Ownership matrix

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1.0 PURPOSE AND SCOPE

(7.1.8)

This procedure is a lifesaving measure for the control of the *unexpected release* of hazardous energy or materials. Compliance with this lockout/tagout procedure and its requirements is mandatory for all CH2M HILL Hanford Group, Inc. (CH2M HILL) personnel working in CH2M HILL facilities or on equipment controlled by CH2M HILL. CH2M HILL subcontractors may use their company's authorized worker lockout/tagout program as an overlock on CH2M HILL controlling organization lockout/tagout, as an overlock on a CH2M HILL authorized worker single point lockout/tagout, or as a single-point lockout/tagout with written CH2M HILL authorization once the use of the subcontractor's program is approved by the CH2M HILL Safety & Health Program manager.

This procedure describes the CH2M HILL lockout/tagout program and establishes the process for the CH2M HILL integrated hazardous energy/material control. This process provides for:

- Controlling organization lockout/tagout and the associated overlock performed as an authorized worker lockout/tagout
- Authorized worker single point lockout/tagout.

This procedure does not apply to the following:

- Administrative Locks (gold in color). The administrative lock program and the lockout/tagout program are separate programs with different purposes. While the lockout/tagout program controls configuration to prevent personnel injury, the administrative lock program controls configuration for other reasons. Administrative locks do not require a safe condition check, and locks from the administrative lock program shall not be used to meet any lockout/tagout program requirements.
- Installations under the exclusive control of the Electrical Utilities Operations group for the purposes of power transmission and distribution.
- Work on equipment where the servicing, maintenance, or testing requires the equipment to be energized (for example, troubleshooting activities, voltage or current checks).
- Work on electrical circuits or components operating at less than 50 volts.
- Work on portable hand tools.
- Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.
- Work on equipment owned by another company or by employees of that company (for example, copy machines or vending machines).
- Caution tags.
- Servicing, maintenance, adjustments, or minor tool changes which take place during normal production operation, if they are routine, repetitive, and integral to the use of the

equipment and provided that alternative protective measures are employed. In such cases, the employee is not permitted to remove or bypass a guard or other safety device, or place any part of the body within the point-of-operation or danger zone during an operating cycle.

2.0 IMPLEMENTATION

1. This procedure will be effective on the date shown in the header.

2. Lockouts/tagouts implemented in accordance with previous revisions of this procedure will remain valid and will not require replacement until they require modification. When a tagout that was installed in accordance with a previous revision of this procedure requires modification, the tagout shall be replaced with a lockout/tagout installed in accordance with this revision of this procedure.

3. Authorized worker lockout/tagouts without controlling organization lockout/tagouts installed in accordance with previous revisions of this procedure remain valid. They should be removed once the work is completed by the authorized worker removing the authorized worker lock and Danger tag and completing block I and, if applicable, block J on the form.

4. The requirements of Sections 4.15 and 4.16 of this procedure will be followed for active and inactive tagouts, tagout authorization forms, and Danger-Do-Not-Operate tags installed in accordance with previous revisions of this procedure.

3.0 RESPONSIBILITIES

3.1 Shift Operations Manager (or Delegate)/Laboratory Operations Manager (or Delegate)/Sampling Operations Manager (or Delegate)/Integrated Disposal Facility (IDF) Operations Manager (or Delegate)

1. In conjunction with the Safety & Health Program manager, designate in writing the CH2M HILL Lockout/Tagout technical authority.

2. In conjunction with the Safety & Health Program manager, establish the CH2M HILL hazardous energy and/or material control programs to identify the requirements for the control of the *unexpected release* of hazardous energy or materials. (7.1.2, 7.1.7)

3. Review and approve this procedure and any procedure changes. (7.1.2, 7.1.7)

   NOTE: A list of designated lockout/tagout administrators will be available on the training web page.

4. Provide and document the training required (Attachment A) by this procedure to affected employees, authorized workers, controlling organization qualified workers, lockout/tagout technical reviewers, and lockout/tagout administrators. (7.1.2)

5. Ensure the training required by this procedure is completed for affected employees, authorized workers, controlling organization qualified workers, lockout/tagout technical reviewers, and lockout/tagout administrators. (7.1.2)

6. Ensure that only controlling organization qualified workers are assigned to perform lockout/tagout. The list of currently trained personnel is available on the CH2M HILL Training web page.

7. Ensure that the controlling organization and subcontractors inform each other of their respective lockout/tagout programs with emphasis on the interfaces between the authorized worker and the controlling organization. (7.1.2)

8. Ensure all locks, Danger-Do-Not-Operate tags, Danger tags, and associated hardware to be used by CH2M HILL controlling organization qualified workers and authorized workers are approved. (7.1.2, 7.1.7)

3.2 Safety & Health Program Manager (or Delegate)

1. In conjunction with the Operations manager, designate in writing the CH2M HILL lockout/tagout technical authority.

2. In conjunction with the Operations manager, establish the CH2M HILL hazardous energy and/or material control programs to identify the requirements for the control of the *unexpected release* of hazardous energy or materials. (7.1.2, 7.1.7)

3. Approve contractor and subcontractor authorized worker programs for use in CH2M HILL facilities and on CH2M HILL systems. (7.1.2)

4. Review and approve the lockout/tagout training. (7.1.2)

5. Conduct periodic field reviews to ensure program effectiveness. (7.1.7)

6. Review and approve this procedure and any procedure changes. (7.1.2, 7.1.7)

7. Conduct the annual assessment of the lockout/tagout program. (7.1.2)

3.3 CH2M HILL Lockout/Tagout Technical Authority

1. Functions as the company level point-of-contact for implementation and interpretation of this program.

2. Maintains lockout/tagout interpretations.

3.4 Lockout/Tagout Administrators

1. Ensure lockout/tagout authorization forms and authorized worker single point lockout/tagout forms are completed in accordance with this procedure. (7.1.2, 7.1.7)

2. Ensure that lockout/tagouts are technically adequate to effectively control hazards by performing review independent of the technical reviewer. (7.1.2, 7.1.7)

3. Prior to installing or removing lockout/tagout, ensure the on-duty shift manager is aware of lockout/tagout to be installed/removed and understands how plant configuration will be affected by the lockout/tagout.

4. Ensure a lockout/tagout brief is conducted before installation of lockout/tagouts.

5. Ensure that lockout/tagouts are installed, safe-condition checked, independently verified, and removed. (7.1.2, 7.1.7)

6. Ensure qualified controlling organization qualified workers are assigned to install, verify, or remove controlling organization lockouts/tagouts.

3.5 Lockout/Tagout Technical Reviewer

1. Ensures that lockout/tagouts are technically adequate. (7.1.2, 7.1.7)

2. Ensures all safety basis/operating specification document impacts of the lockout/tagout isolation are identified. (7.1.13)

3. Ensures that the lockout/tagout authorization forms and tags and authorized worker single point lockout/tagout forms are properly prepared in accordance with this procedure. (7.1.2, 7.1.7)

3.6 Lockout/Tagout Preparer

Prepares lockout/tagout authorization forms and tags for technical review in accordance with this procedure. (7.1.2, 7.1.7)

3.7 Facilities and Property Management Director

1. Ensures the training required by this procedure is completed for affected employees, authorized workers, controlling organization qualified workers, lockout/tagout technical reviewers, and lockout/tagout administrators. (7.1.2)

   NOTE: The list of currently training personnel is available on the CH2M HILL Training web page.

2. Ensures that only controlling organization qualified workers are assigned to perform lockout/tagout.

3. Ensures that the controlling organization and subcontractors inform each other of their respective lockout/tagout programs with emphasis on the interfaces between the authorized worker and the controlling organization. (7.1.2)

4. Ensures all locks, Danger-Do-Not-Operate tags, Danger tags, and associated hardware to be used by CH2M HILL controlling organization qualified workers and authorized workers are approved.

3.8 Controlling Organization Qualified Worker

1. Installs, verifies, and removes controlling organization's lockout/tagout in accordance with this procedure. (7.1.2, 7.1.7)

2. Performs safe condition checks that are performed by a controlling organization qualified worker in support of controlling organization's lockout/tagout. (7.1.2, 7.1.7)

3.9 Authorized Worker

1. Install and remove only your own authorized worker (green in color) lock(s) and Danger tag(s) on the isolation device(s) and/or lockbox(es) for your own safety in accordance with this procedure. (7.1.2)

2. Remove only your own authorized worker lock and Danger tag unless authorized to remove another authorized worker's lock and Danger tag in accordance with the process in Section 4.12.2 of this procedure. (7.1.2, 7.1.7)

3. Perform safe condition checks that are performed by an authorized worker in support of controlling organization's lockout/tagout (for example, an electrician performing a zero electrical energy check or a millwright verifying that a blocking device will prevent inadvertent rotation of a fan). (7.1.2, 7.1.7)

4. Perform authorized worker isolation verification. (7.1.2, 7.1.7)

5. Before performing service or maintenance on machines and equipment, ensure that hazardous energy and materials are adequately controlled for your personal protection by performing a safe-to-work check. (7.1.2, 7.1.7)

6. Escort off-site personnel who have not been trained as Hanford authorized workers.

3.10 Field Work Supervisor

1. Verify with the lockout/tagout administrator the completion of controlling organizations lockout/tagout installation before the installation of authorized worker lockout/tagout, if required.

