

**SUPPORTING STATEMENT FOR
THE STANDARD ON THE CONTROL OF HAZARDOUS ENERGY
(LOCKOUT/TAGOUT) (29 CFR 1910.147)¹
OFFICE OF MANAGEMENT AND BUDGET (OMB)
CONTROL NO. 1218-0150 (October 2017)**

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

The main objective of the Occupational Safety and Health Act of 1970 (i.e., “the Act”) is to “assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources” (29 U.S.C. 651). To achieve this objective, the Act authorizes “the development and promulgation of occupational safety and health standards” (29 U.S.C. 651).

Section 6(b)(7) of the Act specifies that “[a]ny standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure.” This provision goes on to state that “[t]he Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning . . . as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard” (29 U.S.C. 655).

With regard to recordkeeping, the Act specifies that “[e]ach employer shall make, keep and preserve, and make available to the Secretary . . . such records . . . as the Secretary . . . may prescribe by regulation as necessary or appropriate for the enforcement of this Act . . .” (29 U.S.C. 657). The Act states further that “[t]he Secretary . . . shall prescribe such rules and regulations as [he/she] may deem necessary to carry out [his/her] responsibilities under this Act, including rules and regulations dealing with the inspection of an employer’s establishment” (29 U.S.C. 657).

Under the authority granted by the Act, the Occupational Safety and Health Administration (i.e., “OSHA” or “the Agency”) published at 29 CFR 1910.147 a safety standard for general industry titled “Control of Hazardous Energy (Lockout/Tagout)” (i.e., “the LO/TO Standard” or “the

¹The purpose of this Supporting Statement is to analyze and describe burden hours and cost associated with provisions of this standard that contain paperwork requirements; this Supporting Statement does not provide information or guidance on how to comply with, or how to enforce, these provisions.

Standard”). The Standard regulates control of hazardous-energy sources using lockout or tagout procedures while workers service, maintain, or repair machines or equipment when activation, start up, or release of energy from an energy source is possible. Items 2 and 12 below describe in detail the specific information collection requirements of the Standard.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

The Standard specifies several paperwork requirements. The following sections describe who uses the information collected under each requirement, as well as how they use it. The purpose of these requirements is to control the release of hazardous-energy sources while workers service, maintain, or repair machines or equipment when activation, start up, or release of energy from an energy source is possible; proper control of hazardous-energy sources prevent death or serious injury among these workers.

Energy-Control Procedure (paragraph (c)(4)(i)). With limited exception, employers must document the procedures used to isolate from its energy source and render inoperative, any machine or equipment prior to servicing, maintenance, or repair by workers. These procedures are necessary when activation, start up, or release of stored energy from the energy source is possible, and such release could cause injury to the workers.

Paragraph (c)(4)(ii) states that the required documentation must clearly and specifically outline the scope, purpose, authorization, rules, and techniques workers are to use to control hazardous energy, and the means to enforce compliance. The document must include at least the following elements:

- A) A specific statement regarding the use of the procedure;
- B) Detailed procedural steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy,
- C) Detailed procedural steps for placing, removing, and transferring lockout or tagout devices, including the responsibility for doing so; and,
- D) Requirements for testing a machine or equipment to determine and verify the effectiveness of lockout or tagout devices, as well as other energy-control measures.

The employer uses the information in this document as the basis for informing and training workers about the purpose and function of the energy-control procedures, and the safe application, use, and removal of energy controls. In addition, this information enables employers to effectively identify operations and processes in the workplace that require energy-control procedures.

Protective Materials and Hardware (paragraph (c)(5)(ii)(D) and paragraph (c)(5)(iii)).

Paragraph (C)(5)(ii)(D) requires that lockout and tagout devices indicate the identity of the employee applying it. Paragraph (c)(5)(iii) requires that tags warn against hazardous conditions if the machine or equipment is energized. In addition, the tag must include a legend such as one of the following: Do Not Start; Do Not Open; Do Not Close; Do Not Energize; Do Not Operate.

These provisions provide a safe work practice to authorized workers applying the lockout/tagout devices by giving the identity of the person applying it and warning against hazards that might exist.

Periodic Inspection Certification Records (paragraph (c)(6)(ii)). Under paragraph (c)(6)(i), employers are to conduct inspections of energy-control procedures at least annually. An authorized worker other than an authorized worker using the energy-control procedure that is the subject of the inspection is to conduct the inspection and correct any deviations or inadequacies identified. For procedures involving either lockout or tagout, the inspection must include a review, between the inspector and each authorized worker, of that worker's responsibilities under the procedure; for procedures using tagout systems, the review also involves affected workers, and includes an assessment of the workers' knowledge of the training elements required for these systems. Paragraph (c)(6)(ii) requires employers to certify the inspection by documenting the date of the inspection and identifying the machine or equipment inspected, the workers included in the inspection, and the worker who performed the inspection.

Training Certification Records (paragraph (c)(7)(iv)).

The requirements that employers provide training to workers under paragraph (c)(7)(i),(ii) and (iii) are not considered to be a collection of information. OSHA is not taking burden for this activity under Item 12 of this Supporting Statement.

Under paragraph (c)(7)(iv), employers are to certify that workers have completed the required training, and that this training is up-to-date. The certification is to contain each worker's name and the training date. Written certification of the training assures the employer that workers receive the training specified by the Standard.

Disclosure of Inspection and Training Certification Records (paragraphs (c)(6)(ii) and (c)(7)(iv)). Under these provisions, employers subject to an OSHA inspection are required to disclose inspection and training certification records to the OSHA compliance officer. The inspection records provide employers with assurance that workers can safely and effectively service, maintain, and repair machines and equipment covered by the Standard. These records also provide the most efficient means for an OSHA compliance officer to determine that an employer is complying with the Standard, and that the machines and equipment are safe for servicing, maintenance, and repair. The training records provide the most efficient means for an OSHA compliance officer to determine whether an employer has performed the required training.

The Agency has no annualized records disclosure costs associated with enforcing the Standard. OSHA would only review records in the context of an investigation of a particular employer to determine compliance with the Standard. These activities are outside the scope of the PRA. See 5 CFR 1320.4(a)(2).

Notification of Employees (paragraph (c)(9)). This provision requires the employer or authorized worker to notify affected workers prior to applying, and after removing, a lockout or tagout device from a machine or equipment. Such notification informs workers of the impending interruption of the normal production operation, and serves as a reminder of the restrictions imposed on them by the energy-control program. In addition, this requirement ensures that workers do not attempt to reactivate a machine or piece of equipment after an authorized worker

isolates its energy source and renders it inoperative. Notifying workers after removing an energy-control device alerts them that the machines and equipment are no longer safe for servicing, maintenance, and repair.²

Offsite Personnel (Contractors, etc.) (paragraph (f)(2)(i)). When the onsite employer uses an offsite employer (e.g., a contractor) to perform the activities covered by the scope and application of the Standard, the two employers must inform each other regarding their respective lockout or tagout procedures. This provision ensures that each employer knows about the unique energy-control procedures used by the other employer; this knowledge prevents any misunderstanding regarding the implementation of lockout or tagout procedures, and the use of lockout or tagout devices for a particular application.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.

Employers may use automated, electronic, mechanical, or other technological information-collection techniques, or other forms of information technology (e.g., electronic submission of responses), when establishing and maintaining the required records. The Agency wrote the paperwork requirements of the Standard in performance-oriented language (i.e., in terms of what data to collect, not how to record the data).

