SAFETY MEETING

Lockout in Mills

presentation guide

OFSWA
Ontario Forestry Safe Workplace Association
Partners on the Road to Zero

This Safety Meeting Presentation Guide is designed for use by those responsible for conducting safety meetings in the workplace. This package contains everything you need to guide you through a meeting that will run between 30 minutes and one hour.

A safety meeting can be held on a regular basis with workers and their supervisors to discuss problems and concerns about health and safety. Regular safety meetings are an effective way to keep employees informed about practical health and safety issues and concerns. Safety meetings can also provide important information about incidents and ways to prevent them from happening again, as well as to remind employees about hazards that occur on a seasonal basis.

This Safety Meeting Presentation Guide is designed to enable you to make workers aware of the hazards associated with lockout in mills. A number of mill hazards are discussed, as well as ways to control them.

The Presentation Guide package includes a PDF slide show that may be projected during the safety meeting.

The last pages of this Presentation Guide contain thumbnails of the PowerPoint slides. Feel free to photocopy these pages and hand them out to participants.

To conduct an effective and informative safety meeting, simply follow these steps:

- Read this Presentation Guide to familiarize yourself thoroughly with the information about the subject you will present.
- The Presentation Guide is designed to be left open in front of you as you conduct the meeting, and it will guide you step-by-step through the process. You can also use it to add your own notes when you prepare for the meeting.
- Look over the following preparation checklist to confirm that everything is ready for the meeting:
  - ☐ Does everyone know when and where the meeting is to be held?
  - ☐ Have you reviewed the material in advance?
  - ☐ If applicable, do you have a suitable projector, screen, extension cord, flip chart and/or chalk board?
  - ☐ Is the meeting room prepared in advance for the safety meeting?
- Feel free to add any site-specific material, such as special policies and procedures, to your presentation. This will make the safety meeting even more relevant for the participants.

You are now ready to begin the safety meeting.

A hard copy of this material is available from OFSWA for a nominal fee.

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1. **Introduce the topic of lockout and zero-energy state in a mill and explain the purpose of the meeting.**

   Give a brief overview of the material to be covered, using slide 1.

   Distribute photocopies of the slides (from the back pages of this guide) and Information Guides, if applicable.

2. **Using slide 2, explain the two main types of energy found in mills.**

   Explain to participants that shutting down and locking out does not eliminate all the hazards.

   Explain that retained energy is a possible source of hazards.

   Briefly list the types of energy that you will explain and discuss — potential and kinetic energy.

3. **Using slide 3, explain that potential energy is stored energy.**

- Potential energy is stored in objects by the application of a force. Pressurized gas and hydraulic fluid are examples of potential energy.
- The way to achieve zero-energy state is to block the compressed air or fluid between the pressure tank and the machine being worked on (by closing and locking a valve) and to release any pressure that remains by opening a pressure release valve to let the compressed air or fluid escape from the lines.
- The bucket of a yard loader contains the potential energy of gravity. So does any load that's being suspended by a crane or other lifting device.

Slide 1: Introduction

- Types of energy in mills
- Safe operating procedure (SOP)
- Sample lockout procedure

Slide 2: Types of energy

There are two main types of energy in mills:

- potential
  - stored in raised weight, pneumatic or hydraulic systems
- kinetic
  - motion

Slide 3: Potential energy

- Potential energy is stored energy
- Potential energy is stored in objects by the application of a force (examples: pressurized gas or hydraulic fluid)
- Block the compressed air or fluid between the pressure tank and the machine or device being worked on and release any pressure that remains by opening a pressure release valve to let the compressed air or fluid escape from the lines
- Wear appropriate personal protective equipment

4. Using slide 4, explain that kinetic energy is motion energy.

- Kinetic energy can also be found in parts that continue to freewheel after the machine has shut down, such as a saw blade.

Slide 4: Kinetic energy

- Kinetic energy is motion energy – of waves, electrons, atoms, molecules, substances, and objects
- The two main types of kinetic energy in mills are:
  - Electrical
  - Thermal (heat)

5. Using slide 5, describe the use of electrical energy in mills.

Emphasize that the electrical systems of these machines are complex and very hazardous if not dealt with safely.

- Electrical energy needs to be locked out and tagged at the source — usually the MCC panel, but sometimes at the local disconnect.

