

# Onondaga Central School District



## **ENERGY CONTROL and LOCKOUT/TAGOUT PROGRAM**

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**Purpose/Scope:** To Protect from Unexpected Start-up of Equipment or Systems during Maintenance

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**Reason for Revision:** Annual Review and Language Revision

Reviewed: May 2019

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The Onondaga Central School District recognizes that inherent danger exists with regard to the unauthorized release of energy by equipment, machines and systems during routine and emergency maintenance procedures. Therefore, the District has developed a Lockout/Tagout Program to provide guidelines and operating procedures for all affected employees of the school district, in compliance with the regulations established by OSHA (29 CFR Part 1910.147 and 1910.331-.335) and enforced by the New York State Department of Labor.

This program establishes the minimum requirements for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machine or equipment are 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.

## **I. RESPONSIBILITIES**

The following summary outlines the responsibilities of the persons most directly involved with the implementation of this plan.

### **A. Director of Facilities**

1. Implement the written Lockout/Tagout Program for all authorized/affected employees in all school district facilities.
2. Identify the machinery or equipment requiring maintenance or repair. Maintain the equipment inventory and update the written program as needed; i.e., whenever there is a change of isolation device, energy source change, new equipment, etc.
3. Review all District maintenance procedures to determine appropriateness of existing Lockout/Tagout procedures and develop new procedures as conditions warrant. If the machine or equipment does not have detailed procedures for Lockout/Tagout ensure that an equipment service manual is available.
4. Purchase and provide all covered employees with the necessary personal protective equipment and Lockout/Tagout devices.
5. Provide information regarding the Lockout/Tagout Program to employees as needed.
6. Ensure all employees follow Lockout/Tagout procedures when performing covered activities as defined by the standard.

**I. RESPONSIBILITIES - (cont'd)**

**A. Supervisor of Transportation and Maintenance - (cont'd)**

7. Ensure that all employees required by the standard, receive training, and that the training is of sufficient duration and content to provide for the employees' safe use of Lockout/Tagout devices.
8. Ensure that outside contractors and/or service personnel are aware of this Lockout/Tagout Program and encourage them to utilize their own locks and tags in the scope of their work within school district facilities.

**B. Authorized Employees**

An authorized employee is one who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on a machine or equipment which must be locked or tagout system implemented.

1. Comply with the Onondaga Central School District's written Lockout/Tagout Program.
2. Notify all affected employees of the Lockout/Tagout activities, prior to the performance of said activities and the reason for such.
3. Complete training in Lockout/Tagout activities and procedures.

**C. Affected Employees**

An affected employee is one 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.

1. Become familiar with the Onondaga Central School District's written Lockout/Tagout Program.
2. Comply with the directions of any and all authorized employees with regard to Lockout/Tagout, unless the employee feels that his/her safety is in jeopardy at which time the district safety representative shall be notified.
3. Never remove, disable, nullify, disconnect or bypass any Lockout/Tagout device.

## **I. RESPONSIBILITIES - (cont'd)**

### **C. Affected Employees - (cont'd)**

A list of employees, their departments, and lock/tag number is attached (Appendix A) and an inventory of the equipment requiring Lockout/Tagout is attached also (Appendix B). One extra key for all locks will be kept in the office of the Director of Facilities. Removal of an extra key from this office is prohibited without approval from the Director of Facilities. Loss of a key will be reported to the Department Supervisor or the Director of Facilities immediately.

## **II. TYPES AND MAGNITUDES OF ENERGY**

- A. An Energy Source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- B. Energized means connected to an energy source or containing residual or stored energy.
- C. An Energy Isolating Device is a mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

## **III. PERIODIC INSPECTIONS – SKILLS REVIEW**

A periodic inspection/review of the energy control procedure shall be conducted at least annually for each authorized employee to ensure that the procedure and the requirements of the standard are being followed.

The periodic review shall be performed by an authorized employee other than the one(s) utilizing the energy control procedure being inspected. Any deviations or inadequacies observed shall be documented and corrected.

Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.