2. Prior to installing, and upon removal of authorized worker single point lockout/tagout with or without written authorization, ensure the on-duty shift manager is aware of lockout/ tagout to be installed/removed and understands how plant configuration will be affected by the lockout/tagout.

3. Coordinate the installation of primary authorized worker and/or authorized worker locks and Danger tags.

4. Ensure authorized worker lockout/tagout requirements are reevaluated if there is a change in the scope of work.

5. Sign block 12 of the CHG Lockout/Tagout Authorization form when a task is completed.

6. Coordinate the removal of authorized worker locks and Danger tags.

7. Ensure that only authorized workers are assigned to perform lockout/tagout by asking the workers if they are qualified authorized workers.

8. If a worker is unsure of his qualification status, review the list of currently trained personnel available on the CH2M HILL Training web page.

9. Provide for escort of outside personnel that have not been trained as Hanford authorized workers. Escorted workers can perform lockout/tagout under the immediate supervision of a CH2M HILL authorized worker escort. The escort shall remain with the outside person and will ensure:

   - The correct placement of the outside service employee's personal lockout/tagout
   - Proper performance of the outside service employee's safe-to-work check
   - The correct removal of the outside service employee's personal lockout/tagout.

4.0 PROCEDURE

(See Figure 1)

4.1 General Requirements

Table 1

WARNING: All Personnel

1. Compliance with this procedure is mandatory. See Attachment B or ask a lockout/tagout administrator for the definition of any unfamiliar terms or expressions. The responsibility for complying with a lockout/tagout lies with the person encountering the lock/tag in the field. A properly applied lock and its associated Danger-Do-Not-Operate tag or Danger tag (form 54-6001-955) represent a lifesaving device.

- **Do not operate any device with an installed Danger-Do-Not-Operate or Danger tag.** (7.1.2)
- **Do not operate any device with an authorized worker lock and/or Danger tag installed.** (7.1.2)
- **Do not authorize another person to ignore or violate an installed Danger-Do-Not-Operate or Danger tag.**

2. Do not install, verify, or remove controlling organization (red) locks and Danger-Do-Not-Operate tags unless qualified as a controlling organization's qualified worker.

3. Do not install or remove authorized worker (green) locks and Danger tags unless qualified as an authorized worker.

4. Each authorized worker installs only his/her authorized worker lock and Danger tag. (7.1.2)

5. Each authorized worker removes only his/her authorized worker lock and Danger tag unless authorized to remove another authorized worker's lock and Danger tag in accordance with the process in Section 4.12.2 of this procedure. (7.1.2, 7.1.7)

Table 1 (cont.)	
6.	**No authorized worker shall remove his/her authorized worker lock or Danger tag if doing so creates an unsafe condition. If a controlling organization lockout/tagout or tagout is in place, removal of an authorized worker lock and Danger tag does not cause an unsafe condition.**
7.	**No authorized worker shall install an authorized worker lock or Danger tag on any system without notifying the controlling organization. This is to ensure the controlling organization knows the status of its equipment/systems. The field work supervisor is a representative of the controlling organization for this purpose.**
8.	**Equipment with attached lockouts or tagouts shall not to be removed from their installed location.**

1. As a minimum, personnel who are involved in the servicing and maintenance and who enter the following areas where the potential exists for exposure to the unexpected release of hazardous material or energy where a lockout/tagout will mitigate the hazard will install authorized worker locks and Danger tags:

   - For electrical hazards, all personnel who will enter the limited approach boundary distance per TFC-ESHQ-S-STD-03
   - For work in a containment, all personnel who enter the containment
   - For work in a catch (bullpen), all personnel who will break the plane of the catch
   - For fluid systems, all personnel who enter the area where they could be sprayed
   - For rotating equipment, all personnel who could inadvertently come in contact with the rotating components
   - For a confined space isolated by a lockout/tagout, all personnel who will enter the confined space.

2. For work in an excavation refer to TFC-ESHQ-S_IS-C-03 for lockout/tagout requirements.

3. To uniquely identify a CH2M HILL controlling organization lockout, the lock shall be red in color. Controlling organization lockout locks are the only red locks allowed. Red locks of any manufacturer, size, or shape shall **not** be used for any purpose other than controlling organization lockout locks. Subcontractors may use other lock colors except gold or green when they are functioning as a controlling organization in CH2M HILL controlled buildings and facilities. (7.1.2, 7.1.7)

4. To uniquely identify a CH2M HILL authorized worker lockout, the lock shall be green in color. Authorized worker locks are the only green locks allowed. Green locks of any manufacturer, size, or shape shall **not** be used for any purpose other than authorized worker locks per this procedure. Subcontractors may use other lock colors except red or gold. (7.1.2, 7.1.7)

5. The CH2M HILL controlling organizations are:

   - Closure Operations
   - Waste Feed Operations
   - 242-A Evaporator
   - Laboratory Operations
   - Sampling Operations
   - Integrated Disposal Facility Operations.

6. Only controlling organization Danger-Do-Not-Operate tags and authorized worker Danger tags (form 54-6001-955) shall be used to indicate isolated systems or components or to identify hazardous conditions or equipment associated with the unexpected release of hazardous energy or materials. See Attachment C for examples of controlling organization Danger-Do-Not-Operate and authorized worker Danger tags. (7.1.2, 7.1.7)

7. Only lockout devices (e.g., locks, tags, chains, key blocks, adapter pins, self-locking fasteners, etc.) designated by the lockout/tagout administrator shall be used for the control of hazardous energy sources or hazardous materials. The designated lockout devices should be: (7.1.7)

   - Capable of withstanding the environment to which they are exposed for the maximum period of time for which exposure is expected. (7.1.2)

   - Substantial enough to prevent removal without the use of excessive force or unusual techniques. (7.1.2)

   - Each lock shall have only one Danger-Do-Not-Operate tag or Danger tag.

   - All tags, including authorized worker tags installed in outdoor applications, are to be filled out with an industrial grade, black, permanent marker (e.g., Sharpie™). (7.1.11)

8. If an isolating component (for example, energy or toxic material isolation) has the capability of being locked out, it shall be locked out. Locks and Danger-Do-Not-Operate tags or Danger tags shall be used together whenever physically possible to:

   - Establish safe work area boundaries and to prevent the inadvertent operation of any component or equipment when operation could cause personnel injury or death, or (7.1.2, 7.1.7)

   - When directed by facility management for safety or other special administrative reasons to prevent the unexpected release of hazardous energy or materials. (7.1.7)

9. If the isolating component cannot be physically locked out, it shall be tagged out and shall meet the following requirements. (7.1.2, 7.1.7)

   NOTE: Examples of measures that could be used to provide equivalent protection to locks and prevent a system from being energized include: removing an isolating circuit element or fuse, blocking switch controls, opening extra circuit disconnects, and removing valve handles.

- Equivalent protection to that provided by a lock must be established with a Danger-Do-Not-Operate and/or Danger tag when a lock cannot be used.

- The tagout devices, including their means of attachment, must be durable and substantial enough to prevent inadvertent or accidental removal. Tagout attachment devices shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of not less than 50 pounds (22.7 kg) and having the general design and basic characteristics of being at least equivalent to a one piece, all-environment-tolerant nylon cable tie.

- New equipment design and major modifications to existing equipment should be designed to provide the capability of being locked out.

10. Controlling organization's lockout devices shall have only one key, which shall be controlled by the lockout/tagout administrator. Keys associated with an installed lockout/ tagout will be stored in a secure location such as a lockbox or combination type key box.

11. If the scope of work requires, a second lockbox may be used if approved by the facility operations manager.

12. A copy of the lockout/tagout authorization form may be used in radiologically contaminated areas. Transfer signatures and dates to the original after exiting the area.

13. The active lockout/tagout authorization forms comprise the list of components required to be locked for safety of personnel. (7.1.7)

14. Tags and their means of attachment when used under the CH2M HILL Lockout/Tagout Program shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected. (7.1.2, 7.1.7) It is acceptable to install tags by using the shank of the lock.

15. Equipment shall not be removed from their installed location with locks or tags attached. When an installed component is to be removed (for example, during demolition, replacement, or rework), the isolation boundaries must be set or adjusted so that any locks and tags are removed from the component before the component is removed.

