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08/21/18
Effective Date

This document has been reviewed by a Y-12 DC / UCNI-RO and has been determined to be UNCLASSIFIED and contains no UCNI. This review does not constitute clearance for Public Release.

Name Steven A. Buffalo Date: 08/14/18

## **REVISION LOG**

Revision	Description	Intent	Non Intent
	Revised to clarify actions for Permit Modification.	Х	
	Clarified role of an additional AE, a separate qualified AE or, AE independent of hanging the LO/TO may be filled by the PR.		
4	Added new form, CFN-1247, UPF System Specific Energy Control Modification.		
	Obsoleted the use of CFN-1060, UPF Lockout/Tagout Personal Lock Log.		
	Reordered steps for using a Personal Lock.		
3	Revised to update template, change where Single Source LO/TOs are logged, and correct title for CFN-1105, <i>UPF Lockout/Tagout Permit</i> .	Х	
Previous revisions	On record	N/A	

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#### 1.0 INTRODUCTION

#### 1.1 Purpose

This procedure provides direction for performing Lockout/Tagout (LO/TO) on equipment and systems at the Uranium Processing Facility (UPF). LO/TO is intended to achieve the following:

- Protection of personnel from exposure to potential hazardous energy sources during servicing and maintenance of equipment and systems.
- Prevention of unexpected or inadvertent damage or loss of equipment or systems.
- Prevention of unexpected or inadvertent release of hazardous materials.
- Protection of co-located workers, the public, and the environment.

#### 1.2 Scope

This procedure covers the servicing and maintenance of equipment and systems in which the unexpected energization or startup of the equipment or systems, or release of stored energy could cause injury to employees. This procedure applies to UPF construction activities and may be used on systems and equipment owned by Y-12 with written approval.

Applicability to subcontractor employees is as specified in subcontract language.

The following are excluded from the scope of this procedure:

- Work on cord and plug connected electrical equipment for which exposure to the hazards of unexpected energization or start-up of the equipment is controlled by unplugging the equipment from the energy source and the plug is under the exclusive control of the employees performing the work.
- Vehicles which can be isolated by removing the key from the switch, with the key removed from the vehicle.
- Power Distribution Work Permit, where work scope interfaces with Y-12 Power Operations (Transmission and Distribution lines).
- Project Wide Master Clearances which are used for personnel safety LO/TO protection to provide site-wide isolation or protection. Project Wide Master Clearance are performed in accordance with Y18-107, Lockout/Tagout Execution for Personnel Protection.
  - This process is limited to main terminal points to existing Consolidated Nuclear Security, LLC (CNS) Y-12 facilities / utilities (e.g., main power feeds, gas supplies, and connections to existing CNS Y-12 facilities outside the scope of UPF). The Issuing Authority (IA) functions as the Authorized Employee (AE) for Project Wide Master Clearances.

#### 2.0 RESPONSIBILITIES

#### 2.1 Construction Manager (CM)

The CM or designee is responsible for the following:

Implementing the requirements of this procedure.

- Assuring that, at a minimum, the protection required by this procedure is provided when working under another organization's tagging procedure (e.g., CNS Y-12, City of Oak Ridge).
- Ensuring all Permit Requestors (PRs), IAs, AEs and Affected Persons (APs) are trained in this procedure to the level required to support their functions.
- Designating IAs and approves Permit Requestors (PR).

### 2.2 Issuing Authority (IA)

The IA is responsible for the following:

- Issuing, modify, and close LO/TO Permits as required under this procedure.
- Concurring, along with the PR, with the protective measures and Zero Energy Check required to ensure that component(s) or system(s) identified on CFN-1217, UPF System Specific Energy Control, are completely isolated so that work can be safely performed and protect both personnel and equipment.
- Verifying that work area / plant conditions are adequate for the work or testing to be performed.
- Ensuring that safety tags and locks are placed and removed by the AE from designated equipment and systems, including boundaries and supplemental sources, as required by the LO/TO Permit.
- Ensuring that the protective measures identified on the LO/TO Permit are implemented prior to the start of work and are restored after the work is completed.
- Ensuring that the equipment / system is in a safe configuration after the work is completed.
- Maintaining safety tagging records (e.g., open and closed LO/TO Permits and UPF System Specific Energy Control screening for Single Source LO/TO).
- Consulting with and advise the shift supervisor, where applicable, for the equipment or system impacted by the LO/TO Permit prior to authorizing the permit.
- Hanging Master Clearance that protects the entire construction workforce from hazards during the construction phase.
- Ensuring that necessary safety equipment is identified and/or provided.
- Ensuring PRs and AEs are authorized to perform LO/TO activities.

#### 2.3 Permit Requestor (PR)

The PR has the following responsibilities:

- Initiating the permit for defining the work or testing to be performed, providing sufficient detail to allow adequate evaluation of the isolation boundary.
- Consulting the Responsible Field Engineer, if necessary, during the request phase of LO/TO permit generation to assist in identifying energy sources, isolation points, and the Zero Energy Check process.
- Recommending the equipment and/or electrical circuits to be tagged or locked out and the process by which the tagged/locked equipment or components will be verified as being in a safe energy state.
- Requesting guidance and assistance from UPF technical resources, e.g., field engineering, UPF Engineering, vendors, as needed to understand all potential energy sources.

- Verifying that isolation boundaries are adequate for the work or testing to be performed; ensure that all safety requirements are in place to do the work required (i.e., confined space entry permit).
- Independently verifying that each tagged or locked component is in the position indicated on the LO/TO Permit.
- Prior to work start, signing the LO/TO Permit signifying that the boundary is adequate and understood.
- Conducting a briefing to AP and AEs on work boundaries, safe energy check, and scope of work to be done.
- Clearing the lock box, if used, when the work is complete and the machine, system, or equipment is capable of being safely re-energized.
- Assuring AEs working under this procedure receive the same level of protection that would be afforded to them by using a Personal Lock. The preferred method of individual protection is the use of a lock box system as described in this procedure. AEs may be accounted for by having them sign on to the LO/TO Permit. If a foreman/supervisor signs on to the permit for their work crew, all work crew members must be listed on the permit. In other circumstances, a lock box system will be utilized as described in this procedure. The IA will assist in which method is to be utilized.
- Ensuring the machine, system, or equipment is capable of being safely re-energized.

#### 2.4 Authorized Employee (AE)

The AE working in direct areas or on systems required to be protected by a LO/TO has the following responsibilities:

- Verifying, prior to performing work, the LO/TO Permit is issued and signed by the IA and the PR.
- Ensuring that all safety precautions are in place and verify that adequate training needed to safely perform the work is complete.
- Following direction relative to LO/TO for safety tags and locks provided by the IA.
- Removing their tags from the lock box or sign off (release) permit when work is complete or work is no longer being performed under the permit.
- Positioning or configuring components as specified on the LO/TO Permit.
- Locking/tagging out machines, system components, or equipment in order to allow performance of servicing, maintenance, or testing.
- Performing Zero Energy Check as prescribed in the UPF System Specific Energy Control.
- Removing locks/tags upon completion of tasks.
- Positioning or configuring components in a safe mode upon removal of tags, locks.