### III. PERIODIC INSPECTIONS – SKILLS REVIEW - (cont'd)

The periodic inspection shall be documented to include the following, at a minimum:

1. Date of inspection
2. Authorized employee inspecting
3. Authorized employee implementing procedure
4. Equipment/Machine identification
5. Notes/Recommendations

Use Appendix C, “Annual LOTO Skills Review Form”, when conducting a periodic inspection/skills review.

### IV. BASIC LOCKOUT/TAGOUT PROCEDURES

The following procedures are provided as a guideline to the minimum procedures that are to be followed when performing a Lockout/Tagout. Also, Appendix D includes procedures for shutting down and starting up equipment.

Lockouts will be used on all pieces of equipment which will accept the device. Substantial modification and new equipment purchases will ensure that lockouts can be employed. Each person involved in locking out a piece of equipment will have his/her own lock and key. Multiple keys for the lock are not allowed. Tags will be used on all equipment which is incapable of accepting a lockout. The tag will be signed, dated, and removed once it is no longer needed. An example of this tag is attached (Appendix E).

All equipment shall be locked out or tagged 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 devices where it is locked or tagged out.**

#### A. Sequence of Lockout/Tagout System Procedure

1. Notify all affected employees that a lockout and/or tagout system is going to be utilized and the reason for the procedure. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes, shall understand the hazards and the proper methods of energy control.
2. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

#### IV. BASIC LOCKOUT/TAGOUT PROCEDURES - (cont'd)

##### A. Sequence of Lockout/Tagout System Procedure - (cont'd)

3. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, 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 and/or tagout the energy isolating devices with assigned individual lock(s) and/or tag(s).
5. After 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.

**CAUTION:** Return operating control(s) to "neutral" or "off" position after the test.

6. The equipment is now locked out and/or tagged out and can be worked on.

If maintenance will require the authorized employee to perform electrical repairs, maintenance, installation, or disconnections of electrical conductors prior to removing other equipment or machinery, the authorized employee shall test for an energy free state with an electrical testing device.

If the service or repair requires exposing live parts of electric equipment, 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 (e.g., removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device).

##### B. Restoring Machines or Equipment to Normal Production Operations

1. After the servicing and/or maintenance is complete and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.
2. After all tools have been removed from the machine or equipment, guards have been reinstalled, and employees are in the clear, remove all lockout and/or tagout devices. Lockouts and/or tagouts are to be removed only by the operator using the locks and/or tags with the exception of approval by the Director of Facilities.

#### IV. BASIC LOCKOUT/TAGOUT PROCEDURES - (cont'd)

##### B. Restoring Machines or Equipment to Normal Production Operations - (cont'd)

3. Operate the energy isolating devices to restore energy to the machine or equipment.
4. Notify affected employees that the servicing or maintenance is complete and the machine or equipment is ready for use.

##### C. Removal of Lock or Tags by Persons Other Than Those who Affixed Them

When the authorized employee who applied the lockout device is not available to remove it, that device may be removed under the direction of the Director of Facilities. The following procedures will be used:

1. Verification by the supervisor that the authorized employee who applied the device is not at the facility.
2. Making all reasonable efforts to contact the authorized employee to inform them that their Lockout/Tagout (LOTO) will be removed.
3. Have an authorized employee inspect the equipment to assure the re-energization of the equipment will not expose employees to a hazard or damage the equipment.
4. Ensure that the authorized employee is informed that their lock has been removed before they resume work at the facility.
5. Record under "Date of Release" in the LOTO Log Form (Appendix F), that the lock was removed, if the equipment is being returned to service.

##### D. Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to lockout and/or tagout equipment, each person shall place his/her personal lockout and/or tagout device on the energy isolating device(s). When an energy-isolating device cannot accept multiple locks and/or tags, a multiple lockout and/or tagout device (hasp) may be used.

If lockouts are used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet, which allows the use of multiple locks to secure it. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his/her lockout protection, that person will remove his/her lock from the box or cabinet. The equipment can only be re-energized after each person removes his/her lock and/or tag.

