The School District of Philadelphia
Procedures

Lockout/Tagout Program

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I. Policy

The program establishes minimum requirements for lockout and tagout of energy-isolating devices whenever service or maintenance is performed on equipment. Where unexpected energizing (startup) of the equipment or the release of stored energy could occur and possibly result in injury, these requirements shall be applied to ensure that the equipment is stopped, isolated from all potentially hazardous energy sources, and physically locked and tagged out before employees begin service or maintenance.

II. Definitions

Affected Employee: - Any employee whose job requires him/her work in an area in which service or maintenance operations is being performed.

Authorized Employee: - Any employee who performs lockout and tagout of machines or equipment to perform service or maintenance. An employee who has completed the training requirements for this program

III. Responsibilities

Any personnel shall have the authority to cease any operation that is identified as an inherently dangerous circumstance due to inadequate lockout and tagout procedures or implementation failure and are responsible for exchanging information about lockout and tagout procedures with outside contractor supervisors.

Safety Officer/Supervisor or designee shall provide the necessary and appropriate training and information to employees for the Lockout and Tagout Program.

IV. Procedures

A. Applicability

The Lockout and Tagout Program applies to all SDP employees and contractors involved with service and maintenance activities that are part of facility programs or normal manufacturing operations.

The Lockout and Tagout Program DOES NOT apply to:

1) Minor tool changes, adjustments, and other minor servicing activities that take place during normal operations provided that such activities are routine, repetitive, and integral to the use of the equipment and the work is performed using alternative measures that provide effective personnel protection, or
2) If exposure to the hazards of unexpected energization of the equipment is controlled by unplugging the equipment from the energy source and if the plug is under the exclusive control of the

employee performing service or maintenance, then lockout or tagout does not apply.

B. Requirements

An equipment specific written lockout and tagout procedure is required before work begins, **unless** the equipment:

1. Has a single energy source that can be readily identified and isolated or
2. A single lockout device and tagout will achieve a locked out and tagged condition.

An equipment specific, written lockout and tagout procedure **is** required if the equipment has more than one-energy source.

NOTE: Work on energized equipment is classified as an imminent hazard until the lockout/tagout process is completed.

1. The supervisor shall notify all affected employees that service or maintenance must be performed on the equipment and that it must be shut down, locked out, and tagged.

2. The authorized employee shall identify the type and magnitude of energy that the equipment uses, understand the hazards of the energy involved, and know the methods for controlling the energy sources.

3. If the equipment is operating, the authorized employee shall then shut it down using the normal shutdown procedure (e.g., depress the stop button, open the switch, or close valve, etc).

4. Isolate the equipment from the energy source(s).

5. Lock out the equipments with the proper box, clasp or lock(s) and attach a completed tag to each lock.

6. First check that no one is exposed to the equipment and that it is clear. Then attempt to turn on the equipment at the switch, push the start button, or open the valve as appropriate to the equipment being locked out to confirm it will not operate.

7. Return the operating control(s) to the neutral (off) position after verifying that no power exist in the equipment.

8. Allow stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure) to dissipate or restrain it using methods such as grounding, repositioning, blocking, or bleeding down.

9. Perform necessary maintenance on equipment using the appropriate personal protective equipment (PPE).

10. The authorized employee shall make sure that the lock or tagout are still in place and that they are still effective if he/she has been away from that job for any extended period.

C. Group Lockout and Tagout

When more than one crew, craft, or department is involved, that designated authorized employee shall be responsible for the overall job-associated lockout and tagout procedure and for coordinating the affected work forces and ensuring continuity of protection.

D. Transferring Lockout Devices When Personnel or Shifts Change

- **Personnel Change**. The arriving authorized employee's lock and tag shall be applied before the departing authorized employee's lock and tag are removed.
- **Shift Change.** The lock and tag of at least one authorized employee on the arriving shift shall be applied before any locks and tags of the departing shift are removed. The departing crew will inform the arriving crew of the status of the equipment and the work in progress.

E. Removing Lockout Devices and Tags

The lockout device and tag shall only be removed by the authorized employee who applied them. Except when the employee who applied the lockout device and tag is not available, these may be removed by the authorized employee's supervisor. All reasonable efforts must be made to contact the authorized employee to inform him/her that the lockout device and tag is to be removed.

