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March 2019

LOCKOUT/TAGOUT & LINE BREAKING
CONTROL OF HAZARDOUS ENERGY PROGRAM

PURPOSE

This procedure establishes the minimum requirements for the use of energy isolating devices whenever maintenance or servicing is performed on equipment and for the safe opening of associated piping to minimize potential for injury to personnel from releases of corrosive, hot, toxic and/or flammable material or any material under pressure. It shall be used to ensure that equipment is stopped, isolated from all potentially hazardous energy sources, and locked and/or tagged out before employees perform any opening, servicing or maintenance where unexpected start-up of equipment or release of stored energy could cause personal injury or equipment damage. Machine and vehicle specific procedures for all equipment must be developed.

SCOPE

This procedure applies to all personnel performing opening, maintenance or servicing equipment or piping that is handling hazardous material. Any time a protective device or guard is removed or an employee is exposed to the point of operation, the lockout/tagout procedure is applicable, with the exceptions listed in the Electrical Work Practices Program. This procedure applies to the control of all energy sources that when unexpectedly released could cause injury, equipment, or property damage.

- Electrical – Energy associated with electricity
- Mechanical – Energy associated with physical movement
- Hydraulic – Energy associated with liquid movement.
- Pneumatic – Energy associated with compressed gas.
- Chemical – Energy associated with the reaction of one or more substances with their surroundings.
- Thermal – Energy associated with heat.
- Other Potential / Stored Energy Sources – Energy which may be released after equipment is shut down. Examples are springs, capacitors, elevated loads, gas-charged accumulators and residual pressure.

This procedure does not apply to plug connect equipment under the exclusive control of the employee (when the plug is disconnected, in direct sight of, and within arm's reach of the employee performing the work).

RESPONSIBILITIES

Facility Services Management is responsible for following the provisions of this procedure without variation.

Facility Services Management:

- identify the Program Leader and help develop the locations energy control procedures
- develop requirements for breaking into equipment and piping that contains hazardous materials and approving any exceptions to the procedure (if applicable)
- identify all qualified and authorized employees
- implement the Lockout/Tagout program
- ensure that all employees are trained
- establish a disciplinary action policy
- maintain employee training records

University Employees:

- participate in Lockout/Tagout training including processes that contain hazardous materials
- comply with Lockout/Tagout program requirements
- All Drake University employees are responsible for completing each step of breaking into equipment or pipelines containing hazardous materials and for recognizing Lockout/Tagout control devices and must not make any attempts to start, energize, open, or otherwise operate equipment that is under LOCKOUT/TAGOUT control or that may contain hazardous materials.
- Directly supervised temporary personnel required to perform lockout/tagout functions shall be trained, require authorization, and require the same qualifications as full time employees to perform work covered by this lockout/tagout program.

Program Leader: *Desiginated By Facility Services Management*

- maintain the control of hazardous energy through the implementation of the Lockout/Tagout program at the location
- provide training to employees
- conduct a program audit and document the findings at least annually or when an equipment change has been completed

EHS:

- process owners, audit, review.

CONTRACTORS

All contractors must comply with the same requirements of this program or utilize the Drake University lockout/tagout program, or their own company's energy isolation procedure. Contractors must also ensure that all equipment and piping that contains potentially hazardous materials has been identified and incorporated into the work plan. The employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the energy control program utilized.

Contractor employees are responsible for recognizing Lockout/Tagout control devices and must not make any attempts to start, energize, open, or otherwise operate equipment that is under LOCKOUT/TAGOUT control. If the contractor's work involves job tasks that fall under this procedure, the contractors must be trained on general OSHA requirements and university specific requirements.

Contractors that refuse to comply or have violations shall be reported to Facility Services Management and University Administration.

DEFINITIONS

Breaking Into: Activities that involve opening any equipment or piping

Equipment: Any enclosed apparatus that contains or potentially contains process or utility materials. Examples are storage tanks, pumps, bins, vats, etc.

Hazardous Material: Material that is corrosive, hot, cold, toxic or flammable or any material that is under pressure.

Piping: Any closed system used to convey process or utility materials. Examples are: rigid or flexible tubing, pipe, ductwork, etc.