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in 2 above.

The requirements to collect and maintain information are specific to each employer and worker involved, and no other source or agency duplicates these requirements or can make the required information available to OSHA (i.e., the required information is available only from employers).

5. If the collection of information impacts small businesses or other small entities, describe the methods used to minimize burden.

The information collection requirements specified by the Standard do not have a significant impact on a substantial number of small entities. The Agency has published *OSHA Instruction, Directive Number CPL 02-00-147, The Control of Hazardous Energy – Enforcement Policy and Inspections Procedures, February 11, 2008*. Although this directive establishes OSHA’s enforcement policy for the standards addressing the control of hazardous energy, the Agency has made the directive available to the public to assist them in complying and understanding the requirements of the LO/TO Standard.

6. Describe the consequences to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing the burden.

The Agency believes that the information collection frequencies required by the Standard are the minimum frequencies necessary to effectively regulate hazardous-energy sources, and thereby

²Paragraph (e)(2) requires similar notification; because of this similarity, the Agency is taking no burden hours or cost for this provision.

fulfill its mandate “to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources” as specified by the Act at 29 U.S.C. 651. Accordingly, when employers do not perform the required information collections, or delay in providing this information, workers may not use energy-control procedures effectively and safely, thereby increasing their probability of death and serious injury caused by uncontrolled release of hazardous energy.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- **Requiring respondents to report information to the agency more often than quarterly;**
- **Requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- **Requiring respondents to submit more than an original and two copies of any document;**
- **Requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;**
- **In connection with a statistical survey that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- **Requiring the use of a statistical data classification that has not been reviewed and approved by OMB;**
- **That includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- **Requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

No special circumstances exist that require employers to collect information using the procedures specified by this item. The requirements are within the guidelines set forth in 5 CFR 1320.5.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection before submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to those comments. Specifically address comments received on cost and hour burdens.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years -- even if the collection of information activity is the same as in prior periods. There may be circumstances that mitigate against consultation in a specific situation. These circumstances should be explained.

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)), OSHA published a notice in the Federal Register soliciting public comments on its proposal to extend the Office of Management and Budget's (OMB) approval of the information collection requirements specified in the Standard on the Control of Hazardous Energy (Lockout/Tagout)(29 CFR

1910.147). This notice is part of a preclearance consultation program that provides the general public and government agencies with an opportunity to comment on OSHA's request for an extension by OMB of a previous approval of the information collection requirements found in the Standard.

9. Explain any decision to provide any payments or gift to respondents, other than remuneration of contractors or grantees.

The Agency will not provide payments or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

The paperwork requirements specified by the Standard do not involve confidential information.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

None of the provisions in the Standard require sensitive information.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- **Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.**
- **If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.**
- **Provide estimates of annualized costs to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 13.**

Burden-Hour and Cost Determinations

For this Information Collection Request (ICR), OSHA used an industry-classification scheme from the Regulatory Impact Analysis (RIA) performed on the final Standard.³ This scheme classifies industries covered by the Standard into the following three groups: high-impact, low-impact, and zero- or negligible-impact. The high-impact group consists of all manufacturing industries (i.e.,

³*Regulatory Impact and Regulatory Flexibility Analysis of 29 CFR 1910.147 (The Control of Hazardous Energy Sources—Lockout/Tagout)*, U.S. Department of Labor, OSHA, Office of Regulatory Analysis, August, 1989. The source of these data was a contract report titled, *Industry Profile Study of a Standard for Control of Hazardous Energy Sources Including Lockout/Tagout Procedures*, Eastern Research Group, May 1985.

North American Industrial Classification System (NAICS) Codes 31-33 and others corresponding to 1987 SIC Codes 20-39), while the low-impact group includes industries in the following sectors: transportation⁴, communications⁵, utilities (i.e., electrical-generation establishments, but not power-distribution establishments)⁶, wholesale-trade⁷, retail-food⁸, and several industries in the service sector (i.e., personal services, business services, automotive repair, miscellaneous repair, and amusement services.⁹ Included in the zero- or negligible-impact group are industries found to have little potential for an accident involving hazardous-energy release. These industries include retail trade, finance, insurance, real estate, service, and public-administration industries not classified as high- or low-impact groups.

In deriving establishment and employment figures for the three impact groups, the Agency updated the total number of establishments from the previous ICR using data from the 2015 County Business Patterns.¹⁰ The Agency applied percentages obtained from the RIA to these updated figures to estimate the number of high- and low-impact establishments having authorized workers, as well as the number of authorized and affected workers at these establishments (see Tables 1 and 2).

Regarding the time estimates for performing the wide variety of information collections required by the Standard, OSHA is using the estimates from the previous ICR. These estimates appear to be reasonable because the Agency based them on data from the RIA which was available for public review and comment when it was published in the final Standard. In addition, most of the establishments engaged in performing these information collections have many years of experiences in doing so; therefore, these times probably are upper-bound estimates.

⁴This sector is comprised of industries in the following NAICS codes: 481, 484, 485, 4861, 4869, 4871, 4879, 488, 492, 532411, 561510, 561520, 5621, 621910, and 713930.

⁵This sector is comprised of industries in NAICS code 517. Due to incongruence between SIC and NAICS codes, some industries in NAICS 485310 are included in both the transportation and communications sectors; these industries have been accounted for in the transportation sector and are excluded here to avoid double-counting of data.

⁶This sector is comprised of industries in the following NAICS codes: 221210, 221310, 221320, 221330, 486210, 562211, 562212, 562213, 562219, and 562920. Additionally, this sector excludes industries in NAICS codes 488119, 488490, 561710, 561790, 562910, and 562998; in translating between SIC and NAICS codes, small portions of these industries were included in the utilities sector. As only small portions of these industries are included, they are difficult to quantify and are excluded from this analysis.

⁷This sector is comprised of industries in the following NAICS codes: 423, 424, and 425.

⁸This sector is comprised of industries in the following NAICS codes: 311811, 4451, 4452, 446191, 447110, and 452910.

⁹This sector is comprised of industries in the following NAICS codes: 326212, 334611, 511199, 512110, 512240, 512290, 517919, 518210, 519110, 5321, 532220, 53229, 5323, 5324, 541213, 541340, 541350, 5414, 5415, 5418, 541921, 541922, 541930, 541990, 5613, 5614, 56159, 5616, 561710, 561720, 561740, 561790, 5619, 562991, 611511, 611620, 711, 713, 81111, 81112, 811198, 8112, 8113, 8114, 8121, 812210, 8123, 81292, 812990.

¹⁰2015 County Business Patterns, U.S. Census Bureau, 2015.

Wage Rate Determinations

The Agency determined the wage rates from mean hourly wage earnings to represent the cost of employee time. For the relevant standard occupational classification category, OSHA used the wage rates reported in the Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Employment Statistics* (OES), May 2016 [date accessed: May 1, 2017)]. (OES data is available at: <https://www.bls.gov/oes/tables.htm>. To access a wage rate, select the year, “Occupation Profiles,” and the Standard Occupational Classification (SOC) code.)

