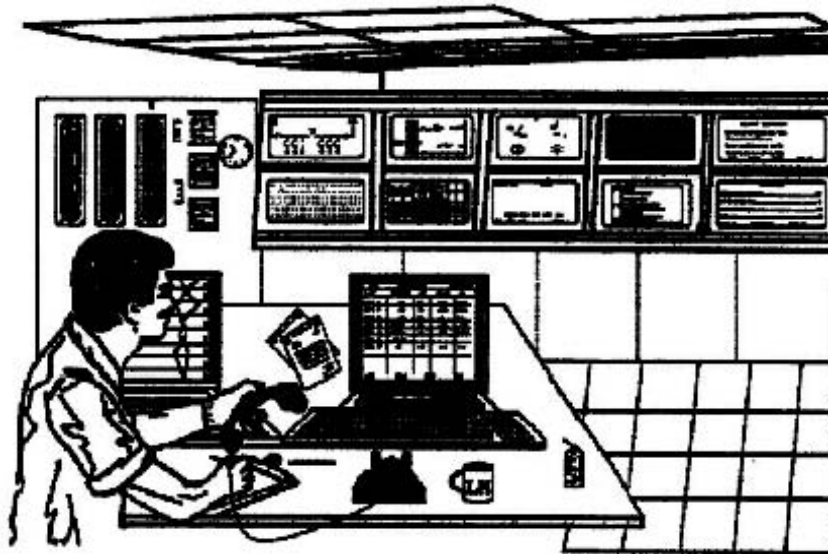


VOLUME 1-1

# HAZARDOUS ENERGY CONTROL PROGRAM



## FACILITIES INSTRUCTIONS, STANDARDS, AND TECHNIQUES



United States Department of the Interior  
Bureau of Reclamation  
Denver, Colorado

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**Facilities Instructions, Standards, Techniques Volume 1-1**

# **Hazardous Energy Control Program**

**March 2002**

**Prepared by Hydroelectric Research and Technical Service Group D-8450  
Denver Office**

**United States Department of the Interior  
Bureau of Reclamation Denver, Colorado**

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Copies of this *FIST Volume 1-1* are available from the Denver Office Reclamation Warehouse, D-7913, phone number (303) 445-3659, fax number (303) 445-6692. Request the FIST 1-1 Hazardous Energy Control Program (HECP) Volume, Stock number: P7610000FT0101R. For non-Reclamation persons, contact the Nation Technical Information Service. This document is also available on the Reclamation Intranet at: [http://usbr.gov/power/data/fist\\_pub.html](http://usbr.gov/power/data/fist_pub.html) or [http://www.usbr.gov/power/data/fist\\_pub.html](http://www.usbr.gov/power/data/fist_pub.html).

# 1. INTRODUCTION

**1.1. PURPOSE.** The purpose of *FIST Volume 1-1* is to establish coordinated and consistent procedures and operating criteria for the safe and reliable operation and maintenance (O&M) of those facilities of the Federal power and water system for which the Bureau of Reclamation (Reclamation) is responsible.

A current copy of this document shall be readily available at each office, dam, powerplant, pumping plant, switchyard, substation, control center, and diversion structure and to each authorized or affected employee.

**1.2. SCOPE.** This document establishes procedures and operating criteria that shall be complied with throughout Reclamation. This document prescribes procedures for the safety of service or maintenance personnel who work on or near any system that produces, uses, or stores hazardous energy related to servicing or maintenance. It establishes minimum performance requirements for the control of hazardous energy at all Reclamation operated facilities and standards to be used by Reclamation personnel in the performance of their duties.

## **1.3. HAZARDOUS ENERGY CONTROL PROGRAM (HECP).**

**1.3.1.** Each facility shall use this *FIST Volume 1-1* to develop individual facility programs. The individual facility Hazardous Energy Control Program (HECP) (comprised of this document and a Facility Supplement) shall comply with *FIST 1-1*, OSHA's *Electric Power Generation Transmission and Distribution* (29 CFR 1910.269), OSHA's *Control of Hazardous Energy (Lockout/Tagout)* (29 CFR 1910.147), and *Reclamation Safety and Health Standards* (RSHS).

### **1.3.2.**

A Job Hazard Analysis shall be prepared to identify all hazards specific to the work to be performed before performing servicing and/or maintenance on equipment. (Refer to Section 4 of the RSHS.)

When the unexpected energizing, startup, or release of stored energy could occur and cause personal injury, property damage, loss of content, protection, or capacity, a Hazardous Energy Control Procedure shall be developed and the energy sources controlled in accordance with the requirements of this *FIST Volume 1-1*.

Personnel and resources shall not be considered protected until Hazardous Energy Control Procedures have been implemented.



**1.3.3.** Training shall be provided in accordance with section 3 to ensure that the purpose and function of the Hazardous Energy Control Program (HECP) is understood by all personnel.

**1.3.4.** Non-Reclamation work at Reclamation-owned and/or -operated facilities must comply with any existing hazardous energy control procedures of the facility.

**1.4. REVIEW AND REVISION.** This *FIST Volume 1-1* will be reviewed every four years by the Power Resources Office/Technical Services Center to ensure that the guidelines and procedures herein are adequate for the safe and reliable operation and maintenance of the Reclamation power and water system.

Proposed revisions to this *FIST Volume 1-1* will be reviewed before publishing and implementing a revised document. Please use the form in figure 4 of appendix C to suggest revisions at any time. Please send the form to D-5400.

**1.5. FACILITY HAZARDOUS ENERGY CONTROL PROGRAMS (HECP) AND PROCEDURES.** Each facility shall maintain a Hazardous Energy Control Program (HECP) and Hazardous Energy Control Procedures.

**1.5.1.** The Facility Hazardous Energy Control Program (HECP) shall:

**A.** Incorporate specific Hazardous Energy Control Procedures for the facility, list the responsible official and authorized employees and their responsibilities, and define personnel training requirements.

**B.** Be supplemental to and within the guidelines of this *FIST Volume 1-1*.

**C.** Be reviewed and updated at least annually.

**D.** Be made available to all personnel with potential exposure to hazardous energy.

**1.5.2.**

The Facility Hazardous Energy Control Procedures shall clearly and specifically outline the scope, purpose, responsibility, authorization, rules, and techniques to be used for the control of hazardous energy and the means to enforce compliance including, but not limited to, the following:

- A. A statement of the intended use of the procedure.
- B. Procedural steps for shutting down, isolating, blocking, and securing systems to control hazardous energy.
- C. Procedural steps for the placement and removal of lockout and tagout devices.
- D. Responsibility for placing, moving, or removing all protective grounds if required by Reclamation Safety and Health Standards.
- E. Requirements for inspecting and testing the system to verify the effectiveness of isolation and lockout and tagout devices.

**1.6. REFERENCES.**

*Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.147*

*Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.269.*

These OSHA documents are available at: <http://www.osha-slc.gov>.

*Reclamation Manual, Directives and Standards, SAF 01-01, 01-02*

*Reclamation Safety and Health Standards (RSHS)*

*Reclamation Facilities, Instructions, Standards and Techniques - (FIST)*

*Volumes:*

- *Volume 3-29 Energized Facility Maintenance*
- *Volume 5-1 Personal Protective Grounding*
- *Volume 4-1 A Maintenance Scheduling for Mechanical Equipment*
- *Volume 4-1 B Maintenance Scheduling for Electrical Equipment*

Reclamation documents listed here are available at: <http://intra.usbr.gov> or [http://www.usbr.gov/power/data/fist\\_pub.html](http://www.usbr.gov/power/data/fist_pub.html).

**1.7. INTERPRETATIONS.** The stated interpretations for the following words shall be applied throughout this *FIST Volume 1-1*:

“May” — Permissive choice

“Must” — Mandatory

“Shall” — Mandatory

“Should” — Advisory

“Will” — Mandatory, but allowing the employee or party some discretion as to when, where, or how.

As used in this *FIST Volume 1-1*, the pronouns “he,” “his,” and “himself” refer to a specific individual or position that might be “she,” “her,” or “herself” in a given circumstance. Also used in this context are the terms “foreman,” “lineman,” “Switchman,” and “Workman.”

**1.8. EMERGENCIES.** In an emergency, authorized employees may modify or suspend any of these requirements temporarily as may be considered necessary to permit proper handling of the specific emergency. However, in handling such emergencies, safety of personnel shall be given predominant consideration. If emergency switching is required and authorized employees are not available, any person may perform switching if deemed qualified by the Operations Supervisor.

**1.9. PHILOSOPHY OF HAZARDOUS ENERGY CONTROL**

**PROCEDURES.** The following principles, whether or not they are specifically addressed in this *FIST Volume 1-1*, are considered basic to the safe operation of the Reclamation power and water system:

**1.9.1.** The priorities involved in applying these procedures are:

A. Physical safety of employees and the public.

B. Integrity and reliability of the Reclamation power and water system.

C. Protection of equipment.

D. Service to the customer.

**1.9.2.** All Hazardous Energy Control Procedures shall be performed by authorized employees.

- 1.9.3.** All switching operations shall be guided and tested by the fundamental principle, “Start with the correct procedure and follow it exactly,” and can best be accomplished by following:

The Six Basic Steps of Switching:

- A.** Carry the switching program with you while switching.
  - B.** Touch or point to the device identification nameplate to verify its/your location.
  - C.** Recheck the switching program for right location and right sequence.
  - D.** Verify anticipated device position.
  - E.** Perform requested action on the device.
  - F.** Verify desired device position.
- 1.9.4.** Employees shall be indoctrinated to realize, "If I violate this safety tag, lockout device, tagout device, hot line tag, or danger tag, I can kill somebody!"
- 1.9.5.** Safety, hot line, and danger tags are to be considered the same as locks. Tagged equipment shall not be operated, moved, or removed when any of these tags are in place.
- 1.9.6.** A basic principle pertaining to Reclamation power and water system operation is that the length of time the equipment is removed from service for any reason shall be kept to a minimum, consistent with safety. This will be accomplished by the following:
- A.** The equipment will be made available to the appropriate personnel at the prearranged time.
  - B.** The crews will be ready to start work at the prearranged time.
  - C.** The crews will release the equipment promptly upon completion of the work.
  - D.** Reclamation power and water system equipment will be returned to service when the work is completed.

**E.** Events such as shift changes, lunch periods, and overtime considerations shall not unduly impede or delay returning equipment to its normal condition.

**1.9.7.** To the extent possible, lockout devices shall be required on all equipment replacements or additions. Renovation or modification of existing equipment or systems shall be designed to accept locks.

## **2. Responsibility and Authority**

**2.1. RESPONSIBLE OFFICIALS.** The responsible official at each project or facility shall ensure that the requirements of this *FIST Volume 1-1* are: (1) properly applied, (2) strictly adhered to, and (3) understood by all affected employees.

**2.2. SUPERVISORS.** All supervisors shall ensure that all employees under their jurisdiction receive instructions concerning the Hazardous Energy Control Program (HECP) and its application.

