PURPOSE

The purpose of this program is to prevent accidental injury or death of employees or others involved in the routine maintenance, servicing, and testing of equipment and/or machinery do to the unexpected start-up or release of pressure.

1. GENERAL INFORMATION
2. The Company has developed this program to apply to all operations conducted at this facility and on customer property whereas an authorized employee performs routine maintenance, servicing, or testing on equipment covered by the standard.
3. Authorized employees are instructed to adhere to the lockout / tagout requirements of customers for whom work is performed at temporary job site locations, specifically in instances where equipment is being tested or serviced at the site.
4. It shall be the policy of the Company that in situations where work is being done on Customer property and the lockout/tagout provisions apply, that Company employees follow the **Customer’s** Lockout & Tagout Procedures.
5. It shall become the responsibility of the Onsite Supervisor to; (1) perform a worksite inspection to prevent any unexpected energizing start up or release of stored energy that could occur & cause injury (2) ensure compliance with the lockout/tagout provision in all instances where such is applicable, and (3) provide equipment listing and surveys to all affected employees.
6. Employees who apply the Lockout/Tagout procedure in accordance with Company or customer Energy Control Program must make all efforts to first identify all power sources (may have more than one energy source) affecting the equipment, machinery or pipeline system (e.g., pneumatic, hydraulic, electrical, steam, gas, tension, gravity or other). Employees must coordinate all lockout/tagout activities with the customer representative while on temporary job site locations.
7. TERMS & DEFINITIONS
8. Affected employee: An employee 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 does not perform servicing or maintenance under normal conditions.
9. Authorized employee: An employee who performs servicing and maintenance on machinery or equipment. The authorized employee should ascertain the exposure status of individual group members.
10. ENERGY CONTROL PROCEDURES
11. The Company has developed this procedure in efforts to provide for its employees, a safe and effective method of protection from exposure to hazardous energy sources. Employees should remain aware that simply pushing a button to "stop" or turning "off" pieces of equipment, DOES NOT de-energize the system. The Company requires the use of both locks and tags when complying with this policy. Lockout/Tagout devices must include name of individual placing device.
12. Lockout: Refers to the act of blocking the flow of energy from the power source to the equipment. Such a device must be substantial enough to hold the energy isolating device in an immovable position. A lockout device is usually a key lock arrangement that secures a valve or lever in the "off" position. Company employees shall use “Master Locks” in accordance with this program.
13. Tagout: Refers to the practice of placing a tag on the energy isolating device to warn others that equipment is not to be engaged due to the presence of another employee in the danger area. Company employees shall use laminated tags (weather & chemical resistant) standardized in size, color, with wording of hazardous energy “Do Not Start”, “Do Not Open”, “Do Not Close”, “Do Not Energize”, or “Do Not Operate”.
14. Tags should never be bypassed or ignored (even if it appears without a lock).
15. A tag is sometimes used alone when it is not possible to lock out the energy source, or when it has been demonstrated that a tag alone will effectively prevent accidental start-up by representing a visible means of communicating the hazard to affected personnel.
16. Whenever a tag is used in the place of a lock, the tag should be treated by employees as it were a lock, and should be removed only by the individual who placed it there. The tag attachment shall be fastened at the same point at which the lock would have been attached. If the tag cannot be affixed directly to the energy isolating device, the tag shall be located in a safe position that will be immediately noticeable to anyone attempting to operate the device.
17. The following is a list of common energy sources and control procedures:
18. **Pneumatic**: Must close block valves upstream and downstream of section to be isolated. Systems under pneumatic pressure should have stored pressure slowly “bled” from the system until the system will no longer function under air power (zero energy state). Use chains, energy isolation air valves, shut off valves, padlocks and lockouts to lockout energy source(s). Disconnecting the line is the preferred means of isolation. Coordinate this activity with the customer where applicable.
19. **Hydraulic**: Isolate the system and release pressure to reach zero energy state. Even after pressure has been released, hydraulic systems can present a hazard to employees when equipment is not in the “rest” position, (e.g., a hydraulically operated press, left in the raised position may be interacted upon by gravity and therefore will need to be held in position by another object such as a wood or metal block, chain, etc.). Use lockout valves, padlocks and/or lockouts to lock energy source(s).
20. **Electrical**: Ensure that all power sources are locked and tagged out. Electrical systems will retain residual energy even when the power is turned off. Employees should engage on/off switches and depress on/off buttons to test for stored energy prior to performing a servicing activity. An electrical qualified person shall use test equipment to ensure that all circuits are dead.