16. Interface Control

    a. All contractor and subcontractor workers shall comply with this procedure when working on systems or components controlled by Waste Feed Operations/Closure Operations unless the CH2M HILL manager of Safety & Health has approved the use of the subcontractor's authorized worker program.

    b. Electrical Utilities Operations Group Interface.

        1) As the organization that has responsibility and control of the electrical transmission and distribution system, Electrical Utilities Operations will isolate facility incoming electrical lines via switching orders and place a Hold Off tag (equivalent to a Danger-Do-Not-Operate tag) on the isolation point

2) After notifying the Electrical Utilities Operations dispatcher (373-2321), the CH2M HILL controlling organization must apply a controlling organization tagout as an overlock on an Electrical Utilities Operations Hold Off tag whenever a CH2M HILL employee is to perform work within the isolation boundary. The CH2M HILL Danger-Do-Not-Operate tag shall be attached with a 50-pound tie wrap or stapled on top of the Electrical Utilities Hold Off tag.

- CH2M HILL authorized workers will apply their authorized worker locks and Danger tags as an overlock on the CH2M HILL controlling organization overlock of the Electrical Utilities Operations Hold Off tag. (7.1.2)

3) When Electrical Utilities Operations requires isolation of facility equipment for the purpose of establishing a working clearance boundary, the appropriate CH2M HILL controlling organization will place a controlling organization lockout/tagout for the dispatcher on the interface device. Electrical Utilities Operations will then place clearance tags via switching orders over the CH2M HILL controlling organization Danger-Do-Not-Operate tag.

4) The Electrical Utilities Operations group will use their company's authorized worker locks and Danger tags when working on CH2M HILL tank farm equipment that is independent of the transmission and distribution system

17. Lockout/Tagout of New Systems (and Their Components) Being Constructed

a. CH2M HILL serves as the controlling organization for all work that is controlled and released in accordance with TFC-OPS-MAINT-C-01.

b. The construction subcontractor normally serves as the controlling organization for work that is not being controlled and released in accordance with TFC-OPS-MAINT-C-01, while constructing new systems that have not yet been turned over to CH2M HILL.

c. Any CH2M HILL employee who will work on a subcontractor's subproject will be trained by the subcontractor to sufficiently understand:

- The differences between the CH2M HILL Lockout/Tagout program and the subcontractor's lockout/tagout program.
- Those aspects of the subcontractor's program that the CH2M HILL employee will interface with (for example, the color of the subcontractor's controlling organization locks, the subcontractor's lockout/tagout authorization form, etc.).
- Regardless of who is the controlling organization, CH2M HILL employees shall install their authorized worker locks and Danger tags on new systems being constructed prior to working on these systems, when they could be exposed to unexpected release of hazardous energy or material. (7.1.2)

18. Lockout/Tagout of Fire Protection System Components

NOTE: Consult TFC-ESHQ-FP-STD-08 for requirements that apply if any fire protection system(s) components must be locked out/tagged out.

Energy isolation may result in impairments to fire protection systems. These impairments must be coordinated with the affected building administrator(s) and the Hanford Fire Department before lockout/tagouts are installed.

4.2 Preparing and Reviewing Controlling Organization Lockouts/Tagouts
(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

4.2.1 Preparing the Lockout/Tagout Authorization Form

NOTE: The lockout/tagout preparer and technical reviewer may be the same person.

Lockout/Tagout Preparer, Technical Reviewer, or Administrator

1. Prepare the form by using controlled drawings, Engineering Change Notices (ECNs), and documents to verify the isolation of the energy sources or hazardous materials.

   NOTE: See Attachment D for CH2M HILL Hazardous Energy Isolation Requirements.

2. Conduct an evaluation of the isolation points to ensure the impact on safety basis/operating specification document requirements are known. (7.1.13)

3. If there are uncertainties due to inadequate drawings, perform the following:

   a. Perform a field walkdown.

   b. Fill out a CHG Lockout/Tagout Sketch Sheet (A-6003-128).

   c. Obtain approval from an operations engineer, a responsible engineer, an Engineering manager, and the facility manager/shift manager.

   d. Ensure copies of approved sketches are included in the work package.

4. Complete blocks 2, 3, 4, 5 (if a lockbox will be used), 6, 7, 8, 9, 13, 14, 15, 16, 18, 19, 20, 21, 23, 31, and 32 on the form.

   a. Enter the surveillance periodicity in block 16 of the form is monthly unless an alternate periodicity is specified in accordance with Section 4.15.

b. Ensure each lock has only one Danger-Do-Not-Operate tag.

c. If a CH2M HILL lockout/tagout is already installed on an isolating component which would interfere with a safe condition check, enter in block 32 the safe condition check is to verify that the tag and lock (if applicable) on which the safe condition check was previously performed is installed.

For example, enter "Safe condition check is to verify that tag 1 and lock 011 of the lockout/tagout A Complex 01-004 is installed. Zero electrical energy check was performed on 4/16/01."

NOTE: See Attachment B for definitions and examples.

d. If isolating electrical equipment, enter zero electrical energy check and the location for the zero electrical energy check in block 32 (for example, "Perform zero electrical energy check at DS-25").

NOTE: It is acceptable to list the applicable tags as a group in column 31 (e.g., 1, 2, 4-6, etc.), and to write the Safe Condition Check in column 32 one time, such that it applies to all the tags called out beside it in column 31.

e. Ensure block 15 identifies when electrical safe condition checks are not performed on all the physical work location(s).

f. If electrical safe condition checks will not include all physical work locations, obtain applicable vice president approval and document the approval in block 15.

5. Perform the following if one or more of the isolating components cannot be locked out and a tagout will be used in conjunction with equivalent protection to a lock (for example, no lock will be installed):

a. Use a lockbox.

b. In block 14 for the tagouts, enter "The controlling organization lock on the lockbox indicates that the equivalent protection is still in place."

c. Enter in block 23 the equivalent protection to be used.

4.2.2 Preparing the Tags

Lockout/Tagout Preparer, Technical Reviewer, or Administrator

1. Enter the following information from the form on each Danger-Do-Not-Operate tag:
   - Tag Number
   - Logbook Location
   - Component Tagged
   - Required position or condition. If a lock is NOT used with the Danger-Do-Not-Operate tag, the equivalent protection listed in block 23 on the form shall be listed in the Component Position block of the tag
   - Safe Condition Check - Document the safe condition check instructions from block 32 on the form specific to the Danger-Do-Not-Operate tag or refer to block 32 of the form if the safe condition check instructions will not fit on the tag.
   - Special Instructions - If applicable, document the special instructions from block 14 on the form specific to the Danger-Do-Not-Operate tag.
2. Obtain the correct locks and lockout devices to support the lockout.
3. Record the lock number (if a lock is used) in the Lock No. block on the Danger-Do-Not-Operate tag and also in block 22 on the form.

4.2.3 Technical Review and Walkdown

Lockout/Tagout Technical Reviewer

1. Review the Danger-Do-Not-Operate tags and the form to verify the adequacy of the lockout/tagout.
2. Perform an evaluation to ensure that the impact on safety basis/operating specification document requirements by the isolation points is understood and all applicable drawings have been identified. (7.1.13)
3. Use controlled drawings, ECNs, documents, and properly approved sketches, to verify the adequacy of the lockout/tagout.

   NOTE: The lockout/tagout technical reviewer should be accompanied on the walkdown by a controlling organization qualified worker and appropriate craft.

   a. If the lockout/tagout technical reviewer, controlling organization qualified worker, or authorized worker would be exposed to unusual hazards (for example, high radiation areas, confined spaces) while performing a field walkdown, write a plan to either mitigate the hazard or justify an exception.

b. Obtain approval of the plan by safety and the controlling organizations

c. Communicate the plan to the authorized workers prior to performing work.

4. Ensure the information on the form has been accurately transcribed to the Danger-Do-Not-Operate tags.

5. Perform a field walk-down.

a. Locate and identify the isolating components necessary to isolate or safeguard the affected equipment and systems.

b. Verify each isolation component is labeled as indicated on block 20 and that there is sufficient information from the isolating component label plate to uniquely identify the isolating component(s).

NOTE: It is not required to list the complete isolating component label plate contents on the tag or form to identify the isolating component.

c. Verify the types of lockout devices to be used.

d. If locks CANNOT be used, verify the method used to provide equivalent protection to locks and prevent the system from being energized (for example, removing an isolating circuit element or fuse, blocking switch controls, opening extra circuit disconnects, removing valve handles).

e. Verify the safe condition check methodology for each Danger-Do-Not-Operate tag is appropriate and documented in block 32 on the form.

f. If a safe condition check cannot be performed due to system configuration before work release, incorporate an approved safe-condition check plan into the work package steps. This plan shall be approved by safety, the controlling organization, and communicated to the authorized workers.

6. Sign and date the form in block 10 to verify that the lockout/tagout is correct and provides adequate protection/boundary isolation for work listed in block 6 on the form.