The costs of labor used in this analysis are estimates of total hourly compensation. To account for fringe benefits, the Agency used the benefit rate reported in the Economic News Release, Employer Costs for Employee Compensation – March 2017 (released June 2017), Bureau of Labor Statistics (BLS), U.S. Department of Labor <https://www.bls.gov/news.release/ecec.nr0.htm>. BLS reported that for civilian workers fringe benefits accounted for 31.7 percent of total compensation and wages accounted for the remaining 68.3 percent. For purposes of this analysis, the Agency uses the 31.7 percent fringe benefit level to represent the average level of fringe benefits in the private sector. To calculate the loaded hourly wage for each occupation, the Agency divided the mean hourly wage by 68.3 percent. The total hourly wages rates are:

Supervisory manufacturing worker (supervisor) (51-1011) $\$29.54/.683 = \43.25

Non-supervisory manufacturing worker (51-0000) $\$17.88/.683 = \26.18

Secretary (43-6014) $\$17.38/.683 = \25.45

The following sections summarize the methodology used to estimate the number of burden hours and the costs resulting from the information collection requirements of the Standard.

(A) Energy-Control Procedure (paragraph (c)(4)(i))

OSHA estimates that 25,281 high-impact establishments develop new procedures annually. The time to perform this activity ranges from 2 to 80 hours. In addition, 46,153 low-impact establishments will develop new procedures. The time for low-impact establishments to develop procedures is estimated at 2 hours. (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

The Agency also estimates that, on a yearly basis, a supervisor takes from 30 minutes (.50 hour) to 20 hours to update procedures in the 252,814 high-impact establishments and 30 minutes to update procedures in the 461,523 low-impact establishments affected. (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

Burden Hours: 25,281 high-impact establishments (new procedures) x range of 2 to 80 hours = **185,040 hours** (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

46,153 low-impact establishments (new procedures) x 2 hours = **92,306 hours** (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

252,814 high-impact establishments (updating) x range of 0.5 to 20 hours = **537,285 hours** (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

461,523 low-impact establishments x 0.5 hour = **230,763 hours** (See Table 3 for specific number of establishments in each size category for both high- and low-impact establishments; the burden hour for each size establishment; and details as to how OSHA arrived at the number of establishments.)

Total Burden Hours for (A): $185,040 + 92,306 + 537,285 + 230,763 =$
1,045,394

Cost: $1,045,394 \text{ burden hours} \times \$43.25 = \mathbf{\$45,213,292}$

(B) Periodic Inspection (Paragraph (c)(6)(ii))

OSHA assumes that a supervisor takes 20 minutes (.33 hour) to inspect an establishment's energy-control procedure once a year, and to prepare and maintain the inspection certificate. Therefore, the estimated total yearly burden hours and cost resulting from this paperwork requirement are:

Burden Hours: $(292,825 \text{ high-impact establishments} + 461,523 \text{ low-impact establishments}) \times .33 \text{ hour} = \mathbf{248,935 \text{ hours}}$

Cost: $248,935 \text{ burden hours} \times \$43.25 = \mathbf{\$10,766,439}$

(C) Training Certification Records (Paragraph (c)(7)(iv))

The Agency estimates that 6.56 million workers (i.e., 6,556,127) covered by the Standard require training each year (i.e., the total number of authorized and affected workers in high- and low-impact establishments listed in Tables 1 and 2). This provision specifies that employers must prepare, maintain and disclose training records. The Agency assumes that, each year, employers have to prepare and maintain training records for 23 percent, or 1,507,909 of (1,507,909 = 754,348 establishments x 1.998957) these workers (i.e., new workers and workers who require training), as well as maintain training records for the remaining 5,048,218 workers (5,048,218 = 754,348 establishments x 6.69216). In this regard, OSHA believes that a secretary spends 3 minutes (.05 hour) preparing and maintaining the record for the 23 percent of workers who are new or require retraining; and, another 1 minute (.02 hour) maintaining the already prepared record for the remaining workers (77 percent). Accordingly, the annual burden hour and cost estimates for the paperwork requirements associated with this training requirement are:

Burden Hours: $(754,348 \text{ establishments} - \text{prepare and maintain new training} \times$

$$1.998957 \text{ (workers per establishment)} \times .05 \text{ hour, rounded)} + (754,348 \text{ establishments} - \text{maintain training records} \times 6.69216 \text{ (workers per establishment), rounded}) \times .02 \text{ hour} = \mathbf{176,359 \text{ hours}}$$

Cost: $\mathbf{176,359 \text{ burden hours} \times \$25.45 = \$4,488,337}$

(D) Notification of Employees (Paragraph (c)(9))

OSHA has determined that the average number of lockout or tagout events that occur annually vary by the size of the establishment and whether the establishment is in a high-impact or low-impact industry. OSHA estimates that there are approximately 91,648 authorized workers¹¹ in very small, high-impact establishments who would have to notify affected workers of the application and removal of lockout/tagout devices (since this practice was not customary and normal in these facilities prior to the promulgation of the standard) (see Table 1). (91,648 workers = 203,008 establishments x 75 operations/establishment x .00602 workers/establishment.)

OSHA estimates that, on average, there are 75 maintenance or servicing operations conducted annually in each very small, high-impact establishment. For other high-impact establishments, it is estimated that there are approximately 296,309 authorized workers in establishments who would have to notify affected workers of the application and removal of lockout/tagout devices (see Table 1). It is estimated that, on average, there will be 150 such maintenance or services operations conducted annually in each of these establishments. (296,309 workers = 89,817 high-impact, other than very small establishments x 150 operations/establishment x .02199 workers/establishment.)

Additionally, there are 797,259 authorized workers in low-impact establishments who would have to notify affected workers of the application and removal of lockout/tagout devices (see Table 2). These workers are estimated to perform, on average, 12 maintenance or servicing operations annually for each low-impact establishment. (797,259 workers = 461,523 low-impact establishments x 12 operations/establishment x .14395 workers/establishment.)

OSHA estimates that a total of 60,887,058 lockout or tagout events occur annually where notification (not customarily performed) is needed. OSHA assumes that an authorized worker is a non-supervisory manufacturing worker who requires 15 seconds (.004 hour) to provide the required notification (i.e., 10 seconds for applying a lockout/tagout device, and five seconds for removing the device). Accordingly, the total annual burden hour and cost estimates for this notification are:

High-impact, very small establishments:

$$(203,008 \text{ establishments} \times .00602 \text{ workers/establishments, rounded}) \times 75 \text{ operations/year} = 6,873,597 \text{ events/year}$$

High-impact, other than very small establishments:

$$(89,817 \text{ establishments} \times .02199 \text{ workers/establishment, rounded}) \times 150 \text{ operations/year} = 44,446,347 \text{ events/year}$$

¹¹To calculate burden hours and cost, OSHA assumes that every authorized worker will notify the affected workers. The Standard requires only that one of the authorized workers (or an employer representative) notify the affected workers. Thus, OSHA likely overestimates the burden hours and cost associated with this requirement.

Low-impact establishments:

(461,523 establishments x .14395 workers/establishment, rounded) x 12 operations/year = 9,567,101 events/year

Burden Hours: 60,887,045 notifications x .004 hour = **243,547 hours**

Cost: 243,547 burden hours x \$26.18 = **\$6,376,060**

(E) Outside Personnel (Contractors, etc.) (Paragraph (f)(2)(i))

Paragraph (f)(2)(i) requires onsite and outside (contractor) employers to notify each other of their respective LO/TO procedures. Notification of respective LO/TO procedures takes 5 minutes (.08 hour) for the onsite and outside contractor to meet and discuss respective LO/TO procedures. As both the onsite employer and outside contractor attend the five-minute meeting, the Agency assumes a total of 10 minutes (.17 hour) for this requirement.

