
 Albemarle County Public Schools		 Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	1 of 6	LCS	BB,JPL,GS,JCL

1.0 PURPOSE

This program applies to the installation, service, maintenance, or removal of any type of machinery, equipment, or components, in which the unexpected start-up or release of stored energy could cause injury. This program is intended to prevent injuries during service or maintenance activities on equipment and circuits. The risk of injury is reduced by the application of locks and/or tags which prevent the unexpected release of operating or stored energy. Any individual engaging in the maintenance, repairing, cleaning, servicing, or adjusting of machinery or equipment on district property will abide by the procedures outlined in this document. This lockout/tagout program serves to meet the requirements of the Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.147.

2.0 DEFINITIONS

Activation/Energization – To set machinery into motion by starting, switching, pushing, moving or otherwise engaging power sources for such equipment. To provide a flow of electricity or complete a circuit that is the main power source for the machinery/equipment.

Affected Employee – An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed



Authorized employee – A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Capable of being locked out – An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild or replace the energy-isolating device, or permanently alter its energy control capability.

Energy control procedures – Use of lockout/tagout equipment to ensure safe work practices.

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

Energy isolating device – A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

 Albemarle County Public Schools		 Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	2 of 6	LCS	BB,JPL,GS,JCL

- A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently
- A line valve
- A block
- Any similar device used to block or isolate energy
- Pushbuttons, selector switches and other control circuit type devices are not energy isolating devices.

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

Lockout – The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device – A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

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



Tagout – The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

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

3.0 SCOPE

This program applies to the installation, service, maintenance, or removal of any type of machinery, equipment, or components, in which the unexpected start-up or release of stored energy could cause injury.

This program is applicable to all employees at Albemarle County Public Schools. The purpose of this program is to prevent injuries and accidents from occurring while:

 Albemarle County Public Schools		 Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	3 of 6	LCS	BB,JPL,GS,JCL

- Servicing or maintaining machinery or equipment that is capable of sudden energy releases; and
- Working with machinery or equipment that is capable of storing hazardous energy.

Stored energy may be in the form of electricity (capacitors), air pressure (pneumatic), liquid pressure (hydraulic), springs, or potential energy of position, but is not limited to the above.

This program requires a systematic approach to servicing and maintaining equipment and machinery and strives to ensure the safety of all personnel and contractors for Albemarle County Public Schools, and compliance with the applicable regulations. This approach involves: following approved and written equipment-specific procedures to shut down and lock out equipment and machinery, dissipating all hazardous energy, blocking parts where necessary, and verifying that the energy has been controlled before all work is initiated.

No employee shall install, service, remove, or perform electrical or mechanical maintenance on any electrical equipment or machinery until that equipment is turned off or de-energized, all stored hazardous energy has been bled down, dissipated, or blocked off, and the machinery has been locked out and blocked as provided in the section below.

Such work may be performed on circuits and systems operating at a sustained voltage of less than 30 volts or where there is no risk of exposure to electric arcs or burns without locking out the electrical energy source.


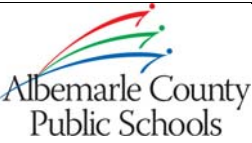
Lockout is required for mechanical service and maintenance operations if the procedures to be performed could involve employee exposure to energized electrical parts, to machinery that could unexpectedly start up, or to a stored energy source on the equipment or machinery.

Servicing or maintenance on equipment that is powered through an electrical cord and plug shall be worked on with the cord unplugged. The person performing the work must have exclusive control of the plug at all times. If necessary, this can be accomplished by applying some form of a plug lock or cord cap lock-over device that is secured with the worker's personal lock and tag.

4.0 PROCEDURES

Responsibility: Deputy Director and Assistant Deputy Director for Building Services

The Deputy Director and Assistant Deputy Director for Building Services are to ensure that employees and contractors engaging in work requiring lockout/tagout understand and adhere to procedures and practices. This includes maintaining appropriate lockout/tagout supplies such as locks and tags, assuring that employees have proper training, and that equipment is properly identified and appropriate lockout/tagout procedures are developed and posted.

 Albemarle County Public Schools		 Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	4 of 6	LCS	BB,JPL,GS,JCL

Responsibility: Environmental Compliance Manager

- Coordinate annual training to employees affected by lockout/tagout procedures.
- Arrange inspections of energy control procedures and practices at least annually to ensure that general and specific lockout/tagout procedures are being followed.
 - Persons other than those employees directly utilizing energy control procedures must carry out inspections.
 - Inspections will include a review between the Foreman and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
 - Certify that periodic inspections have been performed on all lockout/tagout equipment.
- Maintain a file of equipment, machinery, and operations that require the use of lockout/tagout procedures. The file will include the location, description, power source and primary hazards of equipment/machinery, a list of the primary operators/maintenance personnel and a list of lockout/tagout equipment that is used and maintained on site.