4.2.4 Lockout/Tagout Authorization

NOTE 1: The lockout/tagout administrator shall not be the same person who performed the technical review except for replacement of tags.

NOTE 2: If an additional field walk-down is required, the lockout/tagout administrator should be accompanied on the walk-down by a controlling organization qualified worker and appropriate craft.

Lockout/Tagout Administrator

1. Independent of the technical reviewer, review the Danger-Do-Not-Operate tags and the form to verify the adequacy of the lockout/tagout.

2. Use controlled drawings, ECNs, documents, and properly approved sketches to verify the adequacy of the lockout/tagout.

   - Verify the safe condition check methodology for each Danger-Do-Not-Operate tag is appropriate and documented in block 32 on the form and verify requirements of Attachment D are met.

   - Evaluate the impact of the isolating boundaries with respect to work scope, personnel safety, facility operability, configuration control, public and environmental protection, and compliance with other safety requirements.

3. When the conditions for installing the lockout/tagout are met, perform the following:

   a. Ensure the system description is entered in the lockout/tagout logbook index.

   b. Ensure a lockout/tagout number from the active lockout/tagout log is assigned.

   c. Ensure the lockout/tagout number is entered on each Danger-Do-Not-Operate tag and in blocks 1 and 17 on the form.

4. Authorize the lockout/tagout.

   a. Complete the “Authorized by” block on each Danger-Do-Not-Operate tag.

   b. Complete block 11 on the form.

   c. Complete block 24 on the form for each Danger-Do-Not-Operate tag.

Technical Reviewer, Lockout/Tagout Administrator

5. If changes to the isolation boundaries are required after the Lockout/Tagout Authorization form has been signed, review the boundaries again, initial all changes and enter a note in the comments section of the form what action was taken. (7.1.9)

4.3 Installing Controlling Organization Lockouts/Tagouts

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE 1: Only controlling organization qualified workers who are nuclear chemical operators, chemical technologists, or stationary operating engineers shall install, verify, or remove controlling organization's locks and tags.

NOTE 2: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2))

4.3.1 Lockout/Tagout Installation Preparations

Lockout/Tagout Administrator

1. Prior to the installation of the lockout/tagout, ensure the on-duty shift manager is aware of the lockout/tagout to be installed and understands how plant configuration will be affected by the lockout/tagout.

2. Assign controlling organization qualified workers to:

   - Install the lockout/tagout
   - Complete required safe condition checks that are performed by a controlling organization qualified worker
   - Independently verify the lockout/tagout.

3. Assign authorized worker(s) to complete required safe condition checks that are performed by authorized worker(s) (for example, zero electrical energy checks performed by electricians).

4. Conduct a lockout/tagout brief with all the assigned workers to thoroughly review the following:

   - Overview of work to be performed under the lockout/tagout
   - Boundary isolation
   - Specified safe condition check methodology including PPE requirements
   - Procedural requirements
   - Field conditions
   - Existing lock(s) installed on any associated isolating component(s) (examples may include: administrative locks, existing authorized worker locks or controlling organization locks)
   - Isolation requirements
   - Installation requirements
   - Isolation component positioning

- Documentation completion requirements
- Other applicable information
- Verification methods.

4.3.2 Lockout/Tagout Installation

NOTE 1: Tags and their means of attachment when used under the CH2M HILL Lockout/Tagout Program shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected. It is acceptable to install tags by using the shank of the lock.

NOTE 2: Section 4.3.2, steps 1 through 8, may be repeated as many times as necessary to install the specified locks and tags.

NOTE 3: It is not required to list the complete isolating component label plate contents on the tag or form to identify the isolating component.

Controlling Organization Qualified Worker	1.	Verify the isolating component is labeled as the Danger-Do-Not-Operate tag and indicated on block 20 on the form with sufficient information from the isolating component label plate to uniquely identify the isolating component(s). NOTE: Only electricians may pull fuses, perform zero electrical energy checks, and position 480 volt and above breakers and disconnects.
Controlling Organization Qualified Worker or Authorized Worker	2.	Ensure the position of the isolating component is as specified in block 23 on the form and recorded in the "Component Position" block on the Danger-Do-Not-Operate tag. NOTE: Safe condition checks are normally performed after the lockout/tagout is installed.
	3.	If a lock or tag will interfere with the safe condition check for a Danger-Do-Not-Operate tag, perform one of the following:
		a. If a safe condition check has been previously performed for a CHG lockout/tagout and is still in place on the isolating component, if the safe condition check cannot be re-performed due to the prior lockout/tagout, and if block 32 on the form contains the lockout/tagout number and tag number that matches the information on the tag on the isolating component, sign and date block 27 on the form.
		b. If a safe condition check has NOT been previously performed, perform the safe condition check in accordance with Section 4.5 of this procedure before installing the lockout/tagout.

4. Ensure the safe condition will be maintained after the check is complete and before the lockout/tagout is installed.

5. Complete block 27 on the tag form for which the safe condition check was performed.

Controlling Organization Qualified Worker

6. Install the Danger-Do-Not-Operate tags so they are easily seen to prevent operation of a tagged isolating component, and install the correct lock (if a lock is to be installed) in a position to fulfill the lockout function **independent** of other lockout devices and to prevent inadvertent operation.

7. If an isolating component cannot be locked out, perform the method for equivalent protection to a lockout specified in block 23 on the form and on the Danger-Do-Not-Operate tag.

8. Sign and date the "Installed By" block on the Danger-Do-Not-Operate tag and block 25 on the form.

4.4 Verifying Controlling Organization Lockouts/Tagouts

(7.1.7)

NOTE 1: Only controlling organization qualified workers who are nuclear chemical operators or stationary operating engineers shall install, verify, or remove controlling organization's locks and tags for tank farms.

NOTE 2: To ensure an independent second check, verification should not normally start until all of the locks and tags specified on the lockout/tagout authorization form are installed. If authorized by the lockout/tagout administrator, verifications may begin before all the locks and tags are installed but should be controlled so that the verifier and the initial installer installing the controlling organization's locks and tags work independently.

NOTE 3: Verifications are to be performed as separate safeguard steps, not just administrative checks. Observing the installation of a lock or tag or accepting a verbal statement about the status of a lock or tag is inadequate to meet this intent and shall not be used to satisfy requirements for independent verifications.

NOTE 4: Some lockouts/tagouts (such as positioning valves without position indicating devices) do not permit separate verification and thus require that both the verifier and initial installer be present during the evolution. For all other cases, verification requires that the person who attaches the lock or tag and the person who is to verify them each independently make certain that each item on the tagout authorization is installed on the correct isolating component, in the correct position.

NOTE 5: Safe condition checks may be accomplished in accordance with Section 4.5 before performing independent verification in accordance with Section 4.4.

NOTE 6: The form referred to in this section of the procedure is the CHG Lockout/ Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

NOTE 7: TFC-OPS-OPER-C-34 specifies independent verification.

NOTE 8: Steps 1 through 5 of Section 4.4 may be repeated as many times as necessary to verify the specified locks and tags.

Controlling Organization Qualified Worker

1. Verify the correct Danger-Do-Not-Operate tag and lock are installed on the isolating component.

   NOTE: It is not required to list the complete isolating component label plate contents on the tag or form to identify the isolating component.

2. Verify the isolating component is labeled as the Danger-Do-Not-Operate tag and indicated on block 20 on the form with sufficient information from the isolating component label plate to uniquely identify the isolating component(s).

3. Verify the position of the isolating component is as specified in block 23 on the form and the position recorded in the "Component Position" block on the Danger-Do-Not-Operate tag.

4. Verify the lock will fulfill the lockout function **independent** of other locks or lockout devices and will prevent inadvertent operation.

5. Sign and date the "Verified By" block on the Danger-Do-Not-Operate tag and block 26 on the form.

4.5 Safe Condition Checks for Controlling Organization Lockouts/Tagouts

(7.1.2, 7.1.3, 7.1.6, 7.1.7)

NOTE 1: A zero electrical energy check performed by electricians using appropriate test equipment will be conducted for all electrical isolation components that operate at 50 volts or greater except as indicated in Section 4.5, step 1.

NOTE 2: More than one worker may be required to perform safe condition checks on a lockout/tagout authorization form.

NOTE 3: See Attachment D for additional information on safe condition checks.

NOTE 4: Safe condition checks may be accomplished in accordance with Section 4.5 before performing independent verification in accordance with Section 4.4.

NOTE 5: The form referred to in this section of the procedure is the CHG Lockout/ Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

NOTE 6: Steps 1 through 4 of Section 4.5 may be repeated as many times as necessary to perform all of the required safe condition checks that are performed by an authorized worker.