#### 2.5 Affected Person (AP)

The AP is responsible for receiving notifications about the application and removal of lockout or tagout devices, but are not required to sign permits, hang Personal Locks, tags, or other devices as part of the LO/TO permitting process.

#### 2.6 Responsible Superintendent

The Responsible Superintendent (or designee) is responsible for the following:

- Performing observations and oversight to ensure that employees have been properly trained in this procedure.
- Ensuring that the procedure is being performed in a way that provides each individual AE full protection and control over their energy-isolating device (lock and/or tag).

#### 3.0 WORK PROCESS

- NOTE 1: Examples of approved locks and tags are listed in Appendix G, Danger Do Not Operate/Do Not Remove Tag, Appendix H, Caution Restricted Operation Tag, and Appendix I, Lockout/Tagout Locks and Devices.
- **NOTE 2:** Isolation points shall be locked with exception of when situations where no physical means of locking isolation devices exist. In such cases, tagging shall be used in lieu of locks with equivalent means of protection.
- **NOTE 3:** With exception to signing on to the LO/TO Permit or as specifically noted in this procedure, an individual may only perform one role as it applies to the positions indicated in this procedure.
- **NOTE 4:** The information entered in LO/TO paperwork may be entered as information comes available (e.g., page number updated following closure of LO/TO Permit).

#### 3.1 Specific Energy Control Screening

#### **Permit Requestor**

- **NOTE:** Review documentation may include, but is not limited to, equipment and related system drawings, piping and instrument diagrams, electrical drawings, and electrical panel schedules. Drawings and diagrams should be the latest "redline" versions.
- 3.1.1 Ensure the source(s) of hazardous energy present are identified by reviewing the latest upto-date documentation for hazardous energy sources or field configuration:
- 3.1.2 Ensure a field walk down of the equipment or system being isolated is performed to identify the following:
  - configuration
  - isolation points
  - protective measures
- 3.1.3 IF in doubt on system detail, THEN request guidance from one of the following:
  - IA
  - Field Engineer
  - Engineering
- 3.1.4 Ensure that a lockout device can be applied to the component or system that is to be requested to be controlled for safety protection.
- NOTE: The completed CFN-1217, UPF System Specific Energy Control, and CFN-1247, UPF System Specific Energy Control Modification, stays with the applicable permit paperwork.
- 3.1.5 WHEN CFN-1217 or CFN-1247 is complete, THEN sign and date.

- 3.1.6 IF all responses are "True" on CFN-1217, THEN GO TO Subsection 3.3 to conduct the work as a Single Source LO/TO.
- 3.1.7 IF CFN-1247 was completed, THEN GO TO Step 3.4.2 to modify an existing LO/TO Permit.

**NOTE:** The role of additional AE, separate qualified AE or, AE independent of hanging the LO/TO may be filled by the PR.

#### 3.2 LO/TO Permit Issuance

#### **Permit Requestor**

- **NOTE 1:** The safety tags are numbered using the System / Component Safety Tagging Permit number (Record Number) and a sequential number (e.g., 201-1, 201-2, and 201-3).
- **NOTE 2:** Tags, locks, and their associated numbers are issued by the IA.
- 3.2.1 Ensure the following has been entered in CFN-1105, UPF Lockout/Tagout Permit.
  - Tag No.
  - Tag Type (Danger [D])
  - Lock No.
  - Component
  - Position
- 3.2.2 Submit CFN-1217 and CFN-1105 to the IA for review.

#### **Issuing Authority**

- **NOTE:** A field walk down of the equipment or system being isolated may be performed.
- 3.2.3 Verify the type of safety boundary and required protective measures recommended by the PR are adequate for the work identified in the permit.
- 3.2.4 Ensure the next sequential Permit number is written on the safety tag and CFN-1059, *UPF Lockout/Tagout Permit Log.*
- **NOTE:** The IA may consult with Field Engineering or Design Engineering as needed about the LO/TO Permit request.
- 3.2.5 Ensure the isolation points are appropriate for the work being performed for the requested Permit.
- 3.2.6 Confirm the AE is authorized to hang safety tagging or lockout.
- 3.2.7 Sign and date *Specific Energy Control Instructions* on CFN-1217 to authorize placement of the LO/TO.

#### **Authorized Employee**

- 3.2.8 IF any issues occur during the performance of steps 3.2.11 through 3.2.13, THEN immediately place the equipment / component in a safe condition and report the identified issue to the IA.
- **NOTE:** Some of the locking mechanisms completely obstruct the view of the component position (e.g., the locking device on a gate valve obstructs the hand wheel from view after lock is applied).
- 3.2.9 IF the component(s) is NOT able to be independently verified, THEN ensure an additional AE concurrently verifies the locked and/or tagged position matches the Permit during step 3.2.12.

- 3.2.10 IF AP(s) are in the LO/TO area, THEN ensure AP (s) have been notified of the LO/TO being implemented.
- **NOTE:** The AE or designee under AE supervision may hang lockout/tagout device(s) on the energy isolating device(s).
- 3.2.11 Perform LO/TO in accordance with the Specific Energy Control Instructions detailed in block three of CFN-1217.
- 3.2.12 IF concurrent verification was performed during step 3.2.11, THEN ensure the additional AE exits the area.
- 3.2.13 Perform a Zero Energy Check in accordance with the Specific Energy Control Instructions detailed in block four of CFN-1217.
- 3.2.14 Initial and date CFN-1105 at each LO/TO point to document the LO/TO is installed.
- NOTE: The keys may be placed in a lock box for AE(s) or foreman/supervisor to attach their Personal Locks. Alternatively, the permit may be used for individual accountability and protection of AEs with lockout device key(s) controlled by the IA.
- 3.2.15 IF a locking device was applied, THEN return the key(s) to the IA.
- WARNING 1: The act of checking, by a separate qualified AE, that a given operation, or the position of a component, conforms to established criteria noted on CFN-1105 is required unless physically unable to independently verify due to the configuration of the component.
- WARNING 2: Manipulation of the position or status of a tagged component may cause equipment damage or personnel injury and is prohibited.
- 3.2.16 IF the component(s) is able to be independently verified, THEN ensure an AE independent of hanging the LO/TO verifies the locked and/or tagged position of the component matches the Permit.
- 3.2.17 Ensure an independent verification of the in-field configuration of the following matches the Permit:
  - Tag No.
  - Tag Type
  - Lock No.
  - Position
- 3.2.18 Ensure the Permit has been initialed and dated by the independent verifier at each LO/TO point to document the position has been verified correct.

