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PREFACE

This document contains the Lockout/Tagout Safety Program for the University of Washington Seattle Campus Facilities Services. Its purpose is to assure worker safety and prevent personal injury that could result from the unexpected start-up, energizing, or release of stored energy during the servicing and maintenance of equipment.

The Lockout/Tagout Safety Program establishes special procedures that are required of all employees in compliance with State worker safety regulations. These requirements include:

- developing and implementing a formal, written lockout program;
- training employees in their responsibilities for carrying out the program;
- enforcing the program to ensure hazardous energy is always locked out during the course of work

The University of Washington’s Lockout/Tagout Safety Program establishes a formal operations policy that identifies departmental responsibilities and contains standardized procedures to assist departments in implementing their responsibilities. The University program is based on compliance with WAC 296-803, WAC 296-45, and WAC 296-155.

Program Implementation

The implementation date for the original program was October 30, 1993. Prior to that time, EH&S worked with UW departments to identify all work areas where lockout procedures were needed and to provide assistance in setting up individualized lockout programs, including:

- the development of written lockout procedures for each piece of equipment requiring lockout;
- the purchase of standardized locks, lock boxes, tags, chains, and other lockout equipment

The program was revised in February 2011 to clarify implementation and reflect changes in the regulations.

1 Washington Administrative Code (WAC) 296-803 Lockout/Tagout (Control of Hazardous Energy) stipulates that prior to servicing of equipment; special procedures shall be required to isolate the equipment from all potentially hazardous energy if the unexpected start-up, energization or release of stored energy could cause injury.
I. SCOPE

These policies and procedures cover the servicing and maintenance of machines and equipment including piping systems in which the unexpected start up or energizing of the equipment, or release of stored energy, has the potential to cause injury to University employees. Energy sources include electrical, mechanical, hydraulic, pneumatic, chemical, thermal, steam, gravity, electromagnetic fields, or other energy.

II. DEFINITIONS

Affected employee: An employee who is required to work on, operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tag out, or whose job requires him/her to be in an area which is potentially influenced by the servicing or maintenance being performed.

Authorized employee: An employee who is qualified by reason of training and to whom the authority and responsibility to perform a specific lockout tagout-related task has been assigned by his/her supervisor. Such authority and responsibility shall include de-activating and locking out equipment and or systems in compliance with the requirements of this program. (see also Principal Authorized Employee, below.)

Checklist: A written form containing Lockout/Tagout procedures for a piece of equipment; when such a checklist exists, it constitutes a mandatory work permit.

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

Energy isolating control device: A mechanical device that physically prevents the transmission or release of energy, such as an electrical circuit breaker, disconnect switch, line valve, blank, blinds, block, or similar device that is used to block or isolate energy.

Energy source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy (including gravity).

Equipment protection lock: A lock used to secure equipment and prevent its operation at times when the equipment is not being actively worked on (i.e., not for the purpose of personal protection). This lock is to prevent the unauthorized operation of the equipment. This lock can also be called a shop lock or a plant lock.

Hazardous energy: Energy that could cause harm to a worker, such as:

- electrical
- mechanical/stored (including pneumatic, hydraulic, springs,
parts moved by gravity, spinning flywheels, pressurized systems)

- radiation
- high intensity electromagnetic fields
- chemical

**Hot tap**: A procedure which involves welding on pressurized pipelines, vessels, or tanks to install connections or accessories. It’s commonly used to replace or add sections of pipeline used in air, gas, water, steam and chemical distribution systems without interrupting service.

**Lockout**: The placing of a lock device or an energy-isolating device using an established procedure to make sure that the machine or equipment can’t be operated until the lockout device is removed.

**Lockout Device**: A device that uses a positive means, such as a key lock to hold an energy-isolating device in the “safe” or “off” position. This includes blank flanges and bolted slip blinds

**Primary authorized employee**: An authorized employee who has overall responsibility for meeting the requirements of the lockout/tagout procedures.

