



OSHA SAFETY TRAINING NEWSLETTER

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OSHA releases semiannual agenda

Safety trainers should keep up with OSHA’s rulemaking efforts. OSHA’s semiannual regulatory agenda was released on May 21, 2015.

Walking-working surfaces and personal fall protection systems

Slips, trips, and falls are among the leading causes of work-related injuries and fatalities. Since 1990, when OSHA initially published a proposed rule on this topic, new technologies and procedures have become available to protect employees from these hazards.

In 2003, OSHA determined that the rule proposed in 1990 was out-of-date and did not reflect current industry practice or technology. The agency published a second proposed rule on May 24, 2010. Public hearings were held in January 2011. The comments have been reviewed, and OSHA anticipates publication of the final rule in August 2015.

Improve tracking of workplace injuries and illnesses

In another final rule stage agenda item, OSHA wants establishments with more than 250 employees (and who are already required to keep injury and illness records) to electronically submit the records

on a quarterly basis to OSHA. The agency is also proposing that establishments with 20 or more employees, in certain industries with high injury and illness rates, be required to submit only their summary of work-related injuries and illnesses electronically to OSHA once a year. Currently, many such firms report this information to OSHA under OSHA’s Data Initiative (ODI). The proposed rule would replace the ODI.

OSHA issued a proposed rule on Nov. 8, 2013. The agenda indicates a final rule is planned for publication in August 2015.

Proposed rule stage

The following agenda items in the proposed rule stage are of interest to trainers.

Crane operator qualification in construction. General industry trainers may be interested in OSHA’s approach to training certification. The rulemaking will identify criteria for employers to follow to ensure their crane operators are completely qualified to operate cranes safely on construction work sites. In the 2010 final cranes standard, OSHA established crane operator certifications as the

sole criterion for operator safety. Following publication of the final crane standard, stakeholders informed OSHA that certification did not by itself establish a safe

enough level of experience and competence. OSHA responded by publishing a final rule postponing the deadline for operator certification. This rulemaking will also clarify issues surrounding operator certification, including the “type and capacity” requirement

from the 2010 final construction cranes standard. The agenda indicates a proposed rule is planned for publication in December 2015.

See **Agenda**, page 2



IN THIS ISSUE

- SilicosisPg. 2
- Quick Tips:
 - Fire Prevention Week . . .Pg. 3
- Q & A:
 - Transgender bathrooms .Pg. 3
- ASSE alliancePg. 5
- PSM chemical concentrationsPg. 4
- Food slicer, grinder safety. .Pg. 5
- Blueprint and Selections:
 - Electrical LOTO.Pg. 6

Agenda, from page 1

Beryllium. The use of beryllium has become more widespread in general industry. Some workers exposed to beryllium or beryllium compounds may develop beryllium sensitization, chronic beryllium disease, lung cancer, or skin disease. OSHA was petitioned to issue an emergency temporary standard for a permissible exposure limit to beryllium in 1999 and 2001. OSHA denied the petitions but stated its intent to collect needed information on beryllium's toxicity, risks, and patterns of usage. The

agenda indicates a proposed rule publication date of May 2015.

Crystalline silica. Many workers in a wide range of industries are exposed to it, usually in the form of respirable quartz. Chronic silicosis is a uniquely occupational disease resulting from exposure over long periods of time (10 years or more). Exposure to high levels of respirable crystalline silica causes acute or accelerated forms of silicosis that are ultimately fatal. The current OSHA permissible exposure limit for general industry is based on a 1968 formula. The current

limit for construction and shipyards is based on obsolete particle counting technology. Both industry and worker groups have recognized that a comprehensive standard for crystalline silica is needed to provide for exposure monitoring, medical surveillance, and worker training. The proposed rule was published on Sept. 12, 2013.

More information

The complete agenda is available on the Office of Management and Budget's website at: www.reginfo.gov/public/do/eAgendaMain.

