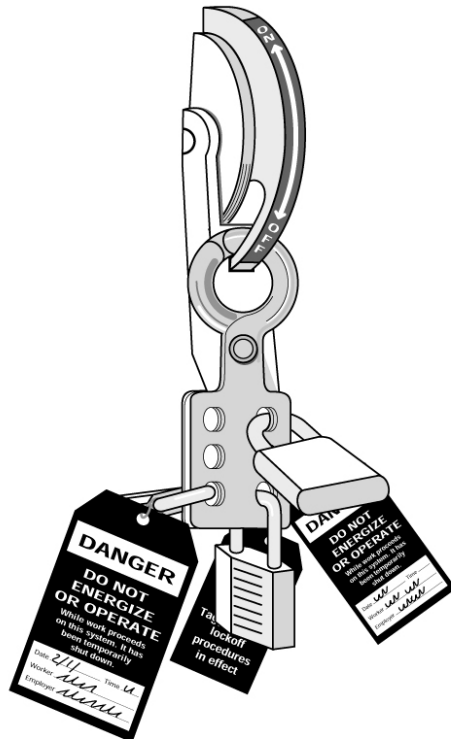


GUIDELINES FOR ISOLATION AND LOCKOUT WITHIN THE MINES, QUARRIES AND TUNNELS



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For Review in 2010

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1.0 INTRODUCTION

- A. Every year, failure to adopt and use adequate isolation and lockout procedures has resulted in serious harm incidents where employees have been caught in equipment that was not isolated or locked out properly.
- B. The purpose of having isolation and lockout procedures therefore is to render plant or equipment inoperable, i.e. to isolate the source of energy, which, if released, could activate any moving parts. Any such procedure should be developed and implemented in order to establish a state of 'zero energy', whether electrical, pneumatic, hydraulic, mechanical or stored, so as to pose no danger.

2.0 DEFINITIONS

- A. **Isolation:** the removal or blocking of the energy source, supplying any item of plant or equipment, including stored energy. This is accomplished through the use of an energy-isolating device.
- B. **Energy Isolating Device:** a device that prevents the transmission or release of energy, e.g. fuses, isolation switch, etc.
- C. **Energy Source:** any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.
- D. **Lockout:** the placement of a lockout device on an energy-isolating device that ensures that the plant or equipment being controlled cannot be operated until the lockout is removed.
- E. **Tag:** a highly visible and recognizable attachable tag placed on an energy-isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag is removed. Examples of tags follow:



3.0 WHERE ISOLATION AND LOCKOUT PROCEDURES ARE REQUIRED

- A. **Mobile Plant** which is either unserviceable or under repair will require isolation and lockout procedures.
- B. **Static Plant** All Static Plant that has moving parts will require isolation and lockout procedures for general operation, service, and maintenance periods.

- C. **Electrical Equipment** All Electrical Equipment will require isolation and lockout procedures for use and maintenance.

4.0 RESPONSIBILITIES

A. Employers

- a. The employer is responsible for developing and implementing the written site-specific procedure(s) to be used in the workplace for isolation and lockout.
- b. Depending on the size and complexity of the operation, other aspects of isolation and lockout also may need to be developed and documented in writing, such as for emergency lock removal, multiple or group lockout, and troubleshooting or making adjustments to energized equipment
- c. Employers must ensure that all contractors meet company lockout requirements before commencing any job.
- d. Employers should post the site-specific isolation and lockout procedures in all areas around the site, where they will reinforce the message of safe work practices.
- e. Supervisors must ensure that correct lockout procedures are in place and being followed at all times and should record routine monitoring of lockout procedures.

B. Employees

- a. All employees who work on plant or equipment, requiring lockout are responsible for locking out the energy-isolating device, keeping control of the keys to their locks throughout the duration of the work, and for removing their personal locks and tags on the completion of their work.

5.0 BASIC STEPS TO ISOLATION AND LOCKING OUT

- A. The following outlines some basic steps for consideration, once it has been determined that isolation and lockout are required. Only those persons (employees and/or contractors) authorized and competent in the site's isolation procedures and issued with personalized lockout devices shall be permitted to isolate any item of plant.
 - a. Identify the plant or equipment that needs to be isolated and locked out.
 - b. Shut off the plant or equipment. All moving parts must come to complete stop. (First ensure that no other hazards are created by the act of shutting down the plant or equipment.)
 - c. Identify and de-activate the main energy-isolating device for each energy source, e.g. disconnecting the electrical power.
 - d. Attach both a personal lock and tag (with your name and date) to the lockout mechanism of the energy-isolating device for each energy source and ensure that all parts and attachments are secured against inadvertent movement. Locks and tags should be attached so that the release of energy is possible only after the removal of the lock and tag.
 - e. Isolation tags for Mobile Plant or equipment should always be placed on the controls of the operator's cabin and at the isolation point (if applicable) while tags for Static Plant or Electrical Equipment should always be placed at the point or isolation.

(NOTE: Any isolation procedure may need to include a step, recommending that the first lock and tag placed on an isolation point should also be placed with a multi-lock device.)

- f. Test the lockout in order to verify that each energy source has been effectively locked out, i.e. there is zero energy in any system. (When doing so, ensure that all other workers are clear and that no hazards will be created if the lockout is not, in fact, effective.)
- g. If another person previously locked out the plant or equipment, consult with that person to satisfy yourself that the isolation is complete. If you are satisfied that there is zero energy, then attach your lock and tag to the multi-lock (attached with the first lock and tag).
- h. If you are not satisfied, then the other persons(s) should remove their lock(s) and tag(s) on request, to allow you to verify that isolation is complete by trying to activate the plant, equipment or process.