**Tagout**: Placing a tagout device on an energy-isolating device using an established procedure to indicate that the energy-isolating device and the machine or equipment being 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. It can be securely fastened to an energy-isolating device to indicate that the energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed by the person or persons that installed it.

**III. PROGRAM RESPONSIBILITIES**

**EH&S is responsible for:**
- Coordinating the development of the UW Lockout/Tagout Safety Program with existing University safety and health policies and procedures.
- Providing information and assistance to departments for developing and implementation of the UW Lockout/Tagout Safety Program, equipment specific procedures and worker training.
- Maintaining currency with applicable regulations and enacting program revisions as appropriate.

**Facilities Services Directors & Managers are responsible for:**
• Ensuring that appropriate administrative and technical Lockout/Tagout procedures are established for equipment that is serviced or maintained by department staff and/or outside contractors.
• Ensuring that affected employees receive proper training and understand the Lockout/Tagout procedures which apply to the service or maintenance of equipment in their work areas.
• Ensuring that Lockout/Tagout procedures are adhered to whenever affected equipment undergoes service or maintenance.

Supervisors and Leads are responsible for:
• Ensuring that employees in their unit are aware of applicable administrative and technical Lockout/Tagout procedures for equipment servicing and maintenance.
• Supervisors must ensure that employees have current training on lock out tag out procedures. Supervisors or managers must observe and document employees performing procedures correctly at least annually (see section VI. E)
• Ensuring that employees adhere to Lockout/Tagout procedures whenever they perform servicing or maintenance on affected equipment.
• Ensuring that a principal authorized employee is designated for each lockout tagout. The principal authorized employee, in turn, will be given the overall authority and responsibility for the Lockout/Tagout and must know the types of energy the equipment uses and the proper procedures for lockout tagout.
• Ensuring employees promptly report the presence of equipment for which Lockout/Tagout procedures have not yet been established and which pose a potential for injury should an unexpected start-up, energizing, or release of stored energy occur during servicing or maintenance.

Employees are responsible for:
• Ensuring that proper Lockout/Tagout procedures are followed whenever working on applicable equipment.
• Removing their personal protection locks and tags whenever: (1) they are not working on the equipment, (2) at the end of the work shift, or (3) at the completion of the project - whichever occurs first.
• Promptly reporting to their supervisor the presence of equipment they have been assigned to work on for which Lockout/Tagout procedures have not yet been established and which pose a potential for injury should an unexpected start-up, energizing or release of stored energy occur during service or maintenance.
• Promptly reporting to their supervisor any accident or incident which results from the use or lack of use of Lockout/Tagout procedures; assisting their supervisor in documenting such instances.
IV. GENERAL ADMINISTRATIVE REQUIREMENTS

Checklists - A lockout checklist is required whenever any of the following conditions exist:

- equipment stores energy or can accumulate energy after shut down;
- equipment has more than one energy source;
- equipment has an energy source(s) that is not obvious;
- more than one device is required to lock out the equipment;
- the lockout device is not under the exclusive control of the employee working on the equipment;
- the work creates a hazard to other employees;
- there has been a previous accident involving unexpected activation of the equipment

Checklists must be written by a person or persons with knowledge of the operation of the equipment being locked out. The procedures for restoring normal operations should be included where deemed necessary. Each item on the lockout checklist shall have a space for the primary authorized employee to sign-off as it is completed. It is advisable to keep at least one blank copy of each checklist in the shop or lab doing the work. The principal authorized employee must review the lockout checklist to assure that it is accurate and complete before the lockout starts. Any modifications to the procedure must be written on the checklist.

Accident/Incident Reporting - In the event of any accidents or incidents that occur during the performance of a Lockout/Tagout procedure, the supervisor(s) of the employee(s) involved shall be immediately notified. A UW Online Accident/Incident Report Form shall be completed by the affected employee, principal authorized employee, or supervisor, and routed to EH&S (http://www.ehs.washington.edu/ohsoars/index.shtm). A copy of the lockout checklist is to be included with the report.

Extra Costs - Equipment owners will be responsible for any costs necessary to modify equipment so it can be locked out. Therefore equipment owners should purchase equipment with provisions for Lockout/Tagout procedures.