NIOSH provides update on silicosis

Silicosis is a potentially fatal but preventable occupational lung disease caused by inhaling respirable particles containing crystalline silicon dioxide (silica). Quartz, a type of crystalline silica, is the second most abundant mineral in the earth's crust and workers across a wide range of occupations and industries are exposed to silica-containing dusts. The risks, causes, and prevention of this avoidable disease have been known for decades. There is no cure for silicosis and only symptomatic treatment is available, including lung transplantation for the most severe cases. New national data have become available since a February 13, 2015, report on silicosis surveillance. The new data (available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm6423a7.htm?s_cid=mm6423a7_w) show that

silicosis continues to cause or contribute to the deaths of about 100 Americans each year. There were 88, 103, and 111 such deaths in 2011, 2012, and 2013 respectively.

The most common form of silicosis, chronic silicosis, takes at least 10 years from first exposure to develop, and death does not typically occur until many years after that. Onset of silicosis can be faster and the severity of disease worse in the setting of high-level exposures, which can cause accelerated or acute silicosis. From 2011–2013, 12 people younger than 45 years of age had silicosis listed as causing or contributing to death.

Examples of occupations with known high silica exposure include: mining, quarrying, sandblasting, rock drilling, road construction, pottery making, stone

masonry, and tunneling operations. New settings for occupational exposure to respirable crystalline silica continue to emerge. For example, hazardous silica exposures have been newly documented during hydraulic fracturing of gas and oil wells and during fabrication and installation of engineered stone countertops.

The National Institute for Occupational Safety and Health (NIOSH) notes that, while silicosis mortality in the U.S. has declined over time, the continuing occurrence of silicosis deaths in young adults and reports of new occupations and tasks that place workers at risk for silicosis underscore the need for strengthening efforts to limit workplace exposure to respirable crystalline silica.

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Quick Tips

NFPA announces Fire Prevention Week theme

Every bedroom needs a working smoke alarm. If you didn't know that, you're not alone. An online questionnaire distributed by the National Fire Protection Association (NFPA) showed that less than half (42 percent) of approximately 36,000 respondents did not know that a smoke alarm should be installed in each bedroom of the home.

In an effort to better educate the public about this "sleepy" smoke alarm requirement, NFPA — the official sponsor of Fire Prevention Week for more than 90 years — announced "Hear the Beep Where You Sleep: Every Bedroom Needs a Working Smoke Alarm" as the

theme for this year's Fire Prevention Week campaign, October 4–10, 2015 .

According to NFPA statistics, half of all U.S. home fire deaths occur at night between the hours of 11:00 pm and 7:00 am, when people are most likely to be sleeping. Having a working smoke alarm in the home cuts the risk of dying in a fire in half. These facts underscore the extreme importance of having working smoke alarms in all bedrooms.

"Because fires can happen when people are sleeping, having working smoke alarms in bedrooms is a critical element of home fire

safety," said Lorraine Carli, NFPA's vice president of Outreach and Advocacy. Carli notes that three out of every five U.S. home fire deaths resulted from fires in homes with no smoke alarms or no working smoke alarms. "Smoke alarms can make the difference between life and death in a fire by alerting people in time to escape safely, but they need to be installed in all the required locations, including all bedrooms, and they need to be working."

More information on this year's Fire Prevention Week campaign is available from NFPA at: www.firepreventionweek.org.

Q&A: Does OSHA say anything about restroom access for transgender workers?

OSHA recently published a *Guide to Restroom Access for Transgender Workers*. The publication provides guidance to employers on best practices regarding restroom access for transgender workers.

OSHA's Sanitation standard requires that all employers under its jurisdiction provide employees with sanitary and available toilet facilities so that employees will not suffer the adverse health effects that can result if toilets are not available when employees need them.

"The core principle is that all employees, including transgender employees, should have access to restrooms that correspond to their gender identity," said Assistant Secretary of Labor for Occupational Safety and Health Dr. David Michaels. "OSHA's goal is to

assure that employers provide a safe and healthful working environment for all employees."