Responsibility: Foremen



- Adhere to Specific Procedures as outlined in this document for all tasks that require the use of lockout/tagout procedures as defined.
- Maintain lockout/tagout supplies in maintenance vehicles.
- Ensure that each employee and each off campus employee (contractors) engaging in work requiring locking/tagging out of energy sources understands and adheres to adopted procedures.
- Maintain lockout/tagout supplies in maintenance vehicles.

Responsibility: Contractors, Outside Volunteers, and Other Third Parties

Outside volunteers, contractors and other third parties will be notified of the district lockout/tagout program to ensure that they work safely within district property and do not affect the safety of district employees. It is the responsibility of volunteers, contractor and other third parties to read and understand the district lockout/tagout program, to familiarize their people with the compliance issues involved, including:

- Understanding the types of energy that may be encountered on district sites,
- The methods and devices used to control energy sources,
- The importance of complying with the district lockout/tagout program,
- Not attempting to repair or service equipment without going through the proper procedures for lockout/tagout.

Outside volunteers, contractors and other third parties are to seek clarification of any topics that may be unclear.

 Albemarle County Public Schools		 Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	5 of 6	LCS	BB,JPL,GS,JCL

5.0 SPECIFIC PROCEDURES


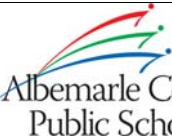
LOCKOUT/TAGOUT PROCEDURE

- A. **Employee Notification:** Notify all affected employees that the lockout/tagout system is going to be implemented on this equipment and the reason for the lockout (i.e. cleaning, repairs, etc.). See the front side of this worksheet for the list of affected employees.
- B. **Preparation:** Locate all energy sources that need to be isolated and the lockout methods and devices needed. If not done already, the front side of this form must be completed. Review available resources including the emergency procedure manual and manufacturer's instructions as needed (list resources below).
- C. **Equipment Shutdown:** If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, switch, etc.).
- D. **Equipment Isolation:** De-activate the on-off control(s) to ensure this equipment is isolated from its energy source(s). See the front side of this worksheet for identification of on-off control(s).
- E. **Attach the Lock and Tag:** Lockout the energy using the required energy isolating device/lock and secure the tag. See the front side of this worksheet for identification of lockout method(s) and device(s).
- F. **Release Any Stored Energy:** Stored or residual energy must be relieved, disconnected, dissipated or restrained. See the front of this worksheet for identification of stored or residual energy and the method(s) to restrain or dissipate.
- G. **Test Start:** Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

RELEASE FROM LOCKOUT/TAGOUT PROCEDURE

Before lockout/tagout devices are removed and energy is restored to the machine or equipment, authorized employee(s) shall ensure the following procedures are followed:

- A. **Check the Machine or Equipment:** The work area must be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact. (Install any guards that were removed.)
- B. **Employee Notification:** The work area must be inspected to ensure that all employees have been safely positioned or removed from the area. Notify affected employees that the lockout/tagout device(s) are being removed.
- C. **Verify** that all controls are in a neutral or off position.
- D. **Remove Lockout/Tagout device(s):** Remove the lockout device(s) and re-energize the machine or equipment
- E. **Notify** affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

 Albemarle County Public Schools		 Albemarle County Public Schools Subject: Lockout/Tagout SOP			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
SOP-LTO-01	2/8/2011	7/15/2009	6 of 6	LCS	BB,JPL,GS,JCL

6.0 TRAINING

District employees needing to become authorized employees for purposes of the district lockout/tagout program, will receive annual lockout/tagout training per the training requirements outlined in 29 CFR, 1910.147 (c)(7)(i),(ii), & (iii).

7.0 RECORDKEEPING



The following records are maintained by the Environmental Compliance Manager as part of the Lockout/Tagout program:

- Lockout/Tagout Procedure Worksheets (F-SOP-LTO-01)
- Lockout/Tagout Certification Forms (F-SOP-LTO-02)
- Training records to include an outline of topics covered and a sign in sheet of those employees attending.
- A list of padlock assignments (F-SOP-LTO-03)

Equipment List:

The following equipment is utilized as part of the Lockout/Tagout Program for Albemarle County Public Schools.