#### **Permit Requestor**

3.2.19 Ensure all tags and/or locks are independently verified as installed and the Permit boundary is acceptable.

**NOTE:** At this point, the PR owns the Permit.

3.2.20 Sign and date accepting the permit.

#### **Issuing Authority**

3.2.21 Sign and date to issue the permit.

#### **Permit Requestor**

- 3.2.22 Ensure the following information has been entered in CFN-1059:
  - Permit No.
  - Reason for Lockout/Tagout
  - Requestor/Entity
  - Date Issued

#### **Authorized Employee**

3.2.23 Verify the boundary is in place.

**NOTE:** Supervisors may sign on the permit for their workgroup if they are qualified as an AE.

- 3.2.24 IF using a lock box, THEN obtain Personal Locks from the IA.
- 3.2.24.1 Ensure the name and organization or unique lock number is clearly identified on the lock.
- 3.2.24.2 Place Personal Lock(S) on the lock box.
- 3.2.25 Sign-on to CFN-1105 Sign On Sheet.

**NOTE:** Each AE is identified by name and work group.

- 3.2.26 IF signing on to the permit as an additional AE OR workgroup, THEN ensure the following:
  - LO/TO permit is issued
  - Permit has been signed by the appropriate PR
  - Workgroup <u>OR</u> AE (for individual protection) has been identified
  - The PR <u>OR</u> AE has hung a lockout device (if applicable)

#### **Issuing Authority**

- 3.2.27 IF an AP(s) requests a lock, THEN ensure the AP is qualified as an AE.
- 3.2.27.1 Issue a Personal Lock for placement on the Lockbox or system/component.
- **NOTE 1:** Situations requiring multiple isolation points require the use of a LO/TO Permit.
- **NOTE 2:** The role of additional AE, separate qualified AE or, AE independent of hanging the LO/TO may be filled by the PR.

#### 3.3 Single Source LO/TO

#### **Authorized Employee**

- 3.3.1 Ensure permission is granted from the IA to perform work under Single Source LO/TO on the affected equipment.
- 3.3.2 IF any issues occur while implementing the Single Source LO/TO during the performance of step 3.3.4 and 3.3.6, THEN immediately place the equipment / component in a safe condition and report the identified issue to the IA.
- **NOTE:** Some of the locking mechanisms completely obstruct the view of the component position (e.g., the locking device on a gate valve obstructs the hand wheel from view after lock is applied).
- 3.3.3 IF the component(s) is NOT able to be independently verified, THEN ensure an additional AE concurrently verifies the locked and/or tagged position matches the Permit during step 3.3.4.

- **NOTE 1:** The AE or designee under AE supervision may hang lockout/tagout device(s) on the energy isolating device.
- **NOTE 2:** All locks and tags are issued by the IA.
- 3.3.4 Perform LO/TO in accordance with the Specific Energy Control Instructions detailed in block three of CFN-1217.
- 3.3.5 IF concurrent verification was performed during step 3.3.4, THEN ensure the additional AE exits the area.
- 3.3.6 Perform a Zero Energy Check in accordance with the Specific Energy Control Instructions detailed in block four of CFN-1217.
- **NOTE:** The key may be placed in a lock box for AE(s) or foreman/supervisor to place their Personal Locks on.
- 3.3.7 IF a locking device was applied, THEN return the key(s) to the IA.
- 3.3.8 Ensure the following information has been entered in CFN-1059:
  - Permit No.
  - Reason for Lockout/Tagout
  - Requestor/Entity
  - Date Issued
- **NOTE:** During this time, the AE is responsible for ensuring the safety of the personnel working under the protection of the Single Source LO/TO.
- 3.3.9 Perform the work in accordance with applicable work control document.
- **NOTE:** No documentation is required for the AE to lift or restore the isolation point.
- 3.3.10 IF troubleshooting and functional testing is necessary while working under the LO/TO, THEN lift and restore the LOTO as necessary.
- 3.3.11 WHEN work is complete, THEN ensure that tools and test equipment used in the servicing or maintenance work have been removed from the work area.
- 3.3.12 IF other work is being performed in the areas, THEN assess parallel work in progress that may be affected by removal of the LO/TO to ensure that releasing the machine or equipment does NOT present a hazard to personnel OR property.
- 3.3.12.1 Notify Affected Person(s) in the area that the LO/TO is being removed.
- 3.3.13 Remove LO/TO equipment [e.g., LO/TO device(s), lock(s), and tag(s)].
- 3.3.14 Return the isolation point to its normal operating position.
- 3.3.15 Notify the IA and Affected Person(s) that the LO/TO has been cleared.
- **NOTE 1:** The PR may determine it is necessary to modify the LO/TO permit due to ineffective protective measures, changing plant conditions, or to change permit boundaries, etc.
- **NOTE 2:** The role of additional AE, separate qualified AE or, AE independent of hanging the LO/TO may be filled by the PR.

#### 3.4 LO/TO Permit Modification

#### **Permit Requestor**

3.4.1 Go to Section 3.1, Specific Energy Control Screening, THEN return to step 3.4.2.

- 3.4.2 Initiate CFN-1216, UPF Lockout/Tagout Permit Modification.
- **NOTE 1:** The safety tags are numbered using the System / Component Safety Tagging Permit number (Record Number) and a sequential number (e.g., 201-1, 201-2, and 201-3).
- **NOTE 2:** Tags, locks, and their associated numbers are issued by the IA.
- 3.4.3 Ensure the following has been entered in CFN-1216, *UPF Lockout/Tagout Permit Modification*:
  - Tag No.
  - Tag Type (Danger [D])
  - Lock No.
  - Component
  - Position
- 3.4.4 Submit CFN-1217 or CFN-1247 and CFN-1216 to the IA for review.

#### **Issuing Authority**

- **NOTE:** A field walk down of the equipment or system being isolated may be performed.
- 3.4.5 Verify the type of safety boundary and required protective measures recommended by the PR are adequate for the work identified in the Permit Modification.
- **NOTE:** The IA may consult with Field Engineering, Design Engineering, and other SMEs as needed about the LO/TO Permit Modification request.
- 3.4.6 Ensure the adequacy of the requested Permit Modification.
- 3.4.7 Confirm the AE is authorized to hang safety tagging or lockout.
- 3.4.8 Sign and date *Energy Control Closure* on CFN-1217 or CFN-1247.
- 3.4.9 Sign and date *Specific Energy Control Instructions* on new CFN-1247 to authorize placement of the LO/TO Permit Modification.

#### **Permit Requestor**

- 3.4.10 Ensure all AEs signed on the permit are notified of the change and have documented the notification on page two of CFN-1216.
- **NOTE:** If an individual is off-site but can be contacted by telephone, the individual is considered available and may verbally authorize the change.
- 3.4.11 IF personnel signed on the permit is being notified by telecom OR for emergency modification, THEN document the authorization in the "Name" block under "Employees On Permit Notified" on CFN-1216 (See Example 1).

#### Example 1

EMPLOYEES ON PERMIT NOTIFIED		
Name (printed)	Signature	
George Doe for John Doe via telecom	George Doe	

#### **Authorized Employee**

3.4.12 IF removing isolation points from the permit AND Personal Locks were obtained, THEN remove Personal Locks from the lock box.