NOTE 7: Electrical safe condition check(s) are to include the physical work location unless exceptions are approved by the applicable vice president. Such exceptions may include situations with numerous work locations as in electrical maintenance outages, or in the presence of greater hazard (e.g., unnecessary exposure; entry into tank farm is not considered an unnecessary exposure).

Authorized Worker

1. If a safe condition check performed by an authorized worker has been previously performed for a CH2M HILL lockout/tagout that is still in place on the isolating component, if the safe condition check cannot be re-performed due to the prior lockout/tagout, and if block 32 on the form contains the lockout/tagout number and tag number that matches the information on the Danger-Do-Not-Operate tag on the isolating component, sign and date block 27 on the form.

2. If the safe condition check was NOT performed and if the safe condition check is a zero electrical energy check, perform a zero electrical energy check(s) with test equipment per the instructions in block 32 on the lockout/tagout authorization form. The zero electrical energy check shall consist of two parts:

   NOTE: See Attachment B for definitions and examples.

   a. The first part is always accomplished by ensuring the isolating component is in the position specified in block 23 on the form.

   b. The second part is accomplished by performing either a zero voltage check or a satisfactory continuity check using test equipment.

3. If the safe condition check was not performed, if the safe condition check is NOT a zero electrical energy check, and if the safe condition check is one performed by an authorized worker, perform the safe condition check per the instructions in block 32.

4. Complete block 27 on the form for each Danger-Do-Not-Operate tag for which the safe condition check was performed.

   NOTE: Steps 5 through 8 of Section 4.5 may be repeated as many times as necessary to perform all of the required safe condition checks performed by a controlling organization qualified worker.

Controlling Organization Qualified Worker

5. If a safe condition check performed by a controlling organization qualified worker has been previously performed for a CH2M HILL lockout/tagout still in place on the isolating component, if the safe condition check cannot be re-performed due to the prior lockout/tagout, and if block 32 on the form contains the lockout/tagout number and tag number that matches the information on the Danger-Do-Not-Operate tag on the isolating component, sign and date block 27 on the form.

6. If the safe condition check was NOT performed and if the safe condition check is one performed by a controlling organization qualified worker, perform the safe condition check(s) per the instructions in block 32 on the form.

7. Complete block 27 on the form for each Danger-Do-Not-Operate tag for which the safe condition check was performed.

8. Return the form to the lockout/tagout administrator after the

lockout/tagout is complete.

4.6 Post Installation Review for Controlling Organization Lockouts/Tagouts

Lockout/Tagout Administrator

1. Review the lockout/tagout authorization form with the controlling organization qualified worker to ensure it is complete.
2. Ensure the keys are returned.
3. Update the lockout/tagout log index and enter the completed form into the active lockout/tagout logbook. (7.1.7)
4. Notify the on-duty shift manager that lockout/tagout has been installed and reiterate plant configuration changes.
5. Determine if a lockbox will be used in accordance with Attachment E. If a lockbox is to be used, ensure the following:
   - Block 5 is completed on the lockout/tagout authorization form.
   - The keys for the controlling organization locks are placed in the lockbox.
   - "Equivalent Protection" indicators are placed in the lockbox if lock(s) can not be installed on isolating component(s).
   - The lockbox is locked, closed, with the assigned controlling organization lock.
   - A copy of the completed lockout/tagout authorization form is attached to the lockbox.

4.7 Removing Controlling Organization Lockouts/Tagouts
(7.1.2, 7.1.3, 7.1.7)

NOTE: The form referred to in this section of the procedure is the CHG Lockout/ Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

Lockout/Tagout Administrator

1. Locks and tags may only be removed using the form. Other documentation (for example, work packages, tests, procedures, etc.) cannot authorize the removal of controlling organization locks and Danger-Do-Not-Operate tags.
2. Verify block 12 on the form has been signed by a field work supervisor indicating work requiring the lockout/tagout has been completed.
3. Authorize lockout/tagout removal when the conditions or circumstances that required the lockout/tagout no longer apply and the equipment is in a safe condition to remove the lockout/tagout.

4. Review the plant/system line-up and designate the desired restoration line-up for each isolating component in block 29 on the form, "Restoration Position/Condition."

5. Include any special restoration instructions in block 14 on the form.

6. Coordinate the approvals necessary to establish the plant conditions required when a lockout/tagout is removed.

7. Prior to removing lockout/tagout, ensure the on-duty shift manager is aware of lockout/tagout to be cleared and understands how plant configuration will be affected.

8. For each lockout/tagout to be removed, authorize removing the lockout/ tagout by signing and dating block 28 on the form.

9. Assign controlling organization's qualified workers and appropriate craft to remove the lockout/tagout and position components in accordance with block 29 on the form.

10. Conduct a lockout/tagout brief with all assigned workers to thoroughly review:

    - Lockout/tagout to be removed
    - Sequence for removal of lockout/tagout, if required
    - Procedural requirements
    - Field conditions
        - Lockout/tagout(s) that will remain installed on any isolating component(s) that are part of the lockout/tagout to be removed
        - Administrative lock(s) that are installed on any isolating component(s) that are part of this lockout/tagout to be removed.
    - Component positioning
        - Which isolating components are to be repositioned
        - The sequence in which isolating components should be positioned when removing the lockout/tagout
        - The required positioning of other components not part of the lockout/tagout but related to the operation of the lockout/tagout isolating component (these checks should be done, when necessary, to ensure that

components within the lockout/tagout boundaries are correctly aligned to support operation).

- Documentation of completion requirements
- Other applicable information.

Controlling Organization Qualified Worker

11. Perform the following before lockout or tagout devices are removed and energy restored to equipment:
    a. Inspect the area to ensure that nonessential items have been removed.
    b. Ensure that all personnel have been positioned safely or removed from the area.
    c. Notify affected personnel that equipment will be energized.
12. Remove the lockout/tagouts that are no longer required by performing the controlling organization qualified worker and authorized worker steps in Section 4.7.

    NOTE: Only electricians may reposition 480 volt and greater breakers and disconnects.

Controlling Organization Qualified Worker and Authorized Worker

13. If applicable, reposition the isolating component(s) as required by block 29 on the form.
14. Position other components not part of the lockout/tagout but related to the operation of the lockout/tagout isolating component as directed by the lockout/tagout administrator.
15. Sign block 30 on the form for each Danger-Do-Not-Operate tag removed.
16. If the removed Danger-Do-Not-Operate tags cannot be released from the area, contact the lockout/tagout administrator, who will verify that the correct Danger-Do-Not-Operate tags were removed and disposed.
17. Return the removed locks and Danger-Do-Not-Operate tags to the lockout/tagout administrator.

Lockout/Tagout Administrator

18. Verify all correct Danger-Do-Not-Operate tags and locks were removed.
19. Destroy the tags.
20. Verify form is completed satisfactorily.
21. Enter the date lockout/tagout was removed in the active lockout/tagout log index.
22. File the completed form, retain for six months, and then forward it to

Records Management.

4.8 Reduction of Controlling Organization Lockout/Tagout Isolation Boundaries

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE 1: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

NOTE 2: See Attachment D for CH2M HILL Hazardous Energy Isolation Requirements.

Lockout/Tagout Preparer, Technical Reviewer, or Administrator

1. Enter a new line item for the remaining work in block 6 on the form.
2. List the tags that will remain active in block 7 on the form.
3. Complete blocks 8 and 9 on the form.

   NOTE: The lockout/tagout preparer and technical reviewer may be the same person.

Lockout/Tagout Technical Reviewer

4. Complete a technical review of the remaining scope of work and isolation that will remain in place.
5. Sign and date block 10 on the form.

   NOTE: The lockout/tagout administrator shall not be the same person who performed the technical review.

Lockout/Tagout Administrator

6. Ensure the field work supervisor signs and dates block 12 on the form for the previous lockout/tagout.
7. Enter a note in block 15 on the form stating why the boundary was reduced.
8. Sign and date block 11 on the form for authorization of the new isolation.
9. Ensure the on-duty shift manager is aware of change in lockout/tagout and understands how plant configuration will be affected.
10. Authorize removal of the lockout/tagouts that are no longer required by completing blocks 28 and 29 on the form.
11. Assign a controlling organization qualified worker and appropriate craft to remove the lockout/tagouts that are no longer required.
12. Conduct a lockout/tagout brief with the assigned worker to thoroughly review:

    - Lockout/tagout to be removed
    - Sequence for removal of lockout/tagout, if required

- Procedural requirements
- Field conditions
  - Lockout/tagout(s) that will remain installed on any isolating component(s) that are part of the lockout/tagout to be removed
  - Administrative lock(s) that are installed on any isolating component(s) that are part of this lockout/tagout to be removed.
- Component positioning
  - Which isolating components are to be repositioned
  - The sequence in which isolating components should be positioned when removing the lockout/tagout
  - The required positioning of other components that were not part of the lockout/tagout, if required.
- Documentation of completion requirements
- Other applicable information.

