HANFORD MISSION INTEGRATION SOLUTIONS

Administrative Procedures

HMIS-PRO-EU-066

Electrical Utilities Lock and Tag Program

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1.0 PURPOSE

This procedure provides the methods Electrical Utilities (EU) uses to control hazardous energy for systems and equipment. It establishes the minimum safety requirements for locking and tagging equipment and systems to protect personnel and establishes a "cleared" working area.

This procedure also provides the methods required to interface with Electrical Utilities Lock and Tag Program and the various Hanford Contractor Lock/Tagout Programs.

2.0 SCOPE

This Level 2 Administrative Procedure applies to all EU and subcontractor employees performing electrical utility work within the scope of 29CFR1910.269, or personnel requiring energy isolation from the Hanford transmission and distribution system.

This document implements the ISMS Core Function # 3, Develop and Implement Hazard and Environmental Controls.

NOTE: *Requirements are identified in Appendix A. Terms specific to this document are defined in Appendix B. Guidelines and isolation methods are provided in Appendix E.*

3.0 RESPONSIBILITIES

3.1 Electrical Utilities Manager

- Ensure a lock and tag program is established for Electrical Utilities.
- Appoint a qualified person or persons to be the electrical system Dispatcher.
- Identify custodial boundaries as interface points.
- Conduct or delegate quarterly field surveillances of this lock and tag procedure.
- Ensure all personnel working within the scope of this procedure, including contractors, receive required training and follow this procedure.
- Maintain a log listing of all "current" clearance holders and keep a copy of the list in the Dispatcher's office.

3.2 Electrical Utilities Supervisors

- Ensure Electrical Utilities line crew/maintenance personnel comply with this procedure.

3.3 Electrical System Dispatcher

- Administer all Electrical Utilities control locks and keys for use on Electrical Utilities equipment.
- Conduct all high voltage switching in accordance with procedure EU-PRO-OP-60777 (UE-A-22.04), *Electrical Utilities General Switching*.
- Issue and track all clearances, and the releasing of clearances on the transmission and distribution systems in the Dispatcher's daily log.
- Verify the clearance holder's name is on the current holder's list prior to clearance issuance.

- Maintain the mimic board to reflect the status of all outstanding clearances.

3.4 Clearance Holder

- A clearance holder shall be present when work is being performed within the cleared work area.
  - Should it become necessary for the clearance holder to permanently leave the job, they shall release their clearance to the Dispatcher and a new clearance shall be taken by another qualified person.

4.0 INSTRUCTIONS

4.1 Establishing the Cleared Work Area Boundaries

Actionee	Step	Action
Switchman	1.	CONTACT Electrical Utilities Dispatcher (radio Station 2 or phone **373-2321 / 373-2320**) and REQUEST a switching order to establish the cleared work area.
Dispatcher	2.	INITIATE a sequential switching order to configure the transmission and distribution system and equipment into the predetermined clear work area. NOTE: *Switching conforms to procedure EU-PRO-OP-60777 (UE-A-22.04), General Switching, and only after all switching is complete is the clearance to be issued.*
Switchman	3.	PLACE a "Hold Off" tag(s) on all clearance boundary points. For facility owned clearance boundary points, the facility will open the disconnect/breaker to be used as a clearance boundary point(s). NOTE: *The facilities Controlling Organization is not required to hang a DDNO tag as part of their "Hazardous Energy Control" program to support the EU clearance.*

4.2 Initiating the Clearance

Actionee	Step	Action
Prospective clearance holder	1.	REQUEST a switching order from the Dispatcher to hang clearance tag(s).
Dispatcher	2.	After making certain the clearance holder is fully aware of the extent or the limits of his clearance, ISSUE the prospective clearance holder the order to hang clearance tag(s).

Actionee	Step	Action
Prospective clearance holder	3.	VERIFY all energy devices involved in the clearance boundaries have been opened and Hold Off tag(s) installed on or near each clearance boundary point.
	4.	HANG clearance tag(s) and lock(s), where possible, and REPORT BACK to the Dispatcher.
	5.	REQUEST a clearance on the cleared work area.