**2.3. EMPLOYEE LISTS.** A current list of designated employees must be maintained at each facility certifying Switchmen, Workmen, Job Supervisors, and Operations Supervisors. Each operating office shall provide its non-Reclamation counterpart with a list of its personnel who are certified to request, issue, or receive clearances or hot line orders or to perform switching. It is the responsibility of each project or facility manager to advise employees as to the extent of their authority. It is the responsibility of each employee to act within that authority, and to immediately report any violations of these procedures to his supervisor.

**2.4. EMERGENCY SWITCHING.** An Operations Supervisor will be responsible for any emergency switching that is assigned to personnel in emergency situations as described in section 1.8.

## **3. TRAINING**

**3.1. REQUIREMENTS.** All employees involved with Hazardous Energy Control Procedures shall have initial training and required retraining and must demonstrate adequate working knowledge of Hazardous Energy Control Program (HECP), local programs, and procedures before their names are placed on the list of designated employees.

Training shall be provided to ensure that the purpose and procedures of the Hazardous Energy Control Program (HECP) are understood by all affected employees and that authorized employees possess the specific knowledge and skills required for the safe application, use, and removal of energy controls. Each facility must provide hazardous energy control and equipment orientation specific to that facility to visiting personnel before allowing them to work under a hazardous energy control procedure.

**3.2. METHODS.** Training will consist of classroom and hands-on instruction.

- 3.2.1.** Each authorized employee shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods, equipment, and means for energy isolation and control.
- 3.2.2.** Each affected employee shall be instructed in the purpose and use of the energy control procedures.
- 3.2.3.** All incidental employees receive instruction about the procedures and about prohibitions relating to re-energizing systems that are locked or tagged out.
- 3.2.4.** Employees may be subject to examination at any time on *FIST Volume 1-1*.
- 3.2.5** When training employees to perform switching or to issue and/or receive clearances or hot line orders, a certified Switchman, certified Job Supervisor, or certified Operations Supervisor must directly observe and be responsible for all steps performed by the uncertified trainee.

**3.3. RETRAINING.** Retraining shall be provided at least annually, and sooner if:

- A.** There is a change in the job assignments of authorized or affected employees, a change in systems or processes that present a new energy control hazard, or a change in energy control procedures.
- B.** An inspection reveals there is reason to suspect deviations from or inadequacies in the employee's knowledge or use of energy control procedures.

**3.4. CERTIFICATION RESPONSIBILITY.** The responsible official shall certify and document all training and retraining by maintaining a local

training file or log. Certification shall contain such information as the name of the person; the time, date, and location of training; and the name of the trainer.

- 3.5. RECEIPT.** The individual receiving the training shall sign the training document acknowledging his receipt of training.

## **4. INSPECTIONS**

Annual inspections shall be conducted to ensure that the Hazardous Energy Control procedures are implemented properly, that the employees involved are familiar with their responsibilities under those procedures, and that employees follow and maintain proficiency in the Hazardous Energy Control Procedures.

These inspections shall include a random sampling of the Hazardous Energy Control Procedures completed at the facility and planned visual observations of the procedures to determine the extent of each employee's knowledge and compliance.

- 4.1. RESPONSIBILITY.** The inspections shall be performed by an authorized employee who is not involved in the energy control procedures being inspected. The authorized employee must be able to determine whether the steps in the Hazardous Energy Control Procedures are being followed, whether the employees involved know their responsibilities under the procedures, whether the procedures are adequate to provide the necessary protection, and what changes, if any, are needed.

Where lockout is used, the inspector may observe and discuss responsibilities with employees individually or in a group setting. Where tagout is used, the inspector's review of the responsibilities also extends to affected employees.

- 4.2. DOCUMENTATION.** Documentation shall include the date of inspection, name of inspector, name of employees, and the procedure inspected. Annual inspections are not required at power facilities if sufficient documentation exists in the normal O&M records to demonstrate the required information has been recorded. (See OSHA 1910.269 (d)(2)(v)(E) note.)

- 4.3. DEFICIENCIES.** Any deficiencies shall be documented on the inspection report and a plan shall be prepared to correct the deficiencies to ensure future compliance.

## 5. Lockout and Tagout Devices

### 5.1. STANDARDIZED FORMAT.

A. Lockout devices shall be standardized at the facility and documented in the Facility Supplement.

B. Tagout devices shall be standardized (Reclamation-wide) in the following aspects: color, shape, size, print, and format. Refer to figures in appendix B. These tags are available from the Denver Office Reclamation Warehouse, D-7913, by phone: (303) 445-3659 or by fax: (303) 445-6692. Please provide the item name, form number, stock number, and your mailing address.

5.2. **ATTACHMENT STRENGTH.** Tagout devices shall be substantial enough (including their means of attachment) to prevent inadvertent or accidental removal; attached by means that are non-reusable; attachable by hand; self-locking; non-releasable, with a minimum unlocking strength of no less than 50 pounds; and shall have the basic characteristics equivalent to a one-piece, all-environment-tolerant nylon cable tie.

5.3. **DURABILITY.** Lockout/tagout devices shall be constructed and printed so that exposure to weather conditions, wet or damp locations, or corrosive environments will not cause them to deteriorate or cause their message to become illegible.

## 6. APPLYING PERSONAL LOCKOUT/TAGOUT DEVICES

6.1. **PERSONAL LOCKS.** These locks shall be used by authorized employees, shall not be used for any other purpose, shall be used only for personal protection, and shall indicate the identity of the person who applied them. Locks shall be used on devices that are capable of being locked out. Each facility shall provide locks as described in its Hazardous Energy Control Program (HECP) Facility Supplement.

6.2. **DANGER TAGS.** Danger tags shall warn against hazardous conditions and include the legend: DANGER, HANDS OFF, DO NOT OPERATE. These tags are for the protection of the authorized employee. They shall indicate the identity of the person who applied them and shall be used by the authorized employee where attaching a lock is not possible. In other words, they may be used in conjunction with a lock for informational purposes. These ANSI compliant tags (figure 2 in appendix B) are stocked at the Denver Office Reclamation Warehouse and are available on request.



Form number: POM-0166 (4-02)  
Stock number: P7540000POM166R

- 6.3. USE RESTRICTIONS.** Personal lockout/tagout devices shall not be used on electrical circuits greater than 600 volts or water passage ways that can be entered by personnel. In other words, they shall not be used when the protection required should be provided by a clearance.
- 6.4. PREPARATION.** Before using personal lockout/tagout devices, equipment shall be isolated in accordance with the Hazardous Energy Control Procedure.
- 6.5. POSITIVE CONTROLS IN PUBLIC ACCESS AREAS.** Padlocks or other positive controls shall be installed on the isolation devices in areas not under strict control of personnel involved with a Hazardous Energy Control Procedure or areas with public access.
- 6.6. PROCEDURE.** Equipment that can be removed from service and restored to service without a clearance must have an approved procedure in place for using personal lockout/tagout devices.
  - 6.6.1.** Documentation required. An approved procedure shall be developed, documented, and used for control of potentially hazardous energy when servicing or maintaining equipment.

Facility equipment may be serviced using personal lockout/tagout protection when:

- 1.** A Job Hazard Analysis has been prepared and approved that identifies all sources of hazardous energy.
- 2.** An approved, step-by-step procedure for placement and removal of all personal lockout/tagout devices is completed that includes the following:
  - A.** Personal lockout/tagout devices installed at each hazardous energy isolation point after the point has been placed in the required condition.
  - B.** Where possible, lockout devices shall be affixed to the energy isolating device in a manner that will maintain the energy isolating device in the safe position.

**C.** If an energy isolating device is not capable of being locked out, the Hazardous Energy Control Procedures shall use tagout; when only a tagout device is used, the following requirements shall apply. The tagout device shall be attached to the energy isolating device. If this is not possible, then the tag shall be attached as close as safely possible to the device and in a position that will be immediately obvious to anyone attempting to operate the device.

Additional means (e.g., placing the tag in a manner that inhibits operation of the energy isolating device, removing fuses, removing an isolating circuit mechanism, blocking a control switch, opening an extra disconnecting device, and removing a valve handle.) shall be employed to provide a level of full personal protection equivalent to that provided by a lockout device.

**D.** Following the application of personal lockout/tagout devices to energy isolation points, all potentially hazardous stored or residual energy has been relieved, disconnected, blocked, restrained, or otherwise rendered safe.

**E.** Appropriate checks performed to verify isolation.

**F.** Upon completion of the servicing or maintenance, the equipment is restored to full operational condition using a step-by-step procedure and tested to ensure full operational capability.

**6.6.2.** Documentation not required. When all the following elements exist, a required procedure for a particular piece of equipment need not be documented.

**A.** The equipment has no potential for stored or residual energy or re-accumulation of stored energy after shutdown that could endanger employees.

**B.** The equipment has a single energy source that can be readily identified and isolated.

**C.** The isolation and locking out of that energy source will completely de-energize and deactivate the equipment.

**D.** The equipment is isolated from that energy source and locked out during servicing or maintenance.

- E.** A single lockout device will achieve a locked-out condition.
- F.** The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
- G.** The servicing or maintenance does not create hazards for other employees.
- H.** The facility, in using this exception, has had no accidents involving an unexpected activation or re-energization of the equipment during servicing or maintenance.

**6.7. REMOVAL.** With the exception of the following condition, each personal lockout/tagout device shall be removed from each energy isolating device by the authorized employee who applied the device. When this individual is not available to remove it (due to serious illness or other reasons), the device may be removed by the individual's supervisor. This action can be taken only when the following procedures and training for such removal have been developed, documented, and incorporated in the Facility Supplement. (See figure 3 in appendix C, for an example of the documentation required.)

- A.** The individual's supervisor must document that the individual who applied the device is not at the facility.
- B.** The individual's supervisor will make all reasonable efforts to contact the individual to inform him that the personal lockout/tagout device will be or has been removed.
- C.** The individual will be informed that the personal lockout/tagout device has been removed before he resumes work at the facility.
- D.** The individual's supervisor advises the person assuming responsibility for the work already performed and the work to be performed.

## **7. Group Lockout**

**7.1. REQUIREMENTS.** When servicing and/or maintenance is performed by a group of personnel on equipment that can be removed from service without a clearance, a written procedure that affords a level of protection equivalent to that provided by the implementation of section 6.6. (except group devices are inserted where personal devices are discussed) shall be used.

**7.2. RESPONSIBILITY.** The Job Supervisor has primary responsibility for personnel working under the protection of a group lockout device and for the device itself. When tagout is used, each worker shall affix a personal danger tag to the source of each hazardous energy isolation point that cannot be locked.

**7.2.1.** The Job Supervisor shall:

- A.** Prepare a Job Hazard Analysis.
- B.** Provide documentation and protection for the group lockout before the start of work.
- C.** Notify all personnel required to work under the group lockout of the conditions and perimeter of the group lockout before work is started.
- D.** Restore equipment to normal operational condition when all members of the group lockout have completed work and removed locks from the group lockbox.

