 Platte River Power Authority	Program	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 1 of 10

Owner: Plant Operations Manager / Safety, Emergency Management, & Security Manager	Original Effective Date: 2/01/2018
Authority: Plant Manager	Current Effective Date: 2/01/2018
Review Frequency: Annually	Next Review Date: 02/01/2019

Purpose:

The Control of Hazardous Energy (Clearance and Lockout/Tagout) Program provides a consistent approach for protecting employees during the service and maintenance of machines and equipment when the unexpected energization, startup, or release of stored energy could cause harm. Energy sources are controlled through Lockout/Tagout (referenced from this point forward as “Clearance”) and include, but are not limited to:

- Electrical
- Mechanical
- Hydraulic
- Pneumatic
- Chemical
- Thermal (including steam)

This Program defines:

- Minimum requirements for Clearances.
- Requirements for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy.
- Requirements for the placement, removal, and transfer of Lockout/Tagout devices and the responsibility for them.
- Requirements for testing a machine or equipment to determine and verify the effectiveness of Lockout Devices, Tagout Devices, and other energy control measures.
- Record keeping requirements.
- Training requirements for Requestors.

Program:

This Program applies to all operations that involve the service or maintenance of plant systems.

This Program applies any time an employee is required to do the following:

- Remove or bypass a guard or other safety device.



Program

TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program

- Place any part of his or her body into an area of a machine or piece of equipment where work is actually performed or material is being processed (i.e., point of operation).
- An associated danger zone exists during a machine operating cycle.

This program does not apply to the following:

- Corded power tools for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging the equipment from the power source *and* the equipment is under the exclusive control of the employee performing the servicing or maintenance
- Service or maintenance on vehicles or other mobile equipment.
- Service or Maintenance on remote equipment (i.e., Rawhide pump station machinery) on which Eclipse is not used.
 - In these instances, a paper permit will be issued by a Clearance Administrator.
- Lockout of local disconnects on facilities equipment by contractor personnel, provided prior approval is granted by a Clearance Administrator.
- Shut down and control of any equipment for any purpose other than protecting employees from hazardous energy (i.e. turning off a machine for administrative purposes, abandoning equipment in place, etc.).

Program Requirements:

- **Appropriate Use of Clearances** - No work may be done on any energized equipment without first obtaining a Clearance and shutting down that equipment unless doing so would cause greater harm or risk to personnel safety. In that case, the work must be approved by the department Supervisor, PRPA Safety, and an Administrator. The work must also be documented in a separate procedure such as an Energized Electrical Work Permit.

Prior to working under a clearance, all Requestors must verify the Clearance Points are appropriate for their work, sign on to the Clearance in Eclipse, and place a Personal Lock on the corresponding Clearance Lockbox.

Do not apply Lockout Devices and locks to machines or equipment for any purpose other than controlling hazardous energy. Use other methods to control systems or equipment that must remain off or inoperative for administrative purposes other than the control of hazardous energy and personal protection.

- **Before Performing Work** - Isolate equipment from the energy source(s), and render the equipment inoperative. All equipment is considered to be in service unless the equipment has been deactivated, de-energized, depressurized, isolated, the proper Clearance has been issued, the locks/tags hung, and a “Zero Energy Verification” has been completed.



Program

TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program

- **Clearance Boundaries** – Requestors are required work with the Administrator to establish and/or expand Clearance Boundaries. Additional Clearance Point Field Locks, tags, and devices that are issued to expand a Clearance will be logged in Eclipse and all personnel working under the Clearance will be notified of the changes by the Administrator or designee.

If it becomes necessary to disassemble or remove equipment that is locked out, the existing Clearance must have the boundaries expanded to cover the equipment being worked on.

Clearance boundaries may not be reduced for any reason.

For Clearances at a satellite location (pipeline, pump stations, etc.) the Clearance may be field edited by mutual agreement between the Requestor and an Administrator prior to the commencement of work.