Dispatcher	6.	ISSUE the clearance holder the requested clearance after:
		• All necessary clearance tags are applied
		• Verify:
		  o Necessary lines or equipment are de-energized;
		  o all energy isolating devices which could possibly energize the line or equipment in question have been opened,
		  o all phases checked open
		  o the energy isolating devices tagged and, if possible, locked.
		• In cases where more than one person will require a clearance on a single cleared work area, notify outstanding clearance holders of the intent to issue multiple clearances on the same cleared area.
		• In cases where a Controlling Organization will establish an overtag/lock on the common isolation boundaries, a notification will be given to all clearance holders of the intent to share the boundary.
		• All records are complete.

Clearance holder	7.	REPORT BACK to the Dispatcher verbatim the stated clearance to acknowlege the scope of the clearance is understood.
Dispatcher	8.	ISSUE clearance holder a clearance.
Clearance holder	9.	CONFIRM that lines and equipment to be worked on controlled by the clearance boundary points have been de-energized, relieved, disconnected, restrained or otherwise rendered safe from hazardous energy. PERFORM in accordance with Appendix E.
	10.	IF grounds are required, THEN APPLY grounds using an approved grounding method as stated in Section 3.23, “Grounding for the Protection of Employees” of EU-PRO-OP-60781 (UE-A-22.30), *Electrical Utilities Safety Program*.

Actionee	Step	Action
Clearance holder	11.	WHEN lines and equipment have been confirmed to be disconnected, relieved, restrained or otherwise rendered safe and grounds or protective devices have been installed (if required), THEN ALLOW workers to begin work within cleared area. NOTE: *When work is being performed within the cleared work area, the clearance holder must be present.*

4.3 Releasing Clearances for Equipment that is Returning to Service

Actionee	Step	Action
Clearance holder	1.	Prior to releasing clearance, NOTIFY all workers to clear the area and PERFORM the following: a. ENSURE all grounds and protective devices have been removed b. CONTACT Dispatcher with the following information: • Your name • Work is complete
	2.	REQUEST the clearance released.
Dispatcher	3.	ACKNOWLEDGE the statement and NOTIFY the clearance holder they are authorized to release the clearance.
Clearance holder	4.	RELEASE the clearance to the dispatcher.
	5.	NOTIFY the dispatcher of the clearance number being released and the clearance boundaries

Actionee	Step	Action
	6.	INFORM the Dispatcher of the following: • Grounds and protective devices removed (Yes or No) • Workers and equipment ARE in the clear (Yes or No) • Changes been made to this equipment (Yes or No) • This equipment is ready for service (Yes or No)
Dispatcher	7.	ACKNOWLEDGE the clearance has been released by reading the released clearance statement back to the clearance holder.
	8.	VERIFY the following before issuing any switching order which will return equipment to service: • All grounding and protective devices have or have not been removed. • All workers and equipment are in the clear. • Have changes been made to this equipment? If yes, what? • Is this equipment ready for service?
Dispatcher	9.	ISSUE switching order(s) to remove all clearance tag(s) and to return the system to the desired configuration (this may be performed by the clearance holder or designee).

4.4 Releasing Clearances for Equipment *NOT* Returning to Service

Actionee	Step	Action
Clearance holder	1.	Prior to releasing clearance, NOTIFY all workers to clear the area AND VERIFY workers are clear of the area. NOTE: *Protective grounds may or may not be removed at this time.*
	2.	NOTIFY the Dispatcher that the clearance is ready for release.
Dispatcher	3.	WHEN statement is acknowledged, THEN INFORM the clearance holder they are authorized to release the clearance.
Clearance holder	4.	RELEASE the clearance to the Dispatcher.