Periodic Inspections and Record keeping - Each department shall ensure that employees are following the proper procedures for lockouts at least once a year. Documentation of this program, audit, training records, etc., shall be kept in the department’s lockout files for at least 3 years.
V. GENERAL EQUIPMENT AND PERSONNEL REQUIREMENTS

Locks - All personnel locking out equipment shall use locks designated for Lockout/Tagout (combination locks may not be used to lockout). Only one key to each lock shall be provided to each person. All locks must be the standardized for the work unit with an embossed metal identifying tag. Any lock used for safety lockout shall be identified as a personal protection lock and have the user's name and contact telephone number on it. Personal protection locks may not be used for anything unrelated to personal safety lockouts. Replace personal protection locks with equipment protection locks when equipment is not being worked on.

Lockboxes – The lockbox must be constructed so that the lockout keys are visible within it, but they cannot be removed as long as any lock is on the box. The procedures in Section IX must be followed if a lock box is used.

Tags - When a personal protection lock is installed, by an authorized employee, a tag shall be affixed that contains the following: "DANGER - DO NOT OPERATE", date of installation, employee name, and phone number. In a multiple-person lockout, only the principal authorized employee is required to affix a tag.

Lockout Crews - Jobs involving more than one employee must be locked out by a lockout crew of authorized employees, one member of which shall be designated as the principal authorized employee. When a shutdown includes work performed by non-university personnel, the lockout crew must include a supervisor from each employer.

Miscellaneous
Keys to personal protection locks shall be on the person of the individual who applied them whenever he/she is working on the locked out equipment. Adequate equipment must be available for all lock outs.

VI. TRAINING

A Lockout/Tagout Safety training class has been developed by EH&S in conformance with State requirements to assist departments and help assure that all affected employees work safely to control hazardous energy. Facilities Services can use another training source after the course has been reviewed and approved by EH&S.

A. This training shall be provided to all employees who:
   • operate or work on equipment that will be locked out;
• are the authorized or principal authorized employee for a lockout;
• supervise employees indicated above; and
• give training to other employees in lockout procedures

B. The training class presents information about recognizing situations involving hazardous energy, recognizing safety locks and tags, and what UW policies and procedures are in place. The goals of the training are that:
• Employees understand the purpose and function of an energy control program
• Employees have the knowledge and the skills necessary to carry out their program responsibilities
• Authorized employees will be able to identify the type and magnitude of energy available, recognize hazardous energy sources, and have the methods and means to isolate and control energy
• Employees can give an explanation of the use of checklists and procedure to be expected on the job
• Employees have a clear understanding of the prohibition against attempting to restart or reenergize a machine or equipment that is locked and/or tagged out
• Employees will understand that tags are warning devices and don’t provide the same level of physical restraint as a lock and are therefore secondary measure that should not be removed without the approval of the authorized person responsible
• Employees understand the need to train all affected employee prior to the start of the project.

C. Managers and supervisors should verify that employees in the area that are not part of the Lockout/Tagout work team understand that they are “affected employees” and have been trained by their supervisor prior to the start of the Lockout/Tagout procedure.

D. Training records shall be retained by each department.
   o Full length training is to be repeated at least once every three years.
   o Supervisors will not permit employees to work in Lockout/Tagout situations unless the training is current.

E. Periodic Review & Application: After classroom training is completed, employees will be observed by their supervisor or their manager using the lockout and tagout devices at least once a year for procedures completed annually. If a procedure is not normally completed once a year, then the employee will demonstrate the practices prior to implementation to the supervisor or the manager.

VII. BASIC LOCKOUT PROCEDURE

A. Preparation

1. If any controls cannot be locked out, initiate a work order to get them changed.
2. Obtain a checklist if required for the lockout of the equipment. If not available, do not proceed until a checklist has been written by a person knowledgeable in the operation of the equipment.

3. Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

4. Review the lockout checklist before the shutdown to assure that it is accurate and complete.

5. Notify all affected employees a lockout is going to be used and why.

B. Locking Out – Personal Protection

1. If the machine or equipment is operating, shut it down by the normal stopping procedures.

2. Operate switches, valves, or other energy isolating controls so that the equipment is isolated from its energy sources. If any controls cannot be locked out, initiate a work order to get them modified or replaced. Isolation of the energy source means that energy cannot be released. In addition to the standard circuit breaker considered using any of the following.
   - Removing a section of pipe
   - Removing and locking wires to motors
   - Installing a blind flange
   - Installing a locking mechanism over the switch
   - Installing cribbing
   - Installing wedges
   - Installing key blocks
   -

3. The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown shall be used to avoid any additional or increased hazards to employees as a result of the equipment stoppage.

4. All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from energy sources. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.

5. Dissipate or restrain stored energy.
6. Lockout the energy isolating controls. If more than one person will be working on the equipment, each one shall place his/her own personal protection locks on the energy isolating controls or lockbox (see #7 below). When an energy isolating control cannot accept multiple locks, a multiple lockout device (hasp) may be used. These energy-isolating devices must be strong, in proper working condition and substantial.

7. Install tagout device(s). Where 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.

8. If there is a possibility of re-accumulation 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.

9. After assuring that no personnel are exposed, check to ensure all energy sources are disconnected by operating the start button and other controls. For electrical systems, verify with a meter that there is no energized equipment. Before starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and de-energizing of the machine or equipment have been accomplished. If normally energized parts will be exposed to contact by an employee while the machine or equipment is de-energized, a test shall be performed to ensure that these parts are de-energized.

   **Caution:** Return operating controls to NEUTRAL or OFF position after the test. Do not repeat this test during the remainder of the work.

10. The equipment is now locked and tagged out. Do not attempt to operate any switch, valve, or other energy isolated control when it is locked out.

   Only authorized employees should work on the equipment while it is locked and tagged out.

11. **Temporary removal of lockout/tagout.**
If the lockout or tagout devices must be temporarily removed from energy isolating devices and the machine or equipment must be energized to test or position the machine, equipment, or component thereof, the following sequence of actions shall be followed:

- Clear the machine or equipment of tools and materials in accordance with this section;
- Remove employees from the machine or equipment area in accordance with this section;
- Remove the lockout or tagout devices as specified in this section;
- Energize and proceed with the testing or positioning; and
- De-energize all systems and reapply energy control measures in accordance with this section to continue the servicing or maintenance.

C. Shift Change & Locking Out – Equipment Protection

1. If at the end of the work shift it is necessary to keep the equipment inoperable and there is no second shift, the personal protection lock(s) shall be replaced with equipment protection lock(s) unless a supervisor or lead authorizes another practice in writing. This lock has various names such as "Supervisor lock or shop lock". It differs from the LOTO personal protective device because several people have a key that operates the lock. It is not protecting personnel it is protecting the equipment. Prior to continuing any work the equipment lock would be replaced by an individual's personal LOTO lock after restarting the lockout procedure at step B-1.

2. Verify the equipment cannot operate. In addition to the lock consider removing a section of pipe, operating key, removing the motor, or a key piece of the equipment so that it cannot be started.

3. Clearly tagout the equipment.

4. If a second shift is to continue working, then both shift supervisors/lead must be present as employees review checklists and replace each others’ locks.

5. Work cannot proceed until all individuals working the next shift have lockout/Tagout devices in place and the checklist has been reconfirmed. Supervisors/leads must confirm that all energy is still
dissipated or safely isolated. Supervisors/leads shall document this orderly exchange of devices.

D. Restoring Normal Operating Conditions

1. After servicing is completed, all tools removed from the equipment, guards reinstalled and employees are in the clear, each employee working on the job shall remove his/her lock, following the procedure specified in the checklist, until all locks and tags have been removed.
2. Notify all affected employees that lockout devices have been removed before restarting equipment.
3. The equipment should be tested prior to returning to service. When testing, employees should take extra steps to protect themselves from the unexpected release of energy. Consider proper location, use of shields, safe distances, and remote starting devices. Review proper personnel protective equipment prior to testing.
4. The equipment may then be returned to service if it passes the test(s).
5. The checklist shall then be returned to the appropriate shop or office and kept at least until the completion of the project of which the lockout is a part. If project records are retained, the lockout checklist shall become part of the documentation files.

