The Control of Hazardous Energy (Lockout/Tagout)

INTRODUCTION

This standard, which went into effect on January 2, 1990, helps safeguard employees from hazardous energy while they are performing, servicing or maintenance on machines and equipment. The standard identifies the practices and procedures necessary to shut down and lock out and/or tag out machines and equipment; requires that employees receive training in their role in the lockout/tagout program; and mandates that periodic inspections be conducted to maintain or enhance the energy control program.

The threat of punitive action aside, lockout/tagout, if properly and consistently used, will virtually eliminate workforce injuries that result from unexpected equipment startup and/or release on some type of stored energy. The lockout/tagout procedure has proven itself to be a highly effective human loss prevention tool and the grain handling industry can only benefit by it’s use. On the web at: http://www.osha-slc.gov/OshStd_data/1910_0147.html

TABLE OF CONTENTS

- Scope ........................................................... 57
- Application .................................................. 57
- Purpose ........................................................ 60
- General Energy Control Program ............. 61
- Full Employee Protection .......................... 62
- Energy Control Procedure ....................... 63
- Protective Materials and Hardware ......... 65
- Tagout Devices .............................................. 66
- Periodic Inspection ...................................... 67
- Training and Communication ................... 68
- Employee Retraining ................................... 71
- Energy Isolation ......................................... 72
- Notification of Employees ......................... 72
- Application of Control ................................. 72
- Machine or Equipment Shutdown .......... 72
- Machine or Equipment Isolation ............ 72
- Lockout or Tagout Device Application .... 72
- Stored Energy ............................................. 73
- Verification of Isolation ......................... 73
- Lockout or Tagout Devices Removal ....... 74
- Additional Requirements ..................... 75
- Outside Personnel (contractors, etc) ... 76
- Group Lockout or Tagout ...................... 77
- Shift or Personal Changes ..................... 78
- Appendix A...Definitions ......................... 79
- Appendix B...Sample Written Lockout/Tagout Program ..................... 81
- Appendix C...Control of Hazardous Energy Certification Inspection ...... 84
- Appendix D...Sample Lockout/Tagout Training Certification .................. 85
- Appendix E...Emergency Removal of Lockout/Tagout Devices ............ 86
# The Control of Hazardous Energy (Lockout/Tagout)

**29CFR 1910.147**

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(a)(1)(i)</strong> This standard covers the servicing and maintenance of</td>
<td><strong>(a)(1)(i)</strong> In scope, 1910.147 covers the control of hazardous energy from</td>
</tr>
<tr>
<td>machines and equipment in which the UNEXPECTED energization or start up</td>
<td>ANY energy that could pose a threat to employees who are engaged in</td>
</tr>
<tr>
<td>of the machines or equipment, or release of stored energy could cause</td>
<td>machine/equipment servicing and/or maintenance. The employer is well</td>
</tr>
<tr>
<td>injury to employees. This standard establishes minimum performance</td>
<td>advised to remember that the standard is jurisdictional with regard to ALL</td>
</tr>
<tr>
<td>requirements for the control of such hazardous energy.</td>
<td>energy sources, i.e., mechanical, hydraulic, pneumatic, chemical, thermal,</td>
</tr>
<tr>
<td></td>
<td>electrical, or any other energy.</td>
</tr>
<tr>
<td><strong>(a)(1)(ii)</strong> This standard does not cover the following: (A)</td>
<td><strong>(a)(1)(ii)</strong> Paragraphs (ii) (A), (B), (C), and (D) require no interpretation</td>
</tr>
<tr>
<td>Construction, agriculture and maritime employment; (B) Installations</td>
<td>and should be taken as read.</td>
</tr>
<tr>
<td>under the exclusive control of electric utilities for the purpose of</td>
<td><strong>(a)(2)(ii)</strong> In the preamble to the standard, OSHA deals with the paragraph</td>
</tr>
<tr>
<td>power generation, transmission and distribution, including related</td>
<td>(B) “point of operation” type hazards using the example of an employee using</td>
</tr>
<tr>
<td>equipment for communication or metering; and (C) Exposure to electrical</td>
<td>a table saw to cut wood parts. In the OSHA scenario, if the employee has to</td>
</tr>
<tr>
<td>hazards from work on, near, or with conductors or equipment in electrical</td>
<td>reach into the point of operation to adjust the work, 1910.212 (General</td>
</tr>
<tr>
<td>utilization installations, which is covered by Subpart S of this part;</td>
<td>machine guarding) requires that the “point of operation” machine guarding</td>
</tr>
<tr>
<td>and (D) Oil and gas well drilling and servicing.</td>
<td>BE MAINTAINED. If guarding is not removed.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(a)(2)(i)</strong> This standard applies to the control of energy during</td>
<td><strong>(a)(2)(ii)</strong> In the preamble to the standard, OSHA deals with the paragraph</td>
</tr>
<tr>
<td>servicing and/or maintenance of machines and equipment.</td>
<td>(B) “point of operation” type hazards using the example of an employee using</td>
</tr>
<tr>
<td></td>
<td>a table saw to cut wood parts. In the OSHA scenario, if the employee has to</td>
</tr>
<tr>
<td></td>
<td>reach into the point of operation to adjust the work, 1910.212 (General</td>
</tr>
<tr>
<td></td>
<td>machine guarding) requires that the “point of operation” machine guarding</td>
</tr>
<tr>
<td></td>
<td>BE MAINTAINED. If guarding is not removed.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(a)(2)(ii)</strong> Normal production operations are not covered by this</td>
<td></td>
</tr>
<tr>
<td>standard. (See Subpart 0 of this part). Servicing and/or maintenance</td>
<td></td>
</tr>
<tr>
<td>which takes place during normal production operations is covered by</td>
<td></td>
</tr>
<tr>
<td>this standard only if; (A) An employee is required to remove or bypass</td>
<td></td>
</tr>
<tr>
<td>a guard or other safety device; or (B) An employee is required to place</td>
<td></td>
</tr>
<tr>
<td>any part of his or her body into an area on a machine or piece of</td>
<td></td>
</tr>
<tr>
<td>equipment where work is actually</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STANDARD

performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

NOTE: Exception to paragraph (a)(2)(ii): Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection (See Subpart 0 of this part).