A supervisor/manager, at a wage rate of \$43.25 per hour will perform the notifications. Further, OSHA believes that contractors are involved in 10 percent of all lockout/tagout events. As determined above, there are **60,887,058** lockout/tagout events annually that require workers to be notified (**60,887,058** x 10% = 6,088,706 notifications) (6,088,706 notifications = 754,348 establishments x 8.071482 notifications per establishment).

Burden Hours: (754,348 establishments x 8.071482 notifications per establishment, rounded) x .17 hour = **1,035,080 hours**

Cost: 1,035,080 hours x \$43.25 = **\$44,767,210**

(F) Disclosure of Inspection and Training Certification Records (Paragraphs (c)(6)(ii) and (c)(7)(iv))

See Item 2.

Table A12- Estimated Annualized Respondent Burden Hours and Costs

Information Collection Requirement	No. of Respondents Employers [a]	No of Responses per Respondent (Frequency or Frequency x Workers per establishment) [b]	Total No. of Responses [c] (a x b=c)	Avg. Burden per Response (in Hrs.) [d]	Total Burden Hours [e] (c x d=e)	Mean Wage Rate [f]	Total Burden Costs [g] (e x f= g)
(A) Energy-Control Procedure (paragraph (c)(4)(i))							
<i>1. High-impact establishments (new procedures)</i>							
<i>Very Small</i>	18,474	1	18,474	2	36,948	\$43.25	\$1,598,001
<i>Small</i>	5,151	1	5,151	12	61,812	\$43.25	\$2,673,369
<i>Medium</i>	1,155	1	1,155	40	46,200	\$43.25	\$1,998,150
<i>Large</i>	501	1	501	89	40,080	\$43.25	\$1,733,460
<i>Sub-total</i>	25,281	-	25,281	-	185,040	-	\$8,002,980
<i>2. Low-impact establishments (new procedures)</i>							
<i>Transportation</i>	24,736	1	24,736	2	49,472	\$43.25	\$2,139,664
<i>Communications</i>	5,301	1	5,301	2	10,602	\$43.25	\$458,537
<i>Utilities</i>	1,360	1	1,360	2	2,720	\$43.25	\$117,640
<i>Wholesale Trade</i>	3,597	1	3,597	2	7,194	\$43.25	\$311,141
<i>Food Stores</i>	1,594	1	1,594	2	3,188	\$43.25	\$137,881
<i>Services</i>	9,565	1	9,565	2	19,130	\$43.25	\$827,373
<i>Sub-total</i>	46,153	-	46,153	-	92,306	-	\$3,992,236
<i>3. High-impact establishments (updating procedures)</i>							
<i>Very Small</i>	184,737	1	184,737	0.5	92,369	\$43.25	\$3,994,959
<i>Small</i>	51,514	1	51,514	4	206,056	\$43.25	\$8,911,922
<i>Medium</i>	11,550	1	11,550	12	138,600	\$43.25	\$5,994,450
<i>Large</i>	5,013	1	5,013	20	100,260	\$43.25	\$4,336,245
<i>Sub-total</i>	252,814	-	252,814	-	537,285	-	\$23,237,576
<i>4. Low-impact establishments (updating procedures)</i>							
<i>Transportation</i>	247,358	1	247,358	0.5	123,679	\$43.25	\$5,349,117
<i>Communications</i>	53,010	1	53,010	0.5	26,505	\$43.25	\$1,146,341
<i>Utilities</i>	13,595	1	13,595	0.5	6,798	\$43.25	\$294,014

Information Collection Requirement	No. of Respondents Employers [a]	No of Responses per Respondent (Frequency or Frequency x Workers per establishment) [b]	Total No. of Responses [c] (a x b=c)	Avg. Burden per Response (in Hrs.) [d]	Total Burden Hours [e] (c x d=e)	Mean Wage Rate [f]	Total Burden Costs [g] (e x f= g)
<i>Wholesale Trade</i>	35,969	1	35,969	0.5	17,985	\$43.25	\$777,851
<i>Food Stores</i>	15,937	1	15,937	0.5	7,969	\$43.25	\$344,659
<i>Services</i>	95,654	1	95,654	0.5	47,827	\$43.25	\$2,068,518
<i>Sub-total</i>	461,523		461,523		230,763	-	\$9,980,500
Total for (A)	-	-	785,771	-	1,045,394	-	\$45,213,292
(B) Periodic Inspection (paragraph (c)(6)(ii))							
<i>High-impact establishments</i>	292,825	1	292,825	0.33	96,632	\$43.25	\$4,179,334
<i>Low-impact establishments</i>	461,523	1	461,523	0.33	152,303	\$43.25	\$6,587,105
Total for (B)	-	-	754,348	-	248,935	-	\$10,766,439
(C) Training Certification Records (paragraph (c)(7)(iv))							
<i>Establishments with new/retrained workers</i>	754,348	1 x 1.998957	1,507,909	0.05	75,395	\$25.45	\$1,918,803
<i>Establishments with remaining workers</i>	754,348	1 x 6.69216	5,048,218	0.02	100,964	\$25.45	\$2,569,534
Total for (C)	-	-	6,556,127	-	176,359	-	\$4,488,337
(D) Notification of Employees (paragraph (c)(9))							
<i>High-impact, very small establishments</i>	203,008	75 x .00602	6,873,597	0.004	27,494	\$26.18	\$719,793
<i>High-impact, other than very small establishments</i>	89,817	150 x .02199	44,446,347	0.004	177,785	\$26.18	\$4,654,411
<i>Low-impact establishments</i>	461,523	12 x .14395	9,567,101	0.004	38,268	\$26.18	\$1,001,856
Total for (D)			60,887,045		243,547		\$6,376,060
(E) Outside Personnel (Contractors, etc.) (paragraph (f)(2)(i))							
	754,348	1 x 8.071482	6,088,706	0.17	1,035,080	\$43.25	\$44,767,210
GRAND TOTAL	754,348	-	75,072,010	-	2,749,315	-	\$111,611,338

13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14.)

- The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life on capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.
- If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collections services should be part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.
- Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

Paragraph (c)(5)(ii)(D) requires that each lock and tag indicate the identity of the authorized worker applying it. Paragraph (c)(5)(iii) requires that tags warn against hazardous conditions that could arise if the machine, equipment, or system is energized. In addition, the tag must include a legend such as one of the following: Do Not Start; Do Not Open; Do Not Close; Do Not Energize; Do Not Operate.

OSHA estimates that a total of 60,887,058 lockout or tagout events occur annually where notification is needed. The Agency is estimating the cost of a tag is \$1.00 at an average use of 7 times per tag. The cost for each tag and tie is 0.17 cents. Therefore, OSHA estimates that employers will incur a cost for tags of \$1,478,686.

Cost: 60,887,058 (notifications)/ 7 (average use of tag) x .17 cents = **\$1,478,686**

14. Provide estimates of the annualized cost to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), any other expense that would not have been incurred without this collection of information. Agencies also may aggregate cost estimates from Items 12, 13, and 14 into a single table.

The Agency has no annualized cost associated with enforcing the Standard. OSHA would only review records in the context of an investigation of a particular employer to determine compliance with the Standard. These activities are outside the scope of the PRA. See 5 CFR 1320.4(a)(2).

15. Explain the reasons for any program changes or adjustments.

OSHA is requesting an adjustment increase of 102,613 burden hours (from 2,646,702 hours to 2,749,315 hours). This increase is a result of updated data showing an increase in the number of

affected low-impact establishments (from 435,063 establishments to 461,523 establishments).