The Date of Release on the LOTO Log Form (Appendix F) may be completed, communicating when the equipment was put back into service.

#### IV. BASIC LOCKOUT/TAGOUT PROCEDURES (cont'd)

##### E. Shift Change Procedures

Typically, shift work is not an issue in the Onondaga Central School District. However, in the event that the maintenance activity must be continued beyond one shift, the following procedure shall be employed.

1. The authorized person of the shift being relieved shall account for all persons working on the machine/equipment.
2. Once the employee(s) have been accounted for, the employee(s) shall remove his/her individual lockout(s).
3. Once all lockouts have been removed, the authorized person(s) for the oncoming shift shall follow the procedures defined for performing an initial lockout including determination that the system is isolated.

##### F. Specialized Equipment

Lockout/Tagout procedures must be developed for any specialized equipment requiring lockout and/or tagout. These procedures must be attached to and made a part of this program.

##### G. Exceptions

Cord and plug connected equipment and machinery do not require Lockout/Tagout procedures as long as the attachment cord and plug has been disconnected and is under the sole control of the individual performing maintenance/repairs.

When **all** of the following exceptions are met, specific equipment and machinery is not required to have detailed Lockout/Tagout procedures:

1. The machine or equipment has no potential for stored or residual energy or re-accumulation of energy after equipment is shut down.
2. Machine or equipment has **a single** energy source which can be readily identified and isolated.
3. Isolation and locking out of the energy source shall **completely** de-energize and de-activate the machine or equipment.
4. The machine or equipment is **isolated** from that energy source and locked out during servicing and maintenance.
5. A single lockout device will achieve a locked out condition.
6. The lockout device is under the **exclusive** control of the authorized employee performing the servicing.

#### IV. BASIC LOCKOUT/TAGOUT PROCEDURES - (cont'd)

##### G. Exceptions - (cont'd)

7. The servicing or maintenance does not create **hazards** for other employees.
8. The district, in using this exception to the standard, has no accidents involving the unexpected activation or re-energization of the equipment during servicing.

For machinery and equipment requiring detailed procedures, those procedures are attached to this program.

#### V. TRAINING REQUIREMENTS

All new, temporary, and substitute employees will be trained in the provisions of this program prior to assignment. Training will be ongoing with an annual Lockout/Tagout Skills Review for all authorized employees.

##### A. Authorized Employees

1. Recognition of applicable hazardous energy sources
2. Purpose and function of an energy control program
3. The type and magnitude of the energy found in the workplace
4. The specific methods and means for isolation and securing energy sources
5. Types of Lockout/Tagout devices
6. Appropriate methods of applying Lockout/Tagout devices and the inherent limitations of those devices
7. General electrical safety and emergency procedures

##### B. Affected Employees

1. Purpose and scope of the energy control plan
2. How to recognize Lockout/Tagout devices
3. General electrical safety and emergency procedures

##### C. Retraining

Retraining of all authorized and affected employees shall be provided when any of the following conditions exist:

1. Employee job assignment is changed
2. There is a change in machinery/equipment/processes
3. When a change in the energy control plan occurs
4. Whenever the employer has reason to believe, that there are deviations or inadequacies in the knowledge or use of the energy control procedures

## **V. TRAINING REQUIREMENTS - (cont'd)**

A record of all training shall be maintained in the Business Office. The record shall include the date of training and the employee's name.

All employee retraining shall also be documented in the office of the Director of Facilities along with the original training record. Reasons for retraining shall be indicated on the retraining document.