Many companies have implemented written policies to ensure that all employees — including transgender employees — have prompt access to appropriate sanitary facilities. The core belief underlying these policies is that all employees should be permitted to use the facilities that correspond with their gender identify. For example, a person who identifies as a man should be permitted to use men's restrooms, and a person who identifies as a woman should be permitted to use women's restrooms. The employee should determine the most appropriate and safest option for him- or herself.

The publication includes a description of best practices and also

makes employers aware of federal, state, and local laws that reaffirm the core principle of providing employees with access to restroom facilities based on gender identification.

Under these best practices, employees are not asked to provide any medical or legal documentation of their gender identity in order to have access to gender-appropriate facilities. In addition, no employee should be required to use a segregated facility apart from other employees because of their gender identity or transgender status. Under OSHA standards, employees generally may not be limited to using facilities that are an unreasonable distance or travel time from the employee's worksite.

The guide is available on our website at: www.jjkeller.com/wsc.

OSHA renews ASSE alliance

OSHA recently renewed its alliance with the American Society of Safety Engineers (ASSE). During the new five year agreement, OSHA and ASSE will address construction safety, temporary workers and hazards within general industry.

“Since our alliance began more than a decade ago, the ASSE has

been a champion partner of the agency, communicating OSHA information to its members and supporting our national initiatives like the National Safety Stand-Down to Prevent Falls in Construction,” said Assistant Secretary of Labor for Occupational Safety and Health Dr. David Michaels.



Through the alliance, OSHA and ASSE will work to provide members and others with guidance and

training resources on protecting worker safety and health and understanding workers’ rights and employers’ responsibilities under the OSH Act.

OSHA changes policy on PSM chemical concentrations

If an OSHA policy change affects how the process safety management (PSM) standard applies to your operations, review your PSM training program.

An OSHA memorandum for regional administrators and state plan designees revises the enforcement policy on the concentration of a chemical that must be present in a process for the purpose of determining whether the chemical is at or above the threshold quantity listed in Appendix A of the PSM standard (§1910.119).

OSHA will now use a “one percent test” similar to that adopted by EPA for enforcement of the Clean Air Act Amendments. This means that, for purposes of OSHA PSM, when employers determine whether a process involves a chemical (whether pure or in a mixture) at or above the specified threshold quantities listed in §1910.119 Appendix A, they must calculate:

- The total weight of any chemical in the process at a concentration that meets or exceeds the concentration listed for that chemical in Appendix A, and
- With respect to chemicals for which no concentration is specified in Appendix A, the total weight of the chemical in the process at a concentration of one

percent or greater. However, the employer need not include the weight of such chemicals in any portion of the process in which the partial pressure of the chemical in the vapor space under handling or storage conditions is less than 10 millimeters of mercury (mm Hg). The employer shall document this partial pressure determination.

In determining the weight of a chemical present in a mixture, only the weight of the chemical itself, exclusive of any solvent, solution, or carrier is counted.

Prior policy

The prior OSHA policy, which is no longer valid, used maximum commercial grade or pure (chemical) grade as a determining factor for coverage. OSHA was concerned that this policy did not adequately account for the potential of some chemicals listed in Appendix A without specified concentrations to retain their hazardous characteristics even at relatively low concentrations. EPA had concluded years ago that even one-percent solutions of regulated substances may “reasonably be anticipated” to cause effects of concern in an accidental release. OSHA’s prior maximum commercial grade policy provided

no clear threshold above which a chemical mixture was covered, and could permit dangerous concentrations of hazardous chemicals in mixtures to be exempted from PSM coverage, OSHA now says.

Examples

A few examples illustrate the new policy’s application. If a process involves a 2000-pound mixture of 50 percent chloropicrin by weight and an appropriate solvent, the following formula determines coverage:

Weight x [concentration] = amount of highly hazardous chemical
2000 pounds x 50 percent = 1000 pounds chloropicrin

1000 pounds exceeds the 500-pound threshold quantity in Appendix A.