- 3.4.12.1 Sign off of CFN-1105.
- 3.4.13 IF removing isolation points from the permit AND Personal Locks were NOT obtained, THEN sign off of CFN-1105.
- 3.4.14 IF any issues occur during the performance of steps 3.4.17 through 3.4.19, THEN immediately place the equipment / component in a safe condition and report the identified issue to the IA.
- **NOTE:** Some of the locking mechanisms completely obstruct the view of the component position (e.g., the locking device on a gate valve obstructs the hand wheel from view after lock is applied).
- 3.4.15 IF the component(s) is NOT able to be independently verified, THEN ensure an additional AE concurrently verifies the locked and/or tagged position matches the Permit during step 3.4.17.
- 3.4.16 IF AP(s) are in the LO/TO area, THEN ensure Affected Person(s) have been notified of the LO/TO being implemented.
- **NOTE:** The AE or designee under AE supervision may hang lockout/tagout device(s) on the energy isolating device(s).
- 3.4.17 Perform LO/TO Modification in accordance with the Specific Energy Control Instructions detailed in block three of CFN-1247
- 3.4.18 IF concurrent verification was performed during step 3.4.17, THEN ensure the additional AE exits the area.
- 3.4.19 Perform a Zero Energy Check in accordance with the Specific Energy Control Instructions detailed in block four of CFN-1247.
- 3.4.20 IF isolation points were added to the boundary, THEN initial and date CFN-1216 at each LO/TO isolation point to document the LO/TO is installed.
- 3.4.21 IF isolation points were removed from the boundary, THEN initial and date CFN-1105 OR CFN-1216 OR both (as applicable) at each LO/TO isolation point to document the LO/TO has been removed.
- **NOTE:** The keys may be placed in a lock box for AE(s) or foreman/supervisor to attach their Personal Locks. Alternatively, the permit may be used for individual accountability and protection of AEs with lockout device key(s) controlled by the IA.
- 3.4.22 IF a locking device was applied, THEN return the key(s) to the IA.
- WARNING 1: The act of checking, by a separate qualified AE, that a given operation, or the position of a component, conforms to established criteria noted on CFN-1105 is required unless physically unable to independently verify due to the configuration of the component.
- WARNING 2: Manipulation of the position or status of a tagged component may cause equipment damage or personnel injury and is prohibited.
- 3.4.23 IF the component(s) is able to be independently verified, THEN ensure an AE independent of hanging the LO/TO verifies the locked and/or tagged position of the component matches the Permit.

- 3.4.24 Ensure an independent verification of the in-field configuration of the following matches the Permit:
  - Tag No.
  - Tag Type
  - Lock No.
  - Position
- 3.4.25 Ensure CFN-1216 has been initialed and dated by the independent verifier at each LO/TO point to document the position has been verified correct.

#### **Permit Requestor**

3.4.26 Ensure all tags and/or locks are independently verified as installed and the Permit boundary is acceptable.

**NOTE:** At this point, the PR owns the new Permit Modification.

3.4.27 Sign and date CFN-1216 accepting the Permit Modification.

#### **Issuing Authority**

3.4.28 Sign and date CFN-1216 to issue the Permit Modification.

#### **Authorized Employee**

- 3.4.29 Verify the boundary is in place.
- 3.4.30 IF using a lock box, THEN obtain Personal Locks from the IA.
- 3.4.30.1 Ensure the name and organization or unique lock number is clearly identified on the lock.
- 3.4.30.2 Ensure Personal Lock(s) are on the lock box.

**NOTE:** Each AE is identified by name and work group.

- 3.4.31 IF signing on to the permit as an additional AE <u>OR</u> workgroup, THEN ensure the following:
  - LO/TO permit is issued
  - Permit has been signed by the appropriate PR
  - Workgroup <u>OR</u> AE (for individual protection) has been identified
  - The PR OR AE has hung a lockout device (if applicable)

**NOTE:** Supervisors may sign on the permit for their workgroup if they are qualified as an AE.

3.4.32 IF NOT signed on to CFN-1105, THEN sign-on to CFN-1105 Sign – On Sheet.

#### **Issuing Authority**

- 3.4.33 IF an AP(s) requests a lock, THEN ensure the AP is qualified as an AE.
- 3.4.33.1 Issue a Personal Lock for placement on the Lockbox or system/component.

#### 3.5 Misplaced/Lost Lockout Keys

#### **Authorized Employee**

**NOTE:** Incomplete work includes work in process or during temporary suspension.

- 3.5.1 IF at any time lockout keys for a lock on a component becomes lost <u>AND</u> the work is NOT complete, THEN ensure any personnel signed on to the LO/TO permit have been notified.
- 3.5.1.1 Notify AE(s) that a lock will be replaced.

- 3.5.1.2 Cut off affected lock(s).
- 3.5.1.3 Install a replacement lock.

#### **Permit Requestor**

- 3.5.1.4 Independently verify all tags and/or locks are installed and the permit boundary is acceptable.
- 3.5.1.5 Notify the AE(s) that a new lock has been installed on the component.
- 3.5.1.6 Ensure the Permit with the new lock number is updated.
- 3.5.2 IF at any time lockout keys for a lock on a component becomes lost <u>AND</u> the work is complete, THEN GO TO Subsection 3.7, LO/TO Permit Closure, to cut the lock off AND RETURN TO step 3.5.3.
- 3.5.3 IF the lost keys are NOT found, THEN destroy affected lock(s).
- **NOTE:** The Temporary Suspension Requestor may be any person qualified as an AE.
- 3.6 Temporary Suspension

#### **Temporary Suspension Requestor**

- NOTE: CFN-1061, UPF LO/TO Temporary Suspension, and Suspension Number (e.g., TL003-001) is obtained from the IA.
- 3.6.1 Initiate CFN-1061.

#### IA & PR

3.6.2 Ensure the CFN-1061 has been reviewed.

#### **Issuing Authority**

- **NOTE:** Temporary Suspensions are tracked in a Temporary Suspension Log
- 3.6.3 Assign the Temporary Suspension Number in CFN-1062 and CFN-1061.

#### **Temporary Suspension Requestor**

- 3.6.4 IF a lock is attached to the system/component being temporarily suspended, THEN request AE(s) signed on to the affected permit to remove their lock(s).
- 3.6.5 Request AE(s) signed on to the affected permit to remove their tag(s).
- **NOTE:** The permit is suspended once all persons are signed off and Personal Locks removed.
- 3.6.6 Ensure all AE(s) signed on to the affected Permit are requested to sign CFN-1061 to signify they have notified and have ceased work.
- 3.6.7 Attach CFN-1061 over the active permit.
- 3.6.8 WHEN test or inspections are complete, THEN ensure all personnel signed on to the permit have signed to release the Temporary Suspension prior to leaving site.

#### **Permit Requestor**

- 3.6.9 IF test or inspections indicate LO/TO protection is no longer required, THEN ensure the permit is released in accordance with Section 3.7, LO/TO Permit Closure.
- 3.6.10 IF further maintenance or service is required, THEN ensure LO/TO protection is applied in accordance with Steps 3.2.9 through 3.2.28.