Affected Employees: Employees that have operational responsibilities for any equipment that is being locked or tagged out or work in the area in which the equipment is being serviced and/or maintained.

Authorized Employees: Employees who perform servicing or maintenance on locked- or tagged- out equipment and employees who perform the LOCKOUT/TAGOUT procedure.

Energy Isolation Device: A mechanical device that physically prevents the transmission or release of energy. Energy Isolating Devices include, but are not limited to, a:

- manually operated circuit breaker,
- disconnect switch,
- 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),
- line valve, and
- safety block, bar, latch, pin or similar device used to prevent machinery motion.

Equipment Specific LOCKOUT/TAGOUT Procedures: In cases where equipment is not isolated by a cord and plug only, a specific LOCKOUT/TAGOUT procedure must be written detailing the specific steps that must be taken to isolate the energy sources (see example of an Equipment Specific LOCKOUT/TAGOUT procedure in Appendix 3). It is required that locations develop detailed procedures that include pictures of energy isolation points (see example of this recommended procedure in Appendix 3). Bi-lingual procedures are required when authorized employees cannot demonstrate English competency.

Group Lockout: In cases where more than one employee is involved with a task involving LOCKOUT/TAGOUT, the key for the energy-controlling lock will be placed in a group lockbox. Then each employee involved with the job will place their personal lock on the lock box.

Lockbox: A box that is designed for securing control device keys that is capable of having multiple locks affixed to it. The box cannot be opened unless all locks are removed. Also, a multiple lock hasp may be used for group lock lockout.

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 Devices: A device, such as a lock, that physically prevents the transmission or release of energy. Other means of controlling energy that could be used, depending on the equipment type are: block valves, blind flanges, pressure bleed off and physical disconnection. Interlocks are not a substitute for LOCKOUT/TAGOUT. A lock out method must have a unique key or combination to prevent unauthorized removal. All locks must either have the user's name on them, or should be checked out and tracked by a number located on the lock(s).

Lockout devices shall be single keyed and standardized within the facility in at least one of the following criteria: Color, shape, or size.

See Appendix 4 for a description of the University's lockout and tagout devices.

Primary Authorized Person: In the instance of a group lockout, a primary authorized person shall be identified. This person shall be responsible for lockout/tagout of each energy isolating device and providing a single device that allows each member of the group to apply his or her individually-controlled lock or tag.

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

Stored Energy: Any static potential energy which may be released after equipment is shut down. (i.e., springs, capacitors, elevated loads, gas-charged accumulators and residual pressure)

TAGOUT: The placing of a warning device on the energy control device, such as a tag which has a means of being secured to the energy control device and has the words "DO NOT OPERATE". TAGOUT may only be used if lockout is not physically possible.

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. The device shall be substantial enough to prevent inadvertent or accidental removal, 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.

Tagout device print and format shall be standardized throughout the university.

