity.
h. All affected employees shall be notified that locks, tags and other energy isolation device(s) are going to be removed.
i. All locks, tags and other energy isolation devices shall be removed.
j. All energy shall be restored to the machine/equipment by closing disconnect switches, circuit breakers, etc.
k. If a written ESLP has not been prepared, the attached generic ESLP form, **Form 3,** may be used to develop an ESLP. Supervision shall be involved with developing the ESLP.

5. Energy Control Equipment

Employees trained to the authorized level may receive a padlock(s) and tags. The employee may also be given a multi-lock hasp adapter as necessary. The specification for locks, tags, hasps and lockout devices are as follows:

Disconnect Lockout

- **Lock devices:**
  - ⇒ Locks shall be uniform throughout the department. These will be the only locks issued and used for lockout purposes. Employees will be given the lock and one key. The other key will be disposed of. No duplicate or master keys for locks will be maintained. Additional locks will be available if more than one lock is required to isolate a machine or piece of equipment. The lock and key number will be logged at the time of distribution and the log will be maintained by appropriate supervisory personnel. The lock and key numbers will be documented using **Form LOTO-4 - Lock and Key Log.**

- **Tag devices:**
  - ⇒ Tags will be used with the application of a lock when applicable. Tags used are white laminated card stock with red and black lettering. Tags are used to identify that lockout/tagout is in process, and the name of the employee applying the lock.

Good or Bad?

- **Hasp (multi-lock adapter):**
  - ⇒ A hasp (multi-lock adapter) will be used when more than one employee is working on equipment. Hasps used are steel rings with a steel body covered with red laminate with holes to accommodate the application of six locks. The first person applying his/her lock to the equipment shall be responsible for applying a lockout device. The last person to finish working on the equipment will be responsible for removing the lockout hasp and returning it to the applying person (if different).

- **Ball, Butterfly and Gate Valve Lockout Devices:**
  - ⇒ Ball, butterfly and gate valve lockout devices are red. Ball, butterfly, and gate valve lockout devices are used in conjunction with lock devices to isolate energy to those sources that are so configured that a lock is not capable of being affixed. The first person applying his/her lock shall be responsible for affixing the ball, butterfly, or gate lockout devices before performing work on the system. No employee shall perform service on the system until ball, butterfly, or gate lockout device has been implemented. The last person to finish working on the system shall be responsible for removing the lockout device and returning it to the applying person (if different).

6. <u>Removal of locks and tags</u>

Each lock and tag shall be removed from each energy isolating device by the employee who applied the device. The employee applying the lock and tag device <u>shall not</u> authorize someone else to install or remove his/her lock.

7. Shift or Personnel Changes

When work extends past one shift, the employee going off shift shall review all procedures conducted to that point with the employee beginning shift. At that time, both employees shall follow the lockout/tagout procedures as noted on the ESLP's with one person removing his/her lock while the other places his/her lock in place. At no time will the machine be left unattended while unlocked. Employees leaving work shall not remove their locks until oncoming employees are ready to lockout. Shift or personnel changes procedures shall ensure the orderly transfer of lockout/tagout devices between off-going and oncoming employees.

8. Group Lockout Procedures

On frequent occasion in this facility, more than one crew, craft, department, or contractor, is involved in a work assignment involving lockout/tagout. The overall efforts shall be the responsibility of one authorized employee, designated to coordinate work forces and ensure continuity of protection. This employee shall ensure that the energy is isolated throughout the work assignment.

9. Safe Work Practices for Electrical Safety **

The following safe work practices for electrical safety must be followed:

a) Only qualified persons shall activated/deactivate energized circuits.
b) Adequate illumination shall be provided when employees have to enter spaces containing exposed energized parts.
c) Protective shields, barriers or insulating materials shall be used when employees have to enter confined or enclosed spaces, such as manholes or vaults that contain exposed energized parts. Doors, hinged panels and the like shall be adequately secured to prevent them swinging into the employee.
d) Long dimensional conductive objects, such as pipes, shall always be carried in a horizontal plane and wrapped in insulating material when traveling in areas where exposed energized conductors or circuit parts are present.
e) Fiberglass or wood portable ladders shall be used where the employee or the ladder could contact exposed energized parts.
f) No conductive articles or jewelry (such as watch bands, bracelets, rings, key chains, necklaces, metal aprons, cloth with conductive thread, or metal headgear) will be worn if they might contact exposed energized parts.
g) Safeguards shall be employed such as insulating equipment or erecting barricades, while performing housekeeping duties (i.e., cleaning, removing weeds, etc.) at close distances to exposed energized parts.
h) Flammable or ignitable materials shall not be allowed to accumulate around non-intrinsically safe electrical equipment.
i) Only qualified persons may defeat an electrical safety interlock for purposes of testing or adjustment. The interlock shall be returned to its operable condition when the work is completed.