In addition, OSHA is requesting an adjustment increase of \$52,265 in operation and maintenance costs (from \$1,426,421 to \$1,478,686) associated with the purchase of tags and ties by employers. This increase is also a result of updated data showing an increase in the number of affected low-impact establishments.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection information, completion of report, publication dates, and other actions.

OSHA will not publish the information collected under the Standard.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be appropriate.

OSHA lists current valid control numbers in §§1910.8, 1915.8, 1917.4, 1918.4, and 1926.5 and publishes the expiration date in the Federal Register notice announcing OMB approval of the information-collection requirement. (See 5 CFR 1320.3(f)(3).) OSHA believes that this is the most appropriate and accurate mechanism to inform interested parties of these expiration dates

18. Explain each exception to the certification statement.

OSHA is not seeking an exception to the certification statement.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

This Supporting Statement does not contain any collection of information requirements that employ statistical methods.

Department Of Labor
Occupational Safety and Health Administration
Preclearance Supporting Statement

Table 1: Establishments and Employment in Manufacturing High-Impact Industries

					Number of Authorized Employees			Number of Additional Employees Covered		
Size Category	Employment Size	Total Number of Establishments	Number of Establishments Employing Authorized Workers	Total Number of Employees	Total	In Establishments with Compliant Lockout/Tagout Programs When Standard Published	In Establishments without Lockout/Tagout Programs When Standard Published	Total	In Establishments with Compliant Lockout/Tagout Programs When Standard Published	In Establishments without Lockout/Tagout Programs When Standard Published
Very Small	<20	203,008	203,008	1,145,600	114,560	22,912	91,648	114,560	22,912	91,648
Small	20-99	64,961	64,961	2,863,157	286,316	128,842	157,474	572,631	257,684	314,947
Medium	100-249	16,430	16,430	2,514,709	251,471	163,456	88,015	502,942	326,912	176,030
Large	250+	8,426	8,426	5,082,035	508,204	457,384	50,820	1,016,407	914,766	101,641
Total		292,825	292,825	11,605,501	1,160,551	772,594	387,957	2,206,540	1,522,274	684,266

Source: 2015 County Business Patterns Survey. U.S. Census Bureau, 2015.

Table 2: Establishments and Employment in Low-Impact Industries

				Number of Authorized Employees			Number of Additional Employees Covered		
Industry	Total Number of Establishments	Number of Establishments Employing Authorized Workers	Total Number of Employees	Total	In Establishments with Compliant Lockout / Tagout Programs When Standard Published	In Establishments without Lockout / Tagout Programs When Standard Published	Total	In Establishments with Compliant Lockout / Tagout Programs When Standard Published	In Establishments without Lockout / Tagout Programs When Standard Published
Transportation	247,358	247,358	4,236,294	222,622	111,311	111,311	222,622	111,311	111,311
Communications	53,010	53,010	1,026,329	646,722	323,361	323,361	646,722	323,361	323,361
Utilities	13,595	13,595	232,604	66,616	33,308	33,308	66,616	33,308	33,308
Wholesale Trade	413,437	35,969	6,076,109	197,830	98,915	98,915	197,830	98,915	98,915
Food Stores	237,863	15,937	5,351,235	20,718	10,359	10,359	20,718	10,359	10,359
Services	1,112,261	95,654	17,645,550	440,010	220,005	220,005	440,010	220,005	220,005
Total	2,077,524	461,523	34,568,121	1,594,518	797,259	797,259	1,594,518	797,259	797,259

Source: 2015 County Business Patterns Survey. U.S. Census Bureau, 2015.

Table 3: Written Procedures Assuming Half of the Original "Percent of establishments in Compliance When the Rule was Published"
Establishment Calculations -- High Impact Establishments

Establishment Size	Number of Establishments	Percent of Establishments in Compliance when Rule Published	Existing Establishments Originally Lacking LOTO Program	Existing Establishments with LOTO Procedures when Rule Published	Percent of Establishments with Procedures but without Unwritten Plans	Existing Establishments with Unwritten Plans when Rule Published	Total Existing Establishments Requiring Revision	Annual Firm Turnover	New Establishments Requiring Revision
Very Small	203,008	10%	182,707	20,301	10%	2,030	184,737	10%	18,474
Small	64,961	23%	50,020	14,941	10%	1,494	51,514	10%	5,151
Medium	16,430	33%	11,008	5,422	10%	542	11,550	10%	1,155
Large	8,426	45%	4,634	3,792	10%	379	5,013	10%	501
Total	292,825		248,369	44,456		4,445	252,814		25,281

Calculation of Hours for New Establishments (No Existing Program) --
High-Impact Establishments

Establishment Size	Number of Establishments	First Year Hours	Total Hours First Year
Very Small	18,474	2	36,948
Small	5,151	12	61,812
Medium	1,155	40	46,200
Large	501	80	40,080
Total	25,281		185,040

Calculation of Hours for Recurring Burden in Existing Establishments -- High-Impact Establishments

Establishment Size	Number of Establishments	Hours	Existing Establishment Hours	Total Hours High Impact
Very Small	184,737	0.5	92,369	129,317
Small	51,514	4	206,056	267,868
Medium	11,550	12	138,600	184,800
Large	5,013	20	100,260	140,340
Total	252,814		537,285	722,325

Calculation of Hours for New Establishments (No Existing Program) --
Low-Impact Establishments

	Number of Establishments	First Year Hours	Total Hours First Year
Transportation	24,736	2	49,472
Communications	5,301	2	10,602
Utilities	1,360	2	2,720
Wholesale Trade	3,597	2	7,194
Food Stores	1,594	2	3,188
Services	9,565	2	19,130
Total	46,153		92,306

Calculation of Hours for Recurring Burden in Existing Establishments -- Low-Impact
Establishments

	Number of Establishments	Hours	Existing Establishment Hours	Total Hours Low Impact
Transportation	247,358	0.5	123,679	173,151
Communications	53,010	0.5	26,505	37,107
Utilities	13,595	0.5	6,798	9,518
Wholesale Trade	35,969	0.5	17,985	25,179
Food Stores	15,937	0.5	7,968	11,156
Services	95,654	0.5	47,827	66,957
Total	461,523		230,763	323,068

Grand Totals

Total Hours

High-Impact
Establishments

722,325

Low-Impact
Establishments

323,069

Grand Total

Hours: 1,045,394

Table 4: Requested Burden-Hour Adjustments

Information Collection Requirement	Current Burden Hours	Requested Burden Hours	Adjustment to Hours	Cost Under Item 12	Responses	Explanation of Adjustment
(A) Energy-Control Procedure (paragraph (c)(4)(i))						
High-impact establishments developing new procedures	179,092	185,040	5,948	\$8,002,980	25,281	The estimated number of high-impact establishments developing new procedures decreased from 25,593 to 25,281 based on new data derived from the 2015 County Business Patterns.
Low-impact establishments developing new procedures	87,012	92,306	5,294	\$3,992,235	46,153	The estimated number of low-impact establishments developing new procedures increased from 43,506 to 46,153 based on new data derived from the 2015 County Business Patterns.
High-impact establishments updating procedures	520,153	537,285	17,132	\$23,237,576	252,814	The estimated number of high-impact establishments updating existing procedures decreased from 255,922 to 252,814 based on new data derived from the 2015 County Business Patterns.
Low-impact establishments updating procedures	217,532	230,763	13,231	\$9,980,500	461,523	The estimated number of low-impact establishments updating existing procedures increased from 435,063 to 461,523 based on new data derived from the 2015 County Business Patterns.
(B) Periodic Inspection Certification Records (paragraph (c)(6)(ii))	241,133	248,935	7,802	\$10,766,439	754,348	The estimated number of high-impact establishments being inspected annually decreased from 255,299 to 252,814; this increase was off-set by the number of low-impact establishments being inspected annually, which increased from 435,063 to 461,523 based on new data derived from the 2015 County Business Patterns.
(C) Training Certification Records (paragraph (c)(7)(iv))	167,527	176,359	8,832	\$4,488,337	6,556,127	Based on new data, the number of employees covered by the Standard who require training annually increased from 6.23 million to 6.56 million.