INTERPRETATION

or bypassed, the standard does not apply. On the other hand, should the employee have to reach in to remove a piece of wood that is jammed, and in doing so, the machine guard has to be removed or bypassed, the rule would apply. OSHA goes on to explain that although the unjamming action takes place during the normal course of production operations, it is not actually production, but is servicing of the equipment to perform its’ production function. The important factor, of course, is whether or not the production mode safeguards are in place when the employee is unjamming the saw. The remaining OSHA concern in paragraph (B) is the hazards to employees by way of a ‘danger zone’ that occurs during a machine operating cycle. For example, machine operating zones in feed, grain, and flour milling operation could include heavy machine shop equipment, bagging machines, and milling equipment to name only a few. The operative word in Exception to paragraph (a)(2)(ii) is “minor”; the problem being that what constitutes minor servicing on one machine may be an entirely different matter on another. OSHA’s interpretation of the difference between “minor servicing activities” and a maintenance/servicing function that requires lockout/tagout is clearly stated in OSHA Instruction STD1-7.3: Generally, activities such as lubrication, cleaning or unjamming, servicing of machines or equipment, and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy, are covered by this standard. However, MINOR tool changes and adjustments, and other minor servicing activities, that take place during the course of normal production operations, are NOT covered by the standard if they are routine, repetitive, and integral to the use of equipment for production, and if work is performed using alternative protective measures which provide effective employee protection. Thus, lockout/tagout is
not required by this standard if the alternative protective measures enable the servicing employee to clean or unjam, or otherwise service the machine without being exposed to unexpected energization or activation of the equipment, or the release of stored energy”.

NOTE: The material referred to above, OSHA Instruction STD 1-7.3, is a field guidance document for compliance officers and, as such, does not carry the force of law. It is productive, however, to include quotes from STD 1-7.3 as it provides useful insight into OSHA’s thinking and their approach to various compliance issues. To further expand on “Exception to paragraph (a)(2)(ii), some examples of “alternative protective measures” that meet the intent of the standard includes such production mode safeguards as interlocked barrier guards, presence sensing devices, special servicing tools, remote oilers, and/or machine guarding that complies with Subpart 0 of the General Industry standards.

SPECIAL NOTE: There is an inherent weakness in any prescribed course of conduct, such as this standard, that says, in effect, that under certain conditions, a higher degree of risk is acceptable. That cannot be helped, because everything we do involves some degree of risk! Interruptions in the production process due to jams, malfunctions, etc., have always presented problems in terms of human loss prevention. On the one hand it is necessary and accepted that industry must have production goals that will result in satisfactory economic returns. On the other side of the coin is a finger, hand or an arm that is no match for the moving parts of a machine. The point here is that whatever rationale is applied, “alternative protective measures” are not as safe as machine deenergization. It follows then that operations management should take care that those occasional gray areas between “minor
(a)(2)(iii) This standard does not apply to the following: (A) Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

(a)(2)(iii)(B) Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the employer demonstrates that (1) continuity of service is essential; (2) shutdown of the system is impractical; and (3) documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.

(a)(3)(i) This section requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

(a)(3)(ii) When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section.

(a)(3)(ii) Paragraph (1)(ii) of Section (e), Training, of the Grain Handling standard, 1910.272, states that employee training shall include lockout/tagout procedures. Those procedures fall under the jurisdiction of this section. In other words, compliance with this standard, 1910.147, is necessary in order to comply with the lockout/tagout requirements of the Grain Handling standard, 1910.272.

NOTE: Section (b) Definitions, can be found
(c)(1) Energy control program. The employer shall establish a program consisting of energy control procedures, employee training and periodic inspections to insure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and rendered inoperative.

(c)(2)(i) If an energy isolating device is not capable of being locked out, the employer energy control program under paragraph (c)(1) of this section shall utilize a tagout system.

(c)(2)(ii) If an energy isolating device is capable of being locked out, the employer’s energy control program under paragraph (c)(1) of this section shall utilize lockout, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection as set forth in paragraph (c)(3) of this section.

NOTE: See the OSHA definition of “Servicing or maintenance” in Appendix A. (page 79)

(c)(1) Paragraph (c)(1) requires the employer to accomplish the following:
- Develop and implement specific energy control procedures;
- Develop and implement an employee training program; and
- Perform periodic inspections of the energy control program. Take note of the word “before” in paragraph (c)(1). The language is explicit in stating that items (c)(1) and (c) and (c)(2) above must be in place and on track BEFORE servicing or maintenance takes place on any machine or equipment where an unexpected start-up could cause injury. The term “unexpected energizing” is all inclusive, and means any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or any other type of energy.

(c)(2)(i) In paragraph (c)(2)(i), OSHA refers to such equipment as a circuit breaker or a disconnect as an “energy isolating device” and directs that if that type of equipment will not accept a lock, the employer must use a tagout system.