10. Guidelines on the Use of Electrical Equipment

All cord and plug connected equipment (including extension cords) shall be used in accordance with 29 CFR §1910.305(g) in the following manner:

a) Flexible cords and cables must be approved and suitable for conditions of use and location. Those that must not be used or are "strictly prohibited" are:
    - ⇒ As a substitute for the fixed wiring in a structure;
    - ⇒ Where run through holes in walls, ceilings or floors;
    - ⇒ Where run through doorways, windows or similar openings;
    - ⇒ Where attached to building surfaces;
    - ⇒ Where concealed behind building walls, ceilings or floors.
b) Flexible cords and cables shall not be used for wet applications or outside applications without Ground Fault Circuit Interrupter (GFCI) protection.
c) Cords shall be handled in a manner which will not cause damage.
d) Cords shall not be used to raise or lower the equipment.
e) Cords shall not be stapled or hung.
f) Cords and equipment shall be inspected for visible defects before use. If defects are found, the equipment shall not be used until it is properly repaired or replaced.
g) Attachment plugs shall not be altered and only connected into receptacles for which they are rated and designed to fit.
h) If equipment contains a grounding prong, it shall be attached to equipment which contains a grounding conductor. Adapters are not permitted.
i) Equipment shall be approved for the service and location in which it is used.
j) Insulating protective equipment must be used if wet energized connectors are to be plugged or unplugged.
k) Locking type connectors shall be securely fastened after connection.

All electric power and lighting circuits shall be operated in the following manner:

a) Only load rated switches, circuit breakers or other approved devices shall be used for opening, reversing, or closing circuits under load conditions.
b) When a circuit protective device has actuated, the cause of the actuation shall be determined and corrected before the circuit is re-energized.
c) Repetitive manual closing of circuit breakers or continuous replacement of fuses is prohibited.
d) Over current protection may never exceed the rated capacity of the line.

<u>Electrical test instruments and equipment shall be used in the following manner</u>:

a) Only qualified persons may use test instruments and equipment on electric circuits or equipment.
b) Instruments and equipment shall be visually inspected for defects prior to use. If defects are found, the equipment shall not be used until repaired or replaced.
c) Test instruments and equipment shall be properly rated for the service it is testing.

11. <u>Use of Protective Equipment:</u> Follow NFPA 70E guidelines

Electrical protective equipment shall be used when employees are working in areas where there are electrical hazards. Such equipment shall include but not limited to: insulating gloves, rubber matting, insulating blankets, insulating hoods, insulating line hose, and insulating sleeves. If the insulating material is subjected to damage

during use, then it shall be protected with an outer covering of leather or other approved material.

Non-conductive head protection shall be worn by employees whenever there is danger of a head injury from electric shock or burns due to contact with energized conductors. Eye and face protection shall be worn whenever there is danger of injury to the eyes or face from electric arcs or flashes, or flying objects from electrical explosions. Protective equipment shall be maintained in a safe and reliable condition and shall be inspected prior to each use and replaced if necessary.

12. General Protective Equipment and Tools:

Properly rated and insulated tools shall be used when working with electrical circuits. Proper fuse handling equipment shall be used to install or remove fuses when the terminals are energized.

13. Alerting Techniques:

The following alerting techniques shall be utilized to ensure safety of all NIU employees and contractors:

a) Safety signs, safety symbols, or accident prevention tags shall be used to warn employees about hazards which could result from electric shock, burns, or failure of electric equipment parts.
b) Barricades with safety signs shall be used to prevent or limit access to work areas exposing employees to exposed energized electrical equipment. These barricades shall be non-conductive in nature (i.e., wood or plastic).
c) If signs or barricades cannot provide sufficient warning then an attendant shall be used to warn and protect employees.

**For further guidance involving Electrical Safety see the NIU Electrical Safety Manual.

14. Contractor Information

It is the responsibility of the Associate Director of Physical Plant, Chief Operating Engineer or A & E Services, when applicable, to provide contractors and employees with the following information:

a) Equipment Specific Lockout/Tagout Procedures that are applicable to the contractor's work functions.
b) A copy of this program.

All contractors must verify that their employees are lockout/tagout trained and have been briefed on the provision of NIU's written lockout/tagout program. If this training cannot be verified, NIU shall make the determination to select contractors that can provide verification of training. NIU may provide lockout/tagout training for contractors in accordance with this program when applicable.

Outside contractor's lockout/tagout program shall be equal to the provisions of this program or exceed the provisions of this program.

V. ATTACHMENTS

NIU will record and maintain the following on file:

Form LOTO-1 - Lockout/Tagout Audit Certification
Form LOTO-2 - Employees Authorized to Perform Lockout/Tagout Form
Form LOTO-3 - Standard Equipment Specific Lockout/Tagout Procedure Format (ESLP)
Form LOTO-4 - Lock and Key Log
Form LOTO-5 - Employee Training Documentation Form
Form LOTO-6 - Master list of Standard Lockout/Tagout Procedures

