

HIGH-IMPACT *Life And Death Series* **LOCKOUT/TAGOUT**

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

ATTENDANCE RECORD: Document the date of your presentation as well as identify the program participants. The attendance record may be copied as needed.

INTRODUCTION

In 1998, Ralph Green became one of the thousands of workers who were either injured or killed on the job. On the morning of his accident, co-worker Martha Faircourt found Ralph unconscious and bleeding beside the turning dryer in area 12 of the plant. What had happened? After calling security, Martha proceeded to the company break room. While anxiously awaiting word from the hospital, she and other co-workers attempted to piece together the events that led to Ralph's accident.

After putting together all the information they could, the group decided that Ralph must have failed to perform a complete lockout on the dryer and a new employee had started the machine without knowing that Ralph was under it. This video re-creates the events of that day.

As the mystery of the outcome unfolds, group members recall other lockout mistakes that have caused serious injuries and deaths to co-workers. While these accidents occurred for a variety of reasons, one common element affected all of them: failure to perform a complete lockout when required. In the end, the viewer discovers that Ralph also failed to perform a complete lockout and how the resulting accident claimed his life.

Training topics of the program include employee complacency, training and authorization, the lockout/tagout written procedure, isolating energy sources, use of lockout devices and verification of lockout procedures.

PROGRAM OUTLINE

BACKGROUND

- Lockout procedures protect us by blocking the flow of any unwanted energy to the piece of equipment or process line with which we are working.

- The procedure includes all forms of energy: electrical, mechanical, pneumatic, hydraulic, chemical, thermal and gravity.

- For lockout procedures to be of any value, we must use them every time they are required.

THE WRITTEN LOCKOUT/TAGOUT PROCEDURE

- Everyone affected by lockout procedures must be trained in the control of hazardous energy. It is a complex procedure containing several components.
- The written procedure will show the requirements for shutting down, isolating, blocking and securing the machine or equipment.
- The procedure will contain steps designating safe placement, removal and transfer of lockout/tagout devices and who is responsible for them.
- The procedure also includes specific requirements for testing machines or equipment to determine and verify the effectiveness of locks, tags and other energy control measures.
- If you are the authorized person on the job, you must notify all people affected by the lockout before applying lockout devices and after they are removed.
- The lockout check off sheet will provide an established procedure for applying controls and a specific order for implementation when applying lockout procedures.
- After notifying those affected by the procedure, you should shut down the machine using the proper off-on or run-stop switches. If you have any questions about the switching order, check with your supervisor or operator's manual.
- Once the machine is inactive, all energy sources must be disconnected or blocked. Electrical disconnects must be opened, valves opened or closed as required, mechanical linkages separated and all residual energy affecting the machine must be drained.

LOCKOUT/TAGOUT DEVICES

- To insure all energy remains blocked from the machine, attach approved locks, tags and other lockout devices to the energy sources.
- Remember that locks and tags, which are authorized by the company, are not to be used for any other purpose.
- Locks and tags are standardized by color, shape or size. Tagout devices are standardized by print and format.
- Be sure to attach tags with non-reusable ties that will withstand 50 pounds of force and the environment where they are used.
- When applying these devices, make sure to sign your name and complete all information that your company requires. This information is important in the event of shift changes, emergencies or persons not being available to remove their locks.

WHEN TO USE LOCKOUT PROCEDURES

- Many machines and process lines are fed by more than one source of energy and sometimes there can be two or more circuits using the same type of energy.
- Such complex systems are one reason that you must be trained and authorized before attempting to perform lockout procedures.
- Affected persons such as machine operators are not authorized to perform lockout procedures. Other people in the plant must understand the meaning of locks and tags and that they should avoid touching any equipment under repair.

- After you have locked and tagged the primary sources of energy, you must pay attention to any residual or potential energy affecting the machine. This means discharging any capacitors in the electrical circuits, relieving springs of their tension and blocking any object that could fall.
- Lockout/tagout procedures are used any time you are servicing a machine or performing maintenance, which could include lubricating, cleaning or unjamming a piece of equipment during production.
- Lockout procedures must be used when removing or bypassing guards and other safety devices that will expose you to hazards.
- They must also be used whenever you place any part of your body in contact with the point of operation on the machine or if you enter or place any part of your body into a danger zone associated with a machine.

VERIFYING LOCKOUT PROCEDURES

- The last step in the lockout procedure is to try the on-off or run-stop switches to make sure energy sources have been isolated.
- Use an approved meter to verify that you have protected yourself from the release of electrical energy.

ACCIDENTS AND THEIR SAFETY LESSONS

OPENING/CLOSING ACCIDENT

Martha Faircourt discovers Ralph Green lying beside the turning dryer in area 12. He is unconscious and bleeding. Martha calls security to report the emergency, and then she and other co-workers wonder what went wrong. They piece together information and remember past accidents while anxiously awaiting word from the hospital about Ralph.

After putting together all the information they could, the co-workers decided that Ralph must have failed to do a complete lockout on the dryer and that the “new guy” started the machine unaware that Ralph was under it. The investigation determined that Ralph locked out the pony or jog motor but failed to lock out the drive motor. The hospital then notifies Martha that Ralph has died from his injuries.

Safety Lessons:

- 1) *Be sure your lockout is complete.*
- 2) *Always “try” or verify that your lockout is effective.*
- 3) *Believe in lockout; it will save your life!*

Accident 1: Drive Chain Severs Worker’s Fingers

One of the co-workers talked about how doing the same job over and over can cause you to lose track of what you are doing. He remembered an accident in which a maintenance mechanic removed his lock in order to jog the motor and get the drive chain in the correct position. While he was checking it out and before he remembered to lock out again, a heat sensor caused the motor to start. The chain caught his hand and cut off two of his fingers.