Actionee	Step	Action
	5.	NOTIFY the Dispatcher of the clearance number being released and the clearance boundaries.
	6.	INFORM the Dispatcher of the following: • Grounds and protective devices removed (Yes or No) • Workers and equipment ARE in the clear (Yes or No) • Changes been made to this equipment (Yes or No) • Equipment is NOT ready for service (Yes or No)
Dispatcher	7.	ACKNOWLEDGE the clearance has been released by reading the released clearance statement back to the clearance holder.
	8.	VERIFY the following before issuing any switching orders: • All grounding devices have or have not been removed • All workers and equipment are in the clear. • Changes been made and is this equipment? (Yes or No) If yes, what? • This equipment is NOT ready for service.
	9.	WHEN the clearance has been released, THEN ISSUE a switching order to remove all of the clearance tags.
	10.	WHEN the clearance tags have been removed, THEN LEAVE remaining Hold Off tags in place to maintain configuration control.

5.0 RECORD IDENTIFICATION

None.

6.0 SOURCES

6.1 Source Requirements

29 CFR 1910.269, OSHA Electric Power Generation, Transmission and Distribution
CRD O 422.1 (Supp Rev 0), *Conduct of Operations*

6.2 References

EU-PRO-OP-60777 (UE-A-22.04), Electrical Utilities Administrative Procedure, *General Switching*
EU-PRO-OP-60781 (UE-A-22.30), *Electrical Utilities Safety Program*
WAC 296-45, *Washington State Code for Electrical Workers*

DOE-0336, *Hanford Site Lockout/Tagout Program*

APPENDIX A. REQUIREMENTS

NOTE: When the term "clearance tag" is used in this procedure, a lock shall be placed, where possible, in conjunction with the tag.

NOTE: For the tables in this section under the requirement "type" column, “V” means verbatim and “I” means interpreted.

A.1 General Requirements

#	REQUIREMENT	TYPE V or I	SOURCE
1.	Clearance isolating devices (e.g., switches, disconnectors) shall be clearance tagged and locked. Isolating Devices that cannot be locked (jumpers, pole mounted switches, cable elbows, fuses, lifted leads) shall be clearance tagged to ensure that the system cannot be used.	I	29 CFR 1910.269 (m)(2)(iv) 29 CFR 1910.269 (m)(3)(ii) 29 CFR 1910.269 (m)(3)(iv)
2.	Tag attachment devices shall be used that are one piece, all-environment cable ties with unlocking strength not less than 50 pounds. Metal devices shall not be used to attach tags.	I	29 CFR 1910.269 (d)(3)(ii)(D)
3.	If, because of design limitation or increased safety hazard, it is impossible to attach the Hold Off tag, clearance tag and lock exactly on the device, the tags shall be placed as near as possible to the device in a highly visible location (e.g., pole top switches, cables).	I	29 CFR 1910.269 (d)(6)(iv)(B)(2)
4.	Each Hold Off tag requires a verification of correct position of isolating device and tag placement.	I	CRD O 422.1, (Supp Rev 0)
5.	If more than one person requires clearance on the lines or equipment, complete sets of clearance tags for each person requesting clearance shall be ordered.	I	29 CFR 1910.269 (m)(2)(viii)
6.	Electrical Utilities clearance lock is black in color. The locks are keyed alike. Sub-contractor clearance lock will be determined by the sub-contractor and will be known by the crew as the clearance lock. The color of the clearance lock cannot be green or red.	I	29 CFR 1910.269 (m)(3)(ii)

A.2 Requirements for Requesting and Executing Clearances

1.	This procedure applies to clearances directly under the control of the electrical system dispatcher.	I	29 CFR 1910.269 (m) 29 CFR 1910.269 (m)(2)(i)

A.3 Electrical Utilities Operations (EUO) Training Requirements

1.	To become a "current clearance holder", training on this procedure is required.	I	29 CFR 1910.269 (d)(2)(vi)
2.	Successful completion of training on HMIS-PRO-EU-066 does not necessarily constitute allowance to work on the T&D system. Supervision maintains responsibility for ensuring only qualified workers are considered for job assignments on the electrical T&D system.	I	29 CFR 1910.269 (a)(2)
3.	Retraining on this procedure shall be conducted and documented annually. A one-month grace period at the end of each year is allowed for retraining.	I	29 CFR 1910.269 (a)(2)(iii)

