

Lock Out / Tag Out : Protecting People and Being Compliant

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SMSHE
SOUTHEASTERN MICHIGAN SOCIETY
FOR HEALTHCARE ENGINEERING

History & Facts

- Global HQ in Milwaukee
- Founded in 1914, offering: Promotional calendars, POP displays, glass beer signs, pre -billboard road signs
- \$1.17 bil. USD in Fiscal 2018 (August – July)
- Employs 6,200 people in the Americas, Europe and Asia-Pacific
- Operations in 29 countries, Distribution in more than 90 countries



Identified every pipe in the Manhattan Project's weapons plant in the 1940s.



Nameplates & component markers for the 1960s Gemini Spacecraft.



First Service Project: Pipe Marker install on the Alaska Pipeline in 1984.



Sorbents helped clean up the 2010 Deepwater Horizon oil spill.

What we do.....

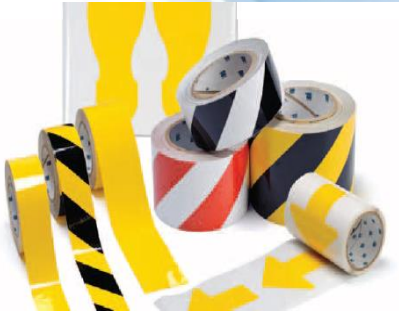
Safety & Facility ID Products



Spill Control



Visual Management Solutions



Lock Out Tag Out



LOTO: Your life is in Your Hands

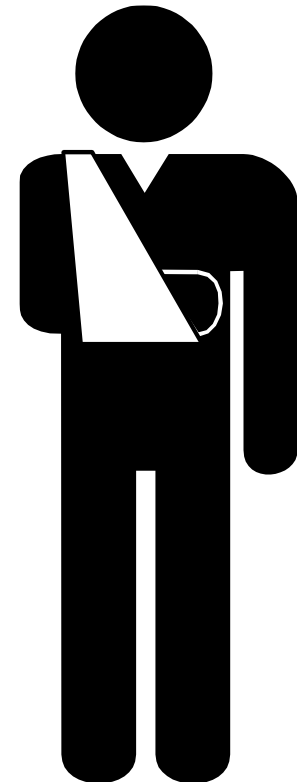
- QUIZ
- Why LOTO?
- When does LOTO Apply?
- What gets locked out?
- Recent Violations in HC
- Application & Removal
- Written Procedures, Energy sources
- Devices
- Quiz Review



QUESTION #1 - Choose

The OSHA Standard governing LOTO is:

- A) 1947.10**
- B) 1910.147**
- C) 1910.1200**
- D) None of the Above**



QUESTION #2 – True False

- **OSHA requires ANNUAL LOTO training for Authorized employees.**



QUESTION #3 – True or False

- **LOTO devices must identify the specific person assigned to apply and remove them.**



QUESTION #4 – True or False

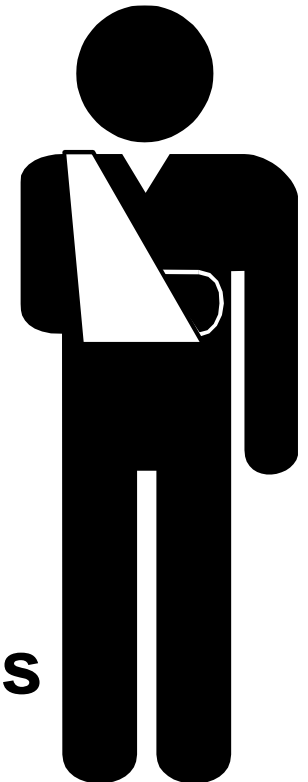
- **“Employee A” can remove “Employee B’s” lock, IF “Employee B” has gone home for the day and the equipment needs to be up and running again.**



QUESTION #5 – Choose

The most cited OSHA violation regarding LOTO relates to:

- A) Lack of LO devices**
- B) Lack of a written Program**
- C) Failure to train as needed**
- D) Lack of equipment-specific procedures**



QUESTION #6 – True or False

- **OSHA allows LO procedures to be “copy / paste” duplicated if the equipment is generally similar, AND from the same manufacturer.**



QUESTION #7 - Choose

Circle EACH of the Employee “types” related to LOTO:

A) Authorized

B) Certified

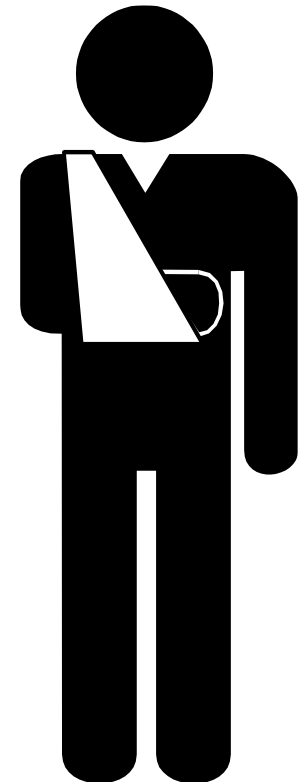
C) Other

D) Affected



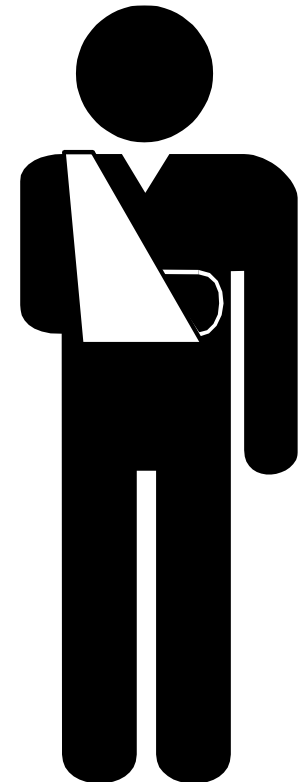
QUESTION #8 – True or False

Much like personal tools, OSHA allows Authorized employees to bring in their own locks, chain, and other types of devices, as long as they are in good working order.



QUESTION #9 – True or False

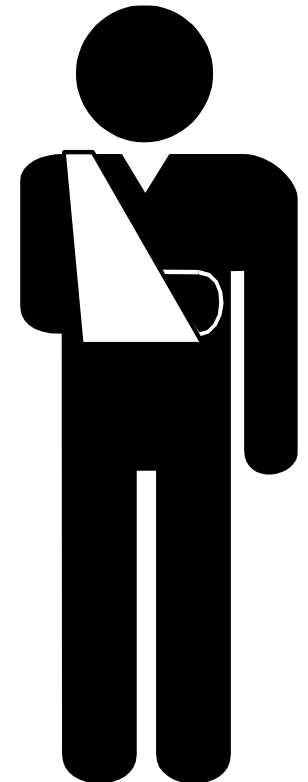
Lock boxes may be used in place of multiple hasps for Group lockout.



QUESTION #10 – Choose

Circle EACH of the following answers which are TRUE regarding LO tags:

- A) Tags must pass the 40 lb pull test**
- B) Tags may be used interchangeably with locks at the Auth. person's discretion.**
- C) BOTH of the above.**
- D) NONE of the above.**



Why LOTO? 1910.147 was established in back in 1971

6 Key Elements to a Successful Lockout Tagout Program

1. Develop and Document a Lockout Tagout Program or Policy. ...
2. Write Machine/Task Specific Lockout Tagout Procedures
3. Identify and Mark Energy Isolation Points. ...
4. Lockout Tagout Training and Periodic Inspection/Audits
5. Provide Proper Lockout Tagout Devices
6. Sustainability.



Why LOTO? 1910.147 was established in back in 1971

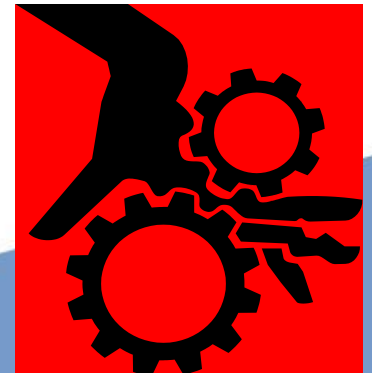
In 2022, Lockout/Tagout was the 6th most cited regulation by OSHA

Help Keep Employees Safe.....

Studies have shown that an effective lockout/tagout program can reduce accidents and injuries by 30 – 50%

Average fine of a non-fatal disabling injury:
\$38,000*

Average fine of a fatal injury:
\$1,190,000*



LOTO: Why ?