(c)(2)(ii) Even though OSHA permits the use of tagout in preference to lockout, they express a degree of concern about a tagout system as the sole means of energy control, stating in the preamble to the standard that “in order for OSHA to consider a tagout system to be sufficiently protective, the elements of such a system will need to be very detailed and intensive, and will necessitate far more commitment and day-to-day vigilance to make it work than will a full lockout system. This is necessary because a tag serves only as a warning and not as a positive restraint on hazardous energy.”
After January 2, 1990, whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.

(c)(3)(i) When a tagout device is used on an energy isolating device which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

(c)(3)(ii) In demonstrating that a level of safety is achieved in the tagout program which is equivalent to the level of safety obtained by using a lockout program, the employer shall demonstrate full compliance with all tagout related provisions of this standard together with such additional elements as are necessary to provide the

It seems apparent then that OSHA considers a full lockout/tagout system superior to a tagout system as the sole means of hazardous energy control. Be that as it may, the standard permits the employer to choose between the two, the only condition being that if the tagout option is selected, the employer must be able to demonstrate that the tagout system used will provide the “full employee protection” required by the standard.

OSHA’s position on lockout capability is documented in the standards’ preamble and in part states that “OSHA believes the optimal time to incorporate lockout capability is where this capability is programmed into the design in the first instance”. It only remains for the employer to ensure that when old equipment is replaced the new equipment is designed to accept a lock, and further, when equipment undergoes major repair, renovation, or modification, it also must be redesigned to accept a lock.

NOTE: See the OSHA definition of “Capable of being locked out” in Appendix A. (page 79)
equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstrating of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

(c)(4)(i) Procedures shall be developed, documented and utilized for the control of potentially hazardous energy when employees are engaged in activities covered by this section.

NOTE: In the final analysis of a tagout system versus a full lockout/tagout procedure, the prudent employer will want to address two basic issues: (1) In terms of employee time, equipment cost and management administration, which of the two systems is the most burdensome; or is there little to choose between them?; and (2) Which of the two systems presents a level of hazardous energy control that is the most conducive to the safety of employees who are potentially at risk? As far as #1 is concerned, in my view, given the amount of administrative time required by a tagout system, there is little to choose between them. In addressing #2, I don’t see how there can be any argument at all in that a full lockout/tagout procedure offers the higher level of employee safety.

(c)(4)(i) Paragraph (c)(4)(i) requires no interpretation and should be taken as read.

NOTE: Exception: The employer need not document the required procedure for a particular machine or equipment, when all of the following elements exist: (1) The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees; (2) The equipment or machine has a single energy source which can be readily identified and isolated; (3) The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment; (4) The machine or equipment is isolated from that energy source and locked out during servicing or 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 or maintenance; (7) The servicing or maintenance does not create hazards for other employees; and (8) The employer, in utilizing this exception, has had no accidents involving the unexpected activation or
The procedures shall clearly and specifically outline the scope, purpose, authorization, rule, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to the following:

- Reenergization of the machine or equipment during servicing or maintenance.

The exception to paragraph (c)(4)(i) states that a written lockout/tagout procedure for a PARTICULAR machine or equipment is NOT required provided the eight elements in the exception are in place. For purposes of interpretation, let us assume that a bucket elevator leg is scheduled for routine maintenance, and let us further assume that the employer has addressed each of the eight elements in (c)(4)(i) and has determined the following:

1. The energy source to the leg is a conventional electrically powered motor with no identifiable potential for any type of stored energy after shutdown;
2. A single circuit breaker (energy isolating device) is in place and is clearly identified by a label;
3. When a lockout device is applied to the appropriate circuit breaker, the leg is totally deprived of energy and is temporarily dead;
4. A full lockout/tagout procedure will be implemented while the leg maintenance is being performed;
5. There is only one circuit breaker servicing the leg and one lockout will do the job;
6. The key to the lockout device to be used will be in the possession of the Authorized Employee who is doing the work.
(See Appendix A for the OSHA definition of Authorized Employee);
7. The servicing/maintenance will not create a hazard for other employees;
8. In utilizing this exception, no accidents have occurred due to an unexpected startup or energization of the leg during the servicing/maintenance.

In the scenario above, all of the compliance criteria required in the Exception are being met, and therefore, the employer is NOT required to document the servicing/maintenance for that PARTICULAR piece of equipment.

(c)(4)(ii) See Appendix B-Sample Written Lockout/Tagout Program (page 81)
(A) A specific statement of the intended use of the procedure; (B) Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy; (C) Specific procedural steps for the placement, removal and transfer of lockout devices and the responsibility for them; and (D) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

Protective Materials and Hardware

(c)(5)(i) Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fastener, or other hardware shall be provided by the employer for isolating, securing or blocking of machines or equipment from energy sources.

(c)(5)(ii) Lockout devices and tagout devices shall be singularly identified; shall be the only device(s) used for controlling energy; shall not be used for other purposes; and shall meet the following requirements:

(c)(5)(ii)(A)(1) Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time the exposure is expected.

(c)(5)(ii)(A)(2) Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

(c)(5)(i) Paragraph (c)(5)(i) requires no interpretation and should be taken as read.

(c)(5)(ii) Paragraph (c)(5)(ii) requires that lockout and tagout devices be “singularly identified” and further, that they may only be used for lockout/tagout purposes. The reason, of course, is that the presence of “singularly identified” devices on a disconnect, or for that matter, on any energy isolating device, sends an unmistakable signal that a lockout/tagout procedure is underway and that particular energy isolating device is OFF LIMITS to everyone except the Authorized Employee who is performing the work!