#### **Issuing Authority**

3.6.11 Place the associated CFN-1061 behind the Temporary Suspension Log then close the item in the log.

**NOTE:** If an individual is off-site but can be contacted by telephone, the individual is considered available and may verbally authorize the closure.

#### 3.7 LO/TO Permit – Closure

#### **Authorized Employee**

- 3.7.1 IF an AP(s) are in the LO/TO area, THEN notify AP(s) that the LO/TOs will be removed.
- **NOTE 1:** In cases where it is not feasible to attach a locking device to an isolation point, only a tag may be applied.
- **NOTE 2:** Locks are cut off if keys are lost.
- 3.7.2 Remove the following as applicable:
  - Lockout device(s)
  - Lockout tag(s)
  - Energy Isolating Device(s)
- 3.7.3 Return isolation device(s) to normal operating position, or as directed by the IA or PR.
- 3.7.4 IF an AP(s) are in the LO/TO area, THEN notify the AP(s) that the LO/TOs has been cleared.
- 3.7.5 Ensure the PR is informed that work is complete and that the isolated components and system are restored.
- 3.7.6 Return locks and tags to the IA.
- 3.7.7 IF Personal Locks were used for this permit, THEN ensure all Personal Locks have been removed from the lock box or multi-locking device.
- 3.7.8 Initial and date the "Removed" block(s) in applicable CFN-1105 and CFN-1216 as applicable.
- 3.7.9 Sign off indicating clearance from the permit on CFN-1105.
- 3.7.10 IF the permit is being cleared per telecom OR for Emergency Closure, THEN document the verbal authorization in the "Cleared" block next to the signature on CFN-1105 (See Example 2).

### Example 2

PERMIT REQUESTORS / AUTHORIZED EMPLOYEES SIGNED ONTO THIS PERMIT		
CLEARED – SIGNATURE		DATE
George Doe for John Doe via telecom	1400	06/10/2022

#### **Permit Requestor**

**NOTE 1:** If all AEs have not been accounted for either by releasing permit and/or removing their Personal Lock from the lock box or multi-locking device, the LO/TO permit remains active.

- **NOTE 2:** If an individual is off-site but can be contacted by telephone, the individual is considered available and may verbally authorize the closure.
- **NOTE 3:** The Emergency Closure/Modification section is used if personnel are unavailable to sign-off a Permit.
- 3.7.11 Ensure that all personnel on the LO/TO Permit have released it by signature.
- 3.7.12 Verify that all locks and tags authorized for removal have been removed or accounted for.
- 3.7.13 Sign, date and enter time on CFN-1105 and CFN-1216, as applicable, indicating the permit is closed.

#### **Issuing Authority**

- 3.7.14 Ensure all released tags are destroyed.
- 3.7.15 Ensure the following has been signed, dated, and time entered, as applicable, indicating the permit is closed:
  - CFN-1105
  - CFN-1216
  - CFN-1217 (Energy Control Closure)
  - CFN-1247 (Energy Control Closure)

#### **Permit Requestor**

3.7.16 Enter closed date on the applicable permit on CFN-1059.

**NOTE:** All personnel signed onto a permit shall sign off the permit to close or modify a LO/TO Permit. This section is used for personnel that are unavailable to sign-off the LO/TO Permit.

#### 3.8 Emergency Closure/Modification

#### **Issuing Authority**

- **NOTE:** If an individual is off-site, but can be contacted by telephone, the individual is considered available.
- 3.8.1 IF any personnel signed on the LO/TO permit are unavailable, THEN request permission from the CM to perform an emergency closure or modification.
- 3.8.2 Ensure the supervisor of the unavailable PR(s) or AE(s) is contacted to discuss the boundary changes or permit release.
- 3.8.3 IF implementing an emergency closure, THEN perform the following:
- 3.8.3.1 IF Personal Locks were used, THEN ensure the locks have been removed for the available personnel signed on the permit.
- 3.8.3.2 Ensure all available personnel working under the permit release the permit by signature.

#### **Issuing Authority & Construction Manager**

3.8.3.3 Document the approval of the emergency closure on CFN-1105.

#### **Issuing Authority**

3.8.3.4 Ensure the permit is closed in accordance with Section 3.7, LO/TO Permit – Closure.

#### Supervisor

- 3.8.3.5 Prior to start of work, ensure the unavailable PR or AEs is notified of the emergency closure upon their return.
- 3.8.4 IF implementing an emergency modification, THEN perform the following:
- 3.8.4.1 IF Personal Locks were used, THEN ensure the locks have been removed for the Available personnel signed on the permit.
- 3.8.4.2 Ensure all personnel signed on the permit has indicated they have been notified of the change on CFN-1216.

#### **Construction Manager**

3.8.4.3 Document approval of the emergency modification on CFN-1216.

#### **Issuing Authority**

3.8.4.4 Ensure the permit is modified in accordance with Section 3.4, *LO/TO Permit Modification*.

#### Supervisor

- 3.8.4.5 Prior to start of work, ensure the unavailable PR or AEs is notified of the emergency modification upon their return.
- **NOTE:** An example of the Caution-Restricted Operation tag used for this process is depicted on Appendix H, Caution Restricted Operation Tag.

#### 3.9 Restricted Operation Process

- 3.9.1 "Caution Restricted Operation" tags shall be used in situations where a system or component is required to be energized or operated to safely facilitate a work activity (i.e., a vent valve that must be opened and closed to facilitate a hydrostatic test).
- 3.9.2 Systems or components with a Caution Restricted Operation tag attached may only be operated under the direct physical supervision of the PR identified on the permit.
- 3.9.3 Operation of the system or component may only occur after all PR have been notified of the intent to operate the system or component.
- 3.9.4 "Caution Restricted Operation" and "Danger Do Not Operate" tags may be requested on the same LO/TO Permit but SHALL NOT be hung together on the same component. The permit shall clearly indicate those components to be tagged with a "Caution-Restricted Operation" tag.

#### 3.10 Periodic Management Assessment

3.10.1 The CM (or designee) shall conduct a periodic management assessment of this procedure at least annually to ensure that the procedure and the requirements are being followed.

The management assessment scope includes the following:

- Conduct to correct any deviations or inadequacies identified and identify corrective action initiated.
- Inspect work boundary energy isolating devices to verify that the LO/TO devices are properly completed and installed to warn against operation and devices are properly positioned to provide the required protection.
- Review the documentation for current and removed LO/TOs to ensure that the documentation meets all requirements and accurately reflects the current status.

#### 4.0 RECORDS

Records generated by this procedure shall be maintained in accordance with Y15-95-800, *UPF Document Management*. Record types for documents submitted to the UPF Document Management Center (DMC) are identified in ML-PS-801768-A001, *Uranium Processing Facility Project Master Document Type List*. Quality Type is listed as Quality-Lifetime (QA-L), Quality-Nonpermanent (QA-NP), or Non-Quality (Non-QA).