- **Clearance Points** - All Clearance points are recorded in Eclipse. The Administrator who issues the Clearance signs, dates, and documents the equipment and corresponding positions (open, closed, etc.).
- **Electrical grounds** If electrical grounds are required in conjunction with any electrical Clearance, a Qualified Electrical Worker must install the grounds in accordance with PRPA Electrical Safety and Electrical Grounding Standards.

NOTE: Electrical Grounds alone are not adequate Energy Isolating Devices and must be used in conjunction with appropriate valves, breakers, or other Isolating Devices.

Equipment prohibited as Clearance Points - The devices listed below may be listed on the Clearance and tagged for informational purposes, but are not adequate to be used as Energy Isolating Devices:

- Check valves
 - Push buttons
 - DCS operating systems
 - Solenoid valves
 - Pilot-operated valves without mechanical overrides
 - Electrical grounds (see note above)
 - Other similar equipment
- **Lock Boxes** - Lock Boxes are maintained in the Main Control Room, SDA Control Room, and Fuel Handling Admin Area and are under the supervision of the appropriate Administrator(s).
 - **Lockout Devices** - Only use Lockout Devices to control hazardous energy. Do not use Lockout Devices for any other purpose. Verify that Lockout Devices are substantial enough to prevent removal without the use of excessive force or



Program

TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program

unusual techniques. Verify that Lockout Devices can withstand the weather and chemical conditions to which they are exposed. No lockout device will be placed without a Tag. Sets of Field Locks are used to secure Lockout Devices.

- **Personal Locks** - Identify personal locks with the owner's name. Personal locks may not be used for any other purpose than locking on to a Clearance. Personal Locks must have a unique key or pin combination (not keyed alike). Supervisors may retain a master copy of their department's personal lock keys.
- **Tagout Devices** - If any tag becomes illegible, it must be brought to the attention of an Administrator so that it can be replaced and re-hung. Tags must be securely attached to the energy-isolating device(s) so that they cannot be inadvertently or accidentally detached during use. Tags will be attached using non-reusable tie wraps that are self-locking with a minimum unlocking strength of no less than 50 pounds.
- Using a Tagout Device without a Lockout Device -

NOTE: Use of a Lockout Device with a Tagout Device is required unless the equipment is physically incapable of accepting a Lockout Device or installation of a Lockout Device creates a hazard. Install Energy Isolating Devices that are capable of being locked out when the plant replaces, renovates, or modifies equipment that currently does not accept a Lockout Device.

Verify that use of Tagout Device only offers protection that is equivalent to a Lockout Device.


Obtain the approval of the Administrator or his/her designee to use the Tagout Device without an associated Lockout Device.

Take appropriate additional measures to ensure that accidental re-energizing does not occur. Examples:

- Remove isolating circuits
- Block controlling switches
- Remove valve handles
- Use cables

Tags must be able to resist 50 pounds of force.

- **Work on the Bulk Electric System (BES)** - If any work requires isolation boundaries on any 230kv equipment, a request must be made to the PSO at least (14 days) prior to that work starting, stating what equipment is being worked on and what points of protection are being requested on the 230kv equipment. Emergencies will be accommodated on a case by case basis. The PSO will prepare, check and direct all switching on the 230kv equipment. All switching must be performed by personnel on the Qualified Switchman's list maintained by PSO. The ICS/CLR will then be listed as either the Master Tag or a boundary tag

 Platte River Power Authority	<h1>Program</h1>	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 5 of 10

on a Rawhide Clearance. Any Requestor requiring the protection of the ICS/CLR may then sign onto the Rawhide Clearance. This will ensure that Rawhide Operations does not release the ICS back to PSO until all personnel and equipment clear, all personal protective grounds have been removed, and the equipment is ready for service. **No Rawhide Clearance tags, locks, or lockout devices will be placed on the 230 kV equipment.**

Procedure:

NOTE: Documentation and implementation of the following processes are facilitated using Eclipse software.

1) Clearance Installation

- (a) The Requestor desiring the Clearance makes a request to the appropriate Administrator:
 - (i) Clearly explain the scope of work, the equipment to be worked on, and the area in which the work will be taking place.
- (b) The Requestor and the Administrator agree on the boundaries of the Clearance to assure a safe working condition exists prior to the commencement of any work.