When service or maintenance is completed and the equipment is ready to be returned to a normal operating condition, the authorized employee shall:

- Check the equipment and the immediate area to ensure that tools and nonessential materials have been removed, that all components are operationally intact, and that all guards or other protective features are restored.

- Check the work area to ensure that all personnel are safely positioned away from the equipment.

- Verify that the equipment controls are in the neutral position.
- Remove the lockout device and tag, and then re-energize the equipment.
- Note that removal of some forms of blocking devices may require re-energizing the machine before the blocking device can be safely removed.
- Notify affected employees that service or maintenance is completed and the equipment is ready for use.
- Complete the lockout and tagout log, if required.

a. Lockout and Tagout Requirements for Contractors

Contractors are to submit a copy of their company's Lockout/Tagout program to the supervisor prior to work. If a contractor does not have a program they will be required to adhere to The School District of Philadelphia's program.

b. Protective Materials and Hardware

Any lock of suitable size and configuration for the application is acceptable. Either the lock shall be individually keyed or the authorized person may have a set of locks that area all keyed alike. **NO OTHER PERSON SHALL HAVE THE SAME KEY.** Under no circumstances shall there be more than one key for a lock.

Lock mechanisms built into the equipment may be acceptable if they isolate power to the unit and the authorized employee controls the key.

c. Energy-Isolating Devices

If the energy-isolating devices cannot be locked out, have a qualified person install a suitable lockout attachment on the energy-isolating device and then proceed with the lockout and tagout process.

If approved by the equipment supervisor and facility management, locate a lockable energy-isolating device (e.g., a panel board or switchboard feeding the unlockable device) that will effectively isolate the device. Properly isolate, lock, and tag the device.

A lockable energy-isolating device shall be installed on equipment before personnel begin any service or maintenance task that might result in the unexpected release of hazardous energy.

d. Tagout

Tags are essentially warning devices affixed to energy-isolating devices and do not provide the physical protection of a lock.

Tags without a lock are **ONLY** permitted if the equipment or energy-isolating device is not capable of being locked out or unfeasible to redesign and retrofit a lockable control point.

B) Training

a. **Employee Training**
Whenever there is a change in job assignments, equipment, a new hazard is present, or when there is a change in the energy-control procedures.

Authorized Employees shall receive training in the recognition of applicable hazardous energy sources, methods and means necessary for energy isolation and control.

Affected Employees shall be introduced to the Lockout and Tagout Program as part of "General Training".

General training shall include:

Both authorized and affected employees will complete **refresher training** not less than once every year or sooner if there has been any equipment or process change.

Contractors will be expected to provide documentation of recent initial or refresher training for their employees.

C) Recordkeeping

Training records shall be maintained in accordance with the department's administrative procedures. Training records are maintained locally.
A record should be maintained of all lockout and tagout operations, particularly when the lockout device and tagout are to remain in place for more than one day. This may be accomplished using a log such as that in Attachment 2.

D) Appendices

Appendix A: Lockout and Tagout Procedure Self-Assessment Checklist

Functional supervisors ensure that authorized employees adhere to the requirements of the Lockout and Tagout Program. Use the checklist below, and then complete the Lockout and Tagout Inspection Form in this Appendix.

Authorized Employee Knowledge

Can the authorized employee demonstrate knowledge about the Lockout and Tagout Program?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about the appropriate lock and tagout devices?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about the location of all energy-isolating devices?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about any (or all) secondary or residual devices?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about the energy-isolation verification procedures?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about the necessary procedures if the equipment does not have a lockable energy-isolating device?	☐ Yes ☐ No
Can the authorized employee demonstrate knowledge about the log-keeping requirements?	☐ Yes ☐ No
Has the authorized employee received the required training?	☐ Yes ☐ No

Lock and Tagout Devices

Are there an adequate number of locks and tags?	☐ Yes ☐ No
Are the locks properly labeled?	☐ Yes ☐ No
Are tagout tags available and clearly labeled?	☐ Yes ☐ No

The School District of Philadelphia
[ENTER DEPARTMENT NAME HERE]

***NOTE Bilingual versions may be needed.**	
Is a lockout and tagout log available and current?	☐ Yes ☐ No
Are copies of the applicable energy control procedures available?	☐ Yes ☐ No