REFERENCES

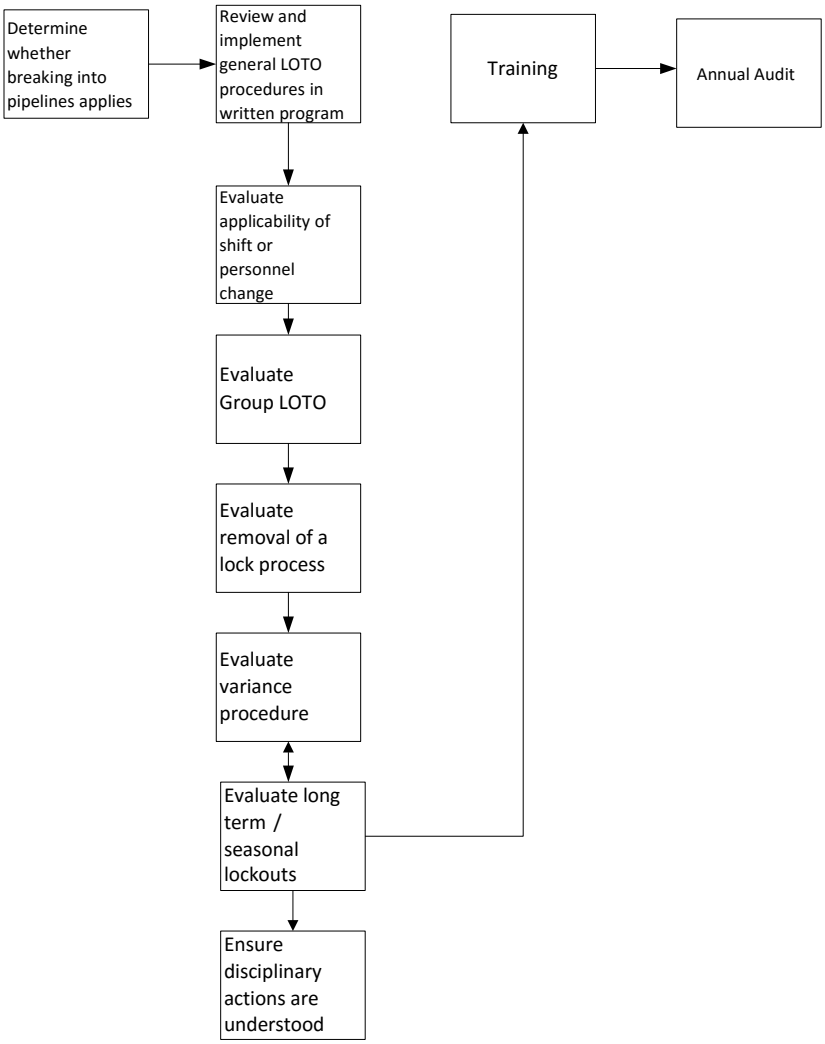
ANSI Z244.1/2008 - The Control of Hazardous Energy (Lockout/Tagout and Alternative Methods)

OSHA 1910.147 - The Control of Hazardous Energy (Lockout/Tagout)

MANAGEMENT SYSTEM CONSIDERATIONS

Sufficient management systems must be in place to ensure the university's ability to properly implement and maintain compliance with the elements described in this procedure. For example, regarding the procedure, physical or operational changes in a facility could require new or amendmended machine-specific procedures and changes in personnel which require training prior to the new employee performing annual audits.

PROCEDURE



BREAKING INTO PIPELINES

Treat equipment and piping that have contained hazardous material as though the hazardous material is still present and **will** spray out onto the personnel opening the equipment or piping.

EXCEPTIONS:

Pipelines deemed to be under low pressure and can be controlled with application of Lockout/Tagout procedures are not covered by this program. Examples include: low pressure treater lines, low pressure water lines and common air lines less than 90 psi.

The Univeristy shall list their facility exceptions to this program and their means of specific control of any potential energy in those lines. This information must be relayed to any contractors performing work for Drake University.

A permit must be obtained for any equipment and/or pipelines which contain potentially hazardous materials prior to opening. Appropriate personal protective equipment (PPE) must be worn to protect individuals from any potential spray involved in the break-in process. Chemical and/or thermal resistant gloves, chemical splash goggles, and face shield are the **minimum** personal protective equipment **(**PPE). (See Appendix 7 for a copy of the permit.)

Prepare for the break in by:

- draining, cleaning and blowing down all piping and/or equipment which potentially contain hazardous materials as completely as possible
- stop any hot work within 75 feet of the planned line break if the material inside the equipment/piping has a flash point of less than 140^0F
- place warning tape around the area to restrict passage
- prepare a contingency plan in the event of a spill
- ensure lower levels are protected from spillage if the break in point is not on the ground floor
- perform lockout/tagout of energy sources that may release chemical, thermal, electrical, physical or other energy

The line break shall be performed by:

- donning the appropriate personal protective equipment (PPE)
- having a second person, wearing the same PPE, standing by to call for additional assistance if needed
- proceeding as if the equipment/material is full of the hazardous material
- opening equipment hatches or pipe flanges slowly and on the side away from personnel
- covering the connection with tarp or other appropriate material to absorb or redirect a spray out

Shift changes while breaking into pipelines will be identical to that of General LOTO procedures. (See SHIFT OR PERSONNEL CHANGES section below).