To Keep Employee's SAFE

- Year after Year, Lockout/Tagout is the cause of about 10% of all industrial accidents.
 - 250,000 Accidents.
 - 60,000 Injuries.
 - 200 Fatalities.
 - LOTO accidents are often fatal or life changing.



Why LOTO? What needs to be addressed?



COMMON TYPES OF ENERGY ISOLATION

De-energize electrical circuits

Drain and blank pipes

Release pressure from pneumatic & hydraulic lines

Block gas transmission

Block moving parts

Bring hot or cold components to safe temperature

Accident Summaries Search on OSHA Webpage



- **Causes of these events include:**
 - Failure to stop equipment
 - Failure to disconnect from power source
 - Failure to dissipate residual energy
 - Restarting of equipment (intentional or inadvertent)
 - Failure to clear work areas before restarting

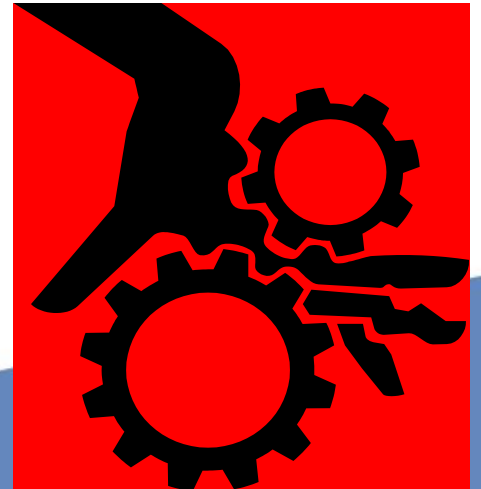
When Does LOTO Apply?

The Lockout/Tagout standard applies to general industry employment in which servicing and maintenance activities could potentially expose employees to the unexpected release of hazardous energy.



Use LOTO whenever:

- A machine guard must be bypassed.
- A worker must place any part of their body in a danger zone or point of operation.



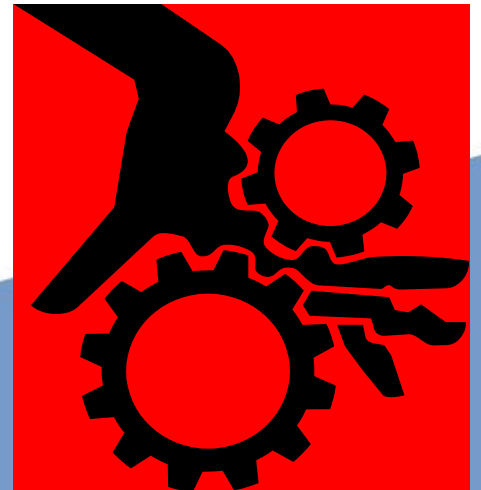
When Does LOTO NOT Apply?

Lockout Tagout Vs. Minor Servicing

Minor servicing or Preventive Maintenance
DOES NOT FALL UNDER OSHA 1910.147

Is the work repeated regularly?

Is Energy required to complete the repair?



What requires a procedure??

- **Equipment-specific procedures are required** for any equipment having 2 or more energy sources...
 - Electrical, Hydraulic, Pneumatic, Steam, Gravity, etc...
- Such **procedures must include** the following:
 - The intended use of the procedure
 - Steps for shutting down, isolating, blocking, and securing equipment
 - Steps for the placement, removal, and transfer of lockout devices
 - Verification of the effectiveness of the energy-control measures
- **LOTO procedures must be audited annually**

Recent OSHA Reportable Citings involving LOTO



Recent OSHA Reportable Citing's involving LOTO

Steam Explosion at New Haven, CT Hospital –
November 2020

“Among the items on the agenda was a demonstration of a log-out/tag-out procedure at the boiler plant. Failure to notify Mulvaney Mechanical of the VA’s LOTO procedures was one of the violations that contributed to the accident.”

Recent OSHA Reportable Citings Involving LOTO

U.S. Department of Labor
Occupational Safety and Health Administration

Inspection Number: 1158589
Inspection Date(s): 06/28/2016 - 12/15/2016
Issuance Date: 12/21/2016



New Jersey Medical Center cited for failure to lockout a circuit breaker, resulting in electrocution/fall and fatality.