Records generated during the performance of this procedure include:

Record Number	Record Title	Record Holder	System/ Location	Quality Type
CFN-1059	UPF Lockout/Tagout Permit Log	UPF Construction	InfoWorks	QA-NP
CFN-1061	UPF Lockout/Tagout Temporary Suspension	UPF DMC	InfoWorks	QA-L
CFN-1062	UPF Lockout/Tagout Temporary Suspension Log	UPF Construction	InfoWorks	QA-NP
CFN-1105	UPF Lockout/Tagout Permit	UPF DMC	InfoWorks	QA-L
CFN-1216	UPF Lockout-Tagout Permit Modification	UPF DMC	InfoWorks	QA-L
CFN-1217	UPF System Specific Energy Control	UPF DMC	InfoWorks	QA-L
CFN-1247	UPF System Specific Energy Control Modification	UPF DMC	InfoWorks	QA-L

### 5.0 REFERENCES

#### 5.1 Source References

29 CFR 1910.147, The Control of Hazardous Energy (lockout/tagout).

29 CFR 1910.333, Selection and Use of Work Practices

29 CFR 1926, Safety and Health Regulations for Construction

4MP-T81-01307, System and Equipment Safety Lockout / Tagout

DOE-STD-1030-96, Guide to Good Practices for Lockouts and Tagouts

PL-CM-801768-A001, Construction Management Plan and Execution Strategy

UPF-MANUAL-CM-001, UPF Construction Electrical Safety Manual

Y17-95-64-800, UPF Construction Work Control Program

Y17-95-64-823, UPF Safety Task Analysis and Risk Reduction Talk/Job Hazard Analysis program (STARRT/JHA) Process

Y18-102, Power Distribution Work Permit

Y73-528, Electrical Safety Manual

#### 5.2 Interfacing References

ML-PS-801768-A001, Uranium Processing Facility Project Master Document Type List

Y15-95-800, UPF Document Management

Y18-107, Lockout/Tagout Execution for Personnel Protection

### 6.0 SUPPLEMENTAL INFORMATION

Appendix A, Acronyms and Definitions

Appendix B, Standard Process

Appendix C, Change to Existing Permit

Appendix D, Emergency Closure of Permit

Appendix E, Permit Closure

Appendix F, Restricted Operation Process

Appendix G, Danger - Do Not Operate/Do Not Remove Tag

Appendix H, Caution - Restricted Operation Tag

Appendix I, Lockout/Tagout Locks and Devices

# **APPENDIX A Acronyms and Definitions**

(Page 1 of 4)

#### **ACRONYMS:**

ΑE Authorized Employee ΑP Affected Person BNI Bechtel National Inc. **CFR** Code of Federal Regulations CM **Construction Manager CNS** Consolidated Nuclear Security, LLC **DMC Document Management Center** IA **Issuing Authority** JHA Job Hazard Analysis LO/TO Lockout/Tagout PR Permit Requestor **SME Subject Matter Expert UPF Uranium Processing Facility** 

#### **DEFINITIONS:**

Affected Person	A person whose job requires him/her to work in an area in which lockout/tagout is being performed (i.e. within a safety boundary), or, whose work requires them to operate or use a machine, system or equipment on which work is being performed under lockout or tagout.
Authorized Employee	A person who is signed on the work permit and performs or directs work on equipment or systems that have been locked/tagged out for personal protection against hazardous energy.
Available	Accessible to be communicated with by various methods and receive a response (e.g., radio, telephone, e-mail, face-to-face).
Boundary	A set of isolation points at specific components of a system that are positioned to isolate and remove potentially hazardous energy for the protection of personnel.
Concurrent Verification	A series of actions by two individuals working together at the same time and place to separately confirm the condition of a component before, during, and after an action when the consequences of an incorrect condition would subsequently lead to harm to personnel or the facility.
Emergency Closure / Emergency Modification	A closure or change of a LO/TO Permit when the PR or AE is not available to release the system or component by removing their individual tag, or signing off on the permit. An Emergency Closure would entail the complete closure of the lockout/tagout permit, whereas an Emergency Change would only require a change to a portion of the protection boundary without closing the entire permit.

# APPENDIX A Acronyms and Definitions

(Page 2 of 4)

Energized	Connected to an energy source or containing residual or stored energy.
Energy Isolating Device	A mechanical device that prevents the transmission or release of energy.  Examples include: a circuit breaker, a disconnect switch, a flow control valve, a slide gate, a blind flange, a block, and any similar device used to block or isolate energy. Push buttons, selector switches, or other control-circuit-type devices are not considered energy isolating devices.
Energy Source	Any source that could cause harm to personnel or equipment generating or transferring electrical energy or potential (voltage); hydraulic, pneumatic, gas, or steam pressure; vacuum; high temperature; potentially reactive chemicals; or stored mechanical energy.
Exclusive Control	"Under the exclusive control" refers to instances in which the plug is physically in the possession of the employee, or in arm's reach and in the line of sight of the employee, or in which the employee has affixed a lockout/tagout device to the plug.
Hazardous Energy	Latent and residual energy including electrical, hydraulic, thermal, pneumatic, mechanical, chemical, radiation from radiation generating machines, toxic, and other potentially hazardous sources which may result in an employee injury or illness if released. Potential hazards will be evaluated on a case-by-case basis during pre-job planning to identify appropriate controls and positive protection, as necessary.
Independent Verification	Independence means that the person performing the verification is not influenced by observation of, or involvement in, the activity that establishes the component position or status.
Issuing Authority	The qualified individual(s) designated by the Construction Manager / Startup Manager to implement the tagging or lockout of required equipment or systems.
Lockable	An energy-isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock or a lockable chain can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
LO/TO Permit Modification	A regular permit change or modification required when altering or shifting the permit boundary as needed without closing out the entire permit (i.e., lifting tags no longer required in the boundary). (CFN-1216)
Lockbox / Key Control	A box (fixed or portable) that is designed to accommodate multiple locks and tags, and is so configured that it may not be opened until all locks and tags have been removed from the box.
Lockout	The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

# APPENDIX A Acronyms and Definitions

(Page 3 of 4)