Equipment

Are energy-isolating devices properly labeled?	☐ Yes ☐ No
Are energy-isolating devices lockable?	☐ Yes ☐ No
Are energy-isolating devices (other than electrical) required for lockout and tagout (e.g., valves)?	☐ Yes ☐ No
Are valves adequately identified (e.g., labeled or tagged as a lockout point) and are suitable locking devices available?	☐ Yes ☐ No
Are other devices (e.g., blank flanges, blocks, chains) required for lockout and tag, and are these devices available?	☐ Yes ☐ No

Lockout and Tagout Inspection Form

This form shall be completed by the functional supervisor (or a designated authorized employee) who inspected the authorized employee's use of lockout and tagout procedures. The functional supervisor acknowledges performance of the inspection by signing this form.

Lockout-Tagout Certification Statement

- List the equipment/machines on which the lockout and tagout procedure is being used.
- Provide the names of the authorized employees who performed the lockout and tagout procedure for this inspection.
- Identify any discrepancies uncovered by completing the Lockout and Tagout Procedure.
- Self-Assessment Checklist. List any corrective actions.

Signature of Inspector:_____ Date_____.

Signature of functional supervisor:_____ Date

Appendix B: Lockout and Tagout Log

This appendix contains a suggested lockout and tagout log that may be used for activities described in this supplement.

Lockout and Tagout Log

Building: _____

Name and location of equipment locked out and tagged: _____

_____

ID for lockout device: _____

Date installed: _____

Authorized employee's name: _____

Date removed: _____

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[ENTER DEPARTMENT NAME HERE]

Appendix C: Emergency Safety Lockout/Tagout (LO/TO) Device Removal Checklist

This form must be fully complete by the Supervisor authorizing the removal of the Lockout or Tagout device anytime such a device must be removed by any individual other than the person who applied it. All reasonable efforts must first be made to contact the person who applied the LO/TO device to personally remove it prior to proceeding with this procedure. Authorizing supervisors must also notify the supervisor of the individual who applied the original LO/TO prior to removal. A follow-up memo of the circumstance must be accomplished. Authorizing Supervisors must notify the department's safety representative within 72-hours of this action.

Authorizing Supervisor Name:

Date of Removal _____ Time of Removal _____

Name of Employee who applied the LO/TO Device:

_____

Employee's Supervisor Notification (name/signature):

_____

Description of equipment to which LO/TO device is applied:

_____

Emergency Safety LO/TO Device Removal

- Check the area around the equipment to ensure no one is exposed.
- Notify all affected employees that the LO/TO device will be removed.
- Ensure all tools have been removed from equipment and guards have been reinstalled.
- Confirm that normal STOP-SAFEs or E-STOPs are engaged on machinery.
- Remove lockout and tagout devices.
- Restore power to the piece of equipment.
- Disengage STOP/E-STOP motion controls and proceed to check equipment for proper operation.
- Return equipment to normal production.

Appendix D: Equipment Specific Lockout/Tagout Procedure – Example

Purpose

This procedure establishes the minimum requirement for the lockout or tagout of energy-isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy, and locked out or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, start-up or release of stored energy could cause injury.

Responsibility

All employees will be responsible for compliance with all lockout and tagout procedures. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout or tagout procedure.

Lockout System on Boiler – *Example*

Boiler is located in the. [Identify Location of Boiler]

Basic Rules for Using Lockout or Tagout System Procedures

All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device where it is locked or tagged out.

Sequence of Lockout or Tagout System Procedure

1. Notify all affected employees that a lockout or tagout system is going to be utilized and the reason thereof.

2. If the machine or equipment is operating, shut it down by the normal stopping procedures (depress stop button, open toggle switch, etc.)

3. Operate the switch(es), valve(s) or other energy-isolating device(s) as listed on the following "Specific Lockout/Tagout Procedures for Press *ABC*". Stored hydraulic systems, and air, gas, steam, or water pressure, etc. must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.

4. Lockout or Tagout the energy isolating device(s) with an assigned individual or available lock or tag.

5. Ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. If any device indicates a remaining power presence, contact building engineer to electrically test power feeds.

6. After testing and ensuring that the equipment will not start, verify that all push buttons or other normal operating controls are returned to the "off/safe" position.