Citation and Notification of Penalty

Company Name: Jersey City Medical Center RWJ Barnabas Health
Inspection Site: 355 Grand Street, Jersey City, NJ 07302

Citation 1 Item 1 Type of Violation: **Serious**

29 CFR 1910.333(a)(1): Live parts to which an employee may be exposed were not de-energized before the employee worked on or was near to them:

a) Facility

General maintenance mechanics work on live 277 volt AC while changing ballasts for overhead fluorescent lights. On or about 06/26/16, a worker performing such operations received an electrical shock while working from an A frame ladder. The worker fell approximately 6 ft. to the floor below, striking his head and later died of his injuries.

ABATEMENT DOCUMENTATION REQUIRED FOR THIS ITEM

Date By Which Violation Must be Abated:
Proposed Penalty:

01/19/2017
\$12471.00

Your unique equipment



- Freezers / refrigerators
- Kitchen equipment
- Washers / dryers
- Sterilizers
- Vacuum pumps
- Air Compressors
- Vacuum systems
- Generators
- Air compressors
- Chillers
- Boilers
- Exhaust fans
- Air dryers
- Air conditioner/handlers
- Dehumidifiers
- Heaters

A 400 bed hospital will typically require 500-600 procedures

Shutting things down.....

OSHA's 6 STEPS to Apply LOTO

1) COMMUNICATE the planned activity

- Memos, Postings, Signs - Training

2) SHUT DOWN the equipment

- Control panel / On-Off switches & buttons

3) ISOLATE the equipment from the energy sources

- Disconnects, Breakers, Valves, etc.

4) APPLY devices, locks & tags

5) RELEASE or BLOCK stored energy

6) VERIFY isolation of the equipment

- Actuate On-Off switches & buttons

Starting things back up....

OSHA's 6 STEPS to Remove LOTO

1) Check the **Equipment**

- Tools, parts, etc. removed

2) Check the **Area**

- Personnel safe & clear; aware of imminent re-start

3) **Verify** controls are still turned **OFF**

4) **Remove** Lockout devices

5) **Re-energize** equipment

6) **Inform** personnel that the equipment is in service

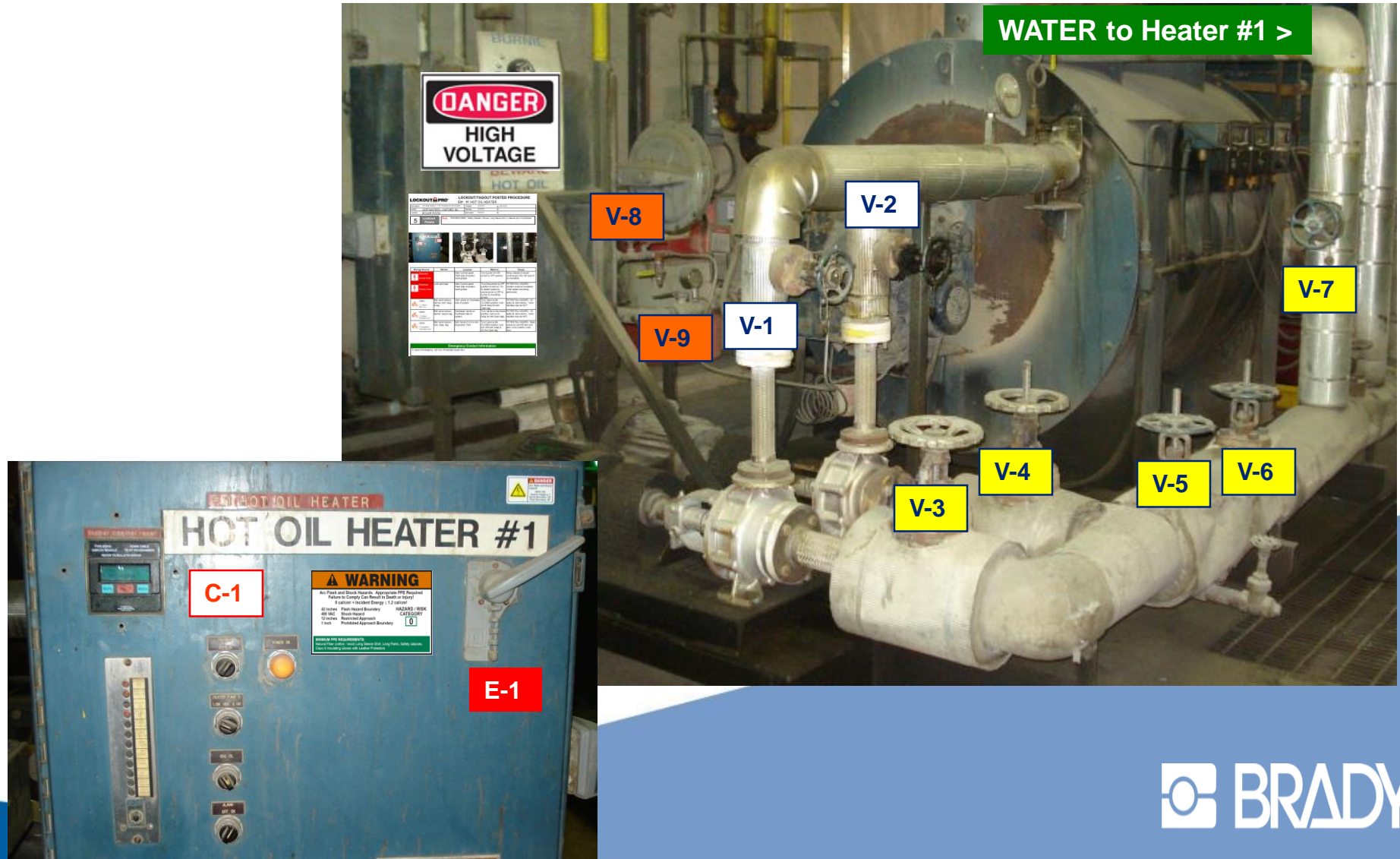
LOTO: Procedures – What? How?