(c)(5)(ii)(A)(1) Paragraph (c)(5)(a)(1) requires no interpretation and should be taken as read.
STANDARD

(c)(5)(ii)(A)(3) Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.

(c)(5)(ii)(B) Standardized. Lockout and tagout devices shall standardized within the facility in at least one of the following criteria: Color; shape; or size; and additionally, in the case of tagout devices, print and format shall be standardized.

(c)(5)(ii)(C)(1) Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

(c)(5)(ii)(C)(2) Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

INTERPRETATION

(c)(5)(ii)(A)(3) In paragraphs (c)(5)(a)(2) and (c)(5)(a)(3) above, OSHA expresses their concern about tagout devices and mandates that such devices, in whatever environment they are used, will NOT become illegible or deteriorate in any way.

(c)(5)(ii)(B) In paragraph (c)(5)(b) the standard requires that, WITHIN THE FACILITY, lockout and tagout devices be standardized in at least one or all of the following ways: Color; shape; or size. And in the case of tags, the print and format must be standardized. OSHA’s message here is very clear: that the standardization of the lockout/tagout devices that are used in the facility will send an immediate visual signal that a lockout/tagout procedure is underway.

(c)(5)(ii)(C)(1) Paragraph (c)(1) requires no interpretation and should be taken as read.

(c)(5)(ii)(C)(2) Here again OSHA is concerned about tagout, and in paragraph (2) there are six specific criteria that must be met for tagout devices and their attachments to comply with the standard: (1) The tagout device and it’s attachment must be substantial (strong) enough to prevent their being removed unintentionally, or in any sense, removed prematurely; (2) The means of attachment must be non-reusable. In other words, OSHA will not permit a tagout attachment device to be used more than once. Their concern here is that an attaching device that is used repeatedly will eventually be weakened and possibly damaged, and as a result, subject to failure; (3) A tool is needed to affix an attachment. They must be so constructed as to be unattachable by hand;
<table>
<thead>
<tr>
<th>STANDARD</th>
<th>INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>(c)(5)(ii)(D) Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).</td>
<td>(c)(5)(ii)(D) Paragraph (d) requires that a visual inspection of lockout and tagout devices will identify the person who applied them. As you can see, the standard does not specify that tagout devices have a space on the device for signature or initials, nor is a lock identifiable in that manner. The intent of the standard is that any identifying code, such as a color or an employee number, will be satisfactory in terms of compliance.</td>
</tr>
<tr>
<td>(c)(5)(iii) Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE.</td>
<td>(c)(5)(iii) Paragraph (iii) requires no interpretation and should be taken as read.</td>
</tr>
<tr>
<td>(c)(6)(i) The employer shall conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are being followed.</td>
<td>(c)(6)(i) OSHA, in their use of the phrase, “at least annually”, in paragraph (i), is saying that the inspection must be accomplished at least once a year, but more often if the need arises. If, for example, an accident or near miss occurs during a lockout/tagout procedure, such a need would be more than apparent. In the preamble, OSHA states that “One method of meeting the requirements in this paragraph would be to use random audits and planned visual observations to determine the extent of employee compliance”.</td>
</tr>
<tr>
<td>(c)(6)(i)(A) The periodic inspection shall be performed by an authorized employee other</td>
<td>(c)(6)(i)(A) Note that in paragraph (a), the inspector must be an authorized employee</td>
</tr>
</tbody>
</table>
than the one(s) utilizing the energy control procedure being inspected.

(c)(6)(i)(B) The periodic inspection shall be conducted to correct any deviations or inadequacies identified.

(c)(6)(i)(c) 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.

(c)(6)(i)(D) Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee’s responsibilities under the energy procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section.

(c)(6)(ii) The employer shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

(c)(7)(i) The employer shall provide training to ensure that the purpose and function of the energy control programs are understood by employees and that the knowledge and skills other than the authorized employee who is using the procedure being inspected. To put it another way, the standard does not permit an authorized employee to inspect himself.

(c)(6)(i)(B) Paragraph (b) requires no interpretation and should be taken as read.

(c)(6)(i)(c) The review required under paragraph (c) should include at least the following:
• A review of the company lockout/tagout procedures;
• A review of the method of control for specific machines and equipment relevant to the authorized employee’s job assignment; and
• The relevant requirements of this standard.

(c)(6)(i)(D) The review regarding tagout, as required in paragraph (d), when it is used for energy control, is considerably more demanding than that required for lockout. Notice that the review must include not only authorized employees, but affected employees as well. Furthermore, in addition to the subject matter in paragraphs (a), (b), and (c), the tagout portion of the review must include the requirements of the standard as set forth in paragraph (c) (7)(ii) in the training and communication section following below.

(c)(6)(ii) See Appendix C: Certification of Inspection (page 84)

Training and Communication

(c)(7)(i) Paragraph (i) requires no interpretation and should be taken as read.
required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following;

(c)(7)(i)(A) Each authorized employee shall receive training in the recognition of applicable energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation.

(c)(7)(i)(B) Each affected employee shall be instructed in the purpose and use of the energy control procedure.

(c)(7)(i)(c) All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

(c)(7)(ii) When tagout systems are used, employees shall also be trained in the following limitations of tags:

(c)(7)(ii)(A) Tags are essentially warning devices affixed to energy isolating devices, and

(c)(7)(ii)(A) Here again, OSHA demonstrates their continuing concern with tagout, STANDARD INTERPRETATION

(c)(7)(i)(A) For the purposes of interpretation, paragraph (a) needs to be broken down into three parts: (1) Employee training in the recognition of applicable hazardous energy sources: such as the energy source(s) for a bucket elevator leg, or for a flour milling packaging machine. (2) Employee training in the type and magnitude of the energy available in the workplace: such as electrical energy and the available voltage. (3) Employee training in the methods and means necessary for energy isolation and control: see Appendix B-Lockout/Tagout Procedures.