Form LOTO-1 - Lockout/Tagout Audit Certification

SECTION I: GENERAL INFORMATION			
Campus Unit:	**Building:**		
Equipment/Machine Description:			
Equipment/Machine Location:			
SECTION II: PROCEDURE EVALUATION			
Inspection Criteria	**Yes**	**No**	**NA**
Equipment-specific procedure completed, legible, workable?			
Affected and other employees notified prior to commencement of work?			
Sources of hazardous energy correctly identified?			
Equipment/machine properly shut down?			
Isolation/control locations correctly identified?			
Appropriate lockout device and lock/tag used at each isolation/control location?			
Sources of stored energy correctly identified?			
Sources of stored energy appropriately dissipated?			
Were appropriate methods used to verify control/isolation of hazardous energy?			
If group lockout/tagout was used, were appropriate group lockout methods employed (e.g., multi-lock hasp or group box) by each participating authorized employee?			
Were all locks, tags, and devices properly removed after completion of service/ maintenance work?			
Was the area inspected to make sure it was clear of tools, supplies, etc. prior to restart?			
Did the authorized employee(s) verify that all machine guards had been re-installed prior to restart?			
Were affected and other employees notified that the machine/equipment had been released from LOTO?			
Was the equipment/machine properly restarted?			
Were the responsibilities of the authorized and affected employee(s) reviewed in regards to lockout and/or tagout?			
Is this equipment-specific procedure adequate to control hazardous energy sources? If no, make recommendation in Section IV below.			
Did the authorized employee(s) satisfactorily complete this procedure and understand their responsibilities? If no, make recommendation in Section IV below.			
SECTION III: PARTICIPANTS			
Authorized Employee(s) Being Observed			
SECTION IV: COMMENTS AND RECOMMENDATIONS			
SECTION V: CERTIFICATION			
I certify that I have evaluated the above listed energy control procedure for adherence to the departmental program requirements.			
Observer:			
(Signature) (Print Name) (Date)			

Please send completed copies via campus mail to Environmental Health & Safety

Form LOTO-2 - Employees Authorized to Perform Lockout/Tagout Form

Employee Name: (Please Print)	Employee Signature:	Department:	Date:

FORM LOTO-2

FORM 3 - EQUIPMENT SPECIFIC LOCKOUT/TAGOUT (LOTO) PROCEDURE

Date:
Building:
Equipment Name:
ID Number:

PURPOSE: To prevent injury while performing any of the activities listed on the scope and application below.

SCOPE AND APPLICATION:

1. Any work requiring entry of a body part (hand, arm, leg) into the point of operation or danger zone or point of operation.
2. Servicing, maintaining, or repairing equipment or machinery.
3. When removing or bypassing machine guards, or other safety devices, resulting in exposure to hazards at the point of operation.

AUTHORIZATION:
This procedure shall only be used by employees that have been trained as "Authorized" employees under OSHA 29 CFR 1910.147, "The Control of Hazardous Energy."

EQUIPMENT SPECIFIC LOCKOUT PROCEDURE

Preparation

1. Notify affected employees that the machine is about to be shutdown and locked out.

Shutdown

2. Shut down the machine using normal stopping procedures.

Isolate and Release Energy

3. Isolate all hazardous energies listed below by attaching a personnel lock and completed tag to each applicable isolation device. If one or more person will be performing the work, each must apply their own lock to a multiple lock device (HASP).

Type of Energy: May consist of one or more of the following: electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravity, steam, compressed gas, etc.

Magnitude: Will be described in terms of measurement such as: psi, lbs., tons, amps, volts, watts, temperature (Celsius or Fahrenheit), etc.

Hazard: Hazards will be completed by one or more of the following: electric shock, crush, cut, burn, fire, explosion, chemical burn, cold exposure.

Control Method: Will briefly state methods used to eliminate the probability of the hazard from occurring.

Isolation Device: Will state what device(s) will be used with the lock and tag to ensure the safety of the Lockout/Tagout system. (i.e. circuit breaker, slide gate, slip blind, line valve, plug cover, valve cover, or any similar device used to block or control the unintentional release of energy from the system.)

Type of Energy	Magnitude	Hazard (s)	Control Method	Isolations Device(s)

Verify

4. To be sure the equipment WILL NOT OPERATE by attempting to operate the controls.

   CAUTION: If you see any response, explore the problem and then try the operator controls again. If the equipment still responds, STOP, and notify your Supervisor or the Maintenance Manager.

   Recheck operator controls, set them all as you would to stop the equipment, and push the E-stop if applicable.

5. Proceed with maintenance or servicing activity.

RETURNING THE EQUIPMENT TO OPERATION

Check and Inspect Equipment

6. Inspect the piece of equipment and the immediate area around the machine for loose parts and tools, check system integrity, and ensure items have been removed from the area. Replace all guards that were removed.

CAUTION: If the machine fails to operate properly, STOP IT, and LOCK as described above; then continue maintenance or servicing activity.

RELEASE FROM ISOLATION

7. Notify all affected employees that the machine is going to be placed back into service.

8. Remove all isolations devices and energy restraints.

9. Restore all energy to the machine.

Abbreviation Interpretations:

amps-Amperes
lbs.-pounds
LOTO-Lockout / Tagout

N-Nitrogen
psi-Pounds per square inch
T-Tons
V-Volts
W-Watts

Completed By:
Reviewed By:

Form LOTO-4 - Lock and Key Log

Employee Name: **(Please Print)**	**Employee Signature:**	**Lock Number:**	**Department:**	**Date:**

Master List of Standard Lockout/Tagout Procedures