For a chemical with a listed concentration, the same formula applies. For example, if a process involves a 10,000 pound mixture of 70 percent diacetyl peroxide and an appropriate solvent, the calculation is as follows:

Weight x [concentration] = amount of highly hazardous chemical
10000 pounds x 70 percent = 7000 pounds of diacetyl peroxide
7000 pounds exceeds the 5000-pound threshold quantity.

But, in contrast, 5000 pounds of 70 percent diacetyl peroxide is not covered:

Weight x [concentration] = amount of highly hazardous chemical
5000 pounds x 70 percent = 3500 pounds of diacetyl peroxide

3500 pounds is less than the 5000-pound threshold quantity.

More information

Appendix A of the memorandum gives questions and answers to typical situations compliance officers

may encounter in determining the concentration of a highly hazardous chemical for PSM coverage.

The June 5, 2015, memorandum is available on our website at: www.jjkeller.com/wsc.

Ensure workers safely operate kitchen equipment

Food slicers and meat grinders can cause serious lacerations or amputations. In 2013, at least 4,000 incidents involving meat slicers occurred that resulted in lost workdays. If your employees operate this equipment, an OSHA Fact Sheet (available on our website at: www.jjkeller.com/wsc), along with the equipment manufacturer's manual, can help you train them to stay safe.

Food slicers

When food slicers are in use, or turned off but still energized, the top and bottom of the slicer are hazardous areas where workers' fingers and hands may contact the blade.

Rotary blade food slicers must be used with guards that cover the unused portions of the slicer blade on both the top and bottom of the slicer. Employers should buy slicers already equipped with a feeding attachment on the food holder sliding mechanism or purchase this attachment separately and install it before use.

Worker training topics for using slicers should include to:

- Never put a hand behind the food chute guard,
- Never place food into the slicer by hand-feeding or hand pressure,
- Use a pushing/guarding device with chute-fed slicers,
- Use plungers to feed food into chute-fed slicers or use the feeding attachment located on the food holder,

- Turn off the food slicer when changing foods,
- Keep hands out of the danger zone on the back of the blade where the sliced food exits, and
- Turn off and unplug slicers when not in use or when left unattended for any amount of time.

Meat grinders

Employers must ensure that meat grinders are retrofitted with a primary safeguard (e.g., properly designed tapered throat or fixed guard) if a worker's hand may come into contact with the point-of-operation (i.e., the auger cutter area).

Worker training topics should include to:

- Only use a proper plunger when feeding meat into grinders,
- Operate grinders only when feeding trays and throats have been installed,
- Use the meat grinder only for its intended purpose, and
- Turn off and unplug grinders when not in use or when left unattended for any period of time.

General training

Employers should ensure that all operators receive on-the-job training under the direct supervision of experienced operators until they can work safely on their own. Thorough operator training, including equipment-specific topics, should be based on the manufacturer's recommendations and include the following safe operating and



cleaning procedures for the equipment they will use:

- Hazards associated with food slicers and meat grinders;
- How to use the required safeguards and how they provide protection;
- How and under what circumstances to remove safeguards (in most cases, by repair or maintenance personnel only);
- How to prevent unexpected start-up during cleaning or maintenance using appropriate lockout/tagout procedures;
- Hand protector usage and limitations; and
- What to do (e.g., contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.

Training is necessary for new operators and maintenance or setup workers, when any new or altered safeguards are put in service, or when workers are assigned to a new machine or operation.

Training Blueprint

Electrical safety depends on LOTO

OSHA's lockout/tagout (LOTO) provisions in the electrical safety standards at 1910.333(b) apply when there are electrical hazards from exposed electrical parts during general industry operations. The requirements outline safe procedures for working on or near exposed deenergized parts.

Overview

Note 2 under the requirements for working on or near exposed deenergized parts at 1910.333(b) (2) states: "Lockout and tagging procedures that comply with paragraphs (c) through (f) of 1910.147 will also be deemed to comply with paragraph (b)(2) of this section provided that: (1) The procedures address the electrical safety hazards covered by 29 CFR part 1910 subpart S; and (2) The procedures also incorporated the requirements of paragraphs 1910.333(b)(2)(iii) (D) and (iv)(B)."