**7.2.2.** Each Workman shall:

- A.** Understand the protection provided and be afforded the opportunity to verify the perimeter of the group lockout.
- B.** Affix a personal lockout device to the group lockbox, or comparable mechanism, after obtaining permission from a Job Supervisor before work begins.
- C.** Be responsible for restoring the equipment to the full readiness condition, ensuring all debris, tools, and temporary modifications installed in the course of the work are removed before informing the Job Supervisor that the assigned work has been completed.
- D.** Report any deficiencies or unusual conditions to the Job Supervisor.
- E.** Remove his personal lock from the group lockbox upon completion of work.

## 8. SWITCHING PROGRAM FORM

- 8.1. PURPOSE.** The switching program form is used to formalize and document each step in the process of placing and releasing clearances, hot line orders, special conditions, and performing general switching. A typical switching program form is shown in figure 2 of appendix C.
- 8.2. APPLICATION.** A switching program form shall be prepared by the responsible Operations Supervisor and checked by a second qualified person, where possible, for all operations requiring a clearance, a hot line order, a special condition, or any general switching. Copies of the appropriately filled-in form shall, if possible, be sent in advance (either by hard copy or by electronic data transmittal) to each location involved for reference. The forms shall be provided for use by the Switchman during the switching and safety lockout/tagout operation. Upon receipt of an advance copy, the Switchman will contact the Operations Supervisor and read back the switching program to verify that he understands what actions are to be accomplished. Equipment identification shall be, at a minimum, by name and number. Non-standard abbreviations and terms (those not listed in the Facility Supplement) shall be avoided. Equipment need not be further identified by type or usage unless the device is difficult to identify.

In lieu of an advance copy, the Operations Supervisor shall provide the information by available communication channels to the Switchman or second Operations Supervisor, who will write all information on the switching program form pertinent to his location. Upon receiving all steps in the switching program, the Switchman shall read back the entire switching program step by step. Switching program forms shall be reviewed by the Operations Supervisor and the Switchman immediately before switching. The Switchman receiving and reviewing the switching program form should also perform the switching. The switching program form used by the Operations Supervisor (Master Copy) shall clearly indicate which instructions are to be accomplished at each location. However, it is permissible for the Operations Supervisor to direct emergency switching and to log operational times in the operating log without documenting this information on a switching program form.

Upon completion of the work, the switching program form shall be kept for a minimum of 5 years as a supplement to the operating log.

- 8.3. NUMBERING.** Each switching program form shall be given a unique serial number. The necessary coding for the year and facility shall be prescribed in the Facility Supplement. One series of consecutive numbers

may be used for all programs, or a separate series of consecutive numbers may be used for clearances, hot line orders, special condition, and general switching. The form shall indicate whether the procedure is a clearance, a hot line order, a special condition, or general switching.

**8.4. INFORMATION.** “Switching for Placement” and “Switching for Removal” are the parts of the switching program form used to record in detail the exact operation required and the locking/tagging information. Each operation shall be listed in the precise sequence to be performed, including those operations or steps not requiring a lock or tag. There shall be only one operation per step on the switching program form. The switching program form shall have no erasures and shall adhere to the following:

**A.** A communication action must be numbered as one step on the switching program form.

**B.** Operating one device, or checking it in the desired position, and locking/tagging it may be one step.

**C.** The form shall identify the locations of the lockout/tagout devices and hot line tags that define the perimeter for clearances and hot line orders.

**8.5. LOG ENTRIES.**

**8.5.1.** All entries shall be typewritten (manual or computer-generated printout), legibly handwritten in ink, or applied with other permanent marking material. Entries shall be made as soon as practicable after the action has been accomplished. The name of the person making entries shall appear in the log. In addition to the documentation provided by the switching program form, entries in the dispatch center, control center, or station log shall be made as follows:

**A. PLACEMENT ACTION.** After a clearance, hot line order, or special condition has been issued or general switching has been completed, the following shall be logged:

“Date \_\_\_\_\_,” “Time \_\_\_\_\_,”  
“Type of action \_\_\_\_\_,” (clearance,  
hot line order, special condition, or general switching),  
“No. assigned \_\_\_\_\_,” “Issued to \_\_\_\_\_,”  
“Equipment covered by action \_\_\_\_\_.”

**B. REMOVAL ACTION.** After a clearance, hot line order, or special condition has been released, the following shall be logged:

“Date \_\_\_\_\_,” “Time \_\_\_\_\_,”  
“Type of action \_\_\_\_\_,” (clearance,  
hot line order, special condition, or general switching),  
“No. assigned \_\_\_\_\_,” “Released to \_\_\_\_\_,”  
“Equipment covered by action \_\_\_\_\_.”

**8.5.2.** It is imperative that each facility/project develop a systematic method of keeping appropriate personnel informed concerning the status of clearances, hot line orders, general switching, and special conditions. To accomplish this, the following are minimally required:

**A.** The placement/removal action log entry will be made in a distinctive color of ink or a rubber stamp will be used to stamp the required format data in the log as shown in sections 8.5.1.A and 8.5.1.B.

**B.** A readily accessible file of switching program forms will be maintained for current clearances, hot line orders, special conditions, and special work permits.

**8.5.3.** Errors in log entries shall be voided by drawing a single line through the error and shall be dated and initialed by the person making the correction. Under no circumstance will pages be removed from permanent logs, regardless of whether they are manual or computer generated.

## 9. Clearances

Equipment with energy isolating devices that are capable of being locked out shall use locking devices.

**9.1. PURPOSE.** Clearances are a formalized process used to establish a safe environment within which Workmen can perform their assigned tasks. A clearance is used primarily for protection of personnel but may incidentally provide protection for equipment. The clearance procedure is intended to accomplish this protection with the understanding that safe work practices take precedence over immediate job production.

Each facility shall designate in the Facility Supplement when clearances are required. As a minimum, clearances are required for circuits over 600 volts. At power facilities (powerplants, pumping plants, substations), clearances are required for work in the turbine pits involving hazardous energy such as wicket gate arms and servo systems, and water passages that can be entered.

**9.1.1. SAFETY LOCKS/TAGS.** Safety locks and tags shall be applied to energy isolating devices and shall establish the perimeter of a clearance.

**A.** Safety tags are used in connection with clearances and hot line orders to convey the warning, DO NOT OPERATE. Approved, unnumbered tags (figure 1 in appendix B) are available from the Denver Office Reclamation Warehouse. (See section 5-1 for ordering information.) Each facility shall designate and affix appropriate sequential identifying numbers and/or letters to each tag. The choice of tag identifying numbers and/or letters must ensure that there is no possibility of confusion with other tags used in the same or an adjacent operating area.

**B.** Safety tags include the legend: SAFETY TAG, DO NOT OPERATE, MEN WORKING.

Form number: POM-0137 (1-67)  
Stock number: P7540000POM137R

**C.** Safety locks shall be used in conjunction with clearances. Each facility shall obtain and uniquely designate safety locks. The Facility Supplement shall prescribe this procedure.

### **9.1.2. USE OF PERSONAL LOCKOUT/TAGOUT DEVICES**

**A.** These devices may be used within but not on the perimeter of a clearance.

**B.** Where a clearance is part of a Hazardous Energy Control Procedure, personnel shall affix a personal lockout device to the lockbox or comparable mechanism, after obtaining permission from a Job Supervisor before work begins.

**9.2. DESIGNATED EMPLOYEES.** Operations Supervisors, Switchmen, Job Supervisors, and Workmen shall be designated in the Facility Supplement formal list to perform specific duties as outlined in this section.



**9.3. THE OPERATIONS SUPERVISOR.** The Operations Supervisor is responsible for authorizing and issuing clearances on all equipment affecting the Reclamation power and water system.

Operations Supervisors shall, upon receipt of a clearance request:

- A.** Determine that the equipment or system affected by the clearance request can be scheduled for an outage and that the clearance will safely control hazardous energy as requested. After this has been determined, the Operations Supervisor may approve the clearance request.
- B.** Be responsible for preparing a correct switching program form and properly directing the switching and related operations. Previously prepared (“canned”) or database clearances may be used for reference only.
- C.** Coordinate with appropriate agencies and other entities to ensure isolation of systems that are to be cleared.
- D.** Ensure, by the use of drawings, standing operating procedures, technical papers, or other technical references, that the equipment to be placed under clearance will be effectively isolated for the requested scope of the work to be performed.
- E.** Ensure the switching program form correctly designates the positioning of all energy isolation devices specified in the clearance/outage request form and provides for locking and/or tagging all points accordingly.
- F.** Direct the Switchman to perform the switching and related operations needed to place the clearance, such that the equipment is ready for maintenance at the scheduled time. Then issue the clearance.
- G.** After work is completed and in consultation with the Job Supervisor, ensure that the clearance has been released and the equipment is ready for service.
- H.** Record the issue and release of the clearance in the station log.
- I.** Direct the Switchman to perform the switching and related operations to remove the clearance after it has been released by the Job Supervisor.

## **9.4. THE JOB SUPERVISOR.**

### **9.4.1. The Job Supervisor shall:**

- A.** Determine if facility requirements indicate the necessity of a clearance.
- B.** Ensure, by the use of drawings, standing operating procedures, technical papers, or other technical references that the equipment to be placed under clearance will be effectively isolated for the requested scope of the work to be performed.
- C.** Check the Hazardous Energy Control Procedures to ensure that the protection to be provided is adequate for the work to be performed.
- D.** Make the request for a clearance using the facility request form.
- E.** Visually inspect the isolation devices to ensure that they are in the proper positions. Make appropriate tests to verify isolation and de-energization of the system.
- F.** Receive the clearance and assume responsibility for the system covered by the clearance until it is released or transferred.
- G.** If there is a possibility of re-accumulation of stored energy to a hazardous level, corrective measures shall be taken immediately after the issuance of the clearance and before the start of work.
- H.** Direct, verify, and document the installation of all required physical barriers, protective grounds, or other protective equipment before the start of work.
- I.** Notify all personnel required to work under the clearance of the conditions and the perimeter of the clearance before work is started.
- J.** Document personal and group lockout and/or tagout placement and removal.
- K.** Keep the Operations Supervisor informed of the status of the work.
- L.** Promptly notify each person working under the clearance of any changes in conditions or status of the equipment.

**M.** Upon completion of the job, verify that all personnel working under his assigned clearance are in the clear; that all temporary protection such as barriers, personal and group lockout and/or tagout devices; and personal protective grounds are removed. Report any unusual conditions to the Operations Supervisor. Verify that all nonessential items have been removed from the area. The Job Supervisor shall then release the clearance.

**9.4.2.** Where communication with the Operations Supervisor is difficult or impossible and it is necessary to perform scheduled work requiring a clearance at an isolated location, the following procedure shall be used.

**A.** Before leaving for the work location, the Job Supervisor shall obtain from the Operations Supervisor complete instructions for all switching and protection required, including instructions for returning the equipment to normal. These instructions shall be recorded on a switching program form.

**B.** On arrival at the work location, the Job Supervisor will perform or direct the required switching and shall log on the switching program form all switching times and tag/lock numbers. He shall then log on the switching program form and in the station log that he is taking his own clearance under the number pre-assigned by the Operations Supervisor.