A.4 Requirements for Interfacing with other Groups Perfoming Tasks not Within the Scope of 29CFR1910.269

1.	When a requesting organization requires isolation of Electrical Utilities electrical equipment for the purpose of implementing their Controlling Organization's energy control, the dispatcher will isolate incoming lines via a switching order to place a Hold Off Tag. After obtaining permission from the dispatcher, the requesting organization will install over the Hold Off tag the Controlling Organization's DDNO tag and/or the authorized worker's Danger tag. At the completion of the requesting organization's work, the dispatcher will be notified that all overtag/locks have been removed.	I	29 CFR 1910.269 (m)(2)(i)
2.	If Electrical Utilities has a clearance in place and the facility is requesting isolation in order to perform work in an area adjacent to a high voltage clearance area, the common boundary isolation device(s) may be overtagged using the facility lock and tag procedure to establish the required lockout/tagout boundary. This provision only applies if the facility work area boundary does not extend into the high voltage clearance area.	I	29 CFR 1910.269(m)

3.	If a facility or sub-contractor needs to perform work at the same time as Electrical Utilities within an isolation boundary, then one of the options below will be used:	I	29 CFR 1910.269 (m)
	• EU will release the high voltage electrical clearance and maintain the Hold Off tag. Facilities will install over the Hold Off tag the controlling organization's DDNO tag and/or the authorized worker's Danger tag, after obtaining permission from the dispatcher.	I	29 CFR 1910.269 (m)
	• The facility work will be performed by a composite crew of the facility and EU personnel under this lock and tag procedure, with the approval of the clearance holder.	I	29 CFR 1910.269 (m)
	• During activities that involve utility distribution work and secondary facility work within a common isolated boundary, at the discretion of the clearance holder and electrical system dispatcher, it will be permissible to allow Controlling Organization’s to overtag the Hold Off tag on the isolation point(s). Clearance and CO overtag/lock can be established / removed independent of one another.	I	29 CFR 1910.269 (m)
4.	When Electrical Utilities requires isolation of facility equipment for the purpose of establishing a working clearance boundary, the appropriate facility will open the facility disconnect/breaker for Electrical Utilities. Electrical Utilities will install a Hold Off tag on the facility open disconnect/breaker, then install a Clearance tag and lock. The facility may elect to install a Controlling Organization DDNO tag on the open disconnect/breaker prior to or after Electrical Utilities installing the Hold Off & Clearance tags.	I	29 CFR 1910.269 (m)(2) (iv)
5.	Clearance tags may not be removed unless the associated clearance has been released.	I	29 CFR 1910.269 (m)(3)(xii)
6.	The person requesting a clearance to be released shall be the same person that requested the clearance.	I	29 CFR 1910.269 (m)(3)(xi)

7.	If the clearance holder is not present to release their clearance and attempt has been made to contact the clearance holder to release the clearance, then one of the following must be met: a. If a second clearance has been issued, then with the dispatcher and Supervisor or Operations Manager's concurrence, the second clearance holder will release the missing clearance holder's clearance. b. If the work crew reports that all work is complete to the Dispatcher, Supervisor or Operations Manager and; i. Grounds and protectives devices have been removed, ii. Workers and equipment are in the clear, iii. Lines and equipment are ready for service, THEN the Supervisor or Operations Manager will release the clearance to the Dispatcher. Clearance holder shall be notified when they return to work.	I	29 CFR 1910.269 (m)(3)(xi)

A.5 EU Operations Best Practices

1.	When two or more crews are engaged in work at any one location on account of emergency or for other reasons, the Dispatcher may designate one of the clearance holders to act as primary clearance holder of the combined crews for the purpose of obtaining clearances only.
2.	It is permissible to tag off-site switches for the dispatcher and issue clearances against this tag. In tagging out inter-utility tie lines, the open switches on the foreign end of the line shall be tagged for the foreign dispatcher requesting the outage. The foreign dispatcher will issue clearances to individuals in their organization against this tag.
3.	When Electrical Utilities requires switching on a Bonneville Power Administration (BPA) or inter-utility interface device, the appropriate utility will place their tags on the interface device and issue a terminal clearance at the request of the EU dispatcher.
4.	When BPA requires isolation on electrical equipment for the purpose of implementing their facility lock and tag, the dispatcher will issue a terminal clearance on the energy isolating device.
5.	Clearance boundary points will be determined during the switching order development process.