Controlling Organization Qualified Worker and Authorized Worker	13.	Remove the lockout/tagouts that are no longer required by performing the controlling organization qualified worker steps in Section 4.7.
Lockout/Tagout Administrator	14.	Ensure a copy of the revised form is attached to the lockbox, if applicable.

4.9 Adding Additional Lockout/Tagout to Existing Controlling Organization Lockout/Tagout

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE 1: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

NOTE 2: See Attachment D for CH2M HILL Hazardous Energy Isolation Requirements.

Lockout/Tagout Preparer, Technical Reviewer, or Administrator	1.	In accordance with Section 4.2 of this procedure, determine the additional isolation requirements and complete the applicable entries on the form and Danger-Do-Not-Operate tags. NOTE: The lockout/tagout preparer and technical reviewer may be the same person.

Lockout/Tagout Technical Reviewer	2.	In accordance with Section 4.2 of this procedure, complete a technical review of the work isolation. NOTE: The lockout/tagout administrator shall not be the same person who performed the technical review.
Lockout/Tagout Administrator	3.	In accordance with Section 4.2 of this procedure, review and approve the additional lockout/tagout.
	4.	In accordance with Section 4.3 of this procedure, ensure the on-duty shift manager is aware of lockout/tagout and understands how plant configuration will be affected; assign controlling organization qualified workers and authorized workers to install the additional lockout/tagout and conduct a lockout/tagout brief.
Controlling Organization Qualified Workers and Authorized Workers	5.	Install and verify the additional lockout/tagout and conduct safe condition checks by performing the controlling organization qualified worker and authorized worker steps in Sections 4.2, 4.3, and 4.4.
	6.	If a lockbox was used on the initial lockout/tagout, install the keys for the additional locks in the original lockbox.
Lockout/Tagout Administrator	7.	If applicable, sign block 12 of the form to close the original block 6 entry for the work. NOTE: There shall only be one active block 6 for a specific work authorization.
	8.	Ensure a copy of the revised form is attached to the lockbox, if applicable.

4.10 Adding Additional Work Authorization to an Existing Controlling Organization Lockout/ Tagout

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE 1: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization Form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

NOTE 2: See Attachment D for CH2M HILL Hazardous Energy Isolation Requirements.

Lockout/Tagout Preparer, Technical Reviewer, or Administrator	1.	In accordance with Section 4.2, determine if the existing isolation will provide safe work boundaries for the new work.
	2.	If the existing isolations are adequate, complete new blocks 6, 7, 8 and 9 on the form for the work.
	3.	Ensure the on-duty shift manager is aware of additional work authorization being added to lockout/tagout.
	4.	If additional isolations are required, prepare per Section 4.9. NOTE: The lockout/tagout preparer and technical reviewer may be the same person.

Lockout/Tagout Technical Reviewer	5.	Complete a technical review of the work isolation for the added work in accordance with Section 4.2. NOTE: The lockout/tagout administrator shall not be the same person who performed the technical review.
Lockout/Tagout Administrator	6.	Review the isolation for the added work in accordance with Section 4.2 of this procedure.
	7.	Authorize the lockout/tagout in accordance with Section 4.2 of this procedure.

4.11 Replacing Controlling Organization Danger-Do-Not-Operate Tags
(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

NOTE: The form referred to in this section of the procedure is the CHG Lockout/Tagout Authorization Form (A-6002-312 (page 1) and A-6002-312.1 (page 2)).

4.11.1 Prepare Replacement Tags

Lockout/Tagout Administrator	1.	If a Danger-Do-Not-Operate tag is found missing, mutilated, illegible, defective, or otherwise requires replacement for a tagout (there is no lock installed), suspend the work package and have all authorized worker locks and Danger tags removed. NOTE: If a Danger-Do-Not-Operate tag is found missing, mutilated, illegible, defective, or otherwise requires replacement but the lock associated with the Danger-Do-Not-Operate tag is still installed, work may continue.
	2.	Obtain and complete a replacement tag. NOTE: Use the same tag number. The same person may be the technical reviewer and authorize the tag.
	3.	Complete blocks 19 through 24 on the form for the replacement tag. NOTE 1: A safe condition check is not required to be re-performed unless designated by the lock and tag administrator. NOTE 2: A safe condition check shall be re-performed if a Danger-Do-Not-Operate tag is missing from a tagout (no lock is installed) unless system configuration prevents re-performance.
	4.	Perform the following if a safe condition check is NOT required: a. Enter in block 27 on the form, “See block 32.” b. Enter in block 32 on the form, “Safe condition check not re-performed for replacement tag.”

5. If a safe condition check IS required, complete block 32.

6. If a Danger-Do-Not-Operate tag is missing:

   a. Annotate in block 28 of the form that the tag is missing.

   b. Enter an "N/A" in blocks 29 and 30 of the form for the missing Danger-Do-Not-Operate tag.

7. If a Danger-Do-Not-Operate tag is mutilated, illegible, defective, or otherwise requires replacement:

   a. Enter in block 29 the same information found in block 23 of the form for the Danger-Do-Not-Operate tag to be replaced.

   b. Sign and date block 28 of the form to authorize removal of the Danger-Do-Not-Operate tag.

4.11.2 Install Replacement Tags

Lockout/Tagout Administrator

1. Conduct a lockout/tagout brief and assign controlling organization qualified workers and appropriate craft to:

   a. Install the replacement Danger-Do-Not-Operate tags.

   b. Complete required safe condition checks.

   c. Independently verify the lockout/tagout.

   d. Remove the mutilated, illegible, or defective Danger-Do-Not-Operate tags.

   NOTE 1: Controlling organization Danger-Do-Not-Operate tags may be replaced when authorized worker Danger tags are in place. Authorized worker Danger tags are not to be disturbed during this process.

   NOTE 2: Isolating component position and the locks installed with the original lockout/tagout are not to be disturbed during the replacement of the Danger-Do-Not-Operate tags.

   NOTE 3: Section 4.11.2, steps 2 through 7, may be repeated until all Danger-Do-Not-Operate tags are installed.

   NOTE 4: It is not required to list the complete isolating component label plate contents on the tag or form to identify the isolating component.

Controlling Organization Qualified Worker

2. Verify the isolating component is labeled as the Danger-Do-Not-Operate tag and block 20 on the form indicate and that there is sufficient information from the isolating component label plate to uniquely identify the isolating component.

3. Ensure that the position of the isolating component is as specified in

block 23 on the form and the position recorded in the "Component Position" block on the Danger-Do-Not-Operate tag.

4. Verify that the correct lock is installed.

5. Install the replacement Danger-Do-Not-Operate tag so it is easily seen to prevent operation of a tagged isolating component.

6. Sign and date the "Installed By" block on the Danger-Do-Not-Operate tag and block 25 on the form.

Controlling Organization Qualified Worker or Authorized Worker

7. If safe condition check(s) are specified in block 32 for replacement tagout(s), perform safe condition check(s) in accordance with Section 4.5 of this procedure.

   NOTE 1: Section 4.11.2, steps 8 through 11, may be repeated until all tags are verified.

   NOTE 2: TFC-OPS-OPER-C-34 specifies independent verification.

Controlling Organization Qualified Worker Independent Verifier

8. Verify the isolating component is labeled as the Danger-Do-Not-Operate tag and block 20 on the form indicate and that there is sufficient information from the isolating component label plate to uniquely identify the isolating component.

   NOTE: It is not required to list the complete isolating component label plate contents on the tag or form to identify the isolating component.

9. Ensure that the position of the isolating component is as specified in block 23 on the form and the position recorded in the "Component Position" block on the Danger-Do-Not-Operate tag.

10. Verify that the correct lock is installed.

11. Sign and date the "Verified By" block on the Danger-Do-Not-Operate tag and block 26 on the form.

4.11.3 Remove Tags to be Replaced

Controlling Organization Qualified Worker

1. Remove the tags authorized for removal.

2. Sign lockout/tagout authorization form in block 30 for each tag removed.

3. Return the removed tags and the lockout/tagout authorization form to the lock and tag administrator.

   a. If the removed tags cannot be released from the area, contact the lockout/tagout administrator, who will verify that the correct Danger-Do-Not-Operate tags are removed and disposed.

Lockout/Tagout Administrator

4. Verify that all of the correct tags were removed and then destroy the tags.

5. Ensure a copy of the revised form is attached to the lockbox, if applicable.

4.12 Authorized Worker Performing Work Under a Controlling Organization Lockout/Tagout
(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

Hazardous energy/material control boundaries established by controlling organization lockout/ tagout (Danger-Do-Not-Operate tags and/or controlling organization red locks) must be overlocked by the authorized worker(s) applying their authorized worker (green) locks and Danger tags while performing servicing and maintenance.

The keys to authorized worker assigned locks must remain under the control of the authorized worker. There shall be no backup keys to issued authorized worker locks.