E. Exceptions to LOTO

1. Service and maintenance during normal production operations, if an employee is not required to remove or bypass a guard or other safety device, OR place any body part into the point of operation or any other hazardous area created by the machine operation.
2. Minor tool changes, adjustments, and other minor service during normal production operations if:
   a. They are routine, repetitive, and integral to the use of the equipment for production
   b. And the work is done using measures which provide effective protection from hazards.

VIII. Tag Out

Tags shall not be used in place of personal protection locks except in cases where it is impossible to install a lock on the equipment. EH&S can review or help with this procedure.

Where the tag is used as the only source of personal protection, it must be supplemented by additional means such as

- physically blocking a switch
- removing a valve handle
- removing part of the isolating circuit
- opening an extra disconnect device.
The tag shall contain the following information: the words, “DANGER – DO NOT OPERATE”, date of installation, employee name, and phone number.

After assuring that no personnel are exposed, check to ensure all energy sources are disconnected by operating the start button and other controls.

Caution: Return operating controls to NEUTRAL or OFF position after the test. Do not repeat this test during the remainder of the work.

The equipment is now tagged out. Do not attempt to operate any switch, valve, or other energy isolated control when it is tagged out.

Only authorized employees should work on the equipment while it is locked and tagged out.

There shall be a tagout device for each employee involved in the project. Each employee will remove their own tag only. A supervisor will be called if an employee leaves the area without properly removing the tag.

The procedures for lockout steps VII C & D above shall be followed.

IX. LOCKBOX PROCEDURE

Lockbox procedures are designed to provide energy isolation without the necessity for every person involved in the lockout to apply a personal lock on every control. Applications in which lockbox procedures are useful include:

- multiple employees, shops or outside contractors working on the same equipment; and
- complex equipment with multiple controls, particularly when control locations are broadly spaced out or remote from the actual work site.

REQUIREMENTS

1. The lockbox must be constructed so that the lockout keys are visible within it, but they cannot be removed as long as any lock is on the box.

2. When all energy isolating controls on the lockout checklist are locked out and tested, place the keys in the lockbox.

3. The principal authorized employee shall review the checklist to ensure the lockout is complete and then place his/her lock on the lockbox.
Between work shifts, a tamper-resistant "tamper tag" may be used instead of a lock to maintain the lockout. When used, the serial number of the tamper tag shall be written on the checklist. If the tamper tag is ever removed before the work is completed, the lockout procedure must be repeated anew.

4. As long as at least one lock, or the tamper tag, remains on the lockbox, re-testing individual controls is not needed or required.
5. The primary authorized employee is the last person to remove their lockout or tagout device when the job is completed.

X. CORDED AND PLUG CONNECTED EQUIPMENT
A lockout/Tagout device does not have to be used on corded or plug connected equipment if and only if one of the following special procedures applies.
- the plug is physically in the hand of the employee, or
- a lockout safety device is installed on the plug by the employee.

XI. HOT TAP OPERATIONS
The following special procedures apply to hot tap operations on pressurized pipeline used to transmit and distribute substances such as gas, steam, water, or chemicals if the supervisor can demonstrate that all of the following apply:
- Continuity of service is essential
- Shutdown of the system is impractical

Then the supervisor must use proven effective employee protection which has documented procedures and use of special equipment. Unless documented extra procedures are followed no HOT TAPS are permitted on University properties. EH&S is available to help review these documented procedures.

XII. FIRE ALARM AND FIRE EXTINGUISHING SYSTEMS
Fire alarm and fire extinguishing systems can be exempted from the lockout and tagout procedures outlined above only if other employees depend on these systems for fire safety. Then the supervisor must protect the employees working on the fire alarm and fire extinguishing systems from unexpected release of hazardous energy by documented alternate measures. EH&S is available to help review these documented procedures.