Training for breaking into pipelines will ensure individuals understand the scope and function of breaking into pipelies. Training shall be initial and annual. It shall communicate the hazards of piping that may contain hazardous material.

GENERAL LOTO PROCEDURES

The authorized employee(s) will determine equipment to be locked out, notify affected employees verbally by going to the person in the area and telling them that the equipment is to be de-energized.

The authorized employee(s) will obtain necessary locks, tags, and/or other energy isolating devices needed to isolate the energy sources.

The key to the lock must be kept under the control of the authorized employee performing the lockout. Each lock or set of locks assigned to an employee should only have one key with no duplicates.
After any potentially hazardous materials have been removed, the affected employee(s) will shut down the equipment via normal shutdown procedures.
The authorized employee(s) will de-energize the equipment and affix the LOCKOUT/TAGOUT devices to all energy control points such as electrical breakers, valves, etc. needed to isolate and de-energize the part of the equipment being worked on.

The specific LOCKOUT/TAGOUT procedure for that piece of equipment must be followed for de-energization (see attached example of "Equipment Specific LOCKOUT/TAGOUT procedure in Appendix 3).

The authorized employee(s) will fill out a "Danger-Do Not Operate" tag and affix the tag to the control device.

The authorized employee(s) will attempt to restart the equipment to verify that the energy sources have been deactivated, GO/NO GO tests.
If for any reason the equipment restarts during this verification, the job cannot progress until the energy source(s) are located, isolated and verified as being deactivated.

Only after the above steps have been performed can work begin on the equipment.

After completing the work on the equipment, the authorized employee(s) will verify that the equipment has been restored to its original condition including all safety devices, such as guards, are in place and there is no trapped hazardous material that could be released. Tools and other equipment shall be removed and stored in their designated areas.

The authorized employee will verify that all workers are clear of the equipment prior to restart.
The authorized employee(s) will then remove the lockout/tagout devices and will notify affected employee(s) that the work has been completed and that the energy to the equipment has been restored.

The affected employee(s) will then perform the normal start up of the equipment and with the authorized employee(s) in attendance to ensure that the equipment is functioning properly.

The authorized employee(s) will then return the lockout/tagout devices to their designated storage area.

SHIFT OR PERSONNEL CHANGES

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including a provision for the orderly transfer of lockout and/or tagout device protection between off-going and oncoming authorized individuals, to minimize

exposure to hazards from the unexpected energization or start-up of the machine, equipment or process, or the release of stored energy.

In the event that an authorized employee(s) must leave the job for any reason and the job is not completed and must be continued, **a switch of locks and tags must be done** following the steps below:

1. The departing and arriving employees will both be present during the lock/tag switch.
2. The arriving authorized employee will place their locks and individual tags on the machine/equipment.
3. The departing employee will remove their respective locks and individual tags from the machine/equipment.
4. The arriving employee will re-test the equipment to assure that the energy sources are neutralized.

GROUP LOCKOUT/ TAGOUT

When servicing or maintenance is performed by a group, they may utilize a group lockout procedure that affords the same level of protection as the application of individual lockout devices.
A primary authorized employee shall be identified and is responsible for placing a lockout device on each energy isolating device and providing a multiple lockout/tagout device (i.e., hasp or group lockout box) that allows each member of the group to install their individually controlled lockout device.
Each authorized employee places a personal lockout device to the group lockout device when he/she begins work and must remove the device when he/she stops working on the machine or equipment. Verification shall take place to determine the effectiveness of the energy isolation using a GO/NO-GO test.

REMOVAL OF A LOCK

Locks are only to be removed by the employee that placed the lock on the equipment.

If an employee/contractor forgets to remove his/her lock and is not able to return to work to remove it, the following steps must be adhered to before another employee may remove the lock.
1. Determine lock owner and verify they are not on site.
2. Attempt to contact the employee who left the equipment locked out and determine why it was left in that status.
3. The employees supervisor or their designate must be notified of the situation & must approve the removal.
4. All potential hazards must be identified and controlled (electrical, pneumatic, hydraulic, mechanical and stored energy.
5. The university must also identify why the equipment was locked out and if the work is finished.
6. After all safety concerns have been identified, controlled and every possible attempt has been made to notify the employee (who is assigned to the lock) the lock may be removed.