(NOTE: Where a dedicated energy-isolating device is not present, alternative means of ensuring isolation must be applied.)

6.0 RELEASING OF PLANT OR EQUIPMENT

- A. Before releasing plant or equipment, consideration, by those who applied the isolation devices should be given to the following.
 - a. Remove all non-essential items from the general area (e.g. tools, spare parts, wastes, etc.)
 - b. Ensure that all plant or equipment components are operationally intact, including guards and safety devices or systems. Repair or replace as required.
 - c. Inspect for any obstructions, incomplete work. Inspect using appropriately trained people to check specifics such as hydraulics, if required.
 - d. Only the person(s) who placed the lock(s)/tag(s) shall remove them. Follow the correct removal sequence if required.
 - e. Make a visual check of the plant or equipment area to ensure that everyone is physically clear of the area prior to start up.
 - f. On completion of work, inform owner/operator of the plant or equipment.
 - g. Develop and follow special instructions to ensure the integrity of the lockout when passing on work (i.e. formal handover) or when workers are not available due to sickness, absenteeism, etc.
 - h. If any work has not been completed and/or the plant or equipment is not suitable for safe operation, then remove the isolation tag and attach an 'out of service' tag to the main isolation point. Advise owner/operator of this action.

7.0 BRIEF OVERVIEW OF COMMON LOCKOUT PRACTICES

7.1 Mobile Plant

- A. If any operator of Mobile Plant suspects either before, or during operation, that the machine they are operating is in an unsafe condition, they should, as soon as it is safe to do so, follow their 'park-up' procedures (e.g. park on level ground, chock

against potential movement, release hydraulics, lower bucket or blade to ground, etc.)

- B. Remove ignition key and place isolation tag on controls and at the isolation point (if applicable).
- C. If any maintenance personnel are to work on any mobile plant, they must be qualified to do so, trained in site isolation procedures and have authorization to do so, perhaps via the site's permit to work system.
- D. Before commencing any work, maintenance personnel must lock out the plant, using the appropriate isolation locks and tags, following the site-specific isolation procedure.
- E. Prior to undertaking any work, ensure that the mobile plant is in a place in which it is safe to undertake maintenance activities.

7.2 Static Plant

- A. Before any person carries out repairs or maintenance on Static Plant, they must have authorization to do so, perhaps via the site's permit to work system, e.g. a confined space entry permit. These persons should also be qualified in the activity for which entry is required and must be trained in the site isolation procedures.
- B. Additionally, before carrying out maintenance or repair, the person doing so should ensure that the main power supply is disconnected at the isolating switch to that part of plant (e.g. feeders, conveyors, screens, or crushers), which is then locked out per site isolation procedure, ensuring a zero energy state. Nothing should move!
- C. Ensure isolation devices (locks, tags) are also placed on any control panel.
- D. For any bin, hopper, or conveyor that is, or can be fed by mobile plant, hazard controls such as audible and/or visual warning devices, barriers, signs, danger tape or cones, should be utilized in order to prevent mobile plant from tipping into the bin, hopper or conveyor.
- E. Ensure that all plant components are operationally intact, including guards and safety devices or systems. Repair or replace as required prior to start-up.

7.3 Electrical Equipment

- A. No person other than a registered industrial electrician is to perform work on any high voltage electrical installation.
- B. These persons must have authorization to undertake their activities and must be trained in the site isolation procedures.
- C. Before any work is to be undertaken on any electrical installation, disconnect main power supply (e.g. main switch room, connection point for generator cables) and disconnect power to part of plant at isolation switch, for conveyors, screens, crushers, or feeders. Lockout and tag.
- D. Remove key from controls and place isolation tag on panel.

8.0 OUT OF SERVICE TAGS

- A. Out of Service tags are to be used to place faulty or unsafe plant or equipment out of service, in order to prevent injury. They are NOT to be used for personal protection.

- B. Plant or equipment with an 'Out of Service' tag, must not be operated for any other purpose than fault testing and repair.

(NOTE: The use of an 'Out of service' tag does not remove the need to utilize locking and tagging isolation devices when working on plant or equipment, although they may be used together.)

- C. Portable electrical tools and extension cords in dangerous or unserviceable condition should have 'Out of Service' tags placed on them, be stored separately to prevent further use until fixed or destroyed.
- D. Every person removing 'Out of Service' tags is accountable for ensuring it is safe to do so.

9.0 LOCKOUT STATION

- A. In order for the system to work smoothly, especially in larger operations, it is advisable to establish a lockout station provided with all lockout items such as padlocks, tags, lockout jaws etc. The station could be placed in an office, storeroom or in a part of a workshop. A copy of the safety procedures for isolation and lockout could be placed there too, as well as any other relevant safety information.



10.0 TRAINING

- A. All persons working onsite should be required to attend a training course on the site-specific isolation procedure(s). This training should include those persons who are not authorized to use lockout devices, so that they are able to recognize any isolation device.
- B. All authorized persons must be trained in the site procedure for isolation and lockout before being issued with their personal isolation locks and tags.
- C. All contractors who are to work onsite must attend a training course on the site-specific isolation procedure(s) before being allowed to commence work onsite.
- D. It should be emphasized, during this training that any breach of the site-specific isolation procedure(s) has associated high risk and that any breach will result in disciplinary action.