Slide 5: Electrical energy

- Electrical systems are complex and hazardous
- Electrical energy needs to be locked out and tagged at the source

6. Using slide 6, describe sources of thermal energy.

- Heat is a form of energy that can often be stored in a machine or device after the power source is locked out.
- Some parts, like heaters and burners, can be expected to be hot; but other parts like bearings or electrical parts may become heated because of a malfunction and may surprise the worker who comes to investigate the problem.
- Wait until these areas cool down to a safe level and ensure that coolant pressures are eliminated before you start work in these areas.

Slide 6: Thermal energy

- Heat is a form of energy that can be stored
- Some parts can be expected to be hot; but other parts may be heated because of a malfunction
- Wait until these areas cool down to a safe level

7. Using slide 7, explain why safe operating procedures are so important.

- Safe operating procedures for lockout and zero-energy state in all energized systems must be developed and followed to the letter each and every time a worker is exposed to these hazards. The procedures must be unique to the machine.
- They must also be consistent with the requirements of the Occupational Health And Safety Act and Regulations.
- Operators and millwrights must be properly trained in the operation of the machine, methods of repair and maintenance and all related hazards must be identified. Regular supervision by a competent supervisor is a key element in ensuring that everyone complies with the SOP requirements.

8. Using slide 8, explain the goal of a lockout procedure.

- Lockout is the use of locks to put a machine in a zero-energy state and prevent the machine from being turned on inadvertently.
- The goal of lockout is to eliminate the possibility of a worker being exposed to hazardous energy. If there is no energy, the system or equipment is in a zero-energy state.
- To achieve this goal, lockout involves two basic phases:

1. Isolation of all energy sources and
2. Neutralization of all stored energy sources.

- The procedure and the lock itself (sometimes multiple locks) prevent an energy-isolating device (switch, breaker, fuse, valve, etc.) from deliberately or inadvertently being operated or turned on while workers are performing maintenance, repairs or troubleshooting on equipment or machines.

Slide 7: Safe operating procedures

- Procedures for lockout and zero-energy state must be developed
- Must be followed every time
- Must follow Act and Regulations
- Everyone must be trained in the procedures

Slide 8: Goal of lockout

1. Isolation of all energy sources and
2. Neutralization of all stored energy sources.

9. Although each procedure must machine-specific, there are several common elements. The following steps apply to all general lock-out procedures:

1. You turn the operating controls off and lock them in that position if possible.
2. You turn the power supply off. Stand beside the box — not in front — and put your hand on the on-off lever. Turn your face away and pull down the lever to shut off the power, then put a key-locking padlock on the electrical box to make sure that no one else can turn it back on. Scissors must be used whenever more than one person has to lock out at the same point. Attach a tag for information purposes.
3. You de-energize the system to deal with any electrical charge, moving parts or other energy that may still be present. This includes releasing pressure from valves and inserting blanks, pins or blocks. It also includes ensuring that opto-electric beams cannot be activated during the maintenance period.
4. After the power supply is turned off, the controls to make doubly sure energy is in the system. Also make other sources of energy, for example or pneumatic, have been neutralized.
5. After the work in the danger zone is finished, you secure the work area by removing blocks, replacing guards, picking up tools and inspecting the area.
6. You clear the danger zone and remove your lock or locks from the electrical box.
7. You turn the power on and return to the operator's control panel to test and restart the machine.

Slide 9: Lockout

- Turn the controls off and lock them
- Turn the power supply off. Stand beside the box, put your hand on the on-off lever, turn your face away and pull down the lever to shut off the power. Then put a key-locking padlock on the box. Scissors must be used with multiple locks. Attach a tag.
- De-energize the system
- Test the controls to make sure no energy is in the system
- After the work is finished remove blocks, replace guards, pick up tools and inspect the area
- Remove your lock from the box
- Turn the power on and test and restart the machine

10. Using slide 10, review leading practices around machine start-up after a lockout procedure has been completed.

- Only the person who performs the lockout can reverse the procedure that will enable the machine to be started.
- Whatever means have been used to lockout must be safely reversed before the lockout is removed and the machine is started.

Slide 10: Start up

- *Only* the authorized person is to reverse lockout
- Ensure there are no others in danger zone

11. Using slide 11, wrap up the course. Answer questions that may arise.

Slide 11: Wrap up

- Be sure to follow proper lockout and zero-energy state procedures for each machine
- Lockout procedures create a zero-energy state – dealing with potential and kinetic energy
- Be aware of hydraulic, electrical, thermal energy when shutting down and lockout out a machine

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- Test the controls to make sure no energy is in the system
- After the work is finished remove blocks, replace guards, pick up tools and inspect the area
- Remove your lock from the box
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