## **VI. LOCKOUT/TAGOUT DEVICES**

- A. Each authorized employee shall be provided with all needed Lockout/Tagout devices in accordance with 29 CFR 1910.147 (c) (5). These devices shall be under the singular control of the employee to whom it has been assigned and no duplicate means of removal shall be available.
- B. All devices shall be clearly identified as being used ONLY for the purpose of energy isolation and SHALL NOT BE USED FOR ANY OTHER PURPOSE. All devices shall also meet the following criteria:
  - 1. All devices shall be capable of withstanding the environment to which they are to be exposed.
  - 2. Tags shall be printed and constructed so that moisture from wet or damp conditions, or the influence of the weather, shall not make them illegible.
  - 3. Tags shall not deteriorate when exposed to alkaline or acidic materials.
  - 4. All Lockout/Tagout devices shall be standardized within the school district.
  - 5. Lockout devices shall be substantial in their construction so as to prevent removal other than by means of unusual or excessive force or by the use of mechanical devices (i.e., bolt cutters, torch, etc.).
  - 6. Tagout devices shall be substantial enough to prevent their inadvertent or accidental removal. The attaching device shall be non-reusable, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds, i.e., cable ties.
  - 7. The Lockout/Tagout device shall give the identity of the employee having applied the device.
  - 8. Tagout devices shall warn against any hazardous condition if the equipment is started and shall include a legend such as the following: DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE.
  - 9. Lockouts will be used on all pieces of equipment which will accept the device. Substantial modification and new equipment purchases will ensure that lockouts can be employed. Multiple keys for the lock are not allowed.
  - 10. Tags will be used on all equipment which is incapable of accepting a lockout. The tag will be signed, dated and removed once it is no longer needed. An example of a tag is attached (Appendix E).

## **VII. INDEPENDENT CONTRACTORS/SERVICE PERSONNEL**

Whenever any contractor and/or outside service personnel is to undertake activities that are covered by this standard, the contractor/service personnel shall notify the Supervisor of Transportation and Maintenance in order that both parties may familiarize themselves with the respective procedures they employ. The District will inform the contractor and/or outside service personnel of this plan and encourage utilization of their own Lockout/Tagout devices in the scope of their work with the District facilities.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX A**

**LIST OF AUTHORIZED EMPLOYEES**

<b>EMPLOYEE NAME</b>	<b>JOB TITLE/ DEPARTMENT</b>	<b>BUILDING ASSIGNMENT</b>	<b>LOCK NO.</b>
Dan Thomas	Grounds/Maintenance	District Wide 110V	31650418
John Felecia	Maintenance Mechanic II	District Wide 110V & 220V	3058
Mike Aiken	Director of Facilities		3165
Vitalii Lysvik	Maintenance Helper		3029

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Air Conditioner Equipment Location: Upstairs Office

<b>TYPES AND MAGNITUDE OF ENERGY</b>	<b>TYPES AND LOCATIONS OF ISOLATING MEANS</b>	<b>TYPES OF STORED ENERGY AND METHODS TO DISSIPATE</b>	<b>METHOD OF ENERGY CONTROL</b>
Elec 220 V	Panel Box #5		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**  
**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Air Compressor Equipment Location: Bus Storage Bay # 3

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #8		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Bus Storage Bay #1

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Panel Box #8 Breaker #15		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Bus Storage Bay #3

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Panel Box #8 Breaker #16		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Water Pump Equipment Location: Bus Storage Area

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Shut off Box		TO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Above Drivers Room (for offices)

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #8 Breaker #20		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Unit Heater #2 Equipment Location: Service Bay #1

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V Natural Gas	Panel Box #5 right side service box Breaker 15 & 17	Follow Appendix D	LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Outside Fuel Pumps Equipment Location: Fuel Island

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V	Panel Box #5 Unld Gas Breakers 14, 16, 18, & 20 Diesel		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Exhaust Fan #1 Equipment Location: Service Bay #1

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #3 External Shut off		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Hydraulic Lift, Bus Lift Equipment Location: Service Bay #1

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #1 “Bus Lift”		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Carbon Monoxide Exhaust Equipment Location: Service Bay #1

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #2 “Car-Mon” Exh		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Lights Equipment Location: Service Bay #2

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Panel Box #6 Breakers		

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
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**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Service Bay #2

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Panel Box #6 Breaker #16		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
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**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Water Filtration System Equipment Location: Service Bay #2

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #7		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
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**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Hydraulic Pump Equipment Location: Service Bay #3

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 220 V 3ph	Panel Box #6 Breaker #26		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Service Bay #3

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Panel Box #6 Breaker #18		LO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

\_\_\_\_\_  
\_\_\_\_\_

Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Hot Water Heater Equipment Location: Upstairs Left

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Natural Gas	Shut off above unit		

Special Equipment: (e.g., circuit tester, air monitor, PPE)

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Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater AH #1 Equipment Location: Upstairs Left

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V Natural GAs	Panel Box #4 Ball valve Next to unit		LOTO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

\_\_\_\_\_  
\_\_\_\_\_

Note: Reference equipment service manual when available.