**C.** Upon completion of the job, the Job Supervisor shall log on the switching program form and in the station log the release of his clearance. The Job Supervisor will then perform or direct the switching required to restore the equipment to normal, which he shall also log on the switching program form.

**D.** If, for any reason, the work does not proceed according to the original instructions provided, the Job Supervisor shall make every reasonable effort to advise the Operations Supervisor of the changes in the work instructions. In all cases, the Job Supervisor shall report such changes to the Operations Supervisor as soon as possible.

## **9.5. THE SWITCHMAN.**

**9.5.1.** The Switchman shall always perform operations in the sequence listed on the switching program form unless otherwise directed and documented by the Operations Supervisor.

- 9.5.2.** The Switchman shall accomplish switching by using the six basic steps of switching listed in section 1.9.3.
- 9.5.3.** If a question arises at any point during the switching sequence, the question shall be resolved by the Operations Supervisor before continuing with the switching program. In conducting switching operations, the Switchman shall be responsible for, but not limited to, the following actions:
- A.** Before operating a disconnect switch, check the position indicators on circuit breakers to see that they correspond to the desired position. The Switchman shall not rely on the position indicating lights on the control board or display screen.
  - B.** Check to verify that all single-pole disconnect switches either are completely open or closed and latched as directed by the switching program form.
  - C.** Check to verify that all phases of a gang-operated disconnect switch are completely open or completely closed after it has been operated and then locked in the position directed by the switching program form.
  - D.** Check all switch blades for proper position, verify that the motor operator and manual operating handle, if provided, are mechanically disabled, properly locked and/or blocked when directed by the switching program form.
  - E.** Check the local position indicator on voltage regulating transformers rather than the remote indicator for neutral position when bypassing this equipment.
  - F.** Check the operation indicators on all interrupter units when practicable, as well as the air-break blades, to see that they correspond to the desired position.
  - G.** Ensure that, in locations where equipment is exposed to the public, tagged controls are disabled, locked, or attended to prevent violation of a clearance or hot line order.
  - H.** Be responsible for and verify the effectiveness of safety lock/tag devices.

**I.** Record, on the switching program form, the time at which each step is completed.

**J.** Report to the Operations Supervisor upon completion of switching.

**K.** Record the clearance placement and removal actions in the station log.

**9.5.4.** The Switchman performing the switching operation shall not proceed further if any of the following conditions are encountered. The procedure shall be rechecked with the Operations Supervisor when:

**A.** He does not clearly understand the instruction.

**B.** He believes the instruction is incorrect.

**C.** At any point in the operations, an unexpected relay, breaker, or other action occurs.

**D.** He finds a device in a position other than indicated on the switching program form.

**E.** He determines that by performing a step, a dangerous condition could result.

## **9.6. THE WORKMAN.**

**9.6.1.** The Workman must understand the protection provided and be afforded the opportunity to verify the perimeter of the clearance. He shall be responsible for obtaining permission from the Job Supervisor holding the clearance before placing personal lockout/tagout devices and working on equipment within the perimeter of the clearance.

**9.6.2.** NO Workman WILL BE REQUIRED TO WORK ON A JOB OR PIECE OF EQUIPMENT THAT HE CONSIDERS UNSAFE. The Workman is responsible for requesting any additional protection he deems necessary.

**9.6.3.** The Workman shall remove personal lockout/tagout devices at the completion of work, ensure that nonessential items have been

removed from the equipment, and ensure that the components are operationally intact. He shall report the completion of the work and any unusual conditions to the Job Supervisor holding the clearance.

## **10. PROCEDURES FOR ISSUING CLEARANCES**

**10.1. CLEARANCE REQUEST.** The Job Supervisor shall request a clearance from the Operations Supervisor as soon as practical and shall give the information required and the perimeter needed for adequate protection. Form(s) and specific time requirements will be outlined in the Facility Supplement.

**10.1.1.** Before switching is started, the Operations Supervisor shall prepare a switching program form that shows the sequence of the required switching. All switching programs will be checked by a second qualified person whenever possible.

**10.1.2.** Every person involved in placing and issuing a clearance shall analyze the switching instructions. If there are any questions regarding the completeness or correctness of the switching program, these questions shall be resolved before switching is started. If a question arises at any point during the switching sequence, it shall be resolved by the Operations Supervisor before continuing with the switching program. Each person shall be responsible for the correctness of the procedure.

**10.1.3.** The Switchman involved at each location shall verify that all operations called for on the switching program are complete and all safety locks or tags have been placed. The Operations Supervisor shall state to the Job Supervisor exactly what protection has been provided. This statement shall include the status of pertinent equipment and the location of each safety lock or tag. All equipment must be accurately identified. In the case of a transmission line, it must be given its proper designation, and all terminals between which the clearance is given must be specifically identified. The Job Supervisor receiving the clearance shall visually inspect the isolation devices to ensure that they are in the proper positions, securely locked where possible, or tagged when lockout is not possible. Upon completion of this inspection, the Job Supervisor shall verify to the Operations Supervisor the exact protection provided, prior to being issued the clearance.

**10.1.4.** After the above requirements have been met, the Operations Supervisor shall issue the clearance to the Job Supervisor. The clearance information, including date and time, clearance number, equipment involved, and to whom the clearance was issued, shall be logged in the station log as discussed in section 8.5.1.

**10.2. IDENTICAL CLEARANCES.** This is the process to issue two or more concurrent clearances on the same equipment requiring the same protective perimeter and exactly the same safety lock/tag application.

When an identical clearance is initially requested and issued, the Job Supervisors have the responsibility to discuss and coordinate the work to be performed. Subsequent Job Supervisors requesting identical clearances shall discuss their work with the current Job Supervisor(s), obtaining their approval to receive the identical clearance. When taking an identical clearance, the requesting Job Supervisor shall use a copy of the switching program form to check all switching done before receiving his clearance. All identical clearance holders shall assume full responsibility for their clearance.

The Operations Supervisor shall record identical clearances on the same switching program form. The form shall be marked distinctively to indicate an identical clearance. This shall be done by filling in the Job Supervisor's name for each clearance in the "Issued to \_\_\_\_\_" column. The same clearance number, plus a different suffix letter (A, B, C, etc.) or suffix number (-1, -2, -3, etc.) for each additional clearance, shall be used in the "No." column. No additional safety lock or tag devices can be placed, and no protection is to be removed from the equipment until ALL clearances have been released (order of release is optional) and so noted in the "Released by \_\_\_\_\_" column of the Operations Supervisor's switching program form.

## **11. TRANSFER OF RESPONSIBILITY FOR A CLEARANCE**

If the job supervisor holding a clearance plans to leave the facility for an extended period of time, or otherwise needs to transfer his responsibility to another job supervisor, he must report to the operations supervisor and state his intention. The Facility Supplement shall designate time constraints for leaving the facility. The second job supervisor shall then request and obtain an identical clearance in the manner described in section 10.2., after which the first job supervisor shall release his clearance. The second job supervisor will then be held responsible for the release of his clearance upon completion of the work.

## 12. Change of Clearance Perimeter

If it becomes necessary to alter a clearance:

1. The Job Supervisor shall request a new clearance and shall notify all involved Workmen of the change and ensure that they are in the clear.
2. The Job Supervisor must release the original clearance.
3. The Operations Supervisor shall prepare a placement switching program form with the required information and the switching steps for placement and/or transfer of the safety locks and tags to the new clearance. Any protection and safety locks and tags being "transferred" shall be included as steps of the placement portion of the new clearance switching program form.
4. The switching program form shall clearly state the clearance program number that the safety locks and tags are being "transferred" from, the safety lock and tag numbers, and the date of the "transfer."
5. The Operations Supervisor directs switching for the placement of the new clearance.
6. Each Switchman shall personally verify the status of the equipment and verify the effectiveness of each transferred safety lock and/or tag and that each safety lock and/or tag is affixed in a manner that will hold the energy isolating devices in a safe or off position as instructed on the switching program form.
7. The Operations Supervisor shall prepare a removal switching program form with the required information and the switching steps for removal and transfer of the safety locks and tags to the new clearance.
8. The Operations Supervisor directs switching for the removal of the original clearance.
9. The new clearance will be issued as required in sections 9 and 10.



## **13. OPERATING EQUIPMENT WITHIN THE PERIMETER OF A CLEARANCE**

Within the perimeter of the clearance, the Job Supervisor holding the clearance may allow Workmen to operate equipment that is not locked or tagged for tests and adjustments. The Job Supervisor is responsible for seeing that the equipment is safe to operate and, unless otherwise agreed to by the Operations Supervisor, returned to the original position it was in at the time the clearance was issued before releasing the clearance. Any unusual or unexpected operating conditions or requirements must be reported to the Operations Supervisor.

## **14. CHECKS AND TESTS ON EQUIPMENT UNDER CLEARANCE**

Checks and tests on equipment under clearance are permitted within the perimeter of the clearance. This includes the temporary energizing of equipment under test with test equipment which may include hazardous sources of energy. Temporary removal of safety locks or tags will not be permitted to perform such tests. The Job Supervisor shall make sure all workmen are informed of the checks or tests and the nature of the hazards involved.

If it is necessary to energize the equipment under clearance for testing or checking purposes that require the removal of safety locks or tags before the work is completed, the Job Supervisor shall make sure all Workmen in the area are informed, and then the clearance shall be released in the usual manner with the applicable safety locks and tags removed.

A new clearance shall be requested and issued before the servicing and/or maintenance is allowed to continue. Once a clearance is released, it cannot be reissued; however, the new clearance may use transferred safety locks and tags from the original clearance as described in section 12.

## 15. RELEASING A CLEARANCE

**15.1. RELEASE PROCEDURE.** Before the clearance is released and energy is restored to the system, the following actions shall be taken:

**A.** Upon completion of the work, the Job Supervisor shall notify all involved Workmen of the intent to release the clearance. The Workmen shall remove all personal protective grounds, personal lockout/tagout devices, and any other devices attached to the equipment. The work area shall be inspected by the Job Supervisor to ensure that nonessential items have been removed from the equipment, that the components are operationally intact, and that all personnel are in the clear.

**B.** The Job Supervisor shall release his clearance by reporting to the Operations Supervisor. The Job Supervisor shall state that all personnel are clear of the equipment; that all personal protective grounds, personal lockout/tagout devices, and other devices are removed; and that the equipment is in safe operating condition. If any of the above conditions have not been met or cannot be met, he shall so state giving full details.

**C.** The Operations Supervisor will so note the release (including any conditional status of the equipment as stated by the Job Supervisor) on the switching program form and the station log. The Operations Supervisor will notify other Job Supervisors and entities involved in the case of joint jurisdiction.

**D.** The Operations Supervisor shall notify the Switchman that the clearance has been released and shall order the safety locks and tags removed and the equipment returned to normal.

**E.** At the discretion of the Operations Supervisor, it is permissible to delay the removal of lockout/tagout devices until it is practical to remove them. This permission to delay the removal and the actual removal time shall both be recorded in the station logs. The switching program shall not be considered complete until all appropriate lockout/tagout devices are removed.

