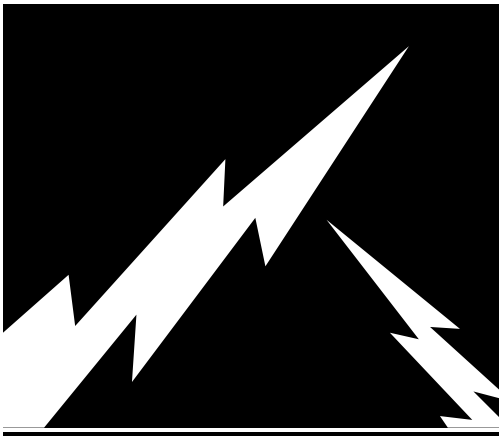
CHERITON GROVE CORPORATION

Cheriton Grove Apartments
20 Cheriton Road
West Roxbury, MA 02132
617-325-1913

Lockout - Tagout

Control of Hazardous Energy

Procedures and Manual



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SECTION 1.0 General Requirements for Employees / Contractors

1.1 Summary of Cheriton Grove Corporation's Standard Procedures

This Procedure identifies the major elements of the policies and procedures of the Cheriton Grove Corporation Control of Hazardous Energy Program, which was developed to comply with 29 CFR 1910.147 for the OSHA Program, Control of Hazardous Energy. This OSHA program is often referred to as "Lockout / Tagout" because, under this program, locks and/or tags are required as warning and constraining devices for controlling the accidental release of hazardous energy.

Section 5 of these procedures includes a complete description of Cheriton Grove Corporation's Control of Hazardous Energy Program. If you have not been trained in Cheriton Grove Corporation's Control of Hazardous Energy Program, do not proceed with servicing or maintenance activities on equipment with energy sources

1.1.1 How to Use This Procedure

1.1.1i This procedure contains instructions for each contractor performing services in Cheriton Grove Apartments, where the OSHA Control of Hazardous Energy program applies.

1.1.1ii Prior to performing work on equipment, read all sections that apply to the work you intend to perform, then follow the procedures that are referenced in the appropriate Section of this manual. Refer to the Table of Contents to identify the sections that are appropriate to the work you intend to perform. **Be sure you notify the appropriate Cheriton Grove Corporation personnel of your intended activities prior to starting any work.**

1.1.2 Definitions and Actions

1.1.2i Under the OSHA regulations, individuals for whom the Lockout / Tagout program might influence are defined and actions affecting these individuals are specified.

1.1.2ii **Authorized Individual(s)** - An **"Authorized"** individual is one who is authorized by Cheriton Grove Corporation Management to perform work on equipment in a Cheriton Grove Corporation building. This person must refer to the company's equipment inventory to identify the type and magnitude of the energy the machine or equipment utilizes. The Authorized Individual(s) is/are the key person(s) for assuring proper implementation of the Cheriton Grove Corporation Lockout / Tagout procedure. For the Cheriton Grove Corporation, the Authorized individual is:

Company Name	**Contact**	**Contact #**
The Community Builders	Site Superintendent	617-325-1913

1.1.2iii All Authorized Individuals must register the work he/she is intended to perform in the Project Log, found in Appendix E of these procedures. The Authorized Individual is responsible for notifying affected individuals of the work by completing the STANDARD NOTIFICATION FORM in section 1.2.2 of these procedures. The form is then filed in the Lockout / Tagout Binder under Tab 1.

1.1.2iv Contractors working on a project with multiple employees, must adhere to the procedures for these individual situations.

1.1.2v **Affected Individual(s)** - The **"Affected"** individuals are those who can be affected by the work performed by the Authorized Individual. Authorized Individuals must notify all "affected" individuals the Lockout / Tagout Procedure will be implemented because servicing or maintenance on a machine is required.

> ***For Example*** - an Authorized Individual might be an Electrical Contractor who will shut down the AC Power to lights and AC outlets to perform maintenance in the building. The Affected Individuals may be the Fire Alarm contractor testing the FA system in the building, who will have no lights or power to use tools to perform their contracted work assignment.

1.1.2vi **Notification** - Authorized Individuals must notify Affected Individuals of work to be performed. The first step in this process is to notify the Site Manager or Superintendent of your intended activities prior to starting work. The identities of these person(s) can be found in section 1.1.2ii. Once you have notified the appropriate Departmental Liaison, you must identify the Authorized and Affected Individuals and notify these individuals of your activities by meeting with them to discuss your project and completing the standard notification form. Information that is required to be in the notification includes:

(a) A description of the activities you are intending to perform.

(b) The location of the activities you are intending to perform.

(c) The duration of these activities.

(d) Your name and reach number

1.1.2vii A Notification Form must be posted at the Lockout / Tagout station in a conspicuous location. For a template of this form, refer to Section 1.B of this procedure.

1.1.2viii **Isolation of Stored Energy** - Stored Energy is any energy having a capacity to be released. It is found in springs, capacitors, elevated machines, rotating flywheels, hydraulic systems, air, gas, steam or water pressure, mechanical sources, electrical sources, etc. Stored energy must be dissipated, de-energized, and/or restrained by methods such as repositioning, blocking, bleeding, or other appropriate methods, prior to initiating work where the authorized, affected or any other unsuspecting person might be harmed.

(a) To isolate equipment in a Cheriton Grove Corporation facility, refer to Shut Down Procedures in Section 4.1. Do not proceed with work unless you are certain all stored energy is deactivated.

1.1.2ix **Lockout / Tagout Devices** - Lockout or Tagout devices are used to isolate energy and prevent individuals from working on or approaching equipment while it is being serviced. These devices alert others of the fact that someone is performing work with potential sources of energy that might affect the activities of other individuals in the building. A lock or a tag attached to an isolation device identifies the individuals that de-energized the equipment before starting work.

1.1.2x Whenever possible, a lockout device is used to isolate the energy source from being activated. Affixed to this isolating device is the worker's assigned individual lock(s). At Cheriton Grove Corporation facilities, individual locks are color-coded accordingly:

Cheriton Grove Corporation/Agents	**Blue**
Vendors/Contractors	**Any color but blue**

1.1.2xi Any and all lockout devices and tags used by contractors must be identified with the contractor's name on the device and/or tag.

1.1.2xi If the equipment is incapable of being locked out, then a completed Notification Tag must be affixed to the equipment. (Color Codes are the same for tags as for locks. See above).

1.1.2xii **Lockout / Tagout Process Overview** – The Authorized Individuals shall prepare for Lockout / Tagout by implementing the following steps:

(a) Check to ensure that all the proper energy isolating devices and notification devices on hand to complete the job before starting.

(b) Fill out the Job Log in Appendix E of these procedures.

(c) Notify all affected individuals that the Lockout / Tagout procedure will be implemented because servicing or maintenance on a machine or equipment is required. Complete the Notification Form found in section 1.2.2 of these procedures and post in an appropriate location.

(d) Refer to the appropriate Cheriton Grove Corporation equipment inventory to identify the type(s) and magnitude of the energy that the machine or equipment utilizes. The equipment or machine shall be shut down by following the specifications of the manufacturer and/or the Cheriton Grove Corporation practices. They will usually identify the normal stopping procedures and any modifications that are necessitated by Cheriton Grove Corporation operations. If you do not know what these are, do not proceed with the job until you do.