A primary authorized worker may be designated to conduct an authorized worker isolation verification for a group including the initial boundary isolation verification.

4.12.1 Installing Authorized Worker Lock(s) and Danger Tag(s)

Field Work Supervisor

1. Conduct a pre-job brief:

   a. Identify the primary authorized worker(s).

   b. Discuss the lockout/tagout authorization form, including:

      - Hazards isolated
      - Isolation boundary
      - Safe condition checks that have been conducted with block 15 details on whether or not all work locations were included.
      - Lockbox location.

   c. Identify the boundary at which an affected employee becomes an authorized worker.

   d. Identify the authorized workers.

   e. Discuss the field walkdown.

   f. Discuss the safe-to-work checks.

   NOTE: Each authorized worker has the right to verify the effectiveness of the lockout measures and each authorized worker must be allowed to personally verify that hazardous energy sources have been effectively isolated, if they so choose.

Authorized Worker(s) or Primary Authorized Worker(s)

2. Obtain a copy of the lockout/tagout authorization form.

   NOTE: Authorized workers who are relying upon a primary authorized worker to perform the isolation verification shall hang their authorized worker lock(s) and Danger tag(s) after the primary authorized worker has completed the isolation verification.

3. Inform the controlling organization and install authorized worker lock(s) and Danger tag(s) on each isolating component for the equipment undergoing servicing or maintenance, or on the lockbox designated in block 5 on the CHG Lockout/Tagout Authorization form. Each authorized worker who is to perform servicing or maintenance must install his authorized worker lock and Danger tag.

   a. If a lockbox is used, verify that the keys in the lockbox match the key numbers on the CHG Lockout/Tagout Authorization form.

   NOTE: When a tagout is used with equivalent protection to a lockout (no lock is installed), the tags(s) will indicate that the controlling organization lock on the lockbox indicates that the equivalent protection is still in place.

4. Perform an initial authorized worker isolation verification before performing servicing or maintenance to ensure no hazardous energy exists.

   NOTE: An authorized worker isolation verification consists of two parts: (1) a field walkdown and (2) a safe-to-work check.

5. If the authorized worker would be exposed to unacceptable hazards (high radiation areas, confined spaces) while performing a field walkdown, write a plan to either mitigate the hazard or justify an exception.

   a. Obtain approval of the plan by safety and the controlling organizations.

   b. Communicate the plan to the authorized workers prior to performing the walkdown.

6. Conduct an isolation verification using a copy of the CHG Lockout/ Tagout Authorization form, as follows:

   a. Perform a field walk-down of the identified boundary to ensure proper isolation.

   b. Ensure the walk-down includes:

      - A visual inspection that the lockout/tagouts are in place on the proper location

   NOTE: Isolating component position requires visual verification, if

possible. Do not attempt to operate the isolating component or manipulate the locking device.

- If an authorized worker questions the integrity of a locking device, contact the lockout/tagout administrator
- A visual verification of proper position, if possible
- Verification that the isolating component identification matches block 20 on the CHG Lockout/Tagout Authorization form and the "Component Tagged" block on the tag for each isolating component locked/tagged out
- Verification that all the applicable blocks on the Danger-Do-Not-Operate tags are filled out
- Verification that the lock number matches the lock number in block 22 on the CHG Lockout/Tagout Authorization form.

7. Conduct a safe-to-work check on the job site to ensure hazardous energy sources are not present.

   a. If working on electrical circuits or electrical equipment where the authorized worker is exposed to an electrical hazard, a qualified person will use appropriate test equipment to verify zero energy on the circuits or equipment to be worked on.

   b. Safe to work checks on electrical circuits or electrical equipment will be performed on exposed parts capable of being touched or approached nearer than a safe distance by a person. It is applied to parts that are not suitably guarded, isolated, or insulated.

   c. If unexpected hazards are identified, stop the work evolution, and notify the supervisor. The supervisor will coordinate a path forward with the assistance of subject matter experts (e.g., engineering, safety, controlling organization, craft personnel).

      NOTE: If safe-to-work checks associated with an authorized worker lock and tag cannot be performed at the component or on the equipment where the exposure to electrical energy could occur (i.e., where conduit is to be cut), the job will be treated as work on energized equipment per an approved Energized Electrical Work Permit. (7.1.10)

   d. If NOT exposed to an electrical hazard:

      1) Perform visual verification of the safe condition check specified in block 32 of the form (for example, no fluid

is draining from an open drain valve), or

2) Verification of the safe condition check documentation on the CHG Lockout/Tagout Authorization form.

8. Perform the authorized worker isolation verification again:

- Before resuming work if the authorized worker lock is not left installed
- If the authorized worker believes the configuration has changed.

NOTE: Daily walk-down of the boundaries is not required if the authorized worker lock remains in place. Daily safe-to-work check can consist of verifying the authorized worker lock remains in place.

9. Perform the assigned servicing and maintenance.

4.12.2 Removal of Authorized Worker Lock(s) and Danger Tags

Authorized Worker(s) or Primary Authorized Worker(s)

1. Remove the authorized worker lock(s) and Danger tag(s).

Field Work Supervisor

2. Ensure that all authorized workers remove their own locks and Danger tags.

a. Attempt to contact the installing authorized worker and obtain permission to remove the authorized worker lock and Danger tag.

b. Log the methods used and times contact was attempted in the shift manager's log.

c. If the authorized worker's permission was obtained, log the method used and time permission was obtained in the shift manager's log.

d. Obtain shift manager's authorization to remove the lock.

e. If unable to contact the authorized worker, request the shift manager's authorization to remove the lock and request the shift manager enter in the shift manager's log a requirement to notify the worker upon return to work. Use the "red arrow" system to track this to completion.

f. Ensure the method used to obtain approval and the time permission was obtained is logged in the shift manager's log.

NOTE: A field work supervisor should be present when the authorized worker lock and Danger tag is removed.

g. Ensure the isolating component is not damaged while removing the authorized worker lock and Danger tag.

h. Ensure the authorized worker is notified upon return to work that his/her lock has been removed AND the shift manager is notified to clear the "red arrow" entry.

3. Sign and date block 12 on the CHG Lockout/Tagout Authorization form to certify the scope of work requiring the lockout/tagout listed in block 6 has been completed and the lockout/tagout can safely be removed.

4.13 Authorized Worker Single Point Lockout/Tagout with Written Authorization

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

Authorized worker lockout/tagout can be used with an authorized worker single point lockout/ tagout form if it meets the following criteria:

- The machine or equipment has a single energy source.
- The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment.
- A single lockout or tagout device will achieve a locked out or tagged out condition.

4.13.1 Prepare the Form

NOTE 1: The form referred to in this section of the procedure is the Authorized Worker Single Point Lockout/Tagout form (A-6003-013).

NOTE 2: Only one work package per job can be worked on an Authorized Worker Single Point Lockout/Tagout form. (7.1.12)

NOTE 3: This form may be used for the same job multiple times if block E is checked "yes," with subsequent removals and installations documented on the continuation sheet. (7.1.12)

NOTE 4: See Attachment D for CH2M HILL hazardous energy isolation requirements.

Lockout/Tagout Preparer, Technical Reviewer, or Administrator

1. Prepare blocks A, B, and C on the form by using controlled drawings, ECNs, and documents to verify the isolation of the energy sources or hazardous materials.
2. If there are uncertainties due to inadequate drawings or documents, perform the following:

   a. Perform a field walkdown.

   b. Fill out a CHG Lockout/Tagout Sketch Sheet (A-6003-128) and ensure a copy is placed in the work package.

c. Obtain approval from an operations engineer, a responsible engineer, an Engineering manager, and the facility manager.

3. Verify that the isolating component is the single energy source for the hazard associated with the component to be worked on.

   NOTE: See Attachment D for CH2M HILL Hazardous Energy Isolation Requirements.

4. Complete block D on the form.

   a. If locks cannot be used, verify the method to be used to provide equivalent protection to locks and prevent the system from being energized (for example, removing an isolating circuit element or fuse, blocking switch controls, opening extra circuit disconnects, and removing valve handle).

   NOTE 1: The lockout/tagout technical reviewer and the lockout/tagout administrator can be the same person.

   NOTE 2: See Attachment B for definitions and examples.

Lockout/Tagout Technical Reviewer or Administrator

5. Enter in block E on the form the required safe-to-work check (for example, valve HV-13677 is open with zero leakage).

   a. If isolating electrical equipment, enter zero electrical energy check and the location for the zero electrical energy check in block E (for example, "Perform zero electrical energy check at DS-25").

      NOTE: If safe-to-work checks associated with an authorized worker lock and tag cannot be performed at the component or on the equipment where the exposure to electrical energy could occur (i.e., where conduit is to be cut), the job will be treated as work on energized equipment. (7.1.10)

6. Indicate in block E on the form if subsequent removal and reinstallation of the authorized worker locks and Danger tags is authorized to support the work scope (for example, troubleshooting, several set point adjustments until required response is received, etc.). All subsequent removals and installations shall be documented on the continuation sheet.