7. Upon return to work, the employee (who is assigned to the lock) must be notified & reminded again of his/her lock removal.

Appendix 6 shall be used to document the removal.

VARIANCE PROCEDURE

Certain minor service or maintenance adjustment procedures may require variance from normal LOCKOUT/TAGOUT procedures. During these operations, it may be required that equipment is energized when servicing or machine guarding is removed on energized equipment for observation. For these rare circumstances, Facility Services management and maintenance personnel must determine that variance from normal LOCKOUT/TAGOUT procedures is necessary, and if determined necessary, the proper precautions must be taken to ensure the safety of those who may be exposed to the incurred hazards.

The variance procedure is by no means to be used to provide for deviation of the normal LOCKOUT/TAGOUT process as intended in this policy. It is only to be utilized when LOCKOUT/TAGOUT cannot be applied for functional reasons of the process or equipment.

Appendix 8 shall be used to facilitate the completion of the administrative control process when the LOCKOUT/TAGOUT Variance Procedure is necessary.

To ensure the variance is conducted and documented properly, the following steps must be taken:

1. Requestor of variance must obtain Appendix 8 LOTO Variance Permit and complete the permit with the following information:
    a. Area/Location
    b. Equipment on which the variance will take place
    c. Action requiring the variance
    d. Justification of why the variance is necessary
    e. Description of hazard(s)
    f. Method(s) to control the remaining hazard(s)
    g. Install a barrier to allow entry to only Authorized Persons
    h. Name(s) of person(s) performing service [Authorized Person(s)]
    i. Name of Attendant [and Spotter if necessary]
    j. Facility Services Manager signature of approval
    k. EHS Director signature of approval
    l. Time the variance begins and ends
1. After completion of the work and expiration of the permit, the form shall be submitted to Facility Services to be filed for recordkeeping purposes.

Additional Variance Information:

- An Attendant must be located at an energy controlling source, such as an emergency stop button or electrical disconnect, clear of all hazards.

- A Spotter must be utilized to relay information to the Attendant when the Attendant is not in direct visual contact with the Authorized Persons.
- Circumstances voiding the permit are described on the permit form.

The LOCKOUT/TAGOUT Variance Procedure applies to all Drake University Employees and Contractors.

Long Term and Off-Season Lockouts

The University will develop a process to manage long-term or seasonal lockouts of the equipment. The process should address the following items:

1. Identification of the person responsible for the long-term supervision of the lockout.
2. Method of securing the key(s) of the locks used in the long-term lockout.

NOTE: Employees that will work on equipment that is under a long-term lockout are still required to place an individual lock on the energy isolating devices. The group lockout process may also be used in this instance.
(Some alternative examples of long term lockout include removing a battery from equipment and physically pulling wires to equipment from supply panels).

DISCIPLINARY ACTION

In the event that an employee has failed to comply with this procedure, the employees manager will contact the Human Resources representative to determine the steps to be taken. The employee is subject to corrective action up to and including dismissal.

TRAINING

All affected and authorized employees including contractors will be trained in the location LOCKOUT/TAGOUT Program and its purpose.

Initial training for authorized employees will ensure individuals understand the purpose and function of the energy control program. Training shall be such that all authorized individuals have an understanding that is appropriate for the level of hazard exposure they may encounter. The following elements shall be included in a training program:

- Individual training shall be carried out prior to authorized individuals performing service and maintenance tasks or being potentially exposed to hazardous energy.
- Training shall be specific to the written program.
- The training program shall be developed using applicable manufacturer's documentation, industry best practices, regulatory requirements and input from the authorized individuals.
- Each authorized individual shall receive training in the type and magnitude of the energy available in the workplace.