(c)(7)(i)(B) See Appendix B-Purpose and Application

(c)(7)(i)(c) In paragraph (c), notice that “all other employees” who may work in an area where energy control procedures are being used must be instructed “about” the procedures, etc. The point here is that “all other employees” do not have to be instructed “in” the procedures as do authorized and affected employees. The difference is significant because to be instructed “in” something is to receive detailed training so as to be able to function safely within whatever that something might be. On the other hand, to be instructed “about” something requires only general information on the subject, and in this case, a caution about certain prohibitions.
STANDARD

do not provide the physical restraint on those devices that is provided by a lock.

(c)(7)(ii)(B) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

(c)(7)(ii)(c) Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

(c)(7)(ii)(D) Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

(c)(7)(ii)(E) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

(c)(7)(ii)(F) Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

INTERPRETATION

conveying an important message in paragraph (a) that should not be overlooked or neglected when employees are trained in the limitations of tagout. The training requirement is clearly set forth and should be taken as read.

(c)(7)(ii)(B) Paragraph (b) prohibits the removal of a tagout device without the approval of the person who attached it in the first place. The paragraph further states that a tagout device must NEVER be “bypassed, ignored, or otherwise defeated”. The requirements of paragraph (b) are vital to the safety of personnel who work under the protection of a tagout system and those requirements should have a prominent place in any tagout training program.

(c)(7)(ii)(c) The operative words in paragraph (c) are “legible” and “understandable”. Indeed, of what use is a tagout device that cannot be read? Here OSHA’s concern is a workforce that cannot understand written English. This usually occurs in areas such as California, Texas, and Florida where there are large Spanish speaking communities. That should not be a problem as Spanish language tagout devices are available and should be used accordingly.

(c)(7)(ii)(D) This paragraph is merely a rehash of paragraph (5)(a)(1). The text requires no additional comment and should be taken as read.

(c)(7)(ii)(E) Here again, in paragraph (e), is another very important safety message that should be highlighted in any tagout training program. The requirement is clearly stated and should be taken as read.

(c)(7)(ii)(F) Paragraph (f) requires no interpretation and should be taken as read.
(c)(7)(iii)(A) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that presents a new hazard, or when there is a change in the energy control procedures.

(c)(7)(iii)(B) Additional training shall be conducted whenever a periodic inspection under paragraph (c)(6) of this section reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the employee’s knowledge or use of the energy control procedures.

(c)(7)(iii)(C) The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

(c)(7)(iv) The employer shall certify that

(c)(7)(i)(A) Paragraph (a) directs the employer to retrain authorized and affected employees under three distinct conditions: (1) When there is a change in job assignment; (2) When there is a change in machines, equipment or processes that presents a new hazard; and (3) When there is a change in the established energy control procedures.

(c)(7)(iii)(B) The two key words in paragraph (b) are “deviations” and “inadequacies”. In the preamble to the standard, OSHA states that a program deviation has occurred when a management investigation or observation “indicates that an employee failed to operate within the guidelines of the control procedure and in such cases, retraining would be necessary”. OSHA goes on to say that “inadequacies in the procedure could be the result of using a general procedure that does not handle effectively a specific application, or they may arise because changes have been made to the equipment or process that did not take the existing energy control procedure into consideration. In such cases when changes to the energy control procedure must be made, the employer is required to retrain employees in the new revised procedures”.

(c)(7)(iii)(C) The sole purpose of retraining is to reestablish and assure an acceptable level of proficiency in the use of the lockout/tagout procedures. It may be that the old control methods are perfectly sound but, for example, an incident or employee misconduct, or perhaps an employee mistake in the utilization of the procedures indicates the need for retraining. The intent, of course, is that a good job of retraining will get errant employees back on track. Then again, it is entirely possible that new or revised control methods are needed and, that being the case, the employer is required to supply them.