(e) Prepare for shutdown. Deactivate/Disengage any stored energy found in springs, capacitors, 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. Follow the appropriate Shut Down procedures found in Section 4.1 of these procedures.

(f) Deactivate the energy source and affix energy-isolating device(s) so the equipment is isolated from its energy source.

(g) Lockout the energy isolating device(s) with a properly color-coded assigned individual lock(s). If a lock is not available, use an assigned color-coded tag. **Assure that all energy sources are isolated and no personnel are exposed, (check on having disconnected the energy sources, verify the isolation of all potential energy locations to the machine / equipment by operating the push button, start button or other normal operating controls or by testing to make certain the equipment will not operate.)**

(h) Perform assigned work.

(i) Prepare for restoration of the machines/equipment to normal operations or start up when work is completed. Follow the Start Up procedures located in Section 4.2. In addition, do the following:

(1) Check the machine/equipment and the immediate area to ensure that nonessential items have been removed and that the machine/equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely repositioned or removed from the area.

(3) Verify the controls are in neutral.

(4) Remove the lockout devices and re-energize the machine or equipment.

(5) Notify affected employees that the servicing or maintenance is completed and the machine/equipment is ready to be used.

(j) Remove the Standard Notification Form, return it to the Lockout / Tagout station for this Cheriton Grove Corporation facility and proceed to close out the job.

1.1.3 Group Lockout & Tagout Requirements

1.1.3i Servicing or maintenance is performed by a crew, craft, multiple vendors or other group(s)/individual(s), the Cheriton Grove Corporation Company's procedures, outlined in this manual, will be followed. The primary responsibility remains with the vendor, individual, or employee, who is the authorized person for coordinating the task /job at hand.

This Authorized Project Coordinator should be identified in the Job Log in Appendix E of these procedures. In the event no one has been designated, you shall contact the following persons for more information. Do Not proceed with any job unless the Authorized Project Coordinator is identified and you have made contact with this person or his/her representative. To identify the authorized employee(s) for this location, contact the following:

Company Name	**Contact**	**Contact #**
The Community Builders	Site Manager	617-325-1913

1.1.3ii In addition to adhering to all the aforementioned procedures, in a group lockout or tagout, each Authorized Individual must affix his/her personal lockout device to the group lockout device, group lockbox, or comparable mechanism when the work is initiated. Pursuant to the OSHA standard, if the equipment is incapable of being locked out, the appropriate Cheriton Grove Corporation and/or Contractor tag must be completed and affixed to the equipment in place of a lock.

1.1.3iii The personal lockout or tagout device shall be removed when the work is completed following the appropriate Startup procedures identified in section 4.2 of these procedures.

1.1.4 Shift or Personnel Changes

1.1.4i During shift or personnel changes, procedures must be developed and agreed upon to ensure the continuity of lockout or tagout protection, including provisions for the orderly transfer of lockout or tagout devices between outgoing and incoming employees. A designated Authorized Individual will coordinate these procedures. This person will be identified as the Shift Authorized Project Coordinator in Appendix E of these procedures.

1.1.4ii Anyone working on a project-involving shift or personnel changes must be informed of the name and reach number of the designated Shift Authorized Project Coordinator.

1.1.5 Outside Contractor Requirements

1.1.5i All outside contractors will be licensed to perform tasks assigned under their contract. Every contractor will comply with the policies and procedures of OSHA's Lockout / Tagout program.

ALL CONTRACTORS ARE TO PROVIDE THEIR OWN INDIVIDUAL LOCKOUT / TAGOUT TOOLS AND DEVICES. ALL CONTRACTORS MUST BE TRAINED IN THE SPECIFIC CHERITON GROVE CORPORATION CONTROL OF HAZARDOUS ENERGY PROGRAM BEFORE PROCEEDING WITH WORK.

These contractors will follow all Cheriton Grove Corporation policies and procedures for coordinating work with the authorized employee(s),

1.1.5ii The following authorized persons/employees shall coordinate the outside contractor activities.

Company	**Contact**	**Contact #**
The Community Builders	Site Superintendent	617-325-1913

1.2 Notifications

1.2.1i When servicing or maintenance is performed by a crew, craft, multiple vendors, or other group(s)/individual(s), the Cheriton Grove Corporation Company's procedures, outlined in this procedure, will be followed. The primary responsibility remains with the vendor, individual, or employee, who is the authorized person for coordinating the task/job at hand.

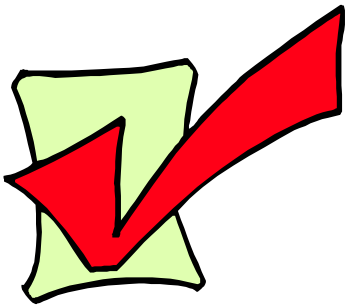
1.2.1ii Authorized Project Coordinators must be identified in the Job Log in Appendix E of these procedures. In the event that no one has been designated, contact the following persons for more information. Do Not proceed with any job unless the Authorized Project Coordinator is identified and you have made contact with this person or his/her representative. To identify the authorized employee(s) contact the following individual(s):

Department	**Contact**	**Contact #**
The Community Builders	Site Manager	617-325-1913

1.2.2 After you have coordinated with the Authorized Project Coordinator, begin to notify personnel and other Affected Individuals of your project on and off site, as appropriate, pursuant to the procedures above. In addition, post the following Standard Notification Form in one or more conspicuous locations at the job site. (See form below.)

CHERITON GROVE CORPORATION

Cheriton Grove Apartments
20 Cheriton Road
West Roxbury, MA 02132



NOTICE

LOCKOUT / TAGOUT IN PROGRESS

- Location of Building Work: Floor _____ Room/Area _____
- Type of Work or Service to be Performed: _____

_____

_____

- Individuals Performing Work/Services: _____

_____

- Start Time: _____ AM / PM End Time: _____ AM / PM
- For More Information Contact:

NAME: _____ CONTACT #: _____

Questions or concerns regarding on-going building work should be addressed to the building Site Manager.

SECTION 2.0 DIAGRAMS

2.1 One-line Electrical Energy Diagram

See wall mounted, cased enclosed one-line diagram, located in the Electrical Room, for additional information

SECTION 3.0 EQUIPMENT INVENTORY

3.1 The enclosed **"Attachment A"** titled **"CGC Building Equipment Inventory"** identifies any and all facility equipment. If you do not see the equipment you will be working on, it is your responsibility to contact the Site Manager and advise him/her of the situation.

3.2 You may be asked to provide information for the appropriate update of the equipment inventory, which you should

SECTION 4.0 CHERITON GROVE CORPORATION PROCEDURES

4.1 Shut Down Procedures

4.1.1 ***Circuit Breaker Shut-Down*** - Notify all affected employees that a Lockout / Tagout device will be applied. Shut the equipment down by the normal stopping procedure, as indicated by the manufacturer, or theses Cheriton Grove Corporation Procedures. Verify the correct circuit breaker and place the breaker in the off position. Using the appropriate Lockout / Tagout device, secure and/or tag the breaker in the 'off' position. Prior to performing maintenance or service, ensure no personnel are exposed and operate the normal startup controls to make certain the equipment will not operate. Return the startup controls to the off position and use a voltage tester to ensure that all voltage has been disabled.