21. **Steam / Thermal**: Employees shall ensure system isolation and that pressurized steam is released from the system prior to performing a service or maintenance activity. Steam powered systems present an additional hazard in that the potential for burns is prevalent. Piping, joints, lines, and connections may be extremely hot to the touch. Additional personal protective equipment may be required, coordinate this activity with the customer where applicable.
22. **Fluids and Gases**: Isolate all inlet and outlet piping so that all sources of hazardous energy are controlled. Some means of isolation include blinding or blanking, use of a line valve(s), depressurizing and disconnecting lines, misaligning pipes and capping or blinding ends, or double block and bleed. If the isolation method selected requires the opening of any flange or line connection, that flange or line connection point must first be isolated and depressurized and those isolation points subject to lockout/Tagout. Natural or pressurized gas systems present an additional hazard of potentially explosive/flammable characteristics when interacted upon by sparks open flames, and/or other ignition sources. Gas under pressure in pipelines must be reduced to minimal operating pressure and/or zero energy state and monitored during the entire service or maintenance process.
23. **Mechanical**: Employees shall ensure that all stored mechanical energy has been released and/or the energy has been blocked. Be aware of gravity, springs, tension, and other sources of energy that are not always obvious. Use blocks, pins, or chains to restrain energy when equipment cannot be brought to a zero potential energy state. Padlocks, lockouts, and tags shall be used to Lockout and Tagout mechanical energy.
24. **Other energy sources** (i.e., chemical, solar, hydrostatic, etc.) shall be thoroughly assessed to determine to what extent it affects other identified energy sources. When practical, employee should contact their supervisor and the customer representative when doubts concerning the isolation of non-routine energy sources are an issue.
25. PROCEDURES FOR DISABLING EQUIPMENT/MACHINERY
26. General: This section contains the minimal acceptable procedure for disabling machinery or equipment. The standard does allow for some exceptions to the rule, but most involve the use of "plug connected" equipment. Employees are encouraged to abide by those lockout/tagout and permitting provisions of the customer in all areas of employee safety where it exceeds our own policy.
27. Application of Controls: Authorized employees shall follow this sequence as a general guidance for implementing the lockout procedure:
28. Prepare for shutdown. Notify all affected personnel that the lockout will take effect. The area immediately affected by the procedure should be isolated from all non-involved personnel. Ensure that the customer's Site Supervisor or Safety Representative receives notification to alert his own personnel, should they become affected by the lockout procedure.
29. The authorized employee shall have knowledge of the type and magnitude of the energy hazards of the equipment to be controlled, and the methods or means to control the energy.
30. When shutting down machinery or equipment, ensure that all power sources have been isolated and secured from accidental start-up. The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located & operated in such a manner as to isolate the machine or equipment from the energy source. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.
31. Apply a lock and tag, issued by the Company or customer, using the following steps; 1) Lockout or tagout devices shall be affixed to each energy isolating device by an authorized employees, 2) Lockout devices, where used, shall be affixed in a manner that will hold the energy isolating devices in a safe or off position, 3) Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the safe or off position, 4) Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached. The tag should include the employee’s name, and the date the lock/tag was placed, 5) Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
32. Render safe, all stored or *residual* energy. 1) Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained & otherwise rendered safe. 2) If there is a possibility of re-accumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
33. Verify the isolation and de-energization of the machinery or equipment. Prior to starting work on machines or equipment that have been locked or tagged out; the authorized employee shall verify that isolation & de-energization of the machine or equipment have been accomplished. After verification, ensure all buttons are in the off position and any applicable lines have been disconnected or blocked.
34. Removal of Controls: When canceling the lockout procedure, follow these steps:
35. Inspect the work area to ensure that non-essential items have been removed and that machine or equipment components are intact and capable of operating properly.
36. Check the area around the machine or equipment to ensure that all employees have been safely positioned or removed from harm’s way.
37. Make sure that locks or tags are removed only by those employees who attached them. Supervisory personnel may make other arrangements due to the absence of the employee who attached the device.
38. Notify all affected employees after removing locks and tags and before starting equipment or machinery (when applicable).
39. The supervisor or other available management person (to include the customer’s safety rep) will verify the return to operation decision prior to equipment re-startup.
40. Temporary Removal of Lockout & Tagout Devices: When temporarily removing Lockout & Tagout devices, the following procedures shall apply;
41. Clear away tools,
42. Remove employees from hazard area,
43. Remove the LO/TO device,
44. Energize & proceed with testing, and
45. Re-energize & reapply control measures.