Information Collection Requirement	Current Burden Hours	Requested Burden Hours	Adjustment to Hours	Cost Under Item 12	Responses	Explanation of Adjustment
(D) Notification of Workers (paragraph (c)(9))	234,940	243,547	8,607	\$6,376,060	60,887,058	There was an increase in the estimated number of employee notifications from 58,735,978 to 60,887,058.
(E) Offsite Personnel (Contractors, etc.) (paragraph (f)(2)(i))	998,495	1,035,080	36,585	\$44,767,210	6,088,706	Lockout/Tagout notifications increased from 5,873,498 to 6,088,706.
(F) Disclosure of Inspection and Training Certification Records (under paragraphs (c)(6)(ii) and (c)(7))	818	0	-818	\$0	0	The Agency has no annualized cost associated with enforcing the Standard. OSHA would only review records in the context of an investigation of a particular employer to determine compliance with the Standard. These activities are outside the scope of the PRA. See 5 CFR 1320.4(a)(2).
TOTALS	2,646,702	2,749,315	102,613	\$111,611,338	75,072,010	

SEC. 2. Congressional Findings and Purpose

29 USC 651

(a) The Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.

(b) The Congress declares it to be its purpose and policy, through the exercise of its powers to regulate commerce among the several States and with foreign nations and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources --

(1) by encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment, and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions; (2) by providing that employers and employees have separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions;

(3) by authorizing the Secretary of Labor to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce, and by creating an Occupational Safety and Health Review Commission for carrying out adjudicatory functions under the Act;

(4) by building upon advances already made through employer and employee initiative for providing safe and healthful working conditions;

(5) by providing for research in the field of occupational safety and health, including the psychological factors involved, and by developing innovative methods, techniques, and approaches for dealing with occupational safety and health problems;

(6) by exploring ways to discover latent diseases, establishing causal connections between diseases and work in environmental conditions, and conducting other research relating to health problems, in recognition of the fact that occupational health standards present problems often different from those involved in occupational safety;

(7) by providing medical criteria which will assure insofar as practicable that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience;

(8) by providing for training programs to increase the number and competence of personnel engaged in the field of occupational safety and health; affecting the OSH Act since its passage in 1970 through January 1, 2004.

(9) by providing for the development and promulgation of occupational safety and health standards;

(10) by providing an effective enforcement program which shall include a prohibition against giving advance notice of any inspection and sanctions for any individual violating this prohibition;

(11) by encouraging the States to assume the fullest responsibility for the administration and enforcement of their occupational safety and health laws by providing grants to the States to assist in identifying their needs and responsibilities in the area of occupational safety and health, to develop plans in accordance with the provisions of this Act, to improve the administration and enforcement of State occupational safety and health laws, and to conduct experimental and demonstration projects in connection therewith;

(12) by providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health problem;

(13) by encouraging joint labor-management efforts to reduce injuries and disease arising out of employment.

6. Occupational Safety and Health Standards

29 USC 655:

(a) Without regard to chapter 5 of title 5, United States Code, or to the other subsections of this section, the Secretary shall, as soon as practicable during the period beginning with the effective date of this Act and ending two years after such date, by rule promulgate as an occupational safety or health standard any national consensus standard, and any established Federal standard, unless he determines that the promulgation of such a standard would not result in improved safety or health for specifically designated employees. In the event of conflict among any such standards, the Secretary shall promulgate the standard which assures the greatest protection of the safety or health of the affected employees.

(b) The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard in the following manner:

(1) Whenever the Secretary, upon the basis of information submitted to him in writing by an interested person, a representative of any organization of employers or employees, a nationally recognized standards-producing organization, the Secretary of Health and Human Services, the National Institute for Occupational Safety and Health, or a State or political subdivision, or on the basis of information developed by the Secretary or otherwise available to him, determines that a rule should be promulgated in order to serve the objectives of this Act, the Secretary may request the recommendations of an advisory committee appointed under section 7 of this Act. The Secretary shall provide such an advisory committee with any proposals of his own or of the Secretary of Health and Human Services, together with all pertinent factual information developed by the Secretary or the Secretary of Health and Human Services, or otherwise available, including the results of research, demonstrations, and experiments. An advisory committee shall submit to the Secretary its recommendations regarding the rule to be promulgated within ninety days from the date of its appointment or within such longer or shorter period as may be prescribed by the Secretary, but in no event for a period which is longer than two hundred and seventy days.

(2) The Secretary shall publish a proposed rule promulgating, modifying, or revoking an occupational safety or health standard in the Federal Register and shall afford interested persons a period of thirty days after publication to submit written data or comments. Where an advisory committee is appointed and the Secretary determines that a rule should be issued, he shall publish the proposed rule within sixty days after the submission of the advisory committee's recommendations or the expiration of the period prescribed by the Secretary for such submission.

(3) On or before the last day of the period provided for the submission of written data or comments under paragraph (2), any interested person may file with the Secretary written objections to the proposed rule, stating the grounds therefore and requesting a public hearing on such objections. Within thirty days after the last day for filing such objections, the Secretary shall publish in the Federal Register a notice specifying the occupational safety or health standard to which objections have been filed and a hearing requested, and specifying a time and place for such hearing.

(4) Within sixty days after the expiration of the period provided for the submission of written data or comments under paragraph (2), or within sixty days after the completion of any hearing held under paragraph (3), the Secretary shall issue a rule promulgating, modifying, or revoking an occupational safety or health standard or make a determination that a rule should not be issued. Such a rule may contain a provision delaying its effective date for such period (not in excess of ninety days) as the Secretary determines may be necessary to insure that affected employers and employees will be informed of the existence of the standard and of its terms and that employers affected are given an opportunity to familiarize themselves and their employees with the existence of the requirements of the standard.

(5) The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standard promulgated shall be expressed in terms of objective criteria and of the performance desired.

(6) (A) Any employer may apply to the Secretary for a temporary order granting a variance from a standard or any provision thereof promulgated under this section. Such temporary order shall be granted only if the employer files an application which meets the requirements of clause (B) and establishes

that --

(i) he is unable to comply with a standard by its effective date because of unavailability of professional or technical personnel or of materials and equipment needed to come into compliance with the standard or because necessary construction or alteration of facilities cannot be completed by the effective date,

(ii) he is taking all available steps to safeguard his employees against the hazards covered by the standard, and

(iii) he has an effective program for coming into compliance with the standard as quickly as practicable.

Any temporary order issued under this paragraph shall prescribe the practices, means, methods, operations, and processes which the employer must adopt and use while the order is in effect and state in detail his program for coming into compliance with the standard. Such a temporary order may be granted only after notice to employees and an opportunity for a hearing: *Provided*, That the Secretary may issue one interim order to be effective until a decision is made on the basis of the hearing. No temporary order may be in effect for longer than the period needed by the employer to achieve

compliance with the standard or one year, whichever is shorter, except that such an order may be renewed not more than twice (I) so long as the requirements of this paragraph are met and (II) if an application for renewal is filed at least 90 days prior to the expiration date of the order. No interim renewal of an order may remain in effect for longer than 180 days.