NOTE: A Clearance may be used for multiple work tasks provided the boundaries are sufficient for each defined scope of work.

- (c) Operations and/or Fuel Handling personnel de-energize, depressurize, and/or deactivate the equipment to be locked out following any specific required shutdown sequence, then install Lockout and Tagout devices on all of the required Clearance Points that will accept a lock.
- (d) Both the originating Requestor(s) and the Operations/Fuel Handling representative physically walk down and verify the Lockout and Tagout Devices are installed correctly (correct position, location, system, etc.).
 - (i) During this step, Zero Energy Verification is performed in a manner appropriate for the equipment being isolated (i.e., attempt to start, use of meters/gauges, visual inspection, etc.). Verification may be performed before or after Lockout Devices are installed depending on the configuration of the equipment being tested. Verification is complete when the Administrator and the Requestor agree that:
 - Energy is dissipated
 - Energy is restrained
 - Energy is adequately isolated to prevent inadvertent release



Program

TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program

- (e) All Field Lock keys and any remaining Field Locks are placed in a Clearance Lockbox, locked with a Clearance Administrator Lock, and the Clearance is placed into active status.
- (f) All Requestor(s) walk down the Clearance to verify that the equipment is isolated, locked, and tags have been properly placed. The Requestor then hangs their personal lock on the lock box and signs onto the Clearance in Eclipse.
- (g) If a Contractor is working under a Requestor, the Contractor lead (foreman, superintendent, manager, etc.) walks down all Clearance Points to ensure the boundaries are appropriate and places a Contractor Lock which is identified with their name, company, and contact information on the Clearance Lockbox. The key to that lock is maintained in accordance with the Contractor's Lockout/Tagout procedures.

2) Clearance Release for Test


- (a) When removal of a Lockout Device from a Clearance Point is required to allow for testing or other verification, all Requestors working under the affected Clearance stop work, sign off of the Clearance, and remove their Personal Locks.
- (b) The Administrator annotates the Clearance Point removal in Eclipse, removes the Lockout Device from the Clearance Point, and authorizes the test.
- (c) Upon completion of the test, if the equipment is not returned to service, the Lockout Device is reinstalled, Zero Energy Verification is re-accomplished, and the Administrator issues the Clearance for work.
- (d) Requestors reapply their Personal Locks and sign back on to the Clearance in Eclipse.

3) Clearance Release - Final

- (a) When work is completed, the Requestor verifies that the machine or equipment is safe to return to service.
- (b) The Requestor signs off the Clearance in Eclipse and removes his/her personal lock.
- (c) When all Requestors have removed their personal locks and signed off the Clearance in Eclipse, the administrator removes the Clearance Administrator Lock from the Clearance Lockbox and retrieves the Field Lock keys.

NOTE: The Clearance Administrator may leave the Administrator Lock in place and keep the Clearance in active status if work within the Clearance boundaries is expected to resume.

- (d) All Clearance Points tags are collected and accounted for, then destroyed.

 Platte River Power Authority	<h1>Program</h1>	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 7 of 10

(e) Operations is responsible for returning all Lockboxes, Field Locks, and Lockout Devices to the appropriate area.

4) Abandoned Lock Removal

(a) If a Clearance must be released but a Requestor is not on site, the Requestor's supervisor or Shift Supervisor will make reasonable attempts to contact the Requestor by telephone. If the Requestor is contacted by telephone, he/she must return to the site to remove their Personal Lock if possible. If this is not possible, the contact attempt will be documented in Eclipse. The Requestor's supervisor, the Administrator, and the Shift Supervisor may then authorize the personal lock to be removed. When the Requestor returns to the site, the Requestor will be informed their personal lock was removed and he/she is no longer signed onto the Clearance.

NOTE: Removal of Contractor personal locks must follow the same process.

(b) In order to prevent the need to remove locks when a Requestor is not on site, Requestors should sign off and remove their personal locks from any Clearance they are not actively working on.