Specific training elements

1. Introduce lockout/tagout (LOTO).

When service, maintenance, or repair work involves exposed wiring, LOTO for electrical safety is necessary to keep employees safe. During LOTO, an energy isolating device, such as an electrical disconnect switch is operated to open the circuit. A lock is applied to the switch to keep it in the open or "off" position. A tag is applied along with the lock to serve as a warning.

Lockout means applying a lock on a disconnecting switch or other energy isolating device to keep energy from flowing to the circuit.

Tagout means applying a warning tag to an energy isolating device to serve as a warning.

An **energy isolating device** is a mechanical device that physically prevents the transmission or release of energy. Examples include: circuit breakers or disconnect switches. Push buttons, selector switches, and interlocked guards are not energy isolating devices.

2. Describe when is LOTO used.

LOTO doesn't need to be applied to live parts that operate at less than 50 volts to ground if there will be no increased exposure to electrical burns or to explosion due to electric arcs. An example would be low-voltage phone lines.

Otherwise, live parts operating at 50 volts or more must be deenergized (locked and tagged out) before you can work on or near them.

The only exception to this is if the employer can demonstrate that LOTO introduces additional or increased hazards or is infeasible due to equipment design or operational limitations.

3. Provide information on the available electric energy sources in your workplace.

Before you can start a LOTO procedure, you must know how much electrical energy is available to the circuit you're going to work on.

Be aware that a circuit's current is related to electrical injuries. The extent of electrical injuries received depends on the amount of current, the pathway of the current through the body, and the duration of current flow through the body.

When current flows from the hand to the foot for just one second, the estimated effects are as follows:

- 1 mA — Just a faint tingle.
- 5 mA — Slight shock felt. Disturbing, but not painful. Most people can let go. However, strong involuntary movements can cause injuries.
- 6–25 mA (women) and 9–30 mA (men) — Painful shock. Muscular control is lost. This is the range where "freezing currents" start. It may not be possible to let go.
- 50–150 mA — Extremely painful shock, respiratory arrest (breathing stops), severe muscle contractions. Death is possible.
- 1,000–4,300 milliamps (1–4.3 amps) — Ventricular fibrillation occurs. Muscles contract; nerve damage occurs. Death is likely.
- 10,000 mA (10 amps) — Cardiac arrest and severe burns occur. Death is probable.
- 15,000 mA (15 amps) — Lowest overcurrent at which a typical fuse or circuit breaker opens a circuit.

There's a difference of less than 100 milliamps between a shock you can hardly notice and one that can kill.

Longer exposure times increase the danger. If a shock causes your muscles to freeze up so you can't let go, you'll continue to be shocked.

Moisture is another factor in the severity of a shock. Wet skin has a lower resistance value in ohms than does dry skin. With a lower





resistance value, a shock received through wet skin is more likely to be fatal.

A shock travels through the body to the ground. If the path is through the heart, the shock can be lethal.

LOTO eliminates the shock and electrocution hazards of exposed wiring.

4. Outline the basic steps in an electrical safety LOTO procedure.

LOTO procedures will include the following steps. Review the circuit's LOTO procedure before you start LOTO. Always follow the steps in the right order:

1. **Prepare for shutdown** — Review the circuit's energy sources, identify energy isolating devices, and make sure affected employees have been notified about the LOTO.
2. **Shutdown of equipment** — If you will be working on the wiring in a machine or other equipment, follow the normal operating procedures and use control buttons to turn off the machine or equipment.
3. **Isolate the circuit**, machine, or equipment — Operate each energy isolating device to stop the flow of energy to the circuit, machine, or other equipment.

4. **Apply LOTO devices** — Apply your lock(s) and tag(s) to the energy isolating device(s) to keep them in the "open," "safe," or "off" position.

A lock may be placed without a tag only under the following conditions:

- (1) Only one circuit or piece of equipment is deenergized, and
- (2) The lockout period does not extend beyond the work shift, and
- (3) Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.