4.1.2 ***Disconnect Switch Shut-Down*** - Notify all affected employees that a Lockout / Tagout device will be applied. Shut the equipment down by the normal stopping procedure, as indicated by the manufacturer, or within these Cheriton Grove Corporation Procedures. Move the disconnect handle to the off position. Using the appropriate Lockout / Tagout device, secure and/or tag the handle in the 'off' position. Prior to performing maintenance or service, ensure that no personnel are exposed and operate the normal startup controls to make certain that the equipment will not operate. Return the startup controls to the off position and use a voltage tester to ensure that all voltage has been disabled.

4.1.3 ***Screw In Fuse and Fuse Pullout Holder Shut-Down*** - Notify all affected employees that a Lockout / Tagout device will be applied. Shut the equipment down by the normal stopping procedure, as indicated by the manufacturer, or within these Cheriton Grove Corporation Procedures. Verify the correct fuse(s). Remove the screw in fuse(s) or pullout holder containing the fuse(s). Using the appropriate Lockout / Tagout device, secure and/or tag the empty fuse receptacle. If possible, place fuses in a toolbox or other safe place. Prior to performing maintenance or service, ensure that no personnel are exposed and operate the normal startup controls to make certain that the equipment will not operate. Return the startup controls to the off position and use a voltage tester to ensure that all voltage has been disabled.

4.1.4 ***Steam System / Valves Shut-Down*** - Notify all affected employees that a lockout / tagout device will be applied. If possible, shut down the steam generating equipment by the normal stopping procedure, as indicated by the manufacturer, or within these Cheriton Grove Corporation Procedures. If it is not possible to shut the equipment down, identify all potential sources of steam pressure/energy to the component to be isolated. Turn all the valves to the closed position. Using the appropriate Lockout / Tagout device, secure and/or tag the valves in the closed position. Ensure that no personnel are exposed and follow the manufacturer's instructions to relieve pressure. DO NOT perform maintenance or service until all pressure has been removed or stabilized.

4.1.5 ***L.P. and Natural Gas Components Shut-Down*** - Notify all affected employees that a Lockout / Tagout device will be applied. Shut the equipment down by the normal stopping procedure, as indicated by the manufacturer, or within these Cheriton Grove Corporation Procedures. Turn all manual supply valves to the closed position. Using the appropriate Lockout / Tagout device, secure and/or tag the valve(s) in the closed position. Ensure that no personnel are exposed and operate the normal startup controls to eliminate any remaining fuel and to make certain that equipment will not operate. Return the startup controls to the off position. Prior to performing maintenance or service, smell and listen for gas inside the combustion chamber. If gas is present, DO NOT proceed until this condition is corrected and the area is thoroughly vented.

4.1.6 ***Pneumatic Components Shut-Down*** - Notify all affected employees that a Lockout / Tagout device will be applied. If possible, shut down the pneumatic compressor by the normal stopping procedure, as indicated by the manufacturer or within these Cheriton Grove Corporation Procedures. If it is not possible to shut down the compressor, identify all sources of air pressure to the component that is to be isolated. Turn all valves to the closed position. Using the appropriate Lockout / Tagout device, secure and/or tag the valves in the closed position. Ensure that no personnel are exposed and follow the manufacturer's instructions to relieve air pressure to the component. DO NOT perform maintenance or service until all pressure has been removed or stabilized.

4.1.7 ***Transfer Switch Shut-Down***

4.1.7i Notify all affected employees that a Lockout / Tagout device will be applied and that building power may be disrupted. Transfer the power from commercial to backup generator by the normal switchover procedure. Move all commercial breakers, disconnects or switchgear to the off position. Use a voltage tester to verify that the commercial power bus has been de-energized. Using the appropriate Lockout / Tagout device secure and/or tag the appropriate disconnect(s), breaker(s), and/or switchgear.

4.1.7ii To disable both commercial and backup power, turn the generator or turbine start switch to the "off" position. Using the appropriate Lockout / Tagout device, secure and/or tag the Start switch in the off position. Disconnect and tag the starter motor battery leads. Follow the above procedure for disconnecting commercial power and repeat the same steps for each/all backup power disconnect(s), breaker(s), and/or switchgear.

4.1.8 ***Fan Systems Shut-Down*** – Notify all affected employees that a Lockout / Tagout device will be applied and that building power may be disrupted. Verify the status of the involved fan systems and controls. Shut down any interrelated systems by following the normal stopping procedures. Isolate the equipment from its energy source by operating the electrical disconnect switch to the open ("off") position. Use wooden or metal members (e.g. 2x4s) to restrain and/or block fan blades, if servicing

and/or maintenance will occur in an area where a back draft or manual rotation of the fan blades may jeopardize safety. Affix a Lockout / Tagout warning tag to the electrical disconnect switch.

4.1.9 ***Air Compressors***

4.1.9i Identify the air compressor on which the energy control will be initiated and communicate that information to all affected Cheriton Grove Corporation employees within the building. Shut down any related systems, machines, or equipment by following the normal stopping procedures. Isolate the compressor form its energy source by operating the electrical disconnect switch to the open ("off") position. Close the air supply isolation valves to the rest of the system. Lockout the electrical disconnect switch with a singularly identifiable personal lock. Test the electrical disconnection of the compressor by slowly operating the drain/relief valve until the pressure switch operates. If the pressure switch operates and the compressor does not start, then the electrical power has been successfully disconnected.

4.1.9ii If servicing/maintaining the electrical portions of a compressor, perform a final check with an AC multimeter. First, verify that the AC multimeter is working by measuring the voltage on a separate "live" electrical circuit that is not associated with the compressor to be serviced or maintained. If the AC multimeter proves to be functioning properly, use the same multimeter to perform extensive voltage checks throughout the electrical wiring and components of the compressor to be serviced or maintained. DO NOT begin servicing and/or maintenance until all hazardous voltages are successfully isolated. If all hazardous voltages are isolated then perform the required servicing and/or maintenance on the air compressor.

4.1.10 ***Pumps*** - Identify the pump that this energy control procedure will be initiated on and communicate that information to all affected Cheriton Grove Corporation employees within the building. Verify the status of the involved systems, machines or equipment. Shut down any interrelated systems, machines or equipment by following the normal stopping procedures. Close any suction and discharge valves. Isolate the pump from its energy source by operating the electrical disconnect switch to the open ("off") position. Dissipate any stored energy by draining the elevated or pressurized liquid from the system. Lockout the electrical disconnect switch with a singularly identifiable personal lock. Test the electrical disconnection of the pump by operating the normal control device. If the pump does not start, then the electrical power has been successfully isolated. Perform the required servicing and/or maintenance on the pump.

4.1.11 ***Stored Water Systems***

4.1.11i Identify the stored water systems on which this energy control procedure will be initiated and communicate that information to all affected

Cheriton Grove Corporation employees within the building. Shut down any interrelated systems by following the normal stopping procedures. Isolate the high head pressure by valving off. Consider bleeding down and draining the high head pressure water where safe and feasible. In addition, isolate the associated pumps by locking out the electrical disconnect switches.