(c)(7)(iv) See Appendix D-Certification of
<table>
<thead>
<tr>
<th>STANDARD</th>
<th>INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee training has been accomplished and is being kept up to date. The certification shall contain each employee’s name and dates of training.</td>
<td>Employee Training (page 85)</td>
</tr>
<tr>
<td><strong>Energy Isolation</strong></td>
<td></td>
</tr>
<tr>
<td>(c)(8) Lockout or tagout shall be performed only by authorized employees who are performing the servicing or maintenance.</td>
<td>(c)(8) Paragraph (8) requires no interpretation and should be taken as read.</td>
</tr>
<tr>
<td><strong>Notification of Employees</strong></td>
<td></td>
</tr>
<tr>
<td>(c)(9) Affected employees shall be notified by the employer or authorized employee of the application and removal of lockout devices or tagout devices. Notification shall be given before the controls are applied, and after they are removed from the machine or equipment.</td>
<td>(c)(9) See Appendix B-Lockout/Tagout Procedures: Procedure #1. (page 81)</td>
</tr>
<tr>
<td><strong>Application of Control</strong></td>
<td></td>
</tr>
<tr>
<td>(d) The established procedures for the application of energy control (the lockout or tagout procedures) shall cover the following elements and actions and shall be done in the following sequence.</td>
<td>(d) Paragraph (d) requires no interpretation and should be taken as read.</td>
</tr>
<tr>
<td><strong>Machine or Equipment Shutdown</strong></td>
<td></td>
</tr>
<tr>
<td>(d)(1) Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled and the method or means to control the energy.</td>
<td>(d)(1) See Appendix B-Authorized Employees. (page 81)</td>
</tr>
<tr>
<td><strong>Machine or Equipment Isolation</strong></td>
<td></td>
</tr>
<tr>
<td>(d)(2) The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.</td>
<td>(d)(2) See Appendix B-Lockout/Tagout Procedures: Procedure #2. (page 81)</td>
</tr>
<tr>
<td><strong>Lockout or Tagout Device Application</strong></td>
<td></td>
</tr>
<tr>
<td>(d)(3) All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).</td>
<td>(d)(3) See Appendix B-Lockout/Tagout Procedures: Procedure #3. (page 81)</td>
</tr>
<tr>
<td>STANDARD</td>
<td>INTERPRETATION</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>(d)(4)(i) Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.</td>
<td>(d)(4)(i) See Appendix B-Authorized Employees. (page 81)</td>
</tr>
<tr>
<td>(d)(4)(ii) Lockout devices, where used shall be affixed in a manner that will hold the energy isolating devices in a “safe” or “off” position.</td>
<td>(d)(4)(ii) Paragraph (d)(4)(ii) requires no interpretation and should be taken as read.</td>
</tr>
<tr>
<td>(d)(4)(iii) 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 is prohibited.</td>
<td>(d)(4)(iii) See Appendix B-Lockout/Tagout Procedures: Procedure #3. (page 81)</td>
</tr>
<tr>
<td>(d)(4)(iii)(A) 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.</td>
<td>(d)(4)(iii)(B) Paragraphs (A) and (B) require no interpretation and should be taken as read.</td>
</tr>
<tr>
<td>(d)(4)(iii)(B) Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.</td>
<td></td>
</tr>
<tr>
<td>(d)(5)(i) Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.</td>
<td>(d)(5)(i) See Appendix B-Lockout/Tagout Procedures: Procedure #4. (page 81)</td>
</tr>
<tr>
<td>(d)(5)(ii) If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the possibility of such accumulation no longer exist.</td>
<td>(d)(5)(ii) See Appendix B-Lockout/Tagout Procedures: Procedure #4. (page 81)</td>
</tr>
<tr>
<td>Stored Energy</td>
<td>Verification of Isolation</td>
</tr>
<tr>
<td>(d)(6) Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall</td>
<td>(d)(6) See Appendix B-Lockout/Tagout Procedures: Procedure #5. (page 81)</td>
</tr>
</tbody>
</table>
**STANDARD**

verify that isolation and deenergization of the machine or equipment have been accomplished.

(d)(6)(e) Release from lockout or tagout. Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by authorized employee(s) to ensure the following:

(e)(1) The machine or equipment. The work area shall be inspected to ensure that nonessential items have been removed and to ensure that the machine or equipment components are operationally intact.

(e)(2)(i) The work area shall be checked to ensure that all employees have been safely positioned or removed.

(e)(2)(ii) Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified that the lockout or tagout devices have been removed.

(e)(3) Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. EXCEPTION TO PARAGRAPH (e)(3): When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer’s energy control program. The employer shall demonstrate that the specific procedure provides equivalent safety to the removal of

**INTERPRETATION**

(e)(1) Notice here in paragraph (1), that someone, presumably the authorized employee, must make sure that the component of the subject machine/equipment are “operationally intact”. Be sure that whoever performs that task, that it must be done WITHOUT STARTUP, because the affected employees have not yet been safely positioned or removed (as in the next paragraph).

**Employees**

(e)(2)(i) See Appendix B-Lockout/Tagout Procedures: Procedure #5. (page 81)

(e)(2)(ii) See Appendix B-Lockout/Tagout Procedures: Procedure #6. (page 81)

**Lockout or Tagout Devices Removal**

(e)(3) In the preamble to the standard, OSHA makes it clear that the Exception paragraph (e)(3) is intended to cover situations such as those that might arise from the sudden sickness or injury of an employee, key loss, or other emergency situations. They go on to say “that removal of a personal lockout or tagout device by another person may not be based on convenience or simple unavailability of the employee”. While the standard permits such a removal, it requires that the removal be accomplished UNDER THE DIRECTION OF THE EMPLOYER, and only if specific procedures and training for
the device by the authorized employee who applied it. The specific procedure shall include at least the following elements: (i) Verification by the employer that the authorized employee who applied the device is not at the facility; (ii) Making all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed; and (iii) Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.

(f)(1) Testing or positioning of machines, equipment or components thereof. In situations in which lockout/tagout devices are removed are documented and a part of the local energy control program. It is clear that in the Exception, OSHA is after an equivalent level of safety and the language they employ supports that intent. The three elements required in the use of the Exception seem simple enough, but a close reading of them presents some interesting compliance difficulties: (i) Notice in this paragraph that “the employer” must confirm that the employee who affixed the lockout/tagout devices is absent from the facility; not an unreasonable requirement. But suppose a facility is on a 2nd shift drying and transfer operation, a 1st shift lockout device must be removed, and there are no management personnel present to verify the absence of the subject employee! The above scenario presents compliance difficulties only if such a situation has not been foreseen and addressed in the facility lockout/tagout procedures. (ii) In paragraph (ii), consider OSHA’s use of the words “all” and “reasonable”. In essence, the definition of “all” is the total of something: the whole enchilada. “Reasonable” means the ability to show sound judgement. If one accepts both of those definitions, a literal reading of paragraph (ii) requires that in attempting to contact the absent employee, management must employ, if necessary, all courses of action that sound judgement dictates. In any event, now is the time to decide how to deal with “all reasonable efforts” should such a situation arise, and document the procedures accordingly. (iii) Compliance with the requirements of paragraph (iii) is vital to the safety of personnel who work under the protection of lockout/tagout. The authorized employee whose devices have been removed must be informed of that situation BEFORE that employee resumes work on the machine or equipment in question.