XIII. RUNNING ADJUSTMENT PROCEDURE
Running adjustment procedures may only be used for applications that cannot be accomplished while the equipment is locked out. These adjustment procedures shall be routine, repetitive and integral to the use of the equipment. The supervisor of these types of operations must document the precautions taken including training provided.
• Employees do not remove guards, bypass guards or other safety devices without taking addition protective measures approved by the manufacturer or EH&S.
• Employees shall not be required or permitted to place any body part into a point of operation or hazardous area created by the equipment operation.

Typical examples include:

• Electrical circuits that must remain energized to testing for voltage and amperage;
• Machines that must be in motion to thread on new belts or pulleys;
• Machines that must be in motion to make mechanical adjustments;
• Machines that must be in motion to remove production materials;
• Piping or vessels that must be filled or pressurized for inspection or testing purposes

For electrical procedures, Facilities Services employees must comply with Electrical Safety Hazard Review Checklists and Energized Electrical Work Permit and Work Plan.

When normal lockout procedures cannot be used, every possible precaution shall be taken to minimize the possibility of injury.

NOTE: All controls that are not needed to be "ON" for the running adjustment shall be shut down and locked out.

A. Preparation

1. Obtain or prepare a procedural checklist written by a person knowledgeable in the operation of the equipment
2. Prepare and review predetermined personnel escape route(s).
3. Maximize access to equipment and escape for affected personnel by clearing the work area to the greatest extent possible.
4. Initiate a work order to modify equipment placement or to facilitate access or escape as needed to assure personnel safety.
5. Ensure that all guards are installed and in good condition.
6. Notify all affected employees that a running adjustment procedure is going to be used and why.

B. Implementation

1. The principal authorized employee shall review the running adjustment checklist with all affected employees before commencing work to assure that it is accurate and complete.
2. All authorized employees shall be thoroughly trained in the exact procedure to be followed.
3. Authorized employees shall check for loose clothing, hair or jewelry that creates potential hazards.
4. Equipment controls shall only be operated by a qualified operator. The operator shall attend the controls at all times when the controls are not locked out.
5. All personnel working on the job shall remain in communication or in view of the person operating the controls. Anytime communication is lost between the operator and the work crew the work shall be stopped until agreement is reached on exactly how to proceed.
6. Extension tools that minimize personnel exposure shall be used where possible.
7. The equipment shall be operated at the slowest speed possible consistent with the task to be performed.
8. If at any time the established and authorized procedures cannot be followed, then work shall be stopped until agreement is reached on exactly how to proceed.

C. Restoring Normal Operating Conditions

1. After adjustments/servicing is completed, notify all affected employees.
2. The checklist shall then be returned to the appropriate shop or office and kept at least until the completion of the project of which the running adjustment procedure is a part. If project records are retained, the checklist shall become part of the documentation files.

XIV. CONSTRUCTION AND ALTERATION ELECTRICAL PROJECTS

A) Controls. Controls that are deactivated during the course of work on energized or deenergized equipment or circuits shall be tagged and padlocked in the open position.

B) Equipment and circuits. Equipment or circuits that are de-energized shall be rendered inoperative and have tags and locked padlocks attached at all points where such equipment or circuits can be energized.

C) Tags. Tags shall be placed to identify plainly the equipment or circuits being worked on.

D) Lockout and tagging. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits
energizing the parts shall be locked out or tagged or both according to the requirements of this procedure.

Note1: Fixed equipment refers to equipment connected by permanent wiring methods.

E) The circuits and equipment to be worked on shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, shall not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment shall not be used as a substitute for lockout and tagging procedures.

F) Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.

Note: If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated as energized.