4.1.11ii Use a chain in combination with personal padlocks to physically restrain the involved valves. In addition, place warning tags on locked valves if unable to safely drain off high head pressure water from the elevated columns beyond the valves. Lockout associated pumps per the pump guidelines if necessary. Affix a "Warning Tag" to any valve that provides a buffer against the release of high head pressure water. Write your name, the date, and any special instructions on the warning tag. Warning tags must be hung directly on the valve stems or hand wheels by using standard size plastic ties. Recheck the valves to verify that they are in the fully sealed position.

4.1.11iii Check the pressure gauges to ensure that all the high head pressure water has been effectively isolated. If pressure gauges are not available, choose another practical method of verifying that the high head pressure water has been isolated like loosening some bolts beyond the valves to check for presence of pressure. Perform the required servicing and/or maintenance on the water system.

4.1.12 ***A/C Compressors***

4.1.12i Arrange for alternate cooling (e.g. existing on-site units, spot cooling devices, etc.), where necessary, since air conditioning units do not provide cooling with disabled compressors. Identify the air conditioning compressors on which this energy control procedure will be initiated and communicate that information to all affected Cheriton Grove Corporation employees within the building. Verify the status of the A/C compressor and associated air conditioning equipment. Then, follow the normal stopping procedures to shut down any non-essential interrelated systems that are operating. Isolate and/or reclaim any refrigerant that may be released into the atmosphere.

4.1.12ii Operate the electrical disconnect switch to the open ("off") position to isolate the A/C compressor from its energy source. Dissipate the stored energy by reclaiming any refrigerant that may be released into the atmosphere and then by operating the drain/vent valves. Operate the electrical disconnect switch to isolate the A/C compressor from its energy source. Lockout the electrical disconnect switch with a singularly identifiable personal lock. Test the electrical disconnection of the compressor by slowly operating the drain/relief valve until the pressure switch operates. If the pressure switch operates, and the compressor does not start then the electrical power has been successfully disconnected.

4.1.12iii If servicing / maintaining the electrical portions of an A/C compressor, perform a final check with an A/C multimeter. First, verify that the A/C multimeter is working by measuring the voltage on a separate "live" electrical circuit that is not associated with the compressor to be serviced or maintained. If the AC multimeter proves to be functioning properly, use the same multimeter to perform extensive voltage checks throughout the electrical wiring and components of the compressor to be serviced or maintained. DO NOT begin servicing and/or maintenance until all hazardous voltages are successfully isolated. If all hazardous voltages are isolated then perform the required servicing and/or maintenance on the A/C compressor.

4.1.13 ***Boilers***

4.1.13i Identify the boilers on which this energy control procedure will be initiated and communicate that information to all affected Cheriton Grove Corporation employees within the building. Verify the status of the boiler and associated equipment. If any interrelated systems, machines or equipment are operating, they must be shut down by following the normal stopping procedures. Isolate the boiler from its energy sources by operating the electrical disconnect switch to the open ("off") position and valving off the fuel supply. Also, vent/drain the contents of the boiler tank down to a safe level. Lockout the electrical disconnect switch with a singularly identifiable personal lock.

4.1.13ii After insuring that no Cheriton Grove Corporation personnel are exposed, jumper the normal operating controls to test that the boiler and associated equipment will not operate. **(IMPORTANT: After the test, remember to return all operating controls to their normal positions by removing the jumpers).** If servicing/maintaining the electrical portions of a boiler, perform a final check with an A/C multimeter. First, verify that the A/C multimeter is working by measuring the voltage on a separate "live" electrical circuit that is not associated with the boiler to be serviced or maintained. If the AC multimeter proves to be functioning properly, use the same multimeter to perform extensive voltage checks throughout the electrical wiring and components of the boiler to be serviced or maintained. DO NOT begin servicing and/or maintenance until all hazardous voltages are successfully isolated. Perform the required servicing and/or maintenance on the boiler.

4.1.14 ***Domestic Water Heaters***

4.1.14i Identify the domestic water heater on which this energy control procedure will be initiated and communicate that information to all affected Cheriton Grove Corporation employees within the building. Shut down the domestic water heater by following the normal stopping procedures. Isolate

the boiler from its energy sources by operating the electrical disconnect switch to the open ("off") position and valving off the fuel supply. Also, vent/drain the contents of the boiler tank down to a safe level. Affix a "Warning Tag" to the electrical disconnect switch. Write your name, the date, and any special instructions on the warning tag. Use a standard size plastic tie to attach the warning tag to the electrical disconnect switch.

4.1.14ii After insuring that no Cheriton Grove Corporation personnel are exposed, increase the thermostat temperature control setting to verify that the water heater will not operate. (IMPORTANT: After the test, remember to return the thermostat control to its normal temperature setting). If servicing / maintaining the electrical portions of a domestic water heater, perform a final check with an A/C multimeter. First, verify that the A/C multimeter is working by measuring the voltage on a separate "live" electrical circuit that is not associated with the domestic water heater to be serviced or maintained. If the AC multimeter proves to be functioning properly, use the same multimeter to perform extensive voltage checks throughout the electrical wiring and components of the domestic water heater to be serviced or maintained. DO NOT begin servicing and/or maintenance until all hazardous voltages are successfully isolated. Perform the required servicing and/or maintenance on the domestic water heater.

4.1.15 ***Emergency Engines***

4.1.15i Identify the emergency engines on which this energy control procedure will be initiated and communicate that information to all affected Cheriton Grove Corporation employees within the building. Verify the status of the commercial power. Contact the power company [NSTAR 800-592-2000] to ensure that no high-risk preventative maintenance is scheduled to be performed on the serving substation or local feeders.

4.1.15ii Isolate the emergency engine from its energy sources by operating the electrical controls disconnect to the open ("off") position, removing one or more battery cables and valving off the fuel supply. Attach a "Warning Tag" to the end of the disconnected battery cable. Write your name, the date, and any special instructions on the warning tag. Use a standard size plastic tie to affix the warning tag to the disconnected battery cable.

4.1.15iii Test the emergency engine to verify that all energy sources have been disconnected or disabled. After insuring that no Cheriton Grove Corporation personnel are exposed, operate the normal operating controls to ensure that the emergency engine will not operate. (IMPORTANT: Return all operating controls to the "OFF" or "NEUTRAL" positions after the test). If servicing/maintaining the electrical portions of an emergency engine, perform a final check with an A/C multimeter. First, verify that the A/C multimeter is working by measuring the voltage on a separate "live" electrical circuit that is

not associated with the emergency engine to be serviced or maintained. If the AC multimeter proves to be functioning properly, use the same multimeter to perform extensive voltage checks throughout the electrical wiring and components of the emergency engine to be serviced or maintained. DO NOT begin servicing and/or maintenance until all hazardous voltages are successfully isolated. Perform the required servicing and/or maintenance on the emergency engine.

4.2 Start Up Procedures

4.2.1 ***Circuit Breaker Start-Up*** - Ensure the equipment is operationally intact and that all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device from the circuit breaker and place the breaker in the on position. Operate the normal startup controls as indicated by the manufacturer or these Cheriton Grove Corporation Procedures to return the equipment to operating condition.

4.2.2 ***Disconnect Switch Start-Up*** - Ensure the equipment is operationally intact and that all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device from the disconnect handle and move the handle to the on position. Operate the normal startup controls as indicated by the manufacturer or these Cheriton Grove Corporation Procedures to return the equipment to operating condition.