Additional Requirements

(f)(1) Testing or positioning of machines, equipment or components thereof. In situations in which lockout/tagout devices
**STANDARD**

must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions shall be followed:

(f)(1)(i) Clear the machine or equipment of tools and materials in accordance with paragraph (e)(1) of this section;

(f)(1)(ii) Remove employees from the machine or equipment area in accordance with paragraph (e)(2) of this section;

(f)(1)(iii) Remove lockout or tagout devices as specified in paragraph (e)(3) of this section;

(f)(1)(iv) Energize and proceed with testing or positioning;

(f)(1)(v) Deenergize all systems and reapply energy control measures in accordance with paragraph (d) of this section to continue the servicing and/or maintenance.

---

**INTERPRETATION**

(f)(1)(i) See Appendix B-Testing or Positioning of Machines/Equipment: Procedure #1. (page 81)

(f)(1)(ii) See Appendix B-Testing or Positioning of Machines/Equipment: Procedure #2. (page 81)

(f)(1)(iii) See Appendix B-Testing or Positioning of Machines/Equipment: Procedure #3. (page 81)

(f)(1)(iv) See Appendix B-Testing or Positioning of Machines/Equipment: Procedure #4. (page 81)

(f)(1)(v) See Appendix B-Testing or Positioning of Machines/Equipment: Procedure #5. (page 81)

---

**Outside Personnel (contractors, etc.)**

(f)(2)(i) Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the onsite employer and the outside employer shall inform each other of their respective lockout or tagout procedures.

(f)(2)(i) In paragraph (i), as the standard does not specify how the information is to be transmitted between the two parties, it may be done either verbally or in writing. The main thing is that both parties transmit the required information accurately and in full. While both employers are bound by the same standard, there is enough latitude in the compliance language that could result in some significant differences between the two programs. Consider, for example, a scenario where one employer uses a full lockout/tagout procedure, where the other uses tagout only. The important thing in a situation of this kind, is that both employer’s are fully aware of what the other is doing!

(f)(2)(ii) The onsite employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the

(f)(2)(ii) The standard, in paragraph (ii), is somewhat misleading in that OSHA, in the preamble to the standard states that “the
We refer to the standards and interpretations of the Occupational Safety and Health Administration (OSHA) for guidance on the implementation and requirements for lockout and tagout procedures.

### Standard

outside employer’s energy control program.

### Interpretation

plant or facility employer assure that the contractor’s procedure provides equivalent protection to the plant employees”.

#### Group Lockout or Tagout

- **(f)(3)(i)** When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

  - **(f)(3)(ii)** Group lockout or tagout devices shall be used in accordance with the procedures required by paragraph (c)(4) of this section including, but not necessarily limited to, the following specific requirements:

    - **(f)(3)(ii)(A)** Primary responsibility is vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock);

    - **(f)(3)(ii)(B)** Provisions for the authorized employee to ascertain the exposure status of individual group members with regard to the lockout or tagout of the machine or equipment;

- **(f)(3)(i)** In the preamble to the standard, OSHA states “that when a group lockout or tagout procedure is properly implemented, it adds an additional element of protection to servicing employees: the authorized employee in charge of the group servicing operation applies a group lockout or tagout device to the equipment being serviced, and each servicing employee attaches a personal lockout or tagout device to the group device. The individual devices are removed by the employees who applied them, leaving the group device attached. These employees, by clearing the equipment and removing their own devices, indicate that they are no longer exposed to the hazards of the servicing operation. The authorized employee in charge of the group servicing operation then verifies that all elements of the group servicing have, in fact, been completed, and that it is safe to reenergize the system, before he/she removes the group device. Thus the additional step provides further assurance that reenergizing the system will not endanger employees”.


- **(f)(3)(ii)(B)** See Appendix B-Group Lockout/Tagout; Procedure #1. (page 81)
(f)(3)(ii)(C) When more than one crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility to an authorized employee designated to coordinate affected workforce and ensure continuity of protection; and

(f)(3)(ii)(D) Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

(f)(4) Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer or lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or release of stored energy.

Shift or Personnel Changes

(f)(4) See Appendix B-Shift or Personnel Changes: Procedures #1 and 2. (page 81)
Appendix A–DEFINITIONS

**AFFECTED EMPLOYEE** is an employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

**AUTHORIZED EMPLOYEE** is a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee’s duties include performing servicing or maintenance covered under this section.

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

**ENERGIZED** means connected to an energy source or containing residual or stored energy.

**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 of devices are not energy isolating devices.

**ENERGY SOURCE** is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**HOT TAP** is a procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

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

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

**NORMAL PRODUCTION OPERATIONS** means the utilization of a machine or equipment to perform its intended production function.

**SERVICING AND/OR MAINTENANCE** is workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of
machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

**SETTING UP** means any work performed to prepare a machine or equipment to perform its normal production operation.

**TAGOUT** is 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** is a prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.
Appendix B

Sample Written Lockout/Tagout Program

Date_________________
Company____________________________________
Company Address___________________________________

Company Policy

It is the policy of the______________________________________________________Company that the following lockout/tagout program shall be used by all employees who perform service and maintenance on equipment and machines where an unexpected start-up, or release of stored energy could cause injury. The use of this program, where appropriate, is mandatory and employee compliance with the letter and intent of the program is a condition of employment.