7. Begin maintenance procedures.

8. Restoring Machine or Equipment to Normal Production Operations.

9. After the servicing and/or maintenance is complete and equipment is ready for normal production operation, check the area around the machine or equipment to ensure that no one is exposed.

10. After all tools have been removed from the machine or equipment and employees are in the clear, operate the switch(es), valve(s) or other energy-isolating device(s) to restore the energy source.

Equipment Specific Lockout/Tagout for Boiler – Example

Sample Company
Anywhere, USA
Lockout/Tagout Procedure

Equipment Information		
Equipment: Boiler/vaporizer system (2units- large and small)		**Location: Outside of the Facility (N_2 tank farm)**
Inventory #:	**Model #:**	**Filename: Outside boilers**
Energy Information		
Energy Type	**Lock Location**	**Special Equipment Required**
Electric – disconnect switch (main controls)	At unit	Lock and tag
Electric – disconnect switch (recirculation pump)	At unit	Lock and tag
Natural gas (small vaporizer) – large ball valve	At base of small vaporizer unit	Large ball valve lockout device, lock, and tag
Natural gas (small vaporizer) – large ball valve	At base of large vaporizer unit	Large ball valve lockout device, lock, and tag
Liquid nitrogen (LN_2 Tank 1) – large ball valve	At base of LN2 Tank 1, labeled V.51.1	Large ball valve lockout device, lock, and tag
Liquid nitrogen (LN_2 Tank 2) – large ball valve	At base of LN2 Tank 2, labeled V.51.2	Large ball valve lockout device, lock, and tag

Shutdown Procedure

1. **Notify all affected employees and department of impending shutdown and lockout**
2. **Move unit control disconnect switch to the off position, attach lock and tag**
3. **Move unit recirculation pump disconnect switch to the off position, attach lock and tag**
4. **Close natural gas ball valve for the small vaporizer, located at the base of the unit, attach large ball valve lockout device, lock, and tag**
5. **Close natural gas ball valve for the large vaporizer, located at the base of the unit, attach large ball valve lockout device, lock, and tag**
6. **Close liquid nitrogen ball valve for LN_2 tank 1, attach large ball valve lockout device, lock, and tag**
7. **Close liquid nitrogen ball valve for LN_2 tank 2, attach large ball valve lockout device, lock, and tag**
8. **Apply multiple locks on hasp for each person performing work on system**

Verification Procedure

1. **Retest unit for power**

Startup Procedure

1. **Verify all employees are clear of the equipment**
2. **Remove locks and tags**
3. **Move unit controls disconnect switch to the on position**
4. **Move unit recirculating pump disconnect switch to the on position**
5. **Open natural gas ball valves for both system vaporizers**
6. **Open liquid nitrogen ball valve for LN_2 tank 1**
7. **Open liquid nitrogen ball valve for LN_2 tank 2**
8. **Start equipment**
9. **Verify proper operation**

Prepared by: Peter Powerpack	**Date: 14 October 2005**
Reviewed by:	**Date:**
Reviewed by:	**Date:**
Reviewed by:	**Date:**

This procedure must be used when performing maintenance and service on this equipment. All energy sources must be locked out. This procedure must be performed by authorized personnel only.

Appendix E: Equipment Specific Lockout/Tagout Procedure – Blank

Sample Company
Anywhere, USA
Lockout/Tagout Procedure

Procedure #:	**Page #:**

Equipment Information		
Equipment:		**Location:**
Inventory #:	**Model #:**	**Serial #:**
Energy Information		
Energy Type	**Lock Location**	**Special Equipment Required**
Shutdown Procedure		
1. **2.** **3.** **4.** **5.** **6.** **7.**		
Verification Procedure		
1. **2.**		
Startup Procedure		
1. **2.** **3.** **4.** **5.** **6.** **7.**		
Prepared by:		**Date:**
Reviewed by:		**Date:**
Reviewed by:		**Date:**
Reviewed by:		**Date:**

See the back of this form for a diagram of the lockout/tagout needs of this equipment, if available.

This procedure must be used when performing maintenance and service on this equipment. All energy sources must be locked out. This procedure must be performed by authorized personnel only.

Procedure #:	**Page #:**
Diagram (not to scale)	