4.2.3 ***Fuses-Screw In and Pullout Holder Type Start-Up*** - Ensure the equipment is operationally intact and that all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device from the fuse receptacle. Reinstall screw in fuse(s) or pullout holder containing fuse(s). Operate the normal startup controls as indicated by the manufacturer or these Cheriton Grove Corporation Procedures to return the equipment to operating condition.

4.2.4 ***Steam System / Valves Start-Up*** - Ensure the equipment is operationally intact and all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device from the valve(s). Turn the valve(s) to the open position. If the steam generating equipment was not shut down, use caution and open the valves slowly. If the steam generating equipment was shut down, operate the normal startup controls as indicated by the manufacturer, or these Cheriton Grove Corporation Procedures to return the equipment to operating condition.

4.2.5 ***L.P. and Natural Gas Components Start-Up*** - Ensure the equipment is operationally intact and all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area.

Remove the Lockout / Tagout device from the manual safety valve(s). Turn the valve(s) to the open position. Read and follow the manufacturer's lighting instructions to return the equipment to normal operating condition as indicated by the manufacturer or these Cheriton Grove Corporation Procedures.

4.2.6 ***Pneumatic Components Start-Up*** - Ensure the equipment is operationally intact and all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device from the valve(s). Turn the valve(s) to the open position. If the pneumatic compressor was shut down, operate the normal startup controls as indicated by the manufacturer or these Cheriton Grove Corporation Procedures to return the equipment to operating condition.

4.2.7 ***Transfer Switch Start-Up*** - Ensure the equipment is operationally intact and that all components have been restored to proper and safe condition. Remove or safely position all employees from the equipment area. Remove the Lockout / Tagout device(s) from all commercial disconnects, breakers or switchgear as indicated by the manufacturer or these Cheriton Grove Corporation Procedures. Move commercial disconnect(s), breakers or switchgear to the on position. Ensure that backup power switches are in the proper (off) position. Remove the Lockout / Tagout device(s) from all backup power disconnect(s), breakers and switchgear. Restore starter motor battery leads to their proper connection points. Return the generator or turbine Start switch to the automatic position.

4.2.8 ***Fan Systems*** – After the servicing and/or maintenance is completed and the fan system is ready for normal operations, check the surrounding area to insure that no one is exposed. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the restraining devices and warning tags. Operate the electrical disconnect switch to the closed ("on") position to restore energy to the involved fan systems. After restoring power, run the fan system for several minutes to verify proper operation.

4.2.9 ***Air Compressors*** - After the servicing and/or maintenance is completed and the air compressor is ready for normal operations, check the surrounding area to insure that no one is exposed. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the lock from the electrical disconnect. Operate the electrical disconnect switch to the closed ("on") position to restore the air compressor to its normal mode. Open the air supply valve to the rest of the system. Finally, observe the air compressor as it re-pressurizes the tank until the pressure switch opens, at the proper pressure, and the compressor shuts down.

4.2.10 ***Pumps*** - After the servicing and/or maintenance is completed and the pump is ready for normal operations, check the surrounding area to insure that no one is exposed. Open the suction and discharge valves to refill the system. After all the guards have been reinstalled, all tools have been removed from the equipment, and

all employees are in the clear, remove the lock from the electrical disconnect. Operate the electrical disconnect switch to the closed ("on") position to restore the pump to its normal mode.

4.2.11 ***Stored Water Systems*** - After the servicing and/or maintenance is completed and the stored water system is ready for normal operations, check the surrounding area to insure that no one is exposed. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the locks and warning tags. Open the valves, in the proper sequence, to restore the stored water system and associated equipment to its normal operating mode.

4.2.12 ***A/C Compressors*** - After the servicing and/or maintenance is completed and the A/C Compressor is ready for normal operations, check the surrounding area to insure that no one is exposed. Refill the system with refrigerant. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the lock from the electrical disconnect. Operate the electrical disconnect switch to the closed ("on") position to restore the air conditioning compressor to its normal mode.

4.2.13 ***Boilers*** - After the servicing and/or maintenance is completed and the Boiler is ready for normal operations, check the surrounding area to insure that no one is exposed. Refill the system at this time. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the lock from the electrical disconnect. Operate the electrical disconnect switch to the closed ("on") position to restore the boiler to its normal mode. Finally, observe the boiler as it warms up and completes a full cycle to ensure proper operation.

4.2.14 ***Domestic Water Heaters*** - After the servicing and/or maintenance is completed and the Domestic Water Heater is ready for normal operations, check the surrounding area to insure that no one is exposed. Refill the system at this time. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the Warning Tag from the electrical disconnect. Operate the electrical disconnect switch to the closed ("on") position to restore the boiler to its normal mode. Finally, observe the boiler as it warms up and then shuts off to ensure proper operation.

4.2.15 ***Emergency Engines*** - After the servicing and/or maintenance is completed and the Emergency Engine is ready for normal operations, check the surrounding area to insure that no one is exposed. After all the guards have been reinstalled, all tools have been removed from the equipment, and all employees are in the clear, remove the Warning Tags. Open the fuel valve and reconnect the battery cable to its power source and close the electrical control disconnect to restore the emergency engine to its normal operating mode. Run the emergency engine for several minutes to verify proper operation.

SECTION 5.0 Control of Hazardous Energy Procedures

5.1 General

5.1.1 OSHA Standard 29 CFR 1910.147, The Control of Hazardous Energy (Lockout / Tagout), went into effect on January 2, 1990. This standard helps safeguard employees/contractors/individuals/agents from hazardous energy while they are servicing or performing maintenance on machines or equipment. In general, the law requires, before servicing or maintenance is performed, machinery or equipment must be turned off and disconnected from the energy source and the energy-isolating device must be either locked or tagged out.

5.2 Scope and Application of the OSHA Lockout / Tagout Standard

5.2.1 The OSHA Lockout / Tagout Standard covers the servicing and maintenance of machines and equipment in which the unexpected energization, startup, or release of stored energy could cause injury to employees/agent. **(If employees/contractors/individuals/agents are performing service or maintenance tasks that do not expose them to the unexpected release of hazardous energy, the standard does not apply).**

5.2.2 Typical applications in the skilled trades industry include: electrical power distribution panels, generators, and HVAC equipment.

5.2.3 The standard establishes minimum performance requirements for control of hazardous energy and requires that employers develop procedures for isolating machines or equipment from the input of energy and affixing appropriate locks or tags to energy-isolating devices. When tags are used on energy-isolating devices capable of being locked out, additional means to ensure a level of protection, equivalent to that of locks (i.e. disconnects, mechanical stops, or blocks), must be provided. The standard requires a written energy control procedure, periodic reviews of the procedure to maintain or improve its effectiveness, and appropriate training of employees and/or agents.

5.2.4 The standard **does not** apply to the following:

5.2.4i Servicing or maintenance of cord and plug-connected electrical equipment. (These hazards must be controlled by unplugging the equipment from the energy source; the plug must be under the exclusive control of the employee performing the service and/or maintenance.)

5.2.4ii Copy Machines - if an interlock prevents the copier from operating when jammed paper is being removed.