(B) An application for temporary order under this paragraph (6) shall contain:

(i) a specification of the standard or portion thereof from which the employer seeks a variance,

(ii) a representation by the employer, supported by representations from qualified persons having firsthand knowledge of the facts represented, that he is unable to comply with the standard or portion thereof and a detailed statement of the reasons therefor,

(iii) a statement of the steps he has taken and will take (with specific dates) to protect employees against the hazard covered by the standard,

(iv) a statement of when he expects to be able to comply with the standard and what steps he has taken and what steps he will take (with dates specified) to come into compliance with the standard, and

(v) a certification that he has informed his employees of the application by giving a copy thereof to their authorized representative, posting a statement giving a summary of the application and specifying where a copy may be examined at the place or places where notices to employees are normally posted, and by other appropriate means.

A description of how employees have been informed shall be contained in the certification. The information to employees shall also inform them of their right to petition the Secretary for a hearing.

(C) The Secretary is authorized to grant a variance from any standard or portion thereof whenever he determines, or the Secretary of Health and Human Services certifies, that such variance is necessary to permit an employer to participate in an experiment approved by him or the Secretary of Health and Human Services designed to demonstrate or validate new and improved techniques to safeguard the health or safety of workers.

(7) Any standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure. Where appropriate, such standard shall also prescribe suitable protective equipment and control or technological procedures to be used in connection with such hazards and shall provide for monitoring or measuring employee exposure at such locations and intervals, and in such manner as may be necessary for the protection of employees. In addition, where appropriate, any such standard shall prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at his cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure. In the event such medical examinations are in the nature of research, as determined by the Secretary of

Health and Human Services, such examinations may be furnished at the expense of the Secretary of Health and Human Services. The results of such examinations or tests shall be furnished only to the Secretary or the Secretary of Health and Human Services, and, at the request of the employee, to his physician. The Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning, monitoring or measuring, and medical examinations, as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard.

(8) Whenever a rule promulgated by the Secretary differs substantially from an existing national consensus standard, the Secretary shall, at the same time, publish in the Federal Register a statement of the reasons why the rule as adopted will better effectuate the purposes of this Act than the national consensus standard.

(c) (1) The Secretary shall provide, without regard to the requirements of chapter 5, title 5, United States Code, for an emergency temporary standard to take immediate effect upon publication in the Federal Register if he determines

--

(A) that employees are exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful or from new hazards, and

(B) that such emergency standard is necessary to protect employees from such danger.

(2) Such standard shall be effective until superseded by a standard promulgated in accordance with the procedures prescribed in paragraph (3) of this subsection.

(3) Upon publication of such standard in the Federal Register the Secretary shall commence a proceeding in accordance with section 6 (b) of this Act, and the standard as published shall also serve as a proposed rule for the proceeding. The Secretary shall promulgate a standard under this paragraph no later than six months after publication of the emergency standard as provided in paragraph (2) of this subsection.

(d) Any affected employer may apply to the Secretary for a rule or order for a variance from a standard promulgated under this section. Affected employees shall be given notice of each such application and an opportunity to participate in a hearing. The Secretary shall issue such rule or order if he determines on the record, after opportunity for an inspection where appropriate and a hearing, that the proponent of the variance has demonstrated by a preponderance of the evidence that the conditions, practices, means, methods, operations, or processes used or proposed to be used by an employer will provide employment and places of employment to his employees which are as safe and healthful as those which would prevail if he complied with the standard. The rule or order so issued shall prescribe the conditions the employer must maintain, and the practices, means, methods, operations, and

processes which he must adopt and utilize to the extent they differ from the standard in question. Such a rule or order may be modified or revoked upon application by an employer, employees, or by the Secretary on his own motion, in the manner prescribed for its issuance under this subsection at any time after six months from its issuance.

(e) Whenever the Secretary promulgates any standard, makes any rule, order, or decision, grants any exemption or extension of time, or compromises, mitigates, or settles any penalty assessed under this Act, he shall include a statement of the reasons for such action, which shall be published in the Federal Register.

(f) Any person who may be adversely affected by a standard issued under this section may at any time prior to the sixtieth day after such standard is promulgated file a petition challenging the validity of such standard with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such standard. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary. The filing of such petition shall not, unless otherwise ordered by the court, operate as a stay of the standard. The determinations of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole.

(g) In determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, businesses, workplaces or work environments. The Secretary shall also give due regard to the recommendations of the Secretary of Health and Human Services regarding the need for mandatory standards in determining the priority for establishing such standards.

SEC. 8. Inspections, Investigations, and Recordkeeping

(a) In order to carry out the purposes of this Act, the Secretary, upon presenting appropriate credentials to the owner, operator, or agent in charge, is authorized -- 29 USC 657

(1) to enter without delay and at reasonable times any factory, plant, establishment, construction site, or other area, workplace or environment where work is performed by an employee of an employer; and

(2) to inspect and investigate during regular working hours and at other reasonable times, and within reasonable limits and in a reasonable manner, any such place of employment and all pertinent conditions, structures, machines, apparatus, devices, equipment, and materials therein, and to question privately any such employer, owner, operator, agent or employee.

(b) In making his inspections and investigations under this Act the Secretary may require the attendance and testimony of witnesses and the production of evidence under oath. Witnesses shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In case of a contumacy, failure, or refusal of any person to obey such an order, any district court of the United States or the United States courts of any territory or possession, within the jurisdiction of which such person is found, or resides or transacts business, upon the application by the Secretary, shall have jurisdiction to issue to such person an order requiring such person to appear to produce evidence if, as, and when so ordered, and to give testimony relating to the matter under investigation or in question, and any failure to obey such order of the court may be punished by said court as a contempt thereof.

(c) (1) Each employer shall make, keep and preserve, and make available to the Secretary or the Secretary of Health and Human Services, such records regarding his activities relating to this Act as the Secretary, in cooperation with the Secretary of Health and Human Services, may prescribe by regulation as necessary or appropriate for the enforcement of this Act or for developing information regarding the causes and prevention of occupational accidents and illnesses. In order to carry out the provisions of this paragraph such regulations may include provisions requiring employers to conduct periodic inspections. The Secretary shall also issue regulations requiring that employers, through posting of notices or other appropriate means, keep their employees informed of their protections and obligations under this Act, including the provisions of applicable standards.

(2) The Secretary, in cooperation with the Secretary of Health and Human Services, shall prescribe regulations requiring employers to maintain accurate records of, and to make periodic reports on, work-related deaths, injuries and illnesses other than minor injuries requiring only first aid treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job.

(3) The Secretary, in cooperation with the Secretary of Health and Human Services, shall issue regulations requiring employers to maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured under section 6. Such regulations shall provide employees or their representatives with an opportunity to observe such monitoring or measuring, and to have access to the records thereof. Such regulations shall also make appropriate provision for each employee or former employee to have access to such records as will indicate his own exposure to toxic materials or harmful physical agents. Each employer shall promptly notify any employee who has been or is being exposed to toxic materials or harmful physical agents in concentrations or at levels which exceed those prescribed by an applicable occupational safety and health standard promulgated under section 6, and shall inform any employee who is being thus exposed of the corrective action being taken.