- Each authorized individual shall receive training in the type of energy that might be encountered during servicing or maintenance and methods or means to control and isolate that energy.
- Training shall include samples of machine specific procedures and enable personnel to interpret and implement procedures.
- The University shall document that all initial and additional training has been conducted. The documentation shall contain each individual's name, dates of training, and the training topic.
- All authorized employees shall receive training in the general hazard of electricity, university voltages, electric current, arcing, grounding, safe clearances, and the provisions of this procedure relating to authorized employees.

Training for affected employees will include:

- Purpose and use of the energy control procedure.
- Location specific procedural requirements including roles of affected and authorized employees and,
- The prohibition of attempting to start equipment that is locked out.

Initial training for all employees must be provided prior to performing LOCKOUT/ TAGOUT procedures.

Retraining of this program will occur annually or as needed, when deemed necessary by management, when new equipment is installed, or if periodic inspections reveal deficiencies in program.

Training will be documented and include: Employee name, instructor, date of training, and course content.

The training will be provided by an instructor knowledgeable in this program and where applicable, regulatory requirements. Training may include and be facilitated by videos, CD ROM, or other training media and aids. Training will include an opportunity for hands-on practice of this procedure. A written examination and sign off sheet will be a part of training verification. Training records shall be kept for 10 years.

AUDIT OF THE LOCKOUT/TAGOUT PROGRAM

The location is required to perform an annual internal audit of the location LOCKOUT/ TAGOUT Program.

The audit requires that an “in progress” LOCKOUT/TAGOUT job be reviewed by an authorized employee to determine that all necessary steps of the procedure have been fulfilled. The audit shall include, as a minimum, the written program, specific machine, equipment, process procedures, lockout/tagout hardware, energy isolating devices, alternative methods, and communication and training.

Where lockout is used for energy control, the audit shall include a review between the inspector and **EACH** authorized employee of that employee's responsibilities under the energy control procedure being inspected. This audit shall be documented and kept on file (see attached inspection form Appendix 2).

Equipment specific procedures shall be reviewed annually for updates as needed.

Any deviations or inadequacies in the written procedure found during the audits will be immediately corrected. The results of the audit will include a review of the program requirements and the audit findings with each authorized employee involved with LOCKOUT/TAGOUT. The results of the audit will be communicated to all authorized and affected employees.

EVALUATION

Appendix 1 shall be used to perform an annual written gap analysis or in preparation for the annual management review

APPENDIX 1
Checklist for Implementation of Lockout/Tagout & Line Breaking Program

	GENERAL LOTO	Yes	No	N/A
1.	Are there equipment specific Lockout/Tagout written procedures in cases where equipment has more than one energy source?			
2.	**Do the procedures include:** Identification of the energy sources Steps for shutting down Attempts to drain the equipment or piping before opening (if applicable)? Isolating, blocking, and lockout/tagout Verification of isolation and lockout/tagout?			
3.	To begin a lockout/tagout, is the process/equipment shut down or turned off by a qualified person using the normal main operating controls?			
4.	Because of unexpected hazards, is the use of auxiliary or remote control stations, shutdown interlocks or emergency stop controls as means of stopping the process/equipment avoided?			
5.	Are all sources of potentially hazardous levels of stored or residual energy within the process equipment identified and controlled by the appropriate use of dissipating or releasing, blocking, or isolating each source of hazardous levels of energy?			
6.	Are appropriate tags, locks and special lockout devices applied to each energy isolating device selected for controlling energy for the process/equipment?			
7.	Does security ensure that the machine, process or system cannot be easily or accidentally reenergized take the form of both a physical means (lockout) and posted warning (tagout)?			
8.	Does the physical means secure each device serving as a point of energy control with a lock whose only key is in the possession of the person applying the control? If an alternate method is used, is it equally protective?			
9.	**Is verification that the process/equipment has been de-energized completed before any work activities begin by confirming the:** proper power sources have been de-energized stored energy is released, blocked or isolated locks and tags are in place device is inoperable by physically trying the controls			
10.	As individuals complete their work under the Lockout/Tagout procedure, do they remove their personal lock(s) from each energy control device?			
11.	When all work is completed, are the equipment/process and the surrounding equipment/process and work area inspected by a qualified and authorized individual to determine whether it is safe to return to normal operation?			
12.	Are the primary lockout/tagout devices removed only after this inspection?			
13.	**Are the employees involved in lockout/tagout trained in:** recognition of energy sources and their magnitude the lockout/tagout program and procedures the means for energy isolation and control			
14.	Do other employees who may encounter lockout/tagout equipment receive a summary of the lockout/program, and are these employees informed of the prohibition related to attempting to remove lockout/tagout or starting equipment which is locked out or tagged out?			