Energy Control and Lockout/Tagout Program  
Onondaga Central School District

**APPENDIX B**

**EQUIPMENT INVENTORY**

A form should be filled out for each type of equipment (e.g., boiler, transformer, dishwasher, HVAC system, electric service panels, etc.) in the district.

Person who Conducted Survey: David Daignault Survey Date:    /   /   

Equipment Type: Heater Equipment Location: Maintenance Shop

TYPES AND MAGNITUDE OF ENERGY	TYPES AND LOCATIONS OF ISOLATING MEANS	TYPES OF STORED ENERGY AND METHODS TO DISSIPATE	METHOD OF ENERGY CONTROL
Elec 110 V	Wall Shut Off		LOTO

Special Equipment: (e.g., circuit tester, air monitor, PPE)

\_\_\_\_\_

\_\_\_\_\_

Note: Reference equipment service manual when available.

## APPENDIX C

### ANNUAL LOTO SKILLS REVIEW / PERIODIC INSPECTION FORM

**District:** \_\_\_\_\_

**Date of Inspection:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Employee Performing Procedure:** \_\_\_\_\_

**Employee Title/Department:** \_\_\_\_\_

**Equipment, Machine or System Used for Skill Review:** (describe what was used for LOTO and isolation point.)

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**Notes/Recommendations:** (regarding satisfactory demonstration or corrections of deviations and/or inadequacies observed)

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**EVALUATION:**

**PASS** ☐

**RETRAINING REQUIRED** ☐

**Name and Title of Evaluator:** \_\_\_\_\_

\_\_\_\_\_  
Signature of Auth. Employee/Evaluator

\_\_\_\_\_  
Date

## APPENDIX D

### SHUTTING DOWN AND STARTING UP: KEY STEPS

#### Steps for Shutdown

1. Prepare - Before you begin, be sure you know:
  - all the types of energy involved
  - the hazards presented by energy
  - how to control the energy
2. Notify - all affected employees that a lockout and/or tagout system is going to be utilized and the reason for the procedure.
3. Shutdown - Turn off machine or equipment by normal stopping procedure.
4. Isolate - Cut machine or equipment off from its energy source(s) - e.g., turn off the main circuit breaker.
5. Lockout - Apply your lock and tag. Be sure that it holds the isolating device in the "off" or "safe" position.
6. Release - Dispose of stored energy - relieve, disconnect restrain, block, or otherwise ensure that all energy sources (electrical, mechanical, hydraulic, compressed, etc.) are de-energized. **Note:** You may have to do this before locking out.
7. Verify - Try the on-off switch or other controls to be sure the machine does not start. Return the switch to the "off" position.

Your lockout is now complete.

#### Steps for Restart

1. Inspect to be sure that:
  - all tools and other materials are removed.
  - machine is fully reassembled.
  - guards and other safety devices are reinstalled.
2. Notify - to be sure that:
  - all employees are safely positioned.
  - all affected employees are notified of the restart.
3. Remove all lockout devices. Remember that only the person who put the lock on may remove.
4. Restore energy sources for equipment start-up.
5. Verify equipment operates properly.

References: Occupational Safety and Health Reporter; September 26, 1990  
OSHA Compliance Advisor; September 10, 1990

## **APPENDIX D**

### **SHUT-DOWN PROCEDURES**

#### **Isolating Energy Sources**

##### **ROCKWELL #1 BOILER**

Natural Gas Feed: Left side Red and Orange handles are the mains and pilot

Water feed: Right side center

Oil feed: Custodial room outside wall

Electric: PB2 breaker #2, #3 and #8

Feed water #9: Unit can be shut down electrically on right side control panel RB1

Oil heater: Compressor control

Before working on wet side, the boiler must be drained. Drains are located at rear bottom of boilers. Headers must also be closed if repairs are done during heating season.