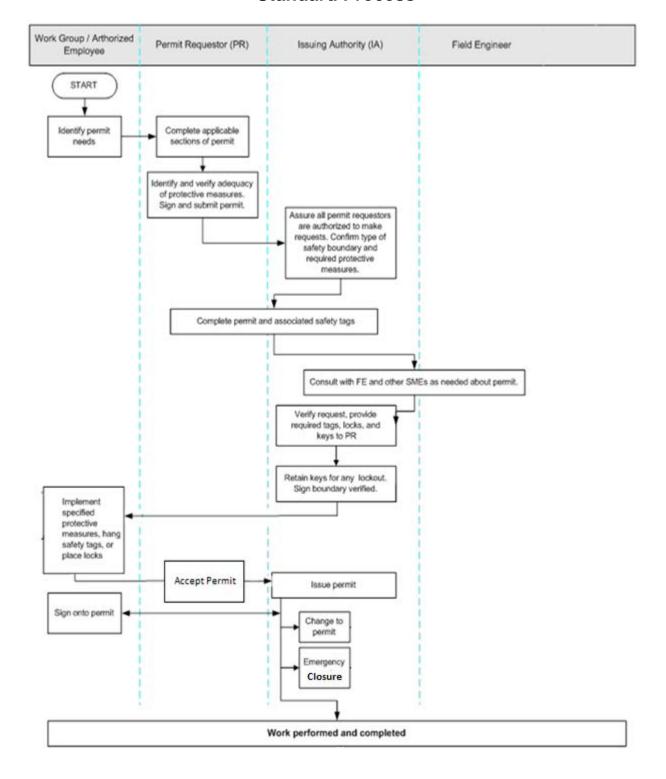
Lockout Device (Lock)	Devices that use a positive means, such as a combination or key lock (key locks are preferred), to hold an energy isolating device in the safe position and prevent the energizing of equipment. Hasps, chains, and other devices may be treated as lockout devices when used in conjunction with locks.
LO/TO Permit	An authorization form used to request, record, issue, and release safety tagging / lockout protection for equipment and/or systems. (CFN-1105)
Lockout/Tagout  A general term for all methods of ensuring the protection of personne equipment by installing tagout devices, with or without lockout devices.	
Master Clearance A project-wide or system wide boundary clearance process that allow protection through use of a single LOTO permit.	
Modification	A means by which lockout/tagout permit conditions can be changed for the purpose of adding or removing isolation point(s), changing the scope of work identified on the permit or if any changes need to be performed to the permit due to unusual circumstances (i.e., replace a lockout device, reattach or replace a Danger-Do-Not-Operate tag).
Multi-Locking Device	A locking device with provisions to apply multiple locks.
Permit Requestor / (PR)	The individual who writes the LO/TO Permit request.  The PR may write the request for work under his / her own jurisdiction, or for someone else. The PR shall have the knowledge and ability to identify isolation points within their respective discipline and shall be designated by the CM.
Personal Lock	RED lock that can be used by Authorized Employees (AE) on lockbox to provide personal assurance that the system or energy isolation point is under their control during servicing, maintenance or construction. Each Personal Lock will be controlled by a single, unique key under the control of the AE. Personal Locks shall be tagged with the employee's name and organization or the lock will have a unique number identifying the AE.
Responsible Field Engineer	An accountable person who may be consulted during the request phase of LO/TO permit generation to assist the PR in identifying energy sources, isolation points, and the Zero Energy Check process.  When involved, the RFE shall concur with the protective measures, safety tagging and lockout points, and the Zero Energy Check process as defined in the LO/TO permit request (with special emphasis on any interlocks, backfeeds, or temporary energy sources).
Single-Source Lockout/Tagout Screening  An authorization form used to request, record, issue, and release safety lock tagging protection on equipment or system involving only one lock and tag meeting other requirements of simplicity. (CFN-1217)	

# APPENDIX A Acronyms and Definitions

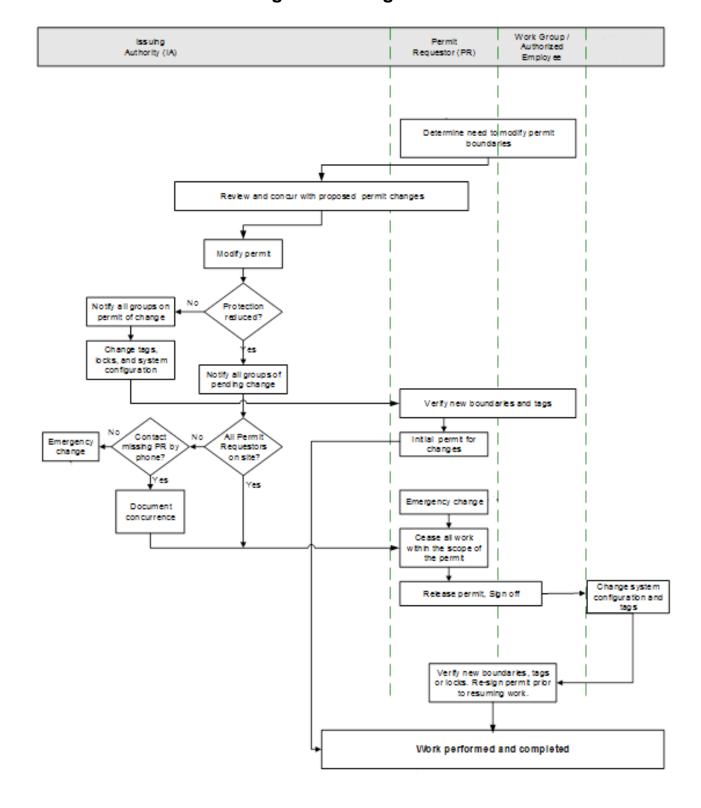
(Page 4 of 4)

Tagout	The placement of tagout devices on energy-isolating devices to inform personnel that the energy-isolating device and the equipment being controlled MUST NOT be operated.
Tagout Device (Safety Tag)	A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. (See Appendix G and Appendix H)
Temporary Energy Source	Temporary energy sources which must be closely reviewed to ensure safety of personnel working on systems or equipment. These sources include, but are not limited to the following:
	Temporary construction or site backfeed electrical power supplies.
	Portable generators, batteries, or uninterruptible power supplies.
	Temporary pumps, tanks, or boilers.
Temporary Suspension	A means by which a temporary release of Lockout/Tagout conditions can be temporarily suspended (removed) for the purpose of testing/adjusting, inspecting, analyzing, and troubleshooting. Temporary Suspension can also be used as necessary to confirm isolation. A temporary suspension is not to be used to return equipment to operation, which must be done with a modification or release.
Test	An activity performed to prove the functionality or suitability of a component, group of components, or system and is covered by a procedure that is either generic or specific in nature.
Visible	The tag must be visible and in plain sight for all to see. Jobsite posters displaying tags and colors should be considered to educate the workforce.
Zero Energy Check	Confirmation of the machine, system, or equipment has been safely isolated and all sources of energy have been removed or neutralized