BREAKING INTO PIPELINES	Yes	No	N/A
15. Is the procedure implemented to protect employees from hazardous material when breaking into or opening equipment and piping?			
16. If the equipment and/or piping contain hazardous material, is the appropriate PPE identified & worn, assuming the material will spray out onto the personnel?			
17. Does the minimum PPE include protective gloves and chemical splash goggles?			
18. Are contingency plans made to deal with a spill if equipment/pipelines contain hazardous material?			
19. Is a backup employee nearby when the equipment/piping is opened to summon assistance if needed?			

Conducted by:	
Date:	

	Actions Required	Responsibility	Due Date	Completion Date

APPENDIX 2

Annual Audit - Lockout/Tagout

Lockout/Tagout Audit Form
(2 pages)
Department: _____ Equipment: _____
Task Location: _____
Date _____/ _____/ _____ Shift _____ Time _____ AM/PM

Authorized person(s) name(s): **TRAINING?**
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □
Affected person(s) name(s):
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □
_____ **Yes** □ **No** □

Were all affected persons notified of lockout?
Yes □ **No** □ If so, by whom _____

Name(s) of authorized/affected person(s) supervisor(s)
_____ _____
_____ _____

Written Lockout procedure available? (If yes**,** state where located)
Yes □ **No** □ _____
Is Lockout procedure being followed? **Yes** □ **No** □ (If not, state elements not followed)
_____
_____
Is procedure posted? **Yes** □ **No** □
Is procedure in diagram form? **Yes** □ **No** □
Is procedure adequate? **Yes** □ **No** □
Has lockout been performed by all persons involved? **Yes** □ **No** □
Name all required energy isolating devices
_____ _____
_____ _____
_____ _____

Can energy isolating devices be locked out? **Yes** □ **No** □

Where blocks or pins are necessary, were they used? **Yes** □ **No** □

State deficiencies requiring corrective action:

_____

_____

Did each authorized person lockout all required energy sources with their own locks?
Yes □ No □
If not, what action was taken?

_____

Did each authorized person verify lockout? **Yes □ No □**
If not, what changes were needed: _____

CORRECTIVE ACTION (S) RECOMMENDED:

_____

_____

INSPECTION PERFORMED BY: _____

DATE: _____

APPENDIX 3

EXAMPLE – Equipment Specific Procedure

NOTIFY ALL AFFECTED PERSONNEL OF LOCKOUT OF EQUIPMENT PERFORM NORMAL STOPPING OF EQUIPMENT BEFORE LOCKING OUT						
ELECTRIC	**PNEUMATIC**	**WATER**	**FUEL**	**HYDRAULIC**	**CHEMICAL**	**GAS**
PTO	**THERMAL**	**SPRING**	**RAISED LOAD**	**COUNTER WEIGHT**	**ENGINE**	**OTHER**

Electrical

Air

Stop Pin

Placement:

- ✓ Notify all AFFECTED EMPLOYEES and check machine energy source
- ✓ Obtain necessary Locks and Tag devices
- ✓ AFFECTED EMPLOYEE shuts down equipment
- ✓ Release or Restrain all stored energy
- ✓ Lock or Tag out energy
- ✓ Test equipment before starting work
- ✓ Check and Double Check list

Removal:

- ✓ Verify that all tools and equipment are clear of the machine.
- ✓ Verify that all personnel are clear of the machine.
- ✓ Verify that all guards that were removed are in place.
- ✓ Notify affected personnel and start equipment.