There are ?? energy/control points on this piece of equipment



LOTO: Procedures – No Question

Step-by-Step LO Procedure; 11 energy/control points identified



LOTO: Procedures

Your brain wants to see things visually

Lockout/Tagout Posted Procedure

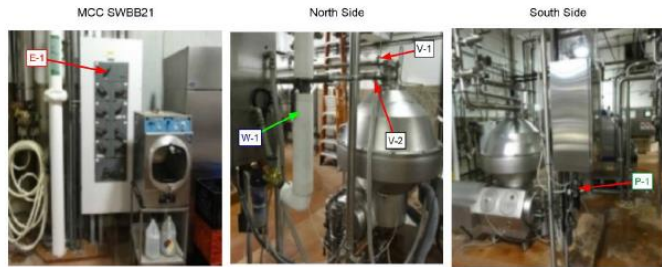
ID#:	1234567890	Facility:	Test Area: (Good Hope) - CDC
Created:	10/8/2013	Location:	CDC Shop Floor
Revised:	10/8/2013	Description:	HTST-1 Separator

5
Lockout Points

Note: Hydraulic and pneumatic equipment can store energy. Ensure all pressures have bled off before proceeding. - ALSO - Machine can store kinetic energy. Ensure machine has come to a complete stop before proceeding.

Lockout Application Process

1. Notify affected personnel.
2. Properly shut down machine.
3. Isolate all energy sources.
4. Apply lockout devices, locks, & tags.
5. Verify total de-energization of all sources.



Energy Source	Location	Method	Device	Verification
1 Electrical 480V	Disconnect is located on MCC SWBB21 (Bucket 1).	Turn Disconnect to the off position and lock out.	Lock and hasp	Attempt restart at all control panels.
2 Pneumatic 100 PSI	Ball Valve P-1 is located on the South side of the machine.	Turn Valve to the off position and lock out.	Lock and hasp	Verify pressure has bled off.
3 Water City Water Supply	Ball Valve W-1 is located on the East side of the machine.	Turn Valve to the off position and lock out.	Ball valve lockout	Verify pressure has bled off.
4 Valve Product Inlet	Ball Valve V-1 is located on the North side of the machine.	Turn Valve to the off position and lock out.	Disconnect and Cap	Verify pressure has bled off.
5 Valve Product Outlet	Ball Valve V-2 is located on the North side of the machine.	Turn Valve to the off position and lock out.	Disconnect and Cap	Verify pressure has bled off.

Lockout Removal Process

1. Ensure all tools and items have been removed.
2. Confirm that all employees are safely located.
3. Verify that controls are in neutral.
4. Remove lockout devices and reenergize machine.
5. Notify affected employees that servicing is completed.