Note: Removal procedure shall be documented.

1. The On-site Supervisor will monitor and control the use of lockout/tagout devices in all instances whereby the Customer does not perform the procedure. Company employees are authorized to participate in Group Lockout & Tagout circumstances that involve Company owned equipment only. The Company’s On-site Supervisor shall be responsible for enforcing this policy, thereby, affording all onsite personnel a level of protection equal to that provided by a personal Lockout/Tagout device. Additionally, the Onsite Supervisor shall ascertain the exposure status of individual group members. Each employee shall attach a personal Lockout/Tagout device to the group's device while he/she is working & then removes it when finished.

During shift change or personnel changes, there should be specific procedures to ensure the continuity of Lockout/Tagout procedures. The Lockout/Tagout Permit shall be specify and document these procedures.

1. INSPECTIONS
2. Site supervisory personnel shall check the integrity of all energy isolating devices placed on equipment that Company employees would work on.
3. Employees who apply vessel isolating devices are responsible for inspecting seals, bolts, gaskets and other connections before and after the application of controls. However, in all cases unless otherwise specified, the customer shall be responsible for vessel isolation procedures.
4. When inspections are concluded, the employee performing the inspection (shop foreman) must submit a written “certification” confirming that the applicable components of the plan have been adhered to. Such certification shall include the following information, at a minimum:
5. The name of the inspector;
6. The date the inspection was performed;
7. The department or location affected by the inspection;
8. The name or other description of the equipment/machinery being locked and/or tagged out;
9. The reason that the Lockout/Tagout was affected;
10. The date and time of anticipated removal;
11. The location of each Lockout or Tagout device in use;
12. The name of the individual who approved the procedure; and
13. Signature certifying the accuracy of the information contained in the inspection report.
14. The Company will maintain records of periodic inspections carried out in accordance with this program. The Company’s HSE Manager shall conduct & documented annually an inspection of the Company’s Lockout / Tagout Program to ensure procedures & requirements are being followed.

A certified review of the inspection shall include, but not limited to, date of inspection, equipment being locked and/or tagged out, names of “Authorized” & “Affected” employees and the name & signature of the person performing the inspection.

1. EMPLOYEE TRAINING
2. The Company will provide initial training to “Authorized Employees” who are charged with the responsibility for implementing the energy control procedures and who perform servicing and/or maintenance on machinery or equipment.

Such training will include:

1. Recognizing applicable hazardous energy sources;
2. Types and severity of energy related sources existent at certain work locations;
3. The method required isolating and controlling energy sources;
4. Interpreting the lockout/tagout standard;
5. Methods of communicating machine hazards;
6. Location and use of lockout devices;
7. Tagout systems including the limitations of a tag (tags are warning devices & do not provide physical restraint)
8. Training for affected employees and/or other employee whose work operations are, or may be in an area where energy control procedures may be utilized, will include, but not be limited to:
9. Instructions, purpose & use of the energy control procedure and the importance of not attempting to start-up or use equipment or machinery when locks or tags are displayed.
10. The training shall also include the limitations of a tag (tags are warning devices & do not provide physical restraint) and that a tag is not to be removed without authorization, ignored or defeated in any way.
11. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and/or retraining must be documented, signed & certified.

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| **Reviewed and Approved** |
| Quality Manager or President |   |   |
|   | Date |