**15.2. TRANSFER OR RELEASE UNDER ABNORMAL CONDITIONS.** Each clearance shall be released by the person who held it. When this individual is not available to release it, the individual's supervisor, in consultation with the Operations Supervisor, shall release or transfer the

clearance in the following manner: (See figure 3 in appendix C, for an example of the required documentation.)

- A. The individual's supervisor will ensure that the individual is not at the facility and shall make all reasonable efforts to contact him to inform him that the clearance will be released or transferred.
- B. The individual's supervisor will take responsibility for the clearance.
- C. If work is to continue, the individual's supervisor will direct another Job Supervisor to request an identical clearance.
- D. The Operations Supervisor will issue an identical clearance, if requested.
- E. The individual's supervisor will release the original clearance.
- F. The supervisor will inform the individual that the clearance has been released or transferred upon the individual's return.

## 16. SPECIAL CONDITIONS

- 16.1. PURPOSE.** The special condition procedure is used to provide TEMPORARY special operating or limiting instructions. Although a special condition tag may serve as temporary protection for equipment, IT SHALL NEVER BE USED FOR PERSONNEL PROTECTION. A special condition tag shall not be used for permanent instructions. Permanent instructions should be given on permanent instruction plates or by other acceptable means. If used for an extended period of time, the special condition tag shall be replaced and updated annually to reflect current equipment and/or operating changes.
- 16.2. RESPONSIBILITY AND AUTHORITY.** Any employee who observes any equipment that is damaged or in a condition that may limit its operation or compromise its integrity shall report such condition to the Operations Supervisor as soon as practical. The Operations Supervisor shall determine if the special condition procedure is applicable and provide any necessary instructions.
- 16.3. PLACING PROCEDURE.** If possible, application of the special condition shall be accomplished by attaching to the control device a special condition tag that provides details of the necessary instructions. If there is

no accessible control device, the tag shall be attached as close as safely possible to the device and in a position that will be immediately obvious to anyone attempting to operate the device. Where provided, display screen SCADA points shall also reflect the special condition tag. Placement of all special conditions shall be identified by a number assigned by the Operations Supervisor and documented on a switching program form and in the station log.

**16.4. REMOVAL PROCEDURE.** When conditions requiring special condition tags no longer exist, the Operations Supervisor shall order the removal of the special condition tags. Such removal shall be documented in a switching program form and in the station log.

**16.5. SPECIAL CONDITION TAGS.** These tags are used to designate special conditions affecting equipment. Only approved tags (figure 3 in appendix B) shall be used for this purpose. These tags are available by contacting the Denver Office Reclamation Warehouse using the instructions and numbers given in section 5.1.B. The tag shall be numbered and completed in indelible ink or typewritten.

Form number: POM-0138 (9-01)

Stock number: P7540000POM138R

## **17. TAGGING OF EQUIPMENT OPERATED BY SUPERVISORY CONTROL**

**17.1. SUPERVISORY CONTROL WITH DISPLAY SCREEN.** When a clearance, hot line order, or special condition is issued on equipment that is operated by a supervisory control system that includes a display screen(s), the status of such equipment shall be indicated by means of an appropriate symbol displayed on all display screens that serve as supervisory control points. Placement of supervisory control information tags shall be referenced on all switching program forms involving supervisory controlled equipment.

**17.2. CLEARANCE.** When a clearance is involved, the tag indication on the display screen is for the information of the controller. The display screen indication and the supervisory tag **SHALL NOT BE RELIED UPON TO PROTECT** Workmen.

**17.3. HOT LINE ORDER.** Refer to section 19.4.4. for permissible use of a display screen for hot line orders. If the conditions of section 19.4.4. cannot be met, physical placement of safety and hot line tags is required, therefore display screens shall be used for indication only.

**17.4. SIMULTANEOUS CLEARANCE AND HOT LINE ORDER.** When a hot line order and a clearance are to be in place simultaneously and the supervisory control with a display screen cannot indicate both the clearance tag and a hot line tag associated with one device at the same time, the hot line tag shall take precedence over the clearance tag. If either action is removed, the appropriate remaining tag indication shall be established.

## **18. GENERAL SWITCHING**

**18.1. PURPOSE.** General switching is performed for line sectionalizing or rearrangement of system equipment (electrical, mechanical, hydraulic, etc.) for testing or changes in operating conditions.

**18.2. PROCEDURES.** A switching program form shall be prepared for each application of general switching. The operations shall be directed by the Operations Supervisor in a manner similar to the switching procedures associated with clearances. Tags are not required for general switching. Note: Operation of disconnect switches for voltages above 600 volts shall be documented by use of a switching program form.

**18.3. SWITCHING CAPACITOR BANKS.** At least 5 minutes shall elapse between the de-energizing of a capacitor bank and the closing of its ground switch. A capacitor bank shall remain de-energized for at least 5 minutes immediately before it is re-energized. An additional 5 minutes shall be allowed after the ground switch is closed before issuing the clearance permitting personal protective grounds to be installed. The time required above shall be explicitly expressed in switching orders involving capacitor banks.

## **19. HOT LINE ORDERS**

**19.1. PURPOSE.** The purpose of a hot line order is to permit work to be done on or near energized electrical equipment.

**19.2. SCOPE.** The electrical equipment identified in a hot line order is to be considered energized or "hot." Hot line orders are established by removing from service all automatic reclosing features capable of energizing the equipment, by locking and/or tagging these features with a safety lock or tag, and by placing a hot line tag on the appropriate control switches of all circuit breakers connected to the equipment, locally and/or by means of supervisory control, as outlined in section 19.4.4.

**19.2.1.** Closing breakers that could energize the equipment or cause switching surges on the equipment is prohibited until contact is made with the Job Supervisor. The Job Supervisor shall be notified before switching any equipment or line that is parallel or close enough to have an effect on the equipment covered by the hot line order.

**19.2.2.** There are numerous tapped transmission lines that can create a back feed situation through various low-voltage switches that are not controlled by the Reclamation Operations Supervisor. Therefore, a "non-Reclamation verbal hot line order" will be obtained from the responsible non-Reclamation Operations Supervisor on normally open but untagged disconnect switches under his jurisdiction. The non-Reclamation verbal hot line order will be a documented switching step.

**19.2.3.** Hot line orders shall NOT be issued on a power circuit while any work or tests are in progress on protective relays or control circuits that would compromise the tripping of any circuit breakers involved in the hot line order. No work is to be permitted on communication channels or equipment that could interrupt protective relaying and/or voice communications that would compromise the tripping of any circuit breakers involved in a hot line order or interfere with communications with the Operations Supervisor.

**19.2.4.** It is permissible to tag with a hot line tag only the differential auxiliary lockout (manual reset) relay when placing a hot line order on a bus section protected by a bus differential scheme that will trip and block automatic, manual, and supervisory controlled closing of all power circuit breakers associated with that particular bus.

**19.3. RESPONSIBILITY AND AUTHORITY.** The responsibility and authority to request, issue, receive, release, and remove a hot line order and to place and remove the protection is essentially the same as outlined for a clearance under section 9. The Job Supervisor holding a hot line order shall remain at the work site at all times while work is being performed under the order. Communication should be maintained between the Operations Supervisor and Job Supervisor at all times while work is being performed under a hot line order. The Operations Supervisor should be informed if communication is lost.

**19.4. PLACING A HOT LINE ORDER**

**19.4.1.** The Job Supervisor shall request a hot line order from the Operations Supervisor as soon as practical.

**19.4.2.** The Operations Supervisor shall prepare a switching program form that shows the sequence of the required switching and locking and/or tagging operations.

**19.4.3.** The Operations Supervisor shall issue the hot line order to the Job Supervisor when:

**A.** The Switchman at each location involved has verified that all associated automatic reclosing devices have been deactivated and locked out or tagged out.

**B.** All control switches (local and supervisory) for circuit breakers involved have been tagged with the proper hot line tag.

**C.** All necessary non-Reclamation verbal hot line orders have been obtained.

The Operations Supervisor, when issuing the hot line order, shall state to the Job Supervisor exactly what protection has been provided and the limits of the work area. Where applicable, this statement shall include which circuit breakers are involved, which automatic devices have been deactivated, and what non-Reclamation verbal hot line orders on normally open disconnects have been obtained. The Job Supervisor receiving the hot line order shall repeat back to the Operations Supervisor the exact protection provided.

**19.4.4.** Some supervisory controlled stations and other power system facilities are equipped, or capable of being equipped, to disable

power circuit breaker automatic reclosing circuits by means of supervisory control from a Control Center or dispatch office. When stations are so equipped, it is permissible to issue hot line orders without the physical placement of safety and hot line tags at the stations if the supervisory control provides each of the following:

**A.** A reliable indication at each station that a hot line order is in effect.

**B.** A reliable indication back to the Control Center or dispatch office that the automatic recloser is indeed inoperable.

**C.** That the circuitry involved in A and B above will maintain status in the event of an electrical or supervisory control system failure.

**19.4.5.** Should the supervisory control be out of service when placing the hot line order, all tags shall be placed manually. If and when the supervisory control is returned to service, the hot line order should be placed by supervisory control, the Job Supervisor shall be notified of the change, and the manually applied tags may be removed when convenient. All supervisory controlled hot line orders shall be verified immediately upon installing revised software or rebooting the computer. All of the above steps shall be documented on the switching program form and logged by the Operations Supervisor.

**19.4.6.** Controllers shall be fully trained in the use of the master station supervisory control system before operating this equipment without assistance. Use of the hot line order requires full recognition of the remote hot line order indication by O&M personnel at the dispatch office or Control Center and at remote stations.

## **19.5. RE-ENERGIZING A LINE THAT HAS TRIPPED OUT WHILE UNDER A HOT LINE ORDER.**

**19.5.1.** When a transmission line or other power facility electrical equipment that is under a hot line order becomes de-energized, the Operations Supervisor shall contact the Job Supervisor holding the hot line order to determine if it is safe to re-energize the line.



**19.5.2.** When the Job Supervisor notes that the "hot" line has become de-energized, whether or not his work or personnel are responsible for the outage, the Job Supervisor shall immediately order all personnel clear of the equipment, ascertain if the equipment within his work area can be safely re-energized, and then contact the Operations Supervisor to inform him of the details.

**19.5.3.** When a Switchman is ordered by the Operations Supervisor to close a circuit breaker that has tripped while under a hot line order, he shall:

**A.** Remove the hot line tag from the control switch and operate the control switch to close the circuit breaker.

**B.** After the circuit breaker has been reclosed, replace the hot line tag on the control switch if the hot line order is to be continued.

**C.** Record pertinent information on the trip and closure in the station log.

**19.5.4.** After equipment under a hot line order has tripped and has been reclosed, the Operations Supervisor will inform the Job Supervisor that the circuit breakers have been reclosed and that the equipment or line is re-energized.

**19.6. OPERATION OF EQUIPMENT UNDER HOT LINE ORDER.**

If equipment that is under a hot line order is to be de-energized and/or re-energized due to operational requirements of the Operations Supervisor, the Job Supervisor must be notified before either operation is attempted.

The Job Supervisor shall request a delay in the operation until Workmen can be informed and get clear of the equipment.