Safety Lessons:

- 1) *Don’t let routine or complacency take away your determination to always work safely.*
- 2) *Follow lockout plans and policies at all times.*
- 3) *Understand that motors and other components are often controlled from several different locations.*
- 4) *Always lock out the source or sources of energy, not control devices.*

Accident 2: Series of Mistakes Results in Facial Injury

One of the co-workers wondered if Ralph could have made some mistake in locking out the dryer. He recalled an accident in which lockout mistakes resulted in a boiler room technician getting sprayed in the

face with chemicals. She panicked and ran into some steel supports, compounding her injuries. She had locked out the wrong pump, failed to use the proper PPE and made other mistakes.

Safety Lessons:

- 1) Always follow the steps in the lockout procedure.*
- 2) If you are unsure about any job procedure, ask you supervisor.*
- 3) Use required PPE and any other necessary special precautions.*

Accident 3: Unauthorized Employee Suffers Steam Burn

Several co-workers questioned whether Ralph had done a complete lockout on the dryer. One of them talked about an incident where an area operator attempted to change a leaking gasket at a chemical plant. The operator should have known that he wasn't authorized to do this task. He failed to understand that two different steam lines fed the system. When he broke the flange loose, steam burned his face.

Safety Lessons:

- 1) Only do tasks for which you are trained and authorized.*
- 2) Understand and follow the lockout plan step by step.*
- 3) Recognize that all line-breaking tasks have the potential for safety hazards. Get and follow all required permits.*

Accident 4: Forklift Crushes Worker's Leg and Foot

A man working on a forklift jacked it up to change a wheel cylinder and to do some other brake work. He failed to recognize the necessity of blocking the force of gravity. Heavy wooden blocks were available for that purpose. He didn't wait for his assistant to return with the parts before going under the truck. When he reached for his tools, he hit the jack handle and the truck came crashing down on his leg and foot.

Safety Lessons:

- 1) Always think about all of the kinds of energy that need to be under control for your work to be done safely.*
- 2) Not all lockouts are done with a lock (wooden blocks in this case).*
- 3) When tasks require two or more people, don't proceed alone.*

Accident 5: Worker Killed in Baler

Another co-worker told about a man baling waste fiber from the production line. He used his foot to free a jam in the baler instead of getting the pole provided for that purpose. When he slipped, he fell about 10 feet to the bottom of the pit and was knocked unconscious. A second worker arrived at the baler with a hopper full of waste and proceeded to dump and bale it. When the bale was complete and removed from the press, the first man's body was compressed in the bale.

Safety Lessons:

- 1) Always lock out any equipment before removing jams or otherwise endangering yourself.*
- 2) Use the tools provided for removing jams and other special purposes.*
- 3) Think about possible dangers before doing any task.*

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Copy the attendance record as needed and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to motivate employees to re-focus their attention on lockout procedures and to show viewers the tragic consequences of shortcuts and other lockout mistakes.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline. Copy the "Accidents and Their Safety Lessons" portion of this Leader's Guide and hand out to the participants.

Lead discussions about specific job tasks at your facility that require lockout/tagout procedures and how these procedures must be followed at all times to prevent injuries and death. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- How complacency, shortcuts and other lockout mistakes result in tragic injuries and deaths.
- When lockout procedures are required;
- Why you must be trained and authorized to perform lockout procedures.
- Why it is critical that lockout procedures be verified to make sure all energy sources have been isolated.

HIGH-IMPACT *Life and Death Series*
LOCKOUT/TAGOUT
REVIEW QUESTIONS

Name _____ Date _____

The following questions are provided to check how well you understand the information presented during this program.

1. Which of the following information can be found in the written lockout procedure?
 - a. requirements for isolating a machine's energy
 - b. steps for placing, removing and transferring locks and tags
 - c. persons responsible for lockout devices
 - d. all of the above

2. Locks and tags used in the lockout procedure must be authorized by your company and must not be used for any other purpose.
 - a. true
 - b. false

3. What is the final step in the lockout procedure?
 - a. discharging any residual energy affecting the machine
 - b. completing required information on the attached tag
 - c. try the on-off or run-stop switch to make sure energy has been isolated
 - d. none of the above

4. Which employees must be trained in lockout/tagout procedures?
 - a. only those performing the procedures
 - b. only the authorized person on the job
 - c. all employees affected by the procedures
 - d. everyone at the plant

5. Tags used in the procedure must be able to withstand at least _____ of force and the environment in which they are used.
 - a. 10
 - b. 25
 - c. 30
 - d. 50

6. Why did the man who was working on the forklift in the video have his leg crushed?
 - a. He didn't lockout the power to the forklift.
 - b. He didn't lockout the force of gravity.
 - c. He didn't use the proper tool for the repair job.
 - d. He was not authorized to work on the forklift.

7. The man who fell into the baler and was ultimately killed should have _____.
 - a. locked out the power to the baler before attempting to unjam it
 - b. made sure his footing was secure while climbing atop the equipment
 - c. used the pole provided for removing jams
 - d. both a and b
 - e. both a and c

8. Ralph performed a complete lockout on the dryer, but the "new guy" was able to start the machine anyway.
 - a. true
 - b. false

ANSWERS TO THE REVIEW QUESTIONS

1. d

2. a

3. c

4. c

5. d

6. b

7. e

8. b