5) Annual Inspection

The Plant Operations Manager or his/her designee inspects this program and its implementation annually. If significant issues are discovered during the inspection of a representative sample, of all active and inactive Clearances completed during the review period must be reviewed.

The annual inspection must:


- Include a review of a representative sample of both active and inactive Clearances and the associated personnel training.
- Be performed by a Requestor other than the ones using the Clearance inspected. It is acceptable for the Safety Action Team to perform the inspection of existing Clearances.
- Determine whether the requirements of the program are implemented properly. Deviations from the program must be identified, documented, and corrected.

6) Consequences

(a) Any employee who performs work on equipment that has not been isolated with tags/locks properly hung and an accepted Clearance in place may be subject to disciplinary action up to and including termination.

(b) Removal of a Tag, or Lockout device or operation of a device from the tagged position prior to Final Release or Release for Test by anyone will result in disciplinary action up to and including termination of employment.

i. If the isolation of any device is in question, notify the Administrator to have the device reviewed. Do not attempt to operate/adjust the device.

 Platte River Power Authority	<h1>Program</h1>	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 8 of 10

7) Administration

- (a) The Clearance Logs are retained in Eclipse for one year and then forwarded to the Records Department for filing according to the Platte River Records Retention Schedule.
- (b) Lock sets and lockout devices are in the Control Room, AQCS, and Coal Handling and maintained by the appropriate Administrator(s). Field Lock sets are keyed alike and designated for use on only one Clearance at a time.

Implementing Parties and Assigned Responsibilities:

Safety

The Safety Department monitors activities performed under this program for compliance and recommends corrective action as required.

Plant Operations Manager

The Plant Operations Manager is the primary authority for this program and oversees its implementation.

The Plant Operations Manager maintains a current list of trained and authorized Requestors which is updated annually.

The Plant Operations Manager has authority to designate employees to serve as Clearance Administrators.

Clearance Administrators

Clearance Administrators are employees authorized by the Plant Operations Manager to issue Clearances at Rawhide. In addition to the Operations Manager, they include: Shift Supervisors, Senior Control Room Operators, the SDA Coordinator, the Fuel Handling Supervisor and any other employees authorized by the Operations Manager as designees; (Rawhide Operations employees authorized as upgrade-qualified in the Senior Control Operator position).

Administrators coordinate with Requestors to establish Clearance boundaries which are appropriate for the scope of work being performed.


Administrators are the authority for all Clearances issued in their area and maintain authority to authorize or stop work involving those Clearances as required.

Fuel Handling/Operations personnel

Fuel Handling and Operations personnel, who are authorized Requestors and have demonstrated proficiency install Lockout Devices/Field Locks and hang tags. **Clearance Requestors**

Requestors complete annual training and are authorized (in writing) to request a Clearance from any Administrator.

Requestors oversee work performed by Outside Contractors.

 Platte River Power Authority	<h1>Program</h1>	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 9 of 10

Contractors

Contractors are required to adhere to the requirements of this program and receive basic Clearance training prior to working under a Clearance at any Platte River Facility.

Contractors must request Clearances from and work under the direction of a Platte River Requestor.

Contractors are required to maintain personal locks for and ensure that all contract employees are locked on to a Clearance before performing any work on locked out equipment.

Associated Documents:

OSHA 29 CFR 1910.147, Control of Hazardous Energy (Lockout/Tagout)

OSHA Instruction CPL 02-00-147, The Control of Hazardous Energy – Enforcement Policy and Inspection Procedures

Appendix A

Definitions and Acronyms:

Clearance - The placement of a Lockout and/or Tagout Device on an Energy Isolating Device, according to an established ECP, that ensures the Energy Isolating Device and the equipment being controlled cannot be operated until the Lockout and/or Tagout Device is removed


Capable of Being Locked Out - When an Energy Isolating Device has a locking mechanism built into it or has other means to attach a lock (e.g., hasp)

Clearance Point - A mechanical **Energy Isolating Device** that physically prevents the transmission or release of energy

Examples:

- Manually-operated electrical circuit breaker
- Manually-operated switch that can disconnect the conductors of a circuit from all ungrounded supply conductors and prevents independent operation of any pole
- Disconnect switch
- Isolation valve
- Blind Flange
- Any similar device used to block or isolate energy

NOTE: Push buttons, selector switches (unless capable of being locked out), and other control-circuit devices are not Energy Isolating Devices. These types of devices may be listed on the Clearance and tagged accordingly, but are not adequate when used alone.