G) Stored nonelectrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

H) If a lock cannot be applied, or if the supervisor decides that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock. A tag used without a lock, shall be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

XV. SEATTLE CAMPUS ELECTRICAL UTILITY (CENTRAL SYSTEM OPERATOR).

If energy isolating devices are installed on the electrical utility system they will be under the exclusive control of a system operator. The Electrical Utility employees have adopted and follow “Clearance Keep Open “Procedures.
o Electrical Utility employees will be trained in these procedures prior to attempting to apply them.

o The Facilities Services Electrical Utility employees use procedures that afford employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

o The system operator shall place and remove lockout and tagout devices in place of the authorized employee. If the system operator designates an employee to place or remove LOTO devices it shall be in writing and meet the provisions listed below.

o Provisions shall be made to identify the authorized employee who is responsible for (that is, being protected by) the lockout or tagout device, to transfer responsibility for lockout and tagout devices. He or She must ensure that any authorized employee requesting removal or transfer of a lockout or tagout device is the actual one responsible for it, before the device is removed or transferred.

A. Procedural Steps for Clearance, and Keep Opens

1 Electrical Utility employee arranges with the Outage Coordinator as far in advance as possible a Clearance or Keep Open (at least 14 days in advance unless an emergency actions are required).

2 The System Operator will order the required switching and tagging for the requested Clearance, or Keep Open.

3 At the time specified in the preliminary arrangement, the Worker shall inform the System Operator that they are ready to receive their Clearance, or Keep Open.

4 The System Operator will grant the Worker a Clearance, or Keep Open, on specific equipment at the specified location; and in the case of Clearances and Keep Opens, a unique number shall be assigned and recorded in the operations log.
5 When Work is complete, the Worker shall inform the System Operator as to the Work performed and the condition in which the lines or equipment are left and release their Clearance, or Keep Open if safe and appropriate.

6 The System Operator shall order all associated tags removed and will restore usable lines and equipment to service at their discretion.

B. Facilities Services Engineering & Operations shall have written procedures to implement paragraph A above. These procedures shall cover: switching and tagging; Grounding; Clearance Rules; and Keep Open Rules. These procedures will be reviewed and approved by the Manager of the High Voltage Shop and the Assistant Director of Campus Operations, and the Executive Director of Campus Engineering and Operations.

XVI. UNUSUAL INSTANCE LOCK REMOVAL PROCEDURE

The basic rule of Lockout/Tagout safety is that personal protection locks and tags may be removed only by the employee who applied them.

1. This should be done whenever: (1) they are not working on the equipment, (2) at the end of the work shift or (3) at the completion of the project, whichever occurs first. Adherence to this protocol assures that safety locks are not left on when the employees are unavailable to remove them. A “Shop lock” and “shop tag” may be used on the motor or equipment if it needs to be locked for other than personnel safety issues.

However, in situations where an employee's lock or tag must be removed and where the employee is unavailable to remove it, the following procedure may be used.

2. Emergency removal of personal protective locks or tags may be done only by the worker's supervisor and only after:

   - it has been assured that the employee is not working on the equipment;
   - a reasonable effort has been made to contact the employee off the job;
- the employee is located away from the area and equipment and cannot return or the area has been searched and the employee is not in the area;
- the reason why the worker who applied the lock cannot remove it has been documented

3. The supervisor must document each of the steps listed in #2 above. A copy shall be placed in the personnel file of the employee and distributed as indicated in step #5.

4. A “Shop lock” and “shop tag” may be used on the motor or equipment if it needs to be locked for other than personnel safety issues.

5. A copy of the documentation must be provided to:
   - the worker whose lock or tag was removed as soon as he/she returns to work;
   - Facilities Services Safety Manager; and
   - Environmental Health and Safety.

A sign may be posted on or near the equipment stating that the lock was removed and that the employee must bring the sign to their supervisors prior to starting any additional work.

XVII. FAILURE TO FOLLOW PROCEDURE
Failure to follow steps outlined in Sections III, V, VII, VIII, IX, XVI, XVII of this procedure is considered a serious safety violation. Violations and corrective actions shall be documented by supervisors or managers.

XVIII. PERIODIC REVIEW OF THIS PROCEDURE
This procedure shall be reviewed by Facilities Services Safety Manager and EH&S at least once every two years or after any serious Lockout/Tagout related accident. The reasons for any changes shall be documented.