**19.7. IDENTICAL HOT LINE ORDERS.** When it is desired to issue two or more hot line orders on the same equipment requiring the same protection, the procedure outlined in section 10.2 for identical clearances shall be followed.

**19.8. TRANSFER OF RESPONSIBILITY FOR A HOT LINE ORDER.**

When it is desired to transfer the responsibility for a hot line order from one Job Supervisor to another, the procedure outlined in section 11 for transfer of responsibility for a clearance shall be used.

**19.9. CHANGE OF HOT LINE ORDER PERIMETER.** If it becomes necessary to alter the perimeter of a hot line order, the Operations Supervisor shall notify the Job Supervisor, who will then request a new hot line order identifying the new perimeter. The procedure outlined in section 12 for a change of clearance perimeter shall be used.

**19.10. REMOVING A HOT LINE ORDER.**

**19.10.1.** Upon completion of the work for which the hot line order was taken, the Job Supervisor shall release his hot line order by reporting to the Operations Supervisor.

**19.10.2.** The Job Supervisor who received the hot line order shall personally release his hot line order. His supervisor may assume responsibility for the hot line order and its release in an emergency or if the Job Supervisor is unavailable because of illness or other reasons. This action shall be fully documented on the switching program form and in the station log.

**19.10.3.** The Operations Supervisor shall log the pertinent information regarding the release of the hot line order in accordance with section 8.5.1.B. He will then proceed to restore the line to normal status.

**19.11. HOT LINE TAGS.** These tags are used in connection with hot line orders to prevent re-energizing equipment. Only approved, pre-numbered, yellow, plastic-type, hot line tags shall be used for this purpose. Unnumbered tags (figure 4 in appendix B) are available from the Denver Office Reclamation Warehouse. See section 5.1.B for ordering instructions. The tags shall be uniquely pre-numbered by each facility/project.

Hot Line Tags shall include the legend: "HOT LINE WORK" on one side and "BEFORE ENERGIZING WAIT UNTIL CONTACT" on the reverse side.

Form number: POM-0135 (3-90)

Stock number: P7540000POM135R

## 20. Operations Associated with Contractors or Non-Reclamation Forces

“Contractor,” as used in this section, refers not only to Reclamation contractors but also to construction and maintenance forces of non-Reclamation organizations that are responsible to Reclamation for performance of work.

**20.1. SPECIAL WORK PERMIT.** When a contractor is involved in a construction, maintenance, service, or repair activity on or near equipment in a Reclamation facility, a special work permit is required to authorize the contractor to proceed with the work. When equipment could be energized, flooded, or pressurized from a source of hazardous energy that can be isolated, a clearance or a hot line order shall be requested and issued as described below.

**20.1.1.** The Job Supervisor will request the clearance(s) or hot line orders, arrange for the required switching, and receive the clearances or hot line orders.

**20.1.2.** A Reclamation representative will issue all special work permits.

**20.1.3.** Contractor personnel performing work at Reclamation-operated and/or maintained facilities shall comply with all existing Hazardous Energy Control Procedures of the facility and Reclamation’s Hazardous Energy Control Program (HECP).

**20.2. SPECIAL WORK PERMIT FORM.** The special work permit form formalizes and documents preparation and coordination between Reclamation and non-Reclamation personnel to authorize work by contractors forces on or near Reclamation power or water facilities. An example of the special work permit form is illustrated in figure 1 in appendix C. This form provides:

**A.** A documented protective action (clearance or hot line order, if required) on a specified Reclamation power or water facility.

**B.** A statement that the undersigned have discussed the work to be done, reviewed the details of the above documented protective action for adequacy, and defined the perimeter and conditions of the safe working area.

**C.** A written description and/or drawings identifying the perimeter of the safe working area.

**D.** Space for the signatures of the Reclamation representative(s) and contractor's representatives at the worksite indicating full understanding and the date and time that it is satisfactory to proceed with the work.

**E.** A release statement signed by the contractor's representative certifying that all protective grounds and barriers have been removed and that all personnel are clear of the area covered by this work permit.

**20.3. PROCEDURE INVOLVING A CLEARANCE.** When the sequence of work requires that sources of hazardous energy be isolated, the Job Supervisor and the Reclamation representative (possibly the same person) shall determine the isolation points and methods. The contractor's authorized representative shall review the plan for accomplishing the work with the Reclamation representative in such detail as may be necessary for the Reclamation authorized representative to determine the hazardous energy isolation boundaries. The Job Supervisor will arrange for the required outage. The request shall be made with sufficient advance notice (amount of time will be designated in the Facility Supplement) to ensure that the Operations Supervisor can accommodate the request. The request shall include the name of the contractor's authorized representative who will be responsible for the work and safety of the job.

**20.3.1.** Following approval of an outage at Reclamation facilities, the Job Supervisor shall secure a clearance that documents that the equipment to be worked on has been de-energized and isolated from sources of hazardous energy. A special work permit form will be prepared in duplicate.

**20.3.2.** The Job Supervisor holding the clearance shall review, with all authorized representatives, the limits of the de-energized and isolated working area including any unusual conditions.

**20.3.3.** After the clearance is issued, the Job Supervisor holding the clearance, Reclamation's authorized representative at the work site (possibly the same individual), and the contractor's authorized representative shall inspect the work site to verify the adequacy of the protection provided.

**20.3.4.** Reclamation's authorized representative, the Job Supervisor, and the contractor's authorized representative shall sign all copies of the special work permit at the work site authorizing the contractor to proceed with the work. Each authorized representative shall retain a copy. No work shall be done until a special work permit has

been signed, nor shall any work be done in an area not specifically covered by the special work permit.

**20.3.5.** After the special work permit has been signed by all parties, and before commencement of any other items of work, the contractor shall, under the observation of Reclamation's authorized representative, make appropriate tests to verify isolation of the system. If there is a possibility of re-accumulation of stored energy to a hazardous level, corrective measures shall be taken. In the case of electrical systems, the contractor shall then install personal protective grounds at the work site in accordance with applicable safety standards and FIST 5-1. Following the grounding, the contractor shall place necessary barricades and take whatever other safety measures are necessary before proceeding with the work.

**20.3.6.** If, in the opinion of Reclamation's authorized representative, the non-electrical contractor is not sufficiently knowledgeable in, or adequately equipped for personal protective grounding, Reclamation's authorized representative shall request that Reclamation Workmen install the required grounding. This action, including the location of the protective grounds, shall be recorded on the special work permit form.

**20.4. CONDITIONS REQUIRING A HOT LINE ORDER.** Where work must be performed in close proximity to energized equipment at Reclamation facilities and an outage on these facilities cannot be arranged, the special work permit will specify that a hot line order has been issued. The Reclamation employee holding the hot line order shall remain at the work site at all times while work is being performed.

**20.5. TRANSFER OF RESPONSIBILITY FOR A SPECIAL WORK PERMIT.** Should it be necessary to transfer the responsibility for work performed under a special work permit from one contractor's authorized representative to another, a new special work permit shall be issued and the existing special work permit released. In the event the contractor assigns a new authorized representative and the original representative is not available to release the original special work permit, the new authorized representative shall sign the release of the original special work permit.

**20.6. RELEASE OF SPECIAL WORK PERMIT AND CLEARANCE OR HOT LINE ORDER.** When the work has been completed, the contractor's authorized representative shall certify that all personnel have been informed of the intent to release and are clear of the area covered by the special work permit and that all protective grounds and barricades have been removed.

The contractor's authorized representative and the Reclamation representative shall check to determine that the equipment is satisfactory for normal service or energization and is in safe condition.

The contractor's authorized representative shall remove his lock (if placed) and sign all copies of the special work permit form, releasing the special work permit.

The Reclamation representative will inform the Job Supervisor that the contractor's authorized representative has released the special work permit.

The Job Supervisor shall then:

- A. Check to determine that the equipment is satisfactory for normal service or energization and is in safe condition with such determination fully described to the Operations Supervisor.
- B. Release the clearance or hot line order.

## **21. OPERATIONS ASSOCIATED WITH NON-RECLAMATION MAINTENANCE FORCES**

**21.1. SCOPE.** There are a number of situations where non-Reclamation utilities own transformers, circuit breakers, or associated items of equipment that are installed in or connected to Reclamation facilities. Subject to the approval of the regional director or his designated representative, authorized maintenance personnel of the non-Reclamation organization may be granted permission to perform switching and receive clearances and/or hot line orders to perform work on specified non-Reclamation equipment. Unless specifically covered by an approved memorandum of understanding between the agencies, authorized non-Reclamation maintenance personnel shall request hazardous energy control protection from a Reclamation Operations Supervisor. A special work permit shall be implemented and signed by the authorized non-Reclamation supervisor before authorizing non-Reclamation personnel to perform work.

**21.2. RESPONSIBILITY.** The non-Reclamation organization shall accept full responsibility for the safety of its employees, including the proper installation and removal of personal protective grounds, where required, and for all actions of its employees that might compromise the reliability of the Reclamation power system and the safety of Reclamation employees.

**21.3. AUTHORIZED NON-RECLAMATION REPRESENTATIVES.** The authorized representative of the non-Reclamation organization shall be familiar with Reclamation switching and clearance procedures. Also, the authorized representative of the non-Reclamation organization shall be certified in writing to the project manager, the Area Manager, or his designated representatives by the non-Reclamation organization as being capable of performing switching and receiving and executing clearances and hot line orders in specified Reclamation facilities.

**21.3.1.** When so certified, the non-Reclamation authorized representative becomes the “Job Supervisor.” A current list of authorized non-Reclamation personnel shall be maintained in the Reclamation dispatch/control center.

**21.3.2.** Where the non-Reclamation organization issues its own clearances in Reclamation areas approved by the project manager or area manager, a list of authorized non-Reclamation personnel is not required. The Reclamation Operations Supervisor, however, shall be informed when and where work is being performed by the non-Reclamation organization.

**21.4. PROCEDURES.** All work shall be coordinated with the Reclamation Operations Supervisor, and he shall be notified before removing equipment from service and before returning it to service. In those cases directly involving the Reclamation Operations Supervisor, all switching, logging, and documentation of clearances and hot line orders shall be performed in accordance with all applicable requirements of this document.

## 22. INTERCONNECTED SYSTEM CLEARANCES AND HOT LINE ORDERS

**22.1. PURPOSE.** Interconnected system clearances and hot line orders provide for the protection of personnel at points of interconnection between Reclamation and non-Reclamation facilities. The same procedures shall apply to interconnections between two Reclamation systems under separate operational jurisdiction.

**22.2. SCOPE.** An “interconnected system clearance or hot line order” is a statement with documentation from one Operations Supervisor to another that switching has been performed on one system as a partial or complete requirement for a clearance or hot line order on another system.

The term “interconnected system” is the only term to be used by Reclamation. The Reclamation term “interconnected system” may be known by non-Reclamation offices and personnel as: “intercompany,” “source of power,” “dispatcher's clearance,” or “hot line order.”