 Platte River Power Authority	<h1>Program</h1>	Version #: 1.1 Next Review Date: 2/01/2019
	TITLE: Control of Hazardous Energy (Clearance and Lockout/Tagout) Program	Page 10 of 10

Field Locks - Locks used to secure the Lockout Devices that are applied to Clearance Points. Sets of Field Locks are keyed alike and assigned set numbers which are recorded in Eclipse to correspond with a Clearance.

Lockout Device - A LOTO Device that uses a positive means (e.g., a keyed lock, blank flange, bolted slip blinds) to hold an Energy Isolating Device in a safe position that prevents a machine or piece of equipment from energizing

Clearance Administrator Lock - The “master” lock used to lock all Lockout Device keys in a group Lockbox. The Clearance Administrator Lock is the first lock placed on the Clearance Lockbox and the last removed prior to equipment being returned to service.

Personal Lock - A lock assigned to an Authorized Employee. The Authorized Employee maintains custody of the key or combination.

PRPA Contact - A PRPA employee who is designated to monitor and assist a Contractor according to this program.

Requestor – A PRPA employee who has successfully completed Clearance and Lockout/Tagout training and has passed the written test. A Requestor list will be maintained in the Clearance Logbooks. This list will be updated by Rawhide Safety (Safety) staff upon notification by any Shift Supervisor or the Plant Operations Manager.

Satellite Lockbox - A Lockbox used in conjunction with an established Group LOTO and maintained in remote work areas. The Satellite Lockbox is an extension of the Group Lockbox.

Tagout Device (Tag) - A LOTO device that provides prominent warning (e.g., a tag generated in Eclipse) and a means of attachment that can be securely fastened to an Energy Isolating Device to indicate that no one may operate the Device or the equipment until the Administrator releases the Clearance and the Tagout Device is removed.

Zero Energy Verification – The process of testing, in a manner appropriate for the equipment being isolated (i.e., attempt to start, use of meters/gauges, visual inspection, etc.), that energy has been dissipated, restrained, and adequately isolated to prevent inadvertent release. Every Requestor may request to observe the tests performed during this process.

LOTO FAQ's

Can I work on a system or piece of equipment under another requestor?

No, all employees will sign onto the clearance and hang their personal lock on the assigned lock box prior to starting work.

Am I required to walk down the clearance when I sign on?

Yes, the procedure states that all requestors are required to walk down the clearance.

What is zero energy verification?

It is the process performed to ensure a system or piece of equipment is de-energized, de-activated or de-pressurized. It can be done by visual inspection; open drain of a pipe, attempt to start equipment, observation of breaker position, etc. ZEV may include metering to verify voltage, but only by qualified person (I&E).

Do I have to sign off the clearance and remove my personal lock at the end of the day/my shift?

No, unless the system or equipment is expected to be returned to service in your absence. This will be determined by the project manager/supervisor and the clearance administrator.

Can Operations bring the lock box assigned to the clearance with them, so I can walk down the tag and hang my lock on the box without returning to the Control Room?

The lock box should remain where the clearance was issued; Control Room, SDA, Fuel Handling. For limited clearances (pump station, or pipeline), the lock box will be taken to the satellite area and administrator lock placed by Operations.

Can I place my personal lock on a field device?

No, personal locks are placed only on lock boxes.

Will I get disciplined if I violate the clearance procedure?

The new LOTO procedure will be administrated just as we have always had. Occasionally, an error is made; (wrong clearance point, error on the clearance sheet). All work will stop (if started), the error will be corrected, and the system or equipment will be safely isolated. It is a rare occurrence when an employee willfully and maliciously engages in an unsafe act. That issue will be addressed by management.