LOTO: Energy Source Identification

Having the energy source tags relate back to their specific procedure is Great!

ANSI recommends that all energy isolating devices, including circuit breaker switches, valve shut-off handles, etc., be adequately marked, unless the purpose is evident.



AIR COMPRESSOR #1
ACP-1
DISCONNECT: SWITCH 237

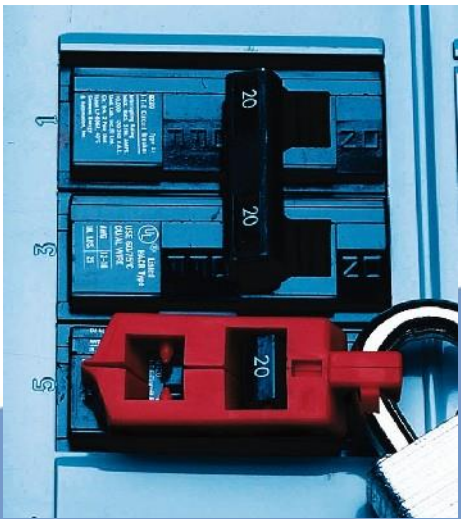


SWITCH 237
ACP-1 MAIN DISCONNECT



Do you have these??

LOCKOUT Devices don't make a PROGRAM



Devices: Lock Boxes, Hasps and Tags



Can I cut these off??



It's all in how you train!!!!!!

Document any lock removal

Spare keys are allowed, if training allows them



What should you do.... Lockout? Tagout? Both?

You can use just a lock

You can use just a tag

You can use both

It's all in how you train!!!!!!



Anyone want to change their Answers????



QUESTION #1 - Choose

The OSHA Standard governing LOTO is:

- A) 1947.10
- B) 1910.147**
- C) 1910.1200
- D) None of the Above



QUESTION #2 – False

- **OSHA requires ANNUAL LOTO training for Authorized employees.**

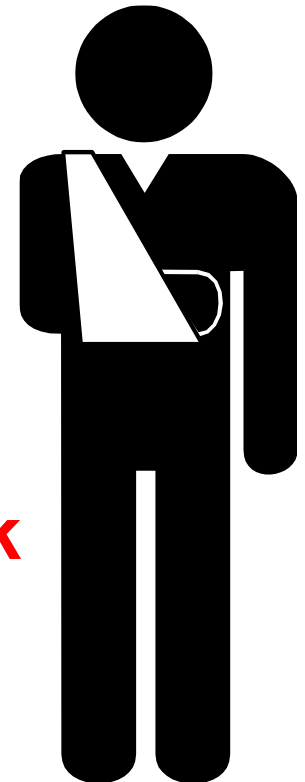
Training is required any time a change is made to the LOTO program or an individual's responsibilities.



QUESTION #3 – True

- **LOTO devices must identify the specific person assigned to apply and remove them.**

TRUE. Usually accomplished with a tag, though sometimes with a labeled padlock



QUESTION #4 – False

- “Employee A” can remove “Employee B’s” lock, IF “Employee B” has gone home for the day and the equipment needs to be up and running again.

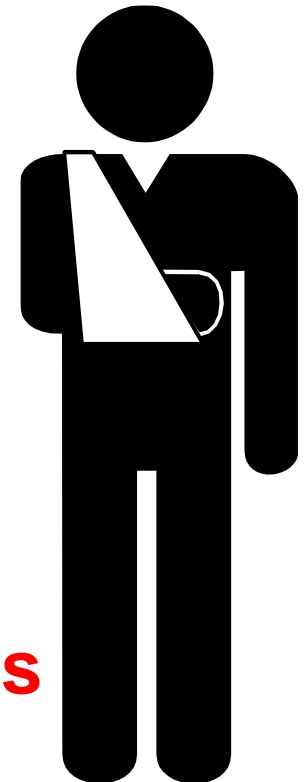
Must be a Supervisor, and done per established policy, including making every attempt to get “Employee B” to return to remove the lock.