Purpose

The purpose of this program is to disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

Application

This lockout/tagout program applies to the control of energy during servicing and/or maintenance of machines and equipment when there is an identifiable potential for an unexpected start-up or release of stored energy that could cause injury. The program does not apply to the following three working conditions:

(1) Minor tool changes and adjustments and other minor servicing activities, which take place during normal production operations, if they are routine, repetitive, and integral to the use of the equipment for production, provided the work is performed using alternative measures which provide effective employee protection.

(2) Work on cord and plug connected equipment when it is unplugged, and the employee working on the equipment has complete control of the plug.

(3) Hot tap operations shall not be performed by in-plant personnel. Should the need for such work arise, the services of an outside contractor, who is familiar with the procedure, shall be obtained.

Authorized Employees

An authorized employee is one who locks out and tags out machines and equipment in order to perform servicing or maintenance, and has been trained and is fully qualified to perform those duties. Only those employees listed below are authorized to perform lockout/tagout for this company.
Affected Employees

An affected employee is one whose job requires him/her to operate or use a machine or piece of equipment upon which servicing or maintenance is being performed under lockout and/or tagout or whose job requires work in an area where servicing or maintenance is being performed.

Names of Affected Employees  Job Titles  Means of Notification
(1)______________________________  ____________________________  ____________________________
(2)______________________________  ____________________________  ____________________________
(3)______________________________  ____________________________  ____________________________
(4)______________________________  ____________________________  ____________________________
(5)______________________________  ____________________________  ____________________________

Note: If a servicing/maintenance shutdown is known in advance, the appropriate supervisor shall post a lockout/tagout notice on the employee bulletin board located above the time clock.

Lockout/Tagout Procedures

(1) Notify all affected employees that a lockout/tagout procedure is to be used and the reason.

(2) Shutdown the machine/equipment using the appropriate method of control.

(3) Put the appropriate disconnect (energy isolating device) in the ‘OFF’ position and apply a lockout device in such a manner as to secure the disconnect in that position. Affix a tagout device at the same point where the lockout is located.

(4) Ensure that ALL potentially hazardous stored or residual energy is relieved, disconnected, restrained or otherwise rendered safe.

(5) Ensure that all affected employees are safely positioned or removed.

(6) Inform affected employees that lockout/tagout devices have been removed.

(7) Perform servicing and/or maintenance.

(8) After the servicing/maintenance has been completed, clear away all tools, replace any guards that have been removed and ensure that ALL employees are in the clear.
(9) Remove the lockout/tagout devices and inform ALL affected employees of the removal.

(10) Activate the normal startup control(s) to restore energy to the machine/equipment.

**Testing and/or Positioning of Machines/Equipment**

(1) Clear the machine/equipment of tools and personnel.

(2) Remove affected employees from the testing/positioning work area.

(3) Remove the lockout/tagout devices.

(4) Energize and test and/or position the machine/equipment.

(5) Deenergize and reapply lockout/tagout devices to continue the servicing/maintenance.

**Group Lockout/Tagout**

Note: The primary responsibility for the safety of a set number of employees is vested in the authorized employee.

(1) Ascertain the exposure status of ALL individual group members.

(2) Coordinate the affected work forces, i.e., shift, crew, craft, or department, for overall effective control and protection.

(3) Each authorized employee shall affix their own personal lockout/tagout device to the group lockout device. The authorized employee shall remove his/her lockout/tagout when the work has been completed.

**Shift or Personnel Changes**

Note: The authorized employee shall be responsible for the continuity of lockout/tagout protection between shift and/or personnel changes. Such responsibilities includes the following:

(1) An orderly transfer of lockout/tagout device protection between off-going and the on-coming employees; and

(2) A review of the status of the servicing/maintenance between the off-going and the on-coming authorized employees.
# Appendix C

## The Control of Hazardous Energy (Lockout/Tagout)  
Certification of Periodic Inspection

<table>
<thead>
<tr>
<th>Machinery/Equipment</th>
<th>Date Inspection</th>
<th>Employees Included in Inspection</th>
<th>Inspection Performed By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Appendix D

## Sample Lockout/Tagout Training Certification

<table>
<thead>
<tr>
<th>Employee(s) Trained</th>
<th>Date of Training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Column 1. Enter name(s) of employees who have received lockout/tagout training.

Column 2. Enter date training provided.
Appendix E

Sample Procedures
Emergency Removal of Lockout/Tagout Devices

Company Policy

In compliance with 29CFR 1910.147, The Control of Hazardous Energy (lockout/tagout), it is the policy of the __________________________ Company that lockout/tagout devices may only be removed by the Authorized Employee who applied them.

Exception: In the event the Authorized Employee who applied the lockout/tagout devices is unavailable for device removal, the devices, may be removed only under the direction of a management representative under the following procedures:

(1) Before removal, the appropriate management representative shall verify that the Authorized Employee who applied the devices is not at the facility;

(2) The appropriate management representative will make every reasonable effort to contact the Authorized Employee and inform that person that his/her lockout/tagout devices have been removed; and

(3) The appropriate management representative shall ensure that the Authorized Employee is informed that his/her lockout/tagout devices have been removed BEFORE resuming work at the facility.

These emergency procedures are an addendum to the regular lockout/tagout procedures and shall be followed accordingly.

________________________________________
Plant Mgr.