5.2.4iii During hot tap operations involving transmission and distribution of telecommunications power, gas, steam, and water systems - when continuity of service is essential, shutdown of the system is impractical, and employees are provided with an alternative type of protection that is equally effective.

5.3 Written Energy Control Procedure

5.3.1 Cheriton Grove Corporation has business operations spanning a wide area of functions; therefore we have developed a written procedure as outlined in this section, if required. The Owner agent (the property management firm) will decide if and when written procedures need to be submitted for a particular project.

5.3.2 The written procedure must identify the information that authorized employees and agents must know in order to control hazardous energy during servicing or maintenance. If this information is the same for various machines or equipment or if other means of logical grouping exists, then a single energy control procedure may be sufficient.

5.3.3 If there are other conditions - such as multiple energy sources, different connecting means, or a particular sequence that must be followed to shut down the machine or equipment - then the various employees and/or contractors must develop separate energy control procedures to protect each.

5.3.4 An energy control procedure must outline the following:

5.3.4i Scope

5.3.4ii Purpose

5.3.4iii Authorization

5.3.4iv Rules

5.3.4v Techniques that will be used to control hazardous energy sources.

5.3.4vi The means that will be used to enforce compliance.

5.3.5 At a minimum, the procedure must include, but is not limited to, the following elements:

5.3.5i A statement on how the procedure will be used.

5.3.5ii The procedural steps needed to shut down, isolate, block, and secure machines or equipment.

5.3.5iii The steps designating the safe placement, removal, and transfer of Lockout / Tagout devices and who has the responsibility for them.

5.3.5iv The specific requirements for testing machines or equipment to determine and verify the effectiveness of locks, tags, and other energy control measures.

5.3.6 The procedure must include the following steps:

5.3.6i Preparing for shutdown and notifying affected employees.

5.3.6.ii Shutting down the machine(s) or equipment.

5.3.6.iii Isolating the machine or equipment from the energy source(s).

5.3.6iv Applying the Lockout / Tagout device(s) to the energy-isolating device(s).

5.3.6v Safely releasing all potentially hazardous stored or residual energy.

5.3.6vi Verifying the isolation of the machine(s) or equipment before the start of servicing or maintenance work.

5.3.7 Before Lockout / Tagout devices are removed and energy is restored to the machines or equipment, certain steps must be taken to reenergize the equipment after servicing is completed. The procedure must include methods for doing the following:

5.3.7i Ensuring the machines or equipment components are operationally intact.

5.3.7ii Notifying affected employees/agents that Lockout / Tagout devices have been removed, ensuring that all employees/agents are safely positioned or removed from equipment.

5.3.7iii Ensuring the Lockout / Tagout devices are removed from each energy-isolating device by the employee and/or agent who applied the device.

5.4 Periodic Inspections to Ensure Compliance

5.4.1 At least annually, the Cheriton Grove Corporation designated property management company must complete and document a review of the Lockout / Tagout program. The review must include a review of the written procedure(s), an evaluation of how well the procedure is being followed, a review of locks and tags, and a discussion of procedure(s) with each employee/agent. The review shall be documented in a manner determined by the Cheriton Grove Corporation or their designated property management company. At a minimum, the documentation must have the equipment inspection date, the names of the employees/agents affected, and the reviewer's name. The review will become a part of the individuals training record.

5.5 Training Requirements and Relevant Courses

5.5.1 The Cheriton Grove Corporation's designated property management company must provide or arrange for initial Lockout / Tagout training and retraining as necessary. They must also certify such training has been provided to all employees/agents by appropriate notations on the employee's and agent's permanent training record.

5.5.2 For the purpose of the OSHA standard, there are three kinds of Cheriton Grove Corporation employees/agents - authorized, affected, and other. The amount and kind of training that each employee receives is based upon; 1) the relationship of that employee's and/or agent's job to the machine or equipment being locked or tagged out; and, 2) the degree of knowledge relevant to hazardous energy that the employee/agent must possess.

5.5.3 For example, the training for authorized employees/agents (those supervisors or managers who are responsible for implementing the energy control procedures and performing the servicing or maintenance) must cover, at a minimum, the following areas:

5.5.3i Details about the type and magnitude of the hazardous energy sources present in the workplace.

5.5.3ii The methods and means necessary to isolate and control those energy sources, i.e. the elements of the energy control procedure(s).

5.5.4 By contrast, affected employees/agents (usually machine operators or users) and all other employees/agents need only be able to; 1) recognize when the control procedure is being implemented; and, 2) understand the purpose of the procedure and the importance of not attempting to start up or use the equipment that has been locked or tagged out.

5.5.5 Retraining must be provided, as required, whenever there is a change in job assignments; a change in machines, equipment, or processes that present a new hazard; or a change in energy control procedures. Additional retraining must be conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the employee's/agent's knowledge or use of the energy control procedure.

5.6 Specific Requirements for Lockout / Tagout

5.6.1 OSHA recognizes that machines and equipment present many hazardous situations during normal production operations, i.e. when the machines and equipment are performing normal production functions. Thus, some hazards encountered during normal production operations are covered by the Lockout / Tagout rule. The following sections describe specific requirements.

5.6.2 Servicing and/or Maintenance Operations - If a servicing activity - such as lubricating, cleaning, or unjamming production equipment - takes place during production, the employee/agent performing the service may be subject to hazards that are not encountered as a part of the production operation itself. Workers engaged in these operations are covered by Lockout / Tagout when any of the following conditions occur:

5.6.2i The employee/agent must either remove or bypass machine guards or other safety devices and thus is exposed to hazards at the point of operation.

5.6.2ii The employee/agent is required to place any part of his/her body in contact with the point of operation of the operational machine or piece of equipment.

5.6.2iii The employee/agent is required to place any part of his/her body into a danger zone associated with a machine operating cycle.

In the above situations, ***the equipment must be deenergized and locks or tags must be applied to the energy-isolation devices.***

5.6.3 In addition, when normal servicing tasks - such as setting up equipment and/or making significant adjustments to machines - do not occur during normal production operations, employees/agents performing such tasks are required to Lockout or Tagout if they can be injured by unexpected energization of the equipment.

5.6.4 OSHA recognizes some servicing operations must be performed with the power on. Making fine adjustments, such as centering the belt on a billing machine, is one example. Other examples include certain troubleshooting activities, such as identifying the source of a problem or checking to ensure it has been corrected. OSHA requires the employer to provide effective protection for employees/agents performing such operations. Lockout or Tagout procedures are required when servicing or maintenance occurs with the power off.

5.6.5 Minor Servicing Tasks - Minor tool changes and adjustments and / or other minor servicing activities during normal production operations that are routine, repetitive, and integral to the use of the production equipment are not covered by the Lockout / Tagout procedure, provided the work be performed using alternative measures that give effective protection.

5.6.6 Equipment Modifications - The law mandates that after October 31, 1989, whenever major replacement, repair, renovation, or modification of machines or equipment is performed, and whenever new machines or equipment are installed, energy-isolating devices for machines and equipment shall be designed or retrofitted to ensure lockout devices may be placed on the equipment.

5.7 Controls and Lockout / Tagout Devices

5.7.1 Applying Locks and Tags - The established procedure for applying energy controls includes specific steps that must be implemented in sequence. These are briefly identified as follows:

5.7.1i Prepare for shutdown.