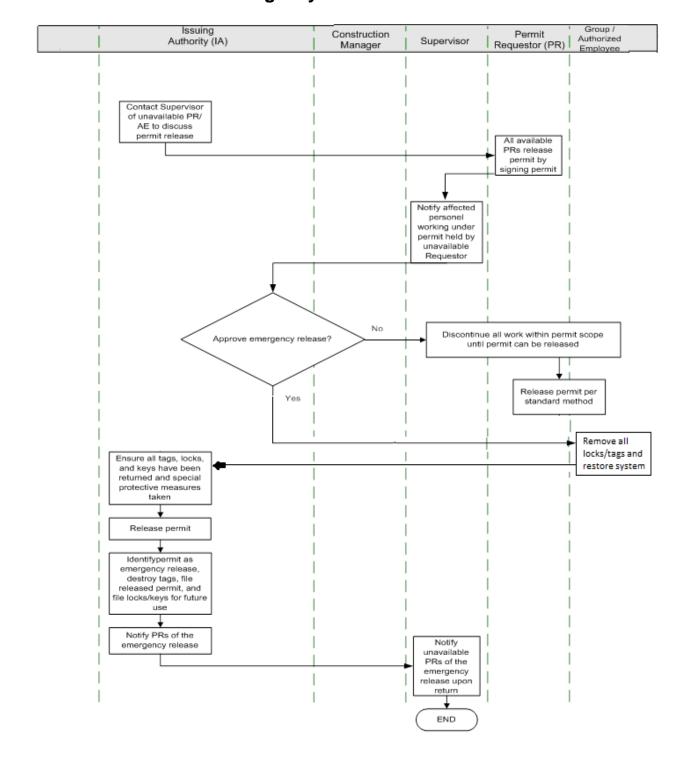
## APPENDIX B Standard Process



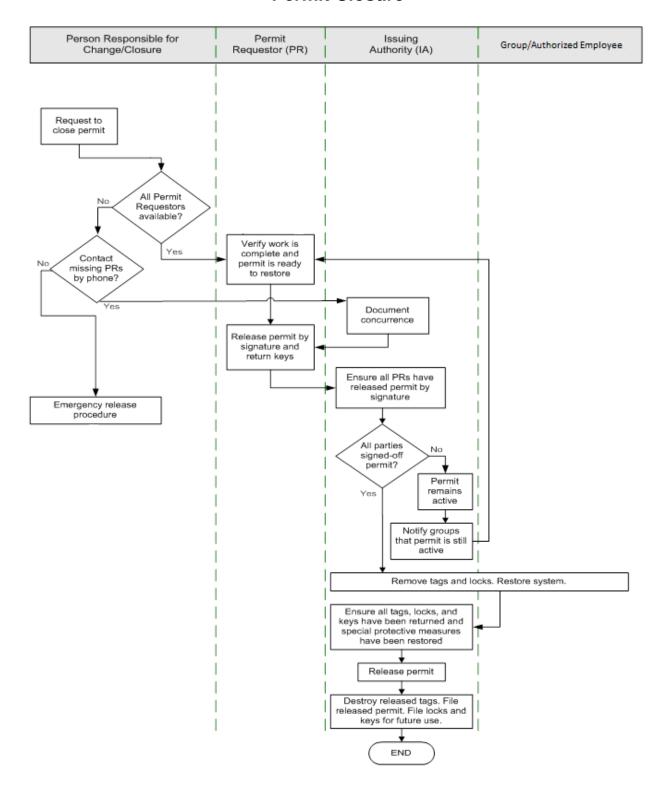
# APPENDIX C Change to Existing Permit



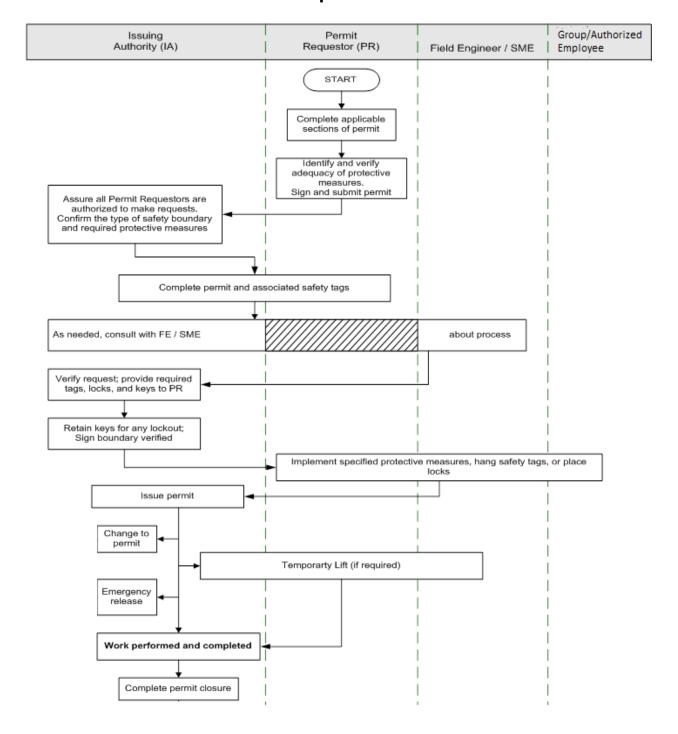
# APPENDIX D Emergency Closure of Permit



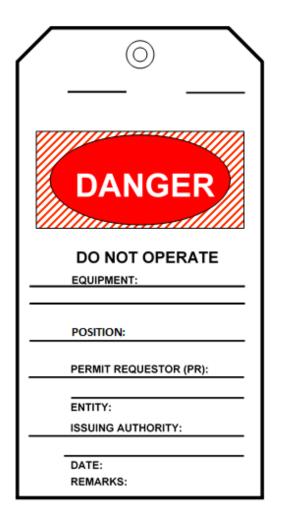
## **APPENDIX E Permit Closure**



# APPENDIX F Restricted Operation Process



# APPENDIX G Danger – Do Not Operate/Do Not Remove Tag

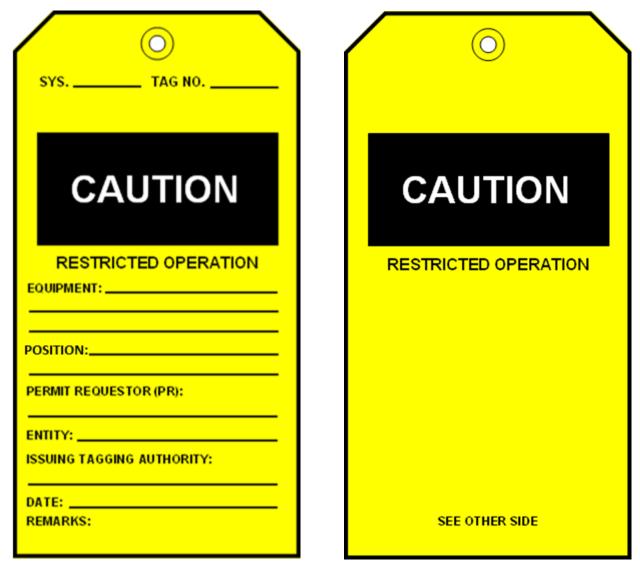




Tags have a white background with black letters except for the DANGER area, which should have white letters in a red oval with red diagonal lines inside a black rectangle.

MINI TAGS or MINI STICKERS may be used in close or confined locations, i.e., panels, controls, consoles.

# APPENDIX H Caution – Restricted Operation Tag



Tags have a yellow background with black lettering, except for the CAUTION area which has a black background and white lettering.

MINI TAGS or MINI STICKERS may be used in close or confined locations, i.e., panels, controls, consoles.

# APPENDIX I Lockout/Tagout Locks and Devices