## **APPENDIX D**

### **SHUT-DOWN PROCEDURES**

#### **Isolating Energy Sources**

#### **ROCKWELL**

##### **#2 BOILER**

Natural Gas Feed: Valves are located on left side of vessel Red and Orange

Water feed line: Right side center: Breaker PB2 #9

Oil feed: Custodial room outside wall

Electric: PB2 breaker #3, #7 and #8

Units can also be shut down electrically on right side control panel RB2

Oil heater: Compressor control

Before working on wet side, the boiler must be drained. Drains are located at rear bottom of boilers. Headers must also be closed if repairs are done during heating season.

## **APPENDIX D**

### **SHUT-DOWN PROCEDURES**

#### **Isolating Energy Sources**

##### **HEATING CONTROL COMPRESSOR**

Cutoff switches are located above compressor for Roto Phase air compressor and drier. Tank must be drained before working on compressor regulator or tank.

When safety cage is removed from around compressors, they must be locked out.

## **APPENDIX D**

### **SHUT-DOWN PROCEDURES**

#### **Isolating Energy Sources**

##### **WHEELER #1 BOILER**

Electric Repairs: The following items need to be shut off

Natural Gas Feed:

- Main valve located on left side

- Red valve

- Pilot valve located just before the main

Oil: single valve on right side of the burner

Electric: PB1 Breakers #1, #13, #15, #17, and #23

Vessels: All above

Isolate boiler by closing header and return valve: relieve any pressure by opening pressure relief valve. Drains: open only if boiler is at ambient temperature.

## **APPENDIX D**

### **SHUT-DOWN PROCEDURES**

#### **Isolating Energy Sources**

##### **WHEELER #2 BOILER**

Electric Repairs: The following items need to be shut off

Natural Gas Food:

Red valve on the right side of the boiler

Pilot directly preceding main valve

Oil: Orange pipes on the left side of the boiler

Electric: PB1 Breaker #1, #1, #23, and #14

Vessel:

Heating control Air compressor and drier

Electric; PBI Breaker #9 and shut off behind compressor

Air pressure: Drain located at bottom of storage tank. Drain, if working, on compressor valves or tank

## APPENDIX E

### SAMPLE PICTURE OF LOCK AND TAG



## APPENDIX F

[illegible]

## APPENDIX G

### WORK ON or AROUND ENERGIZED SYSTEMS General Information and Guidelines

#### Definitions:

**Work on energized equipment.** "Only qualified persons may work on electric circuit parts or equipment that has not been de-energized. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools. The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed)..."

**1910.333(c)(3)(ii)(B)** The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed), or the person is insulated from all conductive objects at a potential different from that of the energized part.

TABLE S-5 - APPROACH DISTANCES FOR QUALIFIED  
EMPLOYEES - ALTERNATING CURRENT

Voltage range (phase to phase)	Minimum approach distance	
	Avoid	Contact
300V and less .....		
Over 300V, not over 750V .....	1 ft. 0 in.	(30.5 cm)
Over 750V, not over 2kV .....	1 ft. 6 in.	(46 cm)
Over 2kV, not over 15kV .....	2 ft. 0 in.	(61 cm)
Over 15kV, not over 37kV .....	3 ft. 0 in.	(91 cm)
Over 37kV, not over 87.5kV .....	3 ft. 6 in.	(107 cm)
Over 87.5kV, not over 121kV .....	4 ft. 0 in.	(122 cm)
Over 121kV, not over 140kV .....	4 ft. 6 in.	(137 cm)

#### Illumination. 1910.333(c)

Employees may not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely.

Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near exposed energized parts. Employees may not reach blindly into areas, which may contain energized parts.

**Confined or enclosed work spaces** - When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employer shall provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.

**Conductive apparel** - Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

**Housekeeping duties** - Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided. Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.