APPENDIX B. DEFINITIONS

Bonneville Power Administration (BPA) System Dispatcher: A BPA employee responsible for directing the operation of the BPA electrical system, which supplies the Hanford electrical system.

Boundary: The limits of clearance determined by the energy isolating devices configured to provide a de-energized work area.

Clearance Holder: The qualified individual to whom the electrical system dispatcher has granted a clearance.

Clearance Lockout Device: A device that permits multiple locks to be placed on a specific energy isolating device.

Clearance: Certification from the electrical dispatcher that a specified line, line section, or piece of equipment is de-energized, that the proper precautionary measures have been taken and the line or equipment is being turned over to an employee for work until such time when he releases the clearance to the electrical dispatcher.

Cleared Area: A section of the electrical system isolated within the boundaries specified by a clearance.

Energy Isolating Device: Physical device, such as a circuit breaker, switch or fuse which is capable of electrically disconnecting specific equipment or a section of circuitry from any source of electrical energy.

Protective Device: Following the installation of lockout/tagout, an apparatus used to relieve, disconnect, restrain or otherwise render safe sources of hazardous energy. Examples of protective devices include flanges, blocking pins, and plugs.

Qualified Individual: One who is familiar with the construction, configuration, or operation, of lines or equipment related to his responsibilities; and who is fully aware, through training and experience, of the related hazards. An employee who is receiving on-the-job training, and has demonstrated the ability to perform duties safely at his/her level of training shall be considered qualified for those duties while under direct supervision of a "qualified person."

Status: Electrical configuration or operational position of an energy isolating device.

Switching Orders: The documentation issued by the electrical system dispatcher, and received by the Switchman, for the purpose of operating energy isolating devices and the placement or removal of locks and tags.

Tag – Clearance: Clearance tags are used by the clearance holder to identify clearance boundaries, for the purpose of alerting employees that the circuit, system, or equipment is being worked on. See Appendix C.

Tag - Danger Do Not Operate: "Danger - Do Not Operate" tags are used by various facilities for configuration control in accordance with the site lock and tag program.

Tag - Hold Off: EU "Hold Off" tags are used by EU for configuration control to establish protective boundaries, and are always placed in position prior to a working clearance. See Appendix D.

Terminal clearance: Certification by the electrical system dispatcher from the BPA dispatcher that an energy isolating device(s) has been placed in the open position, and shall remain open, with a dispatchers Hold Off tag in place until the terminal clearance has been released to the appropriate dispatcher.

APPENDIX C. CLEARANCE TAG INFORMATION

1. CLEARANCE # / the number of the clearance as issued by the dispatcher.

2. NAME OF SWITCH/DEVICE / Name of switch or device.

3. CLEARANCE HOLDER / the name of the person receiving the clearance and hanging this clearance tag.

4. CHECK OPEN / Mark the Check Open box.

5. DATE / Date as stated by the dispatcher during the switching order.

6. TIME / Time as stated by the dispatcher during the switching order.

7. DISPATCHER ISSUING CLEARANCE / The name of the dispatcher who issues the clearance.

NOTE: *BT-6001-786R (REV 1), BT-6006-949R (REV 0), BT-6006-950R (REV 0) and BT-6006-951R (REV 0) are clearance tags. Use the appropriate clearance tag to match isolation device.*