**22.3. RESPONSIBILITY.** All interconnected system clearances or hot line orders between interconnected systems shall be handled by Operations Supervisors in accordance with the appropriate operating agreements unless this responsibility has been delegated to others by operating agreements.

The Operations Supervisor receiving the interconnected system clearance or hot line order is responsible for all other switching and for issuing the clearance or hot line order to the Job Supervisor.

**22.4. ISSUANCE TO NON-RECLAMATION SYSTEMS.** When a Job Supervisor of a non-Reclamation system requires a clearance or hot line order that will require switching on a Reclamation system, he will arrange with his Operations Supervisor to request an interconnected system clearance or hot line order from the Reclamation Operations Supervisor. The Reclamation Operations Supervisor will then:

- A. Prepare a switching program form (as described in section 8) that is clearly identified as an “interconnected system clearance” or an “interconnected system hot line order” and direct the required switching.
- B. Verify with the Switchmen at each Reclamation location where switching was performed, that all switching has been completed, and that all safety lock/tag devices have been placed.
- C. State clearly to the non-Reclamation system Operations Supervisor



exactly what protection has been provided. The non-Reclamation Operations Supervisor must read back the exact protection provided and state that he is satisfied that the protection meets the requirements.

**D.** Issue the interconnected system clearance or hot line order to the non-Reclamation Operations Supervisor, document this action on the switching program form and make the appropriate entry in the station log.

**22.5. OBTAINING A CLEARANCE OR HOT LINE ORDER FROM A NON-RECLAMATION SYSTEM.** When a Reclamation Job Supervisor requires a clearance or hot line order requiring switching on a non-Reclamation system, he will arrange with the Reclamation Operations Supervisor to request the appropriate switching on the non-Reclamation system.

When the required switching on non-Reclamation equipment is performed by non-Reclamation Operations Supervisors, the Reclamation Job Supervisor may be delegated the authority to deal directly with the non-Reclamation Operations Supervisor for clearances or hot line orders.

When all operations required on the non-Reclamation system have been completed and all non-Reclamation protection has been placed, the non-Reclamation Operations Supervisor will so notify the Reclamation Operations Supervisor. The Reclamation Operations Supervisor will record the protection provided on the switching program form (see section 8) and satisfy himself that the protection thus provided is adequate. An appropriate entry shall also be made in the station log.

**22.6. RELEASE.** The interconnected system clearance or hot line order cannot be released until the Job Supervisor has released his clearance or hot line order. The release of the interconnected system clearance or hot line order will be by an Operations Supervisor. Release actions shall be documented on the switching program forms and appropriate logs.

# **APPENDIX A**

## **DEFINITIONS**

# APPENDIX A

## DEFINITIONS

**Affected employee** — a person whose job requires him to operate or use a system on which servicing or maintenance is being performed under lockout or tagout or whose job requires him to work in an area where such servicing or maintenance is being performed.

**Authorized employee** — a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance.

**Clearance** — a statement with documentation from the Operations Supervisor to the Job Supervisor declaring that the equipment to be worked on has been isolated from sources of hazardous energy, as requested. The clearance is the authorization to perform specified work within the perimeter of the clearance.

**Clearance perimeter (perimeter of clearance)** — the established working boundary or zone of equipment declared isolated from the sources of hazardous energy specified in a clearance. A clearance perimeter may include a combination of interrelated but different forms of hazardous energy common to the equipment.

**Control Center** — a Reclamation facility from which one or more facilities are remotely controlled.

**Controller** — the employee in charge of the operations function at a control center.

**Denver Office Reclamation Warehouse** — tag source. Mail Code D-7913, 303-445-3659.

**Designated employee** — an employee who has been properly trained, tested, and certified to perform an authorized action. The employee's name shall be entered on the official lists of the Facility Supplement.

**Dispatch office** — a location from which load scheduling and/or system switching functions are directed.

**Dispatcher** — the employee in charge of the system load scheduling and/or system switching function at a dispatch office.

**Emergency** — a situation in which: (a) facilities are in a condition as to be a hazard to the public, Reclamation personnel, or the Reclamation power or water system equipment, or (b) there is a power outage to customers that could be hazardous to life or property.

**Energy source** — includes electrical, mechanical, hydraulic, pneumatic, chemical, thermal, nuclear, stored, or other energy that could cause injury to personnel.

**Energy isolation device** — a physical device that prevents the transmission or release of energy. Includes, but is not limited to, manually operated circuit breakers, disconnect switches, slide gates, line valves, blocks, or similar devices capable of blocking or isolating energy. The term does not include push buttons, selector switches, or other control devices.

**Equipment** — any machine, device, or apparatus, either electrical or mechanical, including electrical circuits, transmission lines, piping systems, or waterways used in the generation, transmission, or control of electric power, or control of waterways not directly related to power generation, such as spillways, irrigation outlets, conservation facilities, pump stations, etc.

**Facility Hazardous Energy Control Program (HECP)** — a program for each facility comprised of the *FIST Volume 1-1* and the Facility Supplement.

**Facility Supplement** — the document, specifically written for each facility that, when combined with this *FIST Volume 1-1*, comprises the Facility Hazardous Energy Control Program (HECP). The Hazardous Energy Control Procedures are included in the Facility Supplement.

**Full personal protection** — when only a tagout device is used, full personal protection is provided when: (1) the tagout device is attached as close as safely possible to the device and in a position that will be immediately obvious to anyone attempting to operate the device, (2) all tagout-related requirements have been complied with, and (3) additional means have been taken to provide a level of safety commensurate with that of a lockout device. Such additional means may include removing an isolating circuit element, blocking a control switch, opening and tagging an extra (separated by distance) disconnecting device, or removing a valve handle to reduce the likelihood of energization.

**General switching** — switching performed for line sectionalizing or system equipment rearrangement for testing and/or changes in operating conditions.

**Hazardous energy** — any energy source that may cause injury or death.

**Hazardous Energy Control Procedures** — the project or facility written procedures (including responsibilities, procedural steps for lockout and tagout, and requirements for testing the effectiveness of energy control measures) to be used for the control of hazardous energy .

**Hazardous Energy Control Program (HECP) (FIST 1-1)** — this Reclamation-wide written program establishing required coordinated and consistent procedures and operating criteria for the safe and reliable operation and maintenance of those facilities of the Federal power and water **system** for which Reclamation is responsible. The program establishes procedures and operating criteria for the safety of personnel whose duties require them to work on or near any system that produces, uses, or stores hazardous energy.

**Hot line order** — a statement with documentation from an Operations Supervisor to a Job Supervisor that the automatic reclosing is turned off and that the equipment covered by the hot line order will not be intentionally re-energized until contact has been made with the Job Supervisor holding the hot line order.

**Incidental employee** — a person who may have access to the areas containing equipment or controls affected by the Hazardous Energy Control Program (HECP).

**Interconnected system clearance or hot line order** — a statement with documentation from one Operations Supervisor to another that switching has been performed on one system as a partial or complete requirement for a clearance or hot line order on another system.

**Isolation** — an activity that physically prevents the transmission or release of energy.

**Job Supervisor** — any person authorized to request, receive, and release clearances and/or hot line orders and who is charged with the responsibility of meeting the requirements of the Hazardous Energy Control Program (HECP).

**Lockout** — a form of hazardous energy control using the placement of a lockout device, in accordance with established procedures, on an energy isolating device to ensure that the energy isolating device and the system being controlled cannot be operated until the lockout device is removed.

**Lockout device** — a device that uses a positive means, such as a lock, to hold an energy isolating device in the safe position.

**Non-Reclamation** — any non-Reclamation utility, power system, station, or employee.

**Non-Reclamation verbal hot line order** — a statement from the responsible non-Reclamation Operations Supervisor that a specific circuit will not be re-energized from an identified non-Reclamation power source without permission from the Reclamation Operations Supervisor. This includes identification of specific, normally open disconnect switches under non-Reclamation operational jurisdiction. (It is also known as a "verbal hold" or an "assurance of no back feed.")

**Operations Supervisor** — certified employee(s) on a given shift authorized to issue, receive, and release clearances, hot line orders, interconnected system clearances, and interconnected system hot line orders.

**Request form** — a form on which requests for clearances, hot line orders, general switching, and all other pertinent data required is entered.

**Responsible official** — the manager who, through subordinates, is responsible for administration of the Hazardous Energy Control Program (HECP).

**Servicing and/or maintenance** — workplace activities such as constructing, installing, setting up, adjusting, inspecting and modifying machines or equipment. These activities include lubricating, cleaning or unarming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

**Special condition** — an unusual temporary condition pertaining to equipment. The term is not associated with any protective procedures. The term indicates the requirement for documenting special operating instructions and information on the current condition of the equipment.

**Special work permit** — a statement that formalizes and documents the preparation and coordination between Reclamation, the contractor, and non-Reclamation personnel to authorize work by non-Reclamation forces on or near Reclamation facilities.

**Stored energy** — energy (electrical, mechanical, chemical, etc.) that might be found in a charged capacitor, a loaded spring, chemical solutions, pressurized vessels, or piping or other similar hazardous forms.

**Switching** — the changing of the position of an energy control device.

**Switchman** — any person authorized to perform switching operations.

**System** — a group of associated machinery and equipment and its subsystems.

**Tagout** — a form of Hazardous Energy Control Procedures using the placement of a tagging device, in accordance with established procedures, on an energy isolating device to indicate that the energy isolating device and the system being controlled may not be operated until the tagout device is removed.