5.7.1ii Shut down the machine or equipment.

5.7.1iii Apply the Lockout or Tagout device.

5.7.1iv Render safe all stored or residual energy.

5.7.1v Verify the isolation and deenergization of the machine or equipment.

5.7.2 Removing Locks and Tags - Before Lockout or Tagout devices are removed and energy is restored to the machine or equipment, the authorized employee(s)/agent(s) must take the following actions or observe the following procedures:

5.7.2i Inspect the work area to ensure non-essential items have been removed and that machine or equipment components are intact and capable of operating properly.

5.7.2ii Check the area around the machine or equipment to ensure all employees have been safely positioned or removed.

5.7.2iii Notify affected employees immediately after removing locks or tags and before starting equipment or machines.

5.7.2iv Make sure locks or tags are removed only by those employees who attached them. In the very few instances when this is not possible, the device may be removed under the direction of a department manager, provided that he/she strictly adheres to the following procedures:

(a) Verify that the authorized employee is not on site.
(b) Conduct a reasonable effort to contact the authorized employee/agent.
(c) Inform the authorized employee upon his / her return to work.

5.7.3 Additional Safety Requirements - Special circumstances exist in the following situations:

5.7.3i Machines need to be tested or repositioned during servicing.

5.7.3ii Outside (contractor) personnel are at the work site.

5.7.3iii Servicing or maintenance is performed by a group (rather than one specific person).

5.7.3iv Shift or personnel changes occur.

5.7.4 Testing or Repositioning Machines - OSHA allows the temporary removal of locks or tags and the reenergization of the machine or equipment only when necessary under special conditions - for example, when power is needed to test or reposition machines, equipment, or components. The reenergization must be conducted according to the following steps:

5.7.4i Clear the machines or equipment of tools and materials.

5.7.4ii Remove employees from the machines or equipment area.

5.7.4iii Remove the Lockout or Tagout devices (by the authorized person).

5.7.4iv Energize and proceed with the testing or repositioning.

5.7.4v Deenergize all systems, isolate the machine or equipment from the energy source, and reapply Lockout or Tagout devices (by the authorized person).

5.7.5 Outside Personnel (Contractors, etc.) - The Cheriton Grove Corporation employee/agent and the Contractor must inform each other of their respective Lockout or Tagout procedures. Each employee/agent and Contractor personnel must ensure that each understand and comply with all restrictions and/or prohibitions of the other's energy control program.

5.7.6 Group Lockout or Tagout - During all group Lockout / Tagout operations in which the release of hazardous energy is possible, each authorized employee/agent performing service or maintenance shall be protected by his/her personal Lockout or Tagout device or comparable mechanism that affords equivalent protection.

5.7.7 Shift or Personnel Changes - Specific procedures must ensure the continuity of Lockout or Tagout protection during shift or personnel changes.

5.7.8 Energy-Isolating Devices - The primary tool for providing protection under the OSHA standard is the energy-isolating device, which is the mechanism that prevents the transmission or release of energy and to which all locks and tags are attached. This device guards against accidental machine or equipment startup or the unexpected reenergization of equipment during servicing or maintenance. There are two types of energy-isolating devices; (1) those that are capable of being locked; and, (2) those that are not. Energy-isolating devices may be ordered from several vendors - see Appendix C for recommended suppliers.

5.7.9 Tagout Devices - When the energy-isolating device cannot be locked out, it must have a tagout device applied. When tagout is used, employees must be trained regarding the following limitations of tags:

5.7.9i Tags are essentially warning devices affixed to energy-isolating devices and do not provide the physical restraint of a lock.

5.7.9ii When a tag is attached to an isolating means, it is not to be removed except by the person who applied it, and it is never to be bypassed, ignored, or otherwise defeated.

5.7.9iii Tags must be legible and understandable to all employees.

5.7.9iv Tags and their means of attachment must be made of materials able to withstand the environmental conditions encountered in the workplace.

5.7.9v Tags may evoke a false sense of security. They are only one part of an overall energy control program.

5.7.9vi Tags must be securely attached to the energy-isolating devices so that they cannot be detached accidentally during use.

5.7.10 If the energy-isolating device is lockable, locks shall be used unless the use of tags would provide protection at least as effective for ensuring employee protection.

5.7.11 Tags may be ordered from several vendors - see Appendix C for recommended suppliers.

5.7.12 Requirements for Lockout / Tagout Devices - When attached to an energy-isolating device, both lockout and tagout devices are tools the employer can use in accordance with the requirements of the procedure to help protect employees/agents from hazardous energy. The lockout device provides protection by holding the energy-isolating device in the safe position, thus preventing the machine or equipment from becoming energized. The tagout device protects by identifying the energy-isolating device as a source of potential danger; it indicates the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed. Whatever devices are used, they must be singularly identified, must be the only devices used for controlling hazardous energy and must meet the following requirements:

5.7.12i Durable - Lockout and Tagout devices must withstand the environment to which they are exposed for the maximum duration of the expected exposure. Tagout devices must be constructed and printed so that they do not deteriorate or become illegible.

5.7.12ii Standardized - Both Lockout and Tagout devices must be standardized according to color, shape or size. Tagout devices must also be standardized according to print and format for the business unit or department.

5.7.12iii Substantial - Lockout and Tagout devices must be substantial enough to minimize early or accidental removal. Locks shall not be removable except by excessive force of such special tools as bolt cutters or other metal cutting tools. Tags must be attached by plastic-wrapped cable ties.

5.7.12iv Identifiable - Locks and tags must clearly identify the employee who applies them. Tags must also warn against hazardous conditions if the machine or equipment is energized.

SECTION 6 APPENDICES

6.1 Appendix A Glossary of Terms

Affected Employee: An employee/agent who performs the duties of his/her job in an area in which the energy control procedure is implemented and servicing or maintenance operations are performed. An affected employee/agent does not perform servicing or maintenance on machines or equipment and, consequently, is not responsible for implementing the energy control procedure. An affected employee/agent becomes an "authorized" employee/agent whenever he/she performs servicing or maintenance functions on machines or equipment that must be locked or tagged.

Authorized Employee: An employee/agent who performs servicing or maintenance on machines and equipment. Lockout or Tagout is used by these employees/agents for their own protection.

Building Liaison: An employee/agent who is responsible for the Building. This could be the Building Manager or Property Manager or Building Supervisor.

Building Manager: **A**n employee/agent who is responsible for the Cheriton Grove Corporation Building

Capable of Being Locked Out: An energy-isolating device is considered capable of being locked out if it meets one of the following requirements:

- It is designed with a hasp to which a lock can be attached.
- It is designed with any other integral part through which a lock can be affixed.
- It has a locking mechanism built into it.
- It can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capability.

Energized: Machines and equipment are energized when; (1) they are connected to an energy source; or, (2) they contain residual or stored energy.

Energy-Isolating Device: Any mechanical device that physically prevents the transmission or release of energy. These include, but are not limited to, manually operated electrical circuit breakers, disconnect switches, line valves, and blocks.

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

Energy Control Procedure: A written document that contains those items of information an authorized employee/agent needs to know in order to safely control hazardous energy during servicing or maintenance of machines or equipment.