QUESTION #5 – Choose

The most cited OSHA violation regarding LOTO relates to:

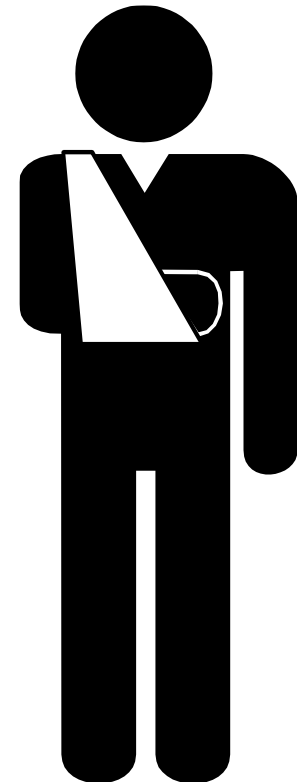
- A) Lack of LO devices
- B) Lack of a written Program
- C) Failure to train as needed
- D) Lack of equipment-specific procedures**



QUESTION #6 – True or False

- OSHA allows LO procedures to be “copy / paste” duplicated if the equipment is generally similar, AND from the same manufacturer.

FALSE. Must meet several criteria to be considered IDENTICAL.



QUESTION #7 - Choose

Circle EACH of the Employee “types” related to LOTO:

A) Authorized

B) Certified

C) Other

D) Affected



QUESTION #8 – False

Much like personal tools, OSHA allows Authorized employees to bring in their own locks, chain, and other types of devices, as long as they are in good working order.

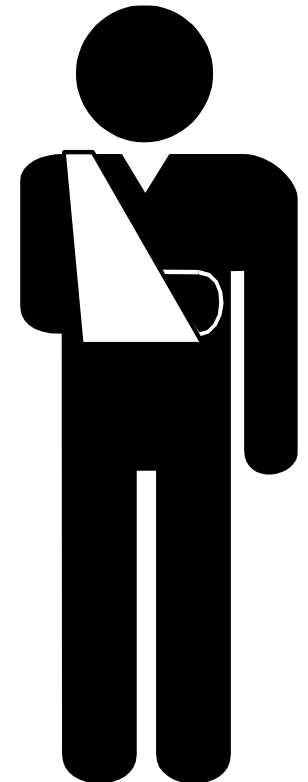
FALSE. All locks and devices MUST be provided by the employer.



QUESTION #9 – True

Lock boxes may be used in place of multiple hasps for Group lockout.

TRUE



QUESTION #10 – Choose

Circle EACH of the following answers which are TRUE regarding LO tags:

- A) Tags must pass the 40 lb pull test
- B) Tags may be used interchangeably with locks at the Authorized person's discretion.
- C) BOTH of the above.

D) NONE of the above.

- 50 lb pull test

- Must be shown via POLICY that “Tagout” is as effective as lockout. NOT discretion.



Brady Safety Services

40 Engineers Authoring over 40,000 procedures annually

- Lockout Tag out Procedure Writing
- Lockout Program Development
- Procedure Auditing
- Authorized and Affected User Training

LINK 360 Lockout/Tagout Posted Procedure

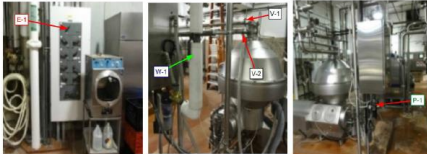
ID#: 1234567890 Title: Test Area (Good Hope) - Location: CDC Shop Floor
 Owner: 1082012 Revision: 1082012 Description: CDC
 Equipment: HTS-1 Separator

5 Lockout Points Note: Hydraulic and pneumatic equipment can store energy. Ensure all pressures have bled off before proceeding. A.S.C. Machine can store kinetic energy. Ensure machine has come to a complete stop before proceeding.

Lockout Application Process

1. Notify affected personnel. 2. Properly shut down machine. 3. Isolate all energy sources. 4. Apply lockout devices, locks, & tags. 5. Verify total de-energization of all sources.

MCC SWB621 North Side South Side



Energy Source	Location	Method	Device	Verification
Electrical 480V	Disconnect is located on MCC SWB621 (Bucket 1).	Turn Disconnect to the off position and lock out.	Lock and hasp	Attempt restart at all control panels.
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Lockout Removal Process

1. Ensure all tools and items have been removed. 2. Confirm that all employees are safely located. 3. Verify that controls are in manual. 4. Remove lockout devices and reenergize machine. 5. Notify affected employees that servicing is complete.



QUESTIONS?

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