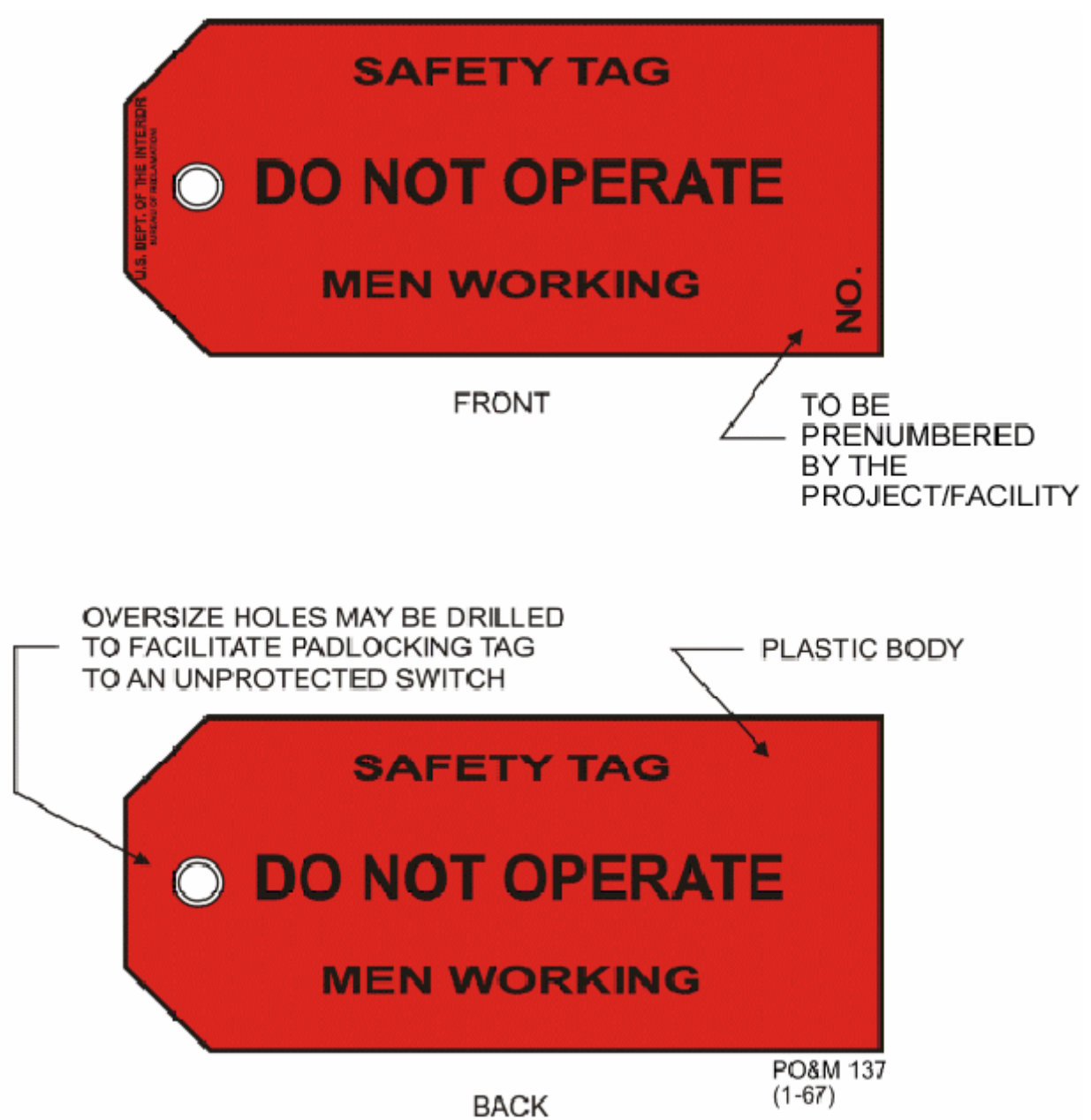
**Tagout device** — a prominent warning device, such as a tag with a means of attachment, that can be securely attached to an energy isolating device in accordance with established procedures to indicate that the energy isolating device and system being controlled may not be operated until the tagout device is removed.

**Workman** — any person who has been designated to perform servicing and/or maintenance.

# **APPENDIX B TAGOUT DEVICES**



# APPENDIX B



**Figure 1**  
**Safety Tag**  
For use with clearances.

# APPENDIX B

The image shows a rectangular tag with rounded corners and a hole at the top center. At the top center is a large black circle representing a hole. Below the hole is a black rectangular box containing a red oval with the word "DANGER" in white, bold, sans-serif capital letters. Below this box, the words "DO NOT OPERATE" are printed in large, bold, black, sans-serif capital letters. Underneath, there are four horizontal lines for text entry. The first line is labeled "EQUIPMENT", the second "SIGNED BY", the third "DATE", and the fourth "REMARKS". At the bottom of the tag, the text "BUREAU OF RECLAMATION" is printed in bold, black, sans-serif capital letters. To the right of this text, in a smaller font, is "PO&M 166 (5-02)".

Front

**Figure 2**  
**Danger Tag**

For use with personal tagout.

## APPENDIX B



**Back**

**Figure2  
Danger Tag**

For use with personal tagout.

# APPENDIX B

The image shows two views of a 'Special Condition Tag' form. The form is rectangular with a pointed top and a circular hole at the top center. The front view (left) contains the following text and fields: 'U.S. DEPT. OF THE INTERIOR BUREAU OF RECLAMATION' at the top; 'SPECIAL CONDITION TAG' in large bold letters; 'TAG NO.' followed by a horizontal line; 'SWITCHING PROGRAM ORDER NO.' followed by a horizontal line; 'EQUIPMENT' followed by two horizontal lines; 'DATE & TIME' followed by two horizontal lines; 'REMARKS' followed by eight horizontal lines; and 'FO & M-138 (5-01)' at the bottom right. The back view (right) contains the following text and fields: 'SPECIAL CONDITION TAG' in large bold letters; 'REMARKS (CONT.)' followed by a horizontal line; and ten additional horizontal lines for remarks.

U.S. DEPT. OF THE INTERIOR  
BUREAU OF RECLAMATION

**SPECIAL CONDITION TAG**

TAG NO. \_\_\_\_\_

SWITCHING PROGRAM ORDER NO. \_\_\_\_\_

EQUIPMENT \_\_\_\_\_

DATE & TIME \_\_\_\_\_

REMARKS \_\_\_\_\_

FO & M-138 (5-01)

**FRONT**

**SPECIAL CONDITION TAG**

REMARKS (CONT.) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

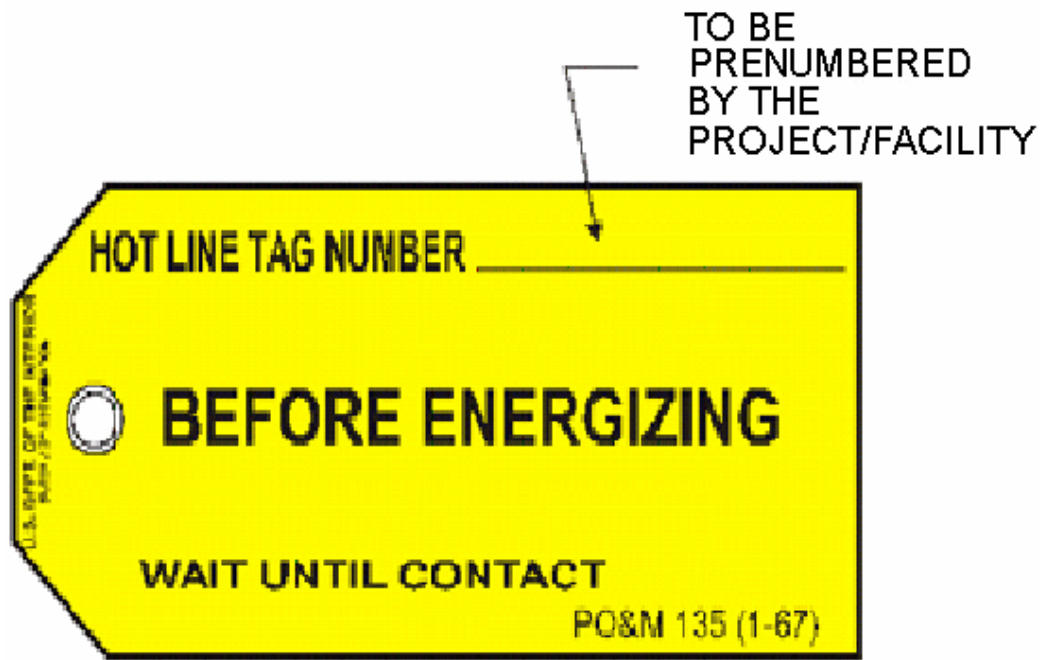
\_\_\_\_\_

\_\_\_\_\_

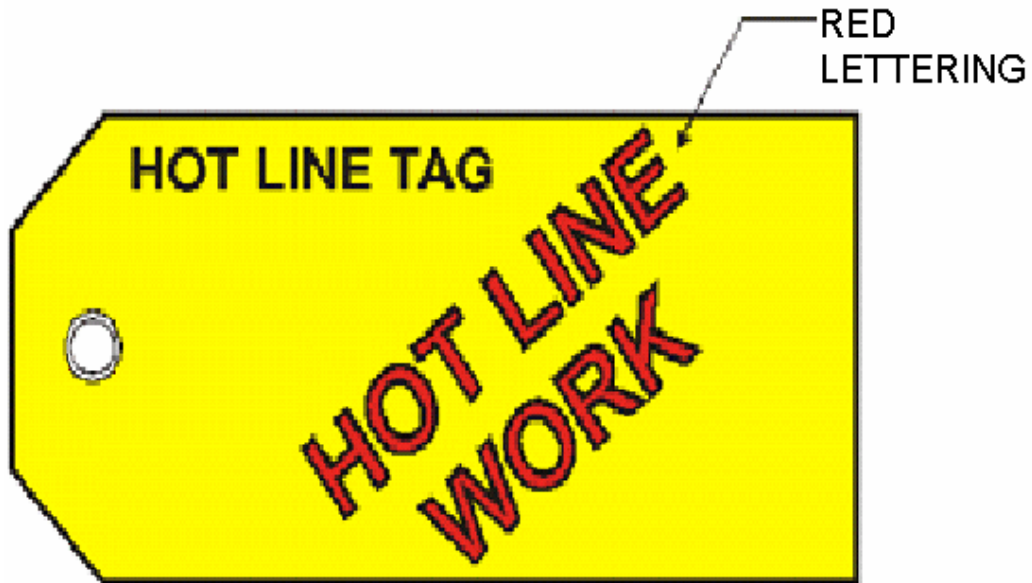
**BACK**

**Figure 3**  
**Special Condition Tag**  
For use with special conditions.

# APPENDIX B



FRONT



BACK

**Figure 4**  
**Hot Line Tag**  
For use with hot line orders

# **APPENDIX C**

## **FORMS**









# APPENDIX C

**BUREAU OF RECLAMATION  
PO Box 25007, Building 67, Denver Federal Center  
Denver, CO 80225-0007  
REMOVAL OF LOCKOUT/TAGOUT DEVICES or RELEASE OF CLEARANCE  
(ABNORMAL CONDITIONS)**

This form must be completed and made a part of the station log when a lockout/tagout device is removed by someone other than the individual who placed it (RE: Section 6, paragraph 6.7); or when a clearance is released by someone other than the individual who received it, (RE: Section 15, paragraph 15.2).

Initial each step:

1. \_\_\_\_ Verification has been made by the individual's Supervisor that the individual who placed the device or received the clearance is not at the facility.
2. \_\_\_\_ The individual's supervisor has made a reasonable effort to contact the individual who placed the device or received the clearance to inform him or her that the device has been/ will be removed.
3. \_\_\_\_ The individual's supervisor has advised the person assuming responsibility for the clearance of the work already performed. (If a clearance is involved.)
4. \_\_\_\_ The individual has been/will be informed of the removal of the lockout/tagout device and/or clearance release prior to his or her resuming work at the facility.

**SIGNATURES:**

Operations Supervisor \_\_\_\_\_ Date: \_\_\_\_\_

Individual \_\_\_\_\_ Date: \_\_\_\_\_

New clearance holder \_\_\_\_\_ Date: \_\_\_\_\_

Individual's Supervisor \_\_\_\_\_ Date: \_\_\_\_\_

Operations Supervisor: If a clearance was involved with this procedure, attach this document to the clearance.

Show the release and reissue to the new clearance holder on the clearance form.

Comments: \_\_\_\_\_

\_\_\_\_\_

Figure 3



# INDEX

# INDEX

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Operations Supervisor	9.3.
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## **MISSION STATEMENTS**

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.