(d) Any information obtained by the Secretary, the Secretary of Health and Human Services, or a State agency under this Act shall be obtained with a minimum burden upon employers, especially those operating small businesses. Unnecessary duplication of efforts in obtaining information shall be reduced to the maximum extent feasible.

(e) Subject to regulations issued by the Secretary, a representative of the employer and a representative authorized by his employees shall be given an opportunity to accompany the Secretary or his authorized representative during the physical inspection of any workplace under subsection (a) for the purpose of aiding such inspection. Where there is no authorized employee representative, the Secretary or his authorized representative shall consult with a reasonable number of employees concerning matters of health and safety in the workplace.

(f) (1) Any employees or representative of employees who believe that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may request an inspection by giving notice to the Secretary or his authorized representative of such violation or danger. Any such notice shall be reduced to writing, shall set forth with reasonable particularity the grounds for the notice, and shall be signed by the employees or representative of employees, and a copy shall be provided the employer or his agent no later than at the time of inspection, except that, upon the request of the person giving such notice, his name and the names of individual employees referred to therein shall not appear in such copy or on any record published, released, or made available pursuant to subsection (g) of this section. If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, he shall make a special inspection in accordance with the provisions of this section as soon as practicable, to determine if such violation or danger exists. If the Secretary determines there are no reasonable grounds to believe that a violation or danger exists he shall notify the employees or representative of the employees in writing of such determination.

(2) Prior to or during any inspection of a workplace, any employees

or representative of employees employed in such workplace may notify the Secretary or any representative of the Secretary responsible for conducting the inspection, in writing, of any violation of this Act which they have reason to believe exists in such workplace. The Secretary shall, by regulation, establish procedures for informal review of any refusal by a representative of the Secretary to issue a citation with respect to any such alleged violation and shall furnish the employees or representative of employees requesting such review a written statement of the reasons for the Secretary's final disposition of the case.

(g) (1) The Secretary and Secretary of Health and Human Services are authorized to compile, analyze, and publish, either in summary or detailed form, all reports or information obtained under this section.

(2) The Secretary and the Secretary of Health and Human Services shall each prescribe such rules and regulations as he may deem necessary to carry out their responsibilities under this Act, including rules and regulations dealing with the inspection of an employer's establishment.

(h) The Secretary shall not use the results of enforcement activities, such as the number of citations issued or penalties assessed, to evaluate employees directly involved in enforcement activities under this Act or to impose quotas or goals with regard to the results of such activities.

Pub. L. 105-198 added subsection (h).

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Title 29: Labor
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§1910.147 The control of hazardous energy (lockout/tagout).

(a) *Scope, application, and purpose*—(1) *Scope.* (i) This standard covers the servicing and maintenance of machines and equipment in which the *unexpected* energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy.

(ii) This standard does not cover the following:

(A) Construction and agriculture employment;

(B) Employment covered by parts 1915, 1917, and 1918 of this title;

(C) Installations under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution, including related equipment for communication or metering;

(D) Exposure to electrical hazards from work on, near, or with conductors or equipment in electric-utilization installations, which is covered by subpart S of this part; and

(E) Oil and gas well drilling and servicing.

(2) *Application.* (i) This standard applies to the control of energy during servicing and/or maintenance of machines and equipment.

(ii) Normal production operations are not covered by this standard (See subpart O of this part). Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if:

(A) An employee is required to remove or bypass a guard or other safety device; or

(B) An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually 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)(iii):* 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 O of this part).

(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.

(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)

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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.

(3) *Purpose.* (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 otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

(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.

(b) *Definitions applicable to this section.*

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

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

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

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

Energy isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

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

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

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

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or 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. Any work performed to prepare a machine or equipment to perform its normal production operation.

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

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

(c) *General—(1) Energy control program.* The employer shall establish a program consisting of energy control procedures, employee training and periodic inspections to ensure 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.

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

(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.

(iii) 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.

(3) *Full employee protection.* (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.

(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 equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration 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 device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

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

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 machine or equipment 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 reenergization of the machine or equipment during servicing or maintenance.

(ii) The procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:

- (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 or tagout 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.

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

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

- (A) *Durable.* (1) Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- (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.
- (3) Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
- (B) *Standardized.* Lockout and tagout devices shall be 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) *Substantial—(1) Lockout devices.* 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.
- (2) *Tagout devices.* Tagout devices, including and 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.

(D) *Identifiable.* Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).

(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.*

(6) *Periodic inspection.* (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.

(A) The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected.

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

(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.

(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 control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section.

(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 involved in the inspection, and the person performing the inspection.

(7) *Training and communication.* (i) The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

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

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

(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.

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

(A) Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

(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) 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.

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

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

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

(iii) Employee retraining.

(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 present a new hazard, or when there is a change in the energy control procedures.

(B) Additional retraining shall also 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) The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

(iv) The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

(8) *Energy isolation.* Lockout or tagout shall be performed only by the authorized employees who are performing the servicing or maintenance.

(9) *Notification of employees.* 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.

(d) *Application of control.* 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:

(1) *Preparation for shutdown.* 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.

(2) *Machine or equipment shutdown.* 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.

(3) *Machine or equipment isolation.* 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).

(4) *Lockout or tagout device application.* (i) Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.

(ii) Lockout devices, where used, shall be affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position.

(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.

(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.

(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.

(5) *Stored energy.* (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.

(ii) If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

(6) *Verification of isolation.* Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and deenergization of the machine or equipment have been accomplished.

(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 the authorized employee(s) to ensure the following:

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

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

(ii) After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.

(3) *Lockout or tagout devices removal.* 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 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) *Additional requirements—(1) Testing or positioning of machines, equipment or components thereof.* In situations in which lockout or tagout devices 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:

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

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

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

(iv) Energize and proceed with testing or positioning;

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

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

(ii) The on-site employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside employer's energy control program.

(3) *Group lockout or tagout.* (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.

(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:

(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);

(B) Provision 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 and

(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 work forces and ensure continuity of protection; and

(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.

(4) *Shift or personnel changes.* 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 of 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 the release of stored energy.

NOTE: The following appendix to §1910.147 serves as a non-mandatory guideline to assist employers and employees in complying with the requirements of this section, as well as to provide other helpful information. Nothing in the appendix adds to or detracts from any of the requirements of this section.

APPENDIX A TO §1910.147—TYPICAL MINIMAL LOCKOUT PROCEDURE

General

The following simple lockout procedure is provided to assist employers in developing their procedures so they meet the requirements of this standard. When the energy isolating devices are not lockable, tagout may be used, provided the employer complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the employer must provide full employee protection (see paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented and utilized.

Lockout Procedure

Lockout procedure for

(Name of Company for single procedure or identification of equipment if multiple procedures are used)

Purpose

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance With This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize or use that machine or equipment.

Type of compliance enforcement to be taken for violation of the above.

Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Name(s)/Job Title(s) of affected employees and how to notify.

(2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

Type(s) and location(s) of machine or equipment operating controls.

- (4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices.

- (5) Lock out the energy isolating device(s) with assigned individual lock(s).

(6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of stored energy—methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

CAUTION: Return operating control(s) to neutral or “off” position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment.

- (8) The machine or equipment is now locked out.

Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

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

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

(3) Verify that the controls are in neutral.

(4) Remove the lockout devices and reenergize the machine or equipment.

NOTE: The removal of some forms of blocking may require reenergization of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

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