Description	Stock Location	Item Number	Minimum Quantity
Steel Hasp	27ACB12	402133M	3
Equipment Tag	27BCB1	402134M	25
Ball Valve, Med, BS-02	27ACB2	402135M	3
Ball Valve, Large, BS-03	27ACB1	402136M	1
Gate Valve, 1" to 2 ½"	27ACB10	402137M	1
Gate Valve, 2 ½" to 5"	27ACB7	402138M	3
Breaker, Sgl Pole	27ACB5	402139M	5
Breaker, Dbl Pole	27ACB6	402140M	5
Plug 240 Volt	27ACB4	402142M	1
Danger Marker Label	27BCB2	402143M	3
Plug 110 Volt	27ACB8	402144M	1
Stop Power	27ACB9	402145M	2
Cable	27ACB11	402146M	1
Ball Valve, Small, BS-01	27ACB3	402166M	2
2" Padlock	27ACB14	402334M	3
3" Padlock	27ACB13	402335M	3
Emergency Blanket	27ACB15	402362M	1

 EMS Albemarle County Public Schools		 Albemarle County Public Schools Subject: Lockout/Tagout Procedure Worksheet			
Document No.: F- SOP-LTO-01	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 1 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL

ALBEMARLE COUNTY PUBLIC SCHOOLS
Lockout/Tagout (LO/TO) Procedure Worksheet

This worksheet must be completed by authorized employees for **each** piece of equipment with **more than one** source of energy. It must be maintained as part of the management plan at Building Services and onsite. These building-specific procedures are to be used in conjunction with procedures and definitions identified in the District's Lockout/Tagout Standard Operating Procedure. *Update this form if there are changes to equipment or procedures.*

Building:

Room:

Date Prepared:

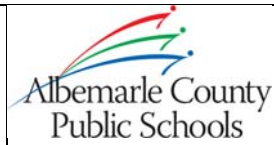
Equipment to be LO/TO:

Authorized Employee (Preparer print and sign name):

Affected Employees (e.g., Building Staff, Tradesmen or Contractors):



Albemarle County Public Schools





Subject: Lockout/Tagout Procedure Worksheet

Document No.: F- SOP-LTO-01	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 2 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL
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Type of Energy – Live, Stored or Residual (circle all that apply below)	Location of On-Off Control (e.g., boiler room north wall panel #1)	LO/TO Procedure & Method to Restrain or Dissipate Energy (e.g, chain & lock, breaker lockout, etc.)
Electrical		
Natural Gas		
Fuel Oil		
Hydraulic (hot water, oil)		Allow to cool ____ hours.
Pneumatic		
Thermal, Steam		Allow to cool ____ hours.
Gravitational		
Other (water, etc.)		

The following page has standard LO/TO procedures & examples to assist you in filling out table above.



 EMS Albemarle County Public Schools		 Subject: Lockout/Tagout Procedure Worksheet			
Document No.: F- SOP-LTO-01	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 3 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL

EXAMPLES FOR FILLING OUT BLDG SPECIFIC PROCEDURES ON PREVIOUS PAGE:

Type of Energy	LO/TO Procedure & Method to Restrain or Dissipate Energy
Electric (capacitors, circuit breakers, disconnects, switches, fuses, etc.)	Shut off switch, LO/TO, bleed residual electrical energy, etc.
Elevated or Rotating Machine Parts	Manhole cover, yokes, bolts, caps, etc. on boiler; Remove & restrain
Hydraulic Systems	Shut off valve, LO/TO, vent pressure
Thermal or Steam	Shut off steam stop (header) valve, LO/TO, allow time to cool 48 hours
Water Pressure	Open safety relief valve to break vacuum & discharge water from boiler
Water Supply	Turn off valve, LO/TO
Other	Describe method

LOCKOUT/TAGOUT PROCEDURE:

1. **Employee Notification:** Notify all affected employees that the lockout/tagout system is going to be implemented on this equipment and the reason for the lockout (i.e. cleaning, repairs, etc.). See the front side of this worksheet for the list of affected employees.
2. **Preparation:** Locate all energy sources that need to be isolated and the lockout methods and devices needed. If not done already, the front side of this form must be completed. Review available resources including the emergency procedure manual and manufacturer's instructions as needed (list resources below).
3. **Equipment Shutdown:** If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, switch, etc.).
4. **Equipment Isolation:** De-activate the on-off control(s) to ensure this equipment is isolated from its energy source(s). See the front side of this worksheet for identification of on-off control(s).
5. **Attach the Lock and Tag:** Lockout the energy using the required energy isolating device/lock and secure the tag. See the front side of this worksheet for identification of lockout method(s) and device(s).
6. **Release Any Stored Energy:** Stored or residual energy must be relieved, disconnected, dissipated or restrained. See the front of this worksheet for identification of stored or residual energy and the method(s) to restrain or dissipate.
7. **Test Start:** Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the