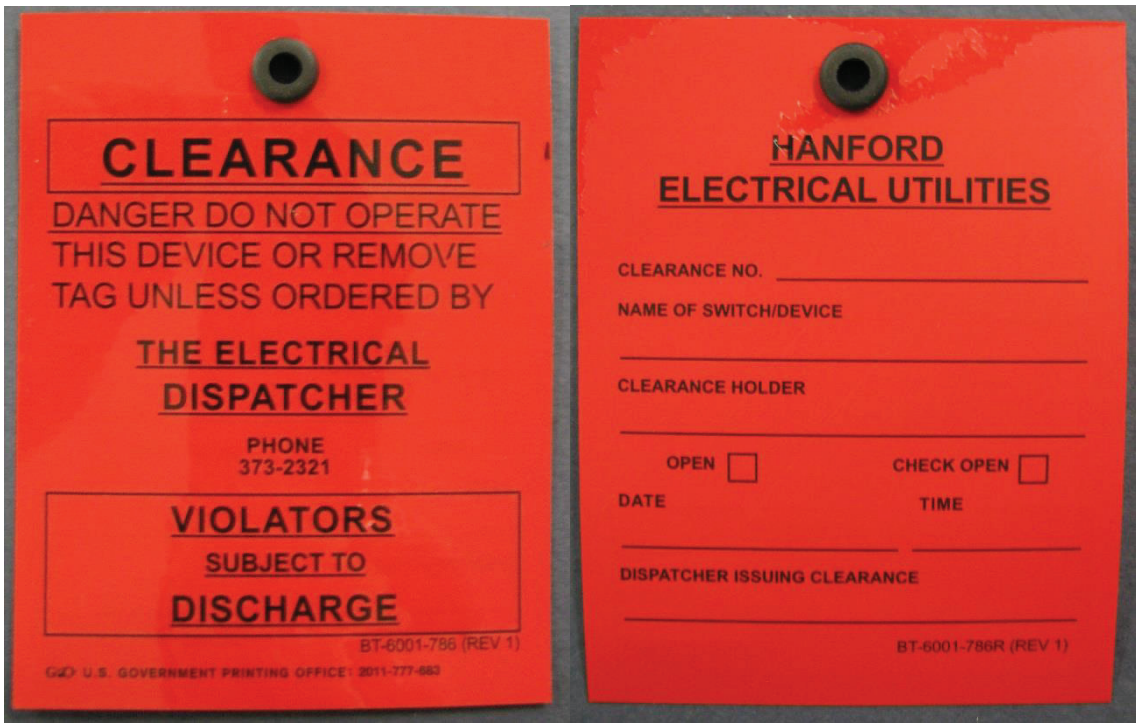

Figure 1. Example Clearance Tag

APPENDIX D. HOLD OFF TAG INFORMATION

1. **S.O. No**. / switching order number as issued by the dispatcher.

2. **FULL SWITCH DESIGNATION** / Name of switch or device.

3. **Dispatcher Ordering Switching** / Name of dispatcher ordering switching.

4. **Time** / Time as stated by the dispatcher during the switching order.

5. **Date** / Date as stated by the dispatcher during the switching order.

6. **Switched By** / Name of the person who opened the switch or device.

7. **Verified By** / The name of the verifier.

NOTE: *BT-60010785R (11/95), BT-6006-946 (REV 0), BT-6006-947 (REV 0) and BT-6006-948 (REV 0) are Hold Off tags. Use the appropriate Hold Off tag to match the isolating device.*

Figure 2. Example Hold Off Tag

APPENDIX E. HAZARDS, ISOLATIONS AND ENERGY CHECKS

Appendix E provides guidelines to ensure isolation methods and energy checks are adequate to control hazardous energy and verify absence of energy found on the Hanford site transmission and distribution system.

Hazard	Value	Isolation Method	Energy Checks
Electrical	>50 Volts	Breakers, switches (fused, test, gang, single pole), lifted jumpers, lifted elbows, disconnects, removed fuses, lifted leads	Voltage check
Low Pressure	150 – 500 PSI	Valve or isolation of electric pump motor	Vent pressure, verify that pressure is below 150 PSI and voltage check on electric pump motor
High Pressure	>500 PSI	Two Valve or isolation of electric pump motor	Vent pressure; verify that pressure is below 150 PSI and voltage check on electric pump motor.
Spring		Isolation of electric charging motor	Tension relieved and voltage check on electric charging motor.