If a lock can't be applied, or if the employer can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock. A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

5. **Release stored energy** — Stored electric energy which might endanger personnel must be released. Capacitors must be discharged and high capacitance elements must be short-circuited and grounded. If the capacitors or associated equipment are handled in meeting this requirement, the qualified person must treat them as being energized and use proper PPE, etc.

Stored non-electrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be acciden-

tally energized by the device. For example, drain pressure from lines, insert blocks to keep elevated parts stable, etc.

6. **Verify isolation of equipment** — If you are working on the wiring in a machine or other equipment, try to turn on the power at the control panel, check the readings on pressure gauges, etc. A qualified person uses test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and verifies that the circuit elements and equipment parts are deenergized. The test also determines if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage back-feed even though specific parts of the circuit have been deenergized and are presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment must be checked for proper operation immediately after this test.

5. Outline the steps for releasing the equipment from LOTO.

When the repair, servicing, or maintenance work is done:

- 1) Make sure the wiring is operationally intact (clear of tools and other materials, guards are in place, etc.). If you were working on the wiring in a machine or other equipment, make sure the machine is operationally intact.
- 2) Make sure employees are in safe areas,
- 3) Remove the lock(s) and tag(s) that you applied, and
- 4) Notify affected employees that the LOTO has been removed before the circuit is energized.

Answers to Safety Selections quiz

1. False; 2. False; 3. True; 4. True; 5. True.

Safety Selections

The Safety Selections series can be used to conduct periodic safety meetings. The materials may be used by the safety director or other instructor as the basis for the safety discussion. J. J. Keller & Associates, Inc. grants permission to subscribers to reproduce the text of Safety Selections for internal use at one business location only provided that J. J. Keller's copyright notice remains visible on all copies. It can be reproduced and distributed to workers as a handy reminder.

Electrical LOTO leaves nothing to chance

When it comes to exposed wiring, have no doubt — lock it out!

With very limited exceptions, live parts operating at 50 volts or more must be deenergized (locked and tagged out — LOTO) before you can work on or near them.

During LOTO, an energy isolating device, such as an electrical disconnect switch is operated to open the circuit. A lock is applied to the switch to keep it in the “open,” “safe,” or “off” position. A tag is applied along with the lock to serve as a warning.

LOTO procedures will include the following steps. Review the circuit's LOTO procedure before you start LOTO. Always follow the steps in the right order:

1. **Prepare for shutdown** — Know how much power is in the circuit. Notify affected employees about the LOTO.
2. **Shutdown of equipment** — If you'll be working on the wiring in a machine or other equipment, follow the normal operating procedures to shut off the machine.
3. **Isolation** — Operate each energy isolating device to stop

the flow of energy to the circuit, machine, or other equipment.

4. **Apply LOTO devices** — Apply your lock(s) and tag(s) to the energy isolating device(s) to keep them in the “open,” “safe,” or “off” position.

A lock may be placed without a tag only under the following conditions:

- (1) Only one circuit or piece of equipment is deenergized, and
- (2) The lockout period does not extend beyond the work shift, and
- (3) Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.

If a lock can't be applied, or if the employer can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.

A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating



circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

5. **Release stored energy** — Capacitors must be discharged and high capacitance elements must be short-circuited and grounded by a qualified person if the stored energy might endanger personnel.

6. **Verify isolation of equipment** — A qualified person uses test equipment to test the circuit elements and verifies that the circuit elements and equipment parts are deenergized. The test also determines if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and are presumed to be safe.



Quiz — Electrical LOTO leaves nothing to chance

For each question, show if you think the statement is True or False.

- | | | |
|---|------|-------|
| 1. A lock must never be placed without a tag. | True | False |
| 2. Electrical circuits never have hazardous stored energy. | True | False |
| 3. Know how much power is in a circuit before you lock and tag it out. | True | False |
| 4. A qualified person uses test equipment to verify circuits are deenergized. | True | False |
| 5. Generally, a tag is applied along with the lock to serve as a warning. | True | False |

Name: _____ Date: _____