 EMS Albemarle County Public Schools		 Subject: Lockout/Tagout Procedure Worksheet			
Document No.: F- SOP-LTO-01	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 4 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL

equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

RELEASE FROM LOCKOUT/TAGOUT PROCEDURE:

Before lockout/tagout devices are removed and energy is restored to the machine or equipment, authorized employee(s) shall ensure the following procedures are followed:

1. **Check the Machine or Equipment:** The work area must be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact. (Install any guards that were removed.)
2. **Employee Notification:** The work area must be inspected to ensure that all employees have been safely positioned or removed from the area. Notify affected employees that the lockout/Tagout device(s) are being removed.
3. **Verify** that all controls are in a neutral or off position.
4. **Remove Lockout/Tagout device(s):** Remove the lockout device(s) and re-energize the machine or equipment
5. **Notify** affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

 EMS Albemarle County Public Schools		 Albemarle County Public Schools Subject: Lockout/Tagout Periodic Certification			
Document No.:	Issue Date:	Last Revised:	Page:	Prepared By:	Approved By:
F-SOP-LTO-02	2/8/2011	7/15/2009	1 of 4	LCS	BB,JPL,GS,JCL

ALBEMARLE COUNTY PUBLIC SCHOOLS
Lockout/Tagout (LO/TO) Periodic Certification

This certification form must be completed **annually** for authorized employees under the District's LO/TO Management Plan. It must be maintained as part of the management plan at Building Services. This form must be completed based on the witnessed demonstration of LO/TO procedures on equipment or machinery by authorized employees.

Building:

Department/Shop certified:

Date of Certification:

Equipment to be locked out:

Is the procedure to be followed an equipment/machine specific LO/TO procedure or general LO/TO procedure? Specific / General



Albemarle County Public Schools



Subject: Lockout/Tagout Periodic Certification

Document No.: F-SOP-LTO-02	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 2 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL
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Annual Inspection Items:	Acceptable?		
	Yes	No	NA
1. Have the affected and authorized employees received initial LO/TO training?			
2. Is the District's Lockout/Tagout SOP available to authorized employees?			
3. Are Specific LO/TO procedures developed for equipment with multiple sources of energy and are they available?			
4. Has there been a change in machinery or equipment that presents a new hazard, or has there been a change in the LO/TO procedure?			
5. Does each authorized employee have his or her own lock & combination?			
6. Do the authorized employees(s) understand their responsibilities under the District's LO/TO SOP?			
7. Do the affected employee(s) understand their responsibilities under the District's LO/TO SOP?			
8. Are the tags being used durable, legible, understandable to all affected & authorized employees, and securely attached?			
9. Were LO/TO procedures performed correctly?			
10. If a "Tag-Out Only" system was used, were procedures performed correctly?			
11. Was release from LO/TO procedures performed correctly? (See general or equipment/machine specific procedure)			
12. Were affected employees notified (before and after LO/TO)? What was the method of notification? _____			

Affected Employees Observed:



1.	4.
2.	5.
3.	6.

Deviations or Inadequacies Observed:

I certify that the individuals listed above have demonstrated an understanding of the responsibilities and procedures of this LO/TO.

Certified By:

Date:



 Albemarle County Public Schools		 Subject: Lockout/Tagout Periodic Certification			
Document No.: F-SOP-LTO-02	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 3 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL

RESPONSIBILITIES OF EMPLOYEES UNDER THE LO/TO PROGRAM

- To report to any unsafe conditions concerning the control of hazardous energy sources.
- To follow safe work procedures while performing work on or near equipment with hazardous energy sources.
- To ask his/her supervisor or EH&S for assistance or clarification of work procedures as necessary.
- To accurately label and prominently attach lockout/tagout devices when required.
- To utilize his/her own padlock when applying and removing lockout devices.
- To remove ONLY his/her OWN lockout/tagout devices at the completion of the task.

LOCKOUT/TAGOUT PROCEDURE

1. **Employee Notification:** Notify all affected employees that the lockout/tagout system is going to be implemented on this equipment and the reason for the lockout (e.g., cleaning, repairs, etc.).
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 EMS Albemarle County Public Schools		 Subject: Lockout/Tagout Periodic Certification			
Document No.: F-SOP-LTO-02	Issue Date: 2/8/2011	Last Revised: 7/15/2009	Page: 4 of 4	Prepared By: LCS	Approved By: BB,JPL,GS,JCL

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