ENERGY SOURCE	LOCATION	METHOD AND CHECK
ELECTRIC=480V	The electrical disconnect is located at main panel.	• Switch the **electrical disconnect** to **"Off"** to isolate the electrical power. • Lockout the disconnect using a padlock, interlocking hasp, and tagout tag. • Verify isolation of the electrical service by pressing the **"Start/On"** switch, observing that the machine does not activate. Depress the **"Stop/Off"** switch. • For any electrical repairs or services, verify isolation of the electrical power by conducting voltage checks prior to performing services or repairs.
PNEUMATIC	The air disconnect is located on west side of the unit.	• Rotate the **air service valve** to the **"closed"** position to block and dissipate the pneumatic service. • Lockout the air service valve using a valve lockout, padlock, and tagout tag. • Verify isolation and dissipation of the air service by observing the air pressure gauge indicates **"zero"** or there is **"no flow."**
HYDRAULIC=Gravity	The stop pin is located at the machine.	• Position the **Gate** at the desire location and secure the gate and counterweight with the stop pin. • Tagout out the stop pin using a tagout tag.

Appendix 4

Description of University LOTO Devices

Insert List of Devices.

APPENDIX 5
LOCK REMOVAL FORM

Date of Lock Removal: _____ Time of Lock Removal: _____

Name & Title of Person that Approved Lock Removal: _____

Name & Title of Person that Removed the Lock: _____

Was the Person whose lock is to be Removed contacted? __ Yes __ No

Name of Person whose Lock was Removed: _____

Why was their lock left on? _____

_____

Why are we removing the lock: _____

_____

Please list the efforts made to notify the person that their lock was being removed:

_____

_____

_____

APPENDIX 6

BREAKING INTO PIPELINES AND EQUIPMENT PERMIT

Department _____

Work Area _____

Specific Equipment _____

Work To Be Done _____

Date_____ Shift _____

	Not Applicable	Yes	No
1. Has equipment been valved out on each side of point to be entered?			
2. Has Lockout/Tagout procedure been properly followed?			
3. Has this equipment been de-pressurized?			
4. Has this equipment been decontaminated?			
5. A protective or warning barrier must be provided.			
6. Is other Hot Work within 75 feet horizontally or beneath the point of break-in?			
7. Is a Hot Work Permit required?			
8. Is a Confined Space Entry permit required?			
9. Is nearest safety shower operable?			
10. List protective equipment required _____			
11. List special precautions _____			

THIS EQUIPMENT HAS BEEN MADE SAFE FOR OPENING

AM

_____ Time _____PM

Department Supervisor or Designee

I have personally reviewed the Items 1 through 11 on this permit and agree that these safety precautions have been taken.

Signed _____ _____

(Person(s) who will open equipment)

THIS PERMIT IS VALID FOR ONE SHIFT ONLY

APPENDIX 7
LOCKOUT/TAGOUT VARIANCE PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

1. Site Location: _____
2. Description of equipment/job location: _____
3. Description of work to be performed: _____
4. Justification of why the equipment cannot be locked out or the work deferred until the process can be shutdown and de-energized: _____

Requestor Name: _____ Date: _____

PART II: COMPLETED BY THE QUALIFIED PERSONS *DOING* THE WORK: **CHECK WHEN COMPLETE**

1. Evidence/details of completing of a job briefing including discussion of any job related hazards: _____ ☐
2. Authorized Personnel Only barrier installed for Authorized Personnel Only to enter. ☐
3. Name of Attendant present at the system's emergency stop button or disconnect for the equipment being worked on to de-energize the system in the event of an emergency: _____
4. Do you agree the above described work can be done safely: ☐YES ☐NO (If *NO*, return to requestor)

Authorized Person(s) Doing Work _____ Attendant _____

PART III: APPROVALS TO PERFORM THE LOCKOUT/TAGOUT VARIANCE:

Facilities Services Manager _____ Date _____

EHS Director _____ Date _____

PART IV: DURATION OF VARIANCE

Time Begin _____ AM PM Time Variance Complete _____ AM PM

THIS PERMIT BECOMES VOID:

- **A. If a emergency develops.**
- **B. If the work has been suspended more than 60 minutes.**
- **C. If the work has not yet begun within 60 minutes.**
- **D. At the end of the working shift.**
- **E. If there is a change in the personnel conducting the work.**