Energy Control Program: A program intended to prevent the unexpected energizing or the release of stored energy in machines or equipment. The program consists of energy control procedure(s), an employee/agent training program and periodic inspections.

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 has been removed.

Lockout Device: Any device that uses positive means such as a lock, either key or combination type, to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment. When properly installed, a blank flange or bolted slip blind is considered equivalent to a lockout device. The employee/agent name, number, or other identification shall be used to identify the lockout device.

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: Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device in accordance with an established procedure. The tag indicates that the machine or equipment to which it is attached is not to be operated until the tagout device is removed in accordance with the energy control procedure.

Multiple Lockout Device: A device (HASP) that enables two or more authorized employees to affix their locks to an energy-isolating device.

6.2 Appendix B Sample Power Lockout Procedure

6.2.1 Scope

Lockout Procedure for _____

6.2.2 Purpose

The purpose of this procedure is to ensure that employees/agents are protected from unintended machine motion or unintended release of energy that could cause injury when they set up, adjust, repair, service, install, or perform maintenance work on equipment, machinery, or processes. This procedure applies to all employees performing any of the aforementioned tasks.

6.2.3 Supervisors' Responsibilities

- Document the training of new employees/agents and periodically instruct all employees/ agents under their supervision regarding provisions and requirements of this lockout procedure.
- Effectively enforce compliance with this lockout procedure, including using corrective action where necessary.
- Ensure the locks and tags required for compliance with the lockout procedure are provided to employees under their supervision.
- Before setting up, adjusting, repairing, servicing, installing, or performing maintenance work on equipment, machinery, or processes, determine and instruct the employee in the steps to be taken to ensure that they are not exposed to injury due to unintended machine motion or release of energy.

6.2.4 Employees Responsibilities

- Comply with the lockout procedure.
- Consult with their supervisors or other appropriate knowledgeable management or safety personnel whenever they have questions regarding their protection.
- Obtain and care for the locks and other devices required to comply with the lockout procedure.

6.2.5 General

- The power source of any equipment, machine, or process to be set up, adjusted, repaired, serviced, installed, or where maintenance work is to be performed and unintended motion or release of energy would cause personal injury shall be locked out by each employee doing the work. Sources of energy, such as capacitors, springs, air, water pressure, and steam, shall be evaluated in advance to determine whether to retain or relieve the pressure before starting the work.

- Safety locks are for the personal protection of the employee and are to be used *only* for locking out equipment.
- Safety locks, adapters, and "Danger Tags" can be obtained from: _____
- Equipment locks and adapters can be obtained from: _____
- The sole purpose of the "equipment" lock and adapter is to protect the equipment during periods of time when work has been suspended or interrupted. The locks are not to be used as a substitute for the employees/agents personal safety lock.
- A personal lock shall have the employees name on it.
- One key for every lock issued shall be retained by the employee/agent to whom it was issued, and the only other key to the lock shall be retained by:_____
- Employees/agents shall request assistance from their supervisors if they do not know where or how to lock out equipment.
- Any questions concerning the lockout procedure should be directed to:_____

6.2.6 Locking Out and Isolating the Power Source

- Notify all affected employees and departments.
- Turn off and lock in the "off" position the main disconnect switches of equipment, machines, or processes only *after* the electrical power is shut off at the point of operation control.
- For a machine connected to over 110 volts of power by a plug-in cord, apply a locking device to the plug attached to the cord leading to the machine to be considered locked out.
- For a machine connected to a 110-volt source of power by a plug-in cord, disconnect the plug and tag it with a "Do Not Start" tag.
- After locking out the power source, try the equipment, machine, or process controls to ensure that no unintended motion will occur - or test the equipment, machine, or process with appropriate test equipment to determine that the energy isolation has been effective. Then return the controls to the normal "off" position.
- When two or more employees work on the same equipment, each is responsible for attaching his / her lock. Fix safety locks and adapters on levers, switches, valves, etc. in the non-operative ("off") position.
- If you find a lock or tag affixed to a piece of equipment you are suppose to use, take the following steps:

  (a) Affix your personal lock or tag to the equipment

  (b) Try the controls to ensure no unintended motion will occur before starting work – or test the equipment, machine, or process with appropriate test equipment to determine that the energy isolation has been effective. Return the controls to the normal "off" position.

6.2.7 Removing Locks and Restoring the Power Source

- Power may be turned on for required tests or adjustments. Follow all the rules pertaining to removing locks and restoring power. Lock out the equipment or process again if it is necessary to continue work after completing the tests or adjustments.
- Upon completion of the work, each employee/agent will remove his/her lock, rendering the machine operable when the last lock is removed.
- The employee responsible for removing the last lock, before doing so, shall ensure that all guards have been replaced, the equipment, machine, or process is cleared for operation, and appropriate personnel notified the power is being restored.

6.2.8 Emergency Lock Removal

Deborah Lovell, Kameel Daher, Tony Berthod, and Nancy Salvia are authorized to remove an employee's/agent's lock upon receipt of a written request signed by the appropriate supervisor that states the reason the employee/agent is unable to remove the lock.

Before requesting an employee's/agent's lock be removed, the supervisor must verify the authorized employee/agent is not on - site and make a reasonable effort to contact him/her. The supervisor must also inform the authorized employee/agent the lock has been removed when he/she returns to work.

6.2.9 Contractors

A copy of this Lockout / Tagout procedure must be given to any contractor whose work falls within the scope of an affected machine or electrical system. The contractor personnel must comply with all Cheriton Grove Corporation requirements and shall furnish their own locks and tags.

6.3 Appendix C Sources of Acceptable Isolating Devices and Training Materials

Isolating Devices meeting the preference specifications of 29 CFR 1910.147 and materials for safety meetings are available from the following suppliers:

W. W. Granger, Inc.
800-323-0620
www.grainger.com

MSC Industry Supply Company
800-645-7270
mscdirect.com

6.4 Appendix D Sample Safety Meeting Outline

Subject: Lockout / Tagout

Purpose: To familiarize employees with the equipment that must be locked and tagged during maintenance and servicing and to review Lockout / Tagout procedures. Each employee will receive a copy of the Lockout / Tagout program.

Resources: Lockout / Tagout (OSHA Management Plan, Section 1120)

Agenda Topics:

1. Purpose of the Program
2. Scope – All Affected Machines and Processes
3. Authorization of Employees
4. Rules to Follow
5. Procedures Used to Control Hazardous Energy Sources
6. Enforcement / Corrective Action
7. Removal of Locks / Emergency Removal Procedures
8. Contractors
9. Procurement Procedures
10. Discussion and Summary of Major Points of the Business Unit Program and Distribution of the Lockout / Tagout Program and Equipment.

Time Limit: Thirty Minutes

Attendees: _____

_____

_____

_____

Date: _____

Work Location: 20 Cheriton Road – West Roxbury, MA 02132

Notes:

6.5 Appendix E - Cheriton Grove Corporation Project Log

BUILDING LOCATION: 20 Cheriton Road – West Roxbury, MA 02132 **DATE: _____**

JOB LOG

Your Name	Brief Project Description	Your Company Name	On-Site Authorized Project Coordinator Name & Phone Number	Expected Project Completion Date or Time