7. Enter in block E on the form the required restoration position or condition for the isolating component.

   NOTE: The lockout/tagout technical reviewer should be accompanied on the walkdown by an authorized worker.

8. Sign and record printed name and date in block E on the form to certify that the walkdown is completed and that the lockout/tagout and safe-to-work check are correct and provide adequate protection/boundary isolation for the equipment to be worked on.

4.13.2 Authorize the Lockout/Tagout

Lockout/Tagout Administrator

1. Verify the isolation point to be the single energy source for the hazard associated with the equipment to be worked on.

2. Ensure form is completed in accordance with this procedure.

3. Sign and record printed name and date in block F on the form granting authorization to use an authorized worker single point lockout/tagout.

4.13.3 Install the Lockout/Tagout

Field Work Supervisor

1. Prior to installation of an authorized worker lockout/tagout with written authorization, ensure the on-duty shift manager is aware of the lockout/ tagout to be installed and understands how plant configuration will be affected by the lockout/tagout.

Authorized Worker

2. Establish the isolating component position or condition as required by block D on the form.

   NOTE: If more than one authorized worker will be involved in the servicing or maintenance, only one of the authorized workers is required to sign and record printed name and date in block H.

3. If the isolating component design is such that installing the lock or the tag prevents the performance of the safe-to-work check, perform the safe-to-work check immediately before installing the lockout and tagout device.

   a. If the safe-to-work check is a zero electrical energy check, perform the zero electrical energy check in two parts:

      NOTE: See Attachment B for definitions and examples.

      1) The first part is always accomplished by positioning the isolating component to the position specified in block D on the form.

      2) The second part is accomplished by performing either a zero voltage check or a satisfactory continuity check using test equipment.

      3) Sign and record printed name and date in block H on the form.

   b. If the safe-to-work check is NOT a zero electrical energy check, perform the safe-to-work check, sign, and record printed name and date in block H on the form.

NOTE: If more than one authorized worker will be involved in the servicing or maintenance, all authorized workers are required to install their authorized worker locks and Danger tags. Only one of the authorized workers is required to sign and record printed name and date in block G.

4. Install the authorized worker lock or accomplish equivalent protection identified in block D.

5. Install Danger tag, sign, and record printed name and date in block G on the form.

NOTE: If more than one authorized worker will be involved in the servicing or maintenance, only one of the authorized workers is required to sign and record printed name and date in block H.

6. If the safe-to-work check can be performed after the lock and tag is installed, perform the safe-to-work check.

a. If the safe-to-work check is a zero electrical energy check, the zero electrical energy check shall consist of two parts:

NOTE: See Attachment B for definitions and examples.

1) The first part is always accomplished by positioning the isolating component to the position specified in block D on the form.

2) The second part is accomplished by performing either a zero voltage check or a satisfactory continuity check using test equipment.

3) Sign and record printed name and date in block H on the form.

b. If the safe-to-work check is NOT a zero electrical energy check, perform the safe-to-work check, sign, and record printed name and date in block H on the form.

NOTE: If subsequent removal and reinstallation of authorized worker lockout/tagout is authorized in block E to support the work scope, these removals and installations shall be documented on the continuation sheet.

4.13.4 Remove the Lockout/Tagout

Authorized Worker

1. Remove the authorized worker lock or equivalent protection and Danger tag when the work is completed.

2. Establish required restoration position or condition for the isolating component identified by block E on the form.

3. If more than one authorized worker was involved in the servicing or maintenance, all authorized workers are required to remove their authorized worker locks and Danger tags once the servicing and maintenance is complete. Only one of the authorized workers is required to sign and record printed name and date in block I.

4. If subsequent removal and reinstallation of authorized worker lockout/tagout is authorized in block E and documented on the continuation sheet to support the work scope, only the final lockout/tagout removal is required to be recorded by signing and recording printed name and date in block I, on page 1 of the Authorized Worker Single Point Lockout/Tagout form (A-6003-013).

5. If an authorized worker's lock and Danger tag must be removed by a person other than the installing authorized worker, follow the requirements in accordance with Section 4.12.2, step 2.

Field Work Supervisor

6. Upon completion of work requiring an authorized worker lockout/ tagout with written authorization, ensure the on-duty shift manager is aware of the lockout/tagout that has been cleared and understands how plant configuration has been affected.

4.14 Authorized Worker Single Point Lockout/Tagout Without Written Authorization

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7)

Authorized worker single point lockout/tagout without written authorization shall meet the following criteria.

Table 2

Eight criteria that must be met to perform an authorized worker lockout/tagout without written authorization:	
1.	The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shutdown which could endanger workers.
2.	The machine or equipment has a single energy source that can be readily identified and isolated.
3.	The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
4.	The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
5.	A single lockout device will achieve a locked out condition.
6.	The lockout device is under the exclusive control of the authorized worker performing the servicing or maintenance. (Key to lockout device in the possession of the authorized worker.)
7.	The servicing or maintenance does not create hazards for other workers.
8.	During the application of this exception, should an accident occur or a deficiency be identified which involves the failure to control hazardous energy, the Controlling Organization shall suspend the use of Table 2. Such suspension will be lifted only after corrections agreed to by the CH2M HILL Lockout/Tagout Technical Authority are completed.

1. If equipment is on the exception list approved by the facility operations managers, the use of authorized worker locks and Danger tags may be authorized without written instructions by the lockout/tagout administrator.

2. If the equipment is in a non-tank farm building (for example, 2704-HV) managed by CH2M HILL and is on the exception list approved by the Director, Facilities and Property Management, the use of authorized worker locks and Danger tags may be authorized by the building administrator.

3. All single point isolation exception lists shall be reviewed and approved by a lockout/tagout administrator at least once every six months.

4. Prior to installation of an authorized worker lockout/tagout without written authorization, ensure the on-duty shift manager is aware of the lockout/tagout to be installed and understands how plant configuration will be affected by the lockout/tagout.

5. Field work supervisors shall conduct a pre-job brief and include the following:

    - Identify the component to be locked out
    - Identify the locked out position of the component
    - Identify the restoration position of the component
    - Identify the boundary at which an affected employee becomes an authorized worker
    - Identify the authorized workers
    - Discuss the safe condition checks, including who will be responsible for performing them
    - Discuss the safe-to-work checks
    - If applicable, document the required locked out and restoration positions of the component in the appropriate work document.

6. When the authorized worker single point lockout/tagout without written authorization safe condition check is being conducted by one craft, and the work is to be performed by another craft, both crafts shall be present at the time the lockout/tagout is being established.

7. Upon completion of work requiring an authorized worker lockout/tagout without written authorization, ensure the on-duty shift manager is aware of the lockout/tagout that has been cleared and understands how plant configuration has been affected.

8. Lockout/tagout administrator approval is required for either option if the equipment to be worked on is described in the Authorization Basis or is contained within the tank farm boundaries (for example, Interim Stabilization skids, rotary mode core sampling trucks, and ventilation system continuous air monitors).

   NOTE: Lockout/tagout administrator approval is not required to perform servicing or maintenance of portable tools, copy machines, vending machines, desktop computers, portable computers, printers, other office machines, etc.

9. For equipment supplied electrical power by a plug and cord, an acceptable safe- to-work check can consist of verification that:

   a. The plug is unplugged and a lockout device is installed on the plug (or on the receptacle where the receptacle is installed on the equipment; for example, a core sampling truck or portable exhauster), and

   b. The authorized worker's lock and Danger tag is installed in the lockout device.

4.15 Surveillance Program
(7.1.7)

Lockout/Tagout Administrator	1. In conjunction with the applicable facility manager, evaluate the continued need for the installed lockout/tagout as part of the surveillance. NOTE 1: A field walkdown is not required for lockouts/tagouts that pose an unacceptable radiological or hazardous chemical safety hazard. NOTE 2: A field walkdown is required during the quarterly outage for all single-shell tank farms lockouts/tagouts located inside the tank farms boundary where quarterly access control has been established for the affected tank farms. NOTE 3: For those tank farms or facilities not on a quarterly access control as described in NOTE 2, surveillances of installed lockouts/ tagouts should normally be performed monthly. An alternate surveillance periodicity may be adopted for lockout/tagouts that are projected to be active for one year or longer. These may be surveyed less often than each month, but shall be surveyed at least once every six months. Each facility will list in block 16 of the lockout/tagout authorization form any lockout/tagouts which are to be covered by an alternate surveillance schedule.
Lockout/Tagout Administrator or Controlling Organization	2. Perform a field walkdown of all installed controlling organization lockouts/tagouts at least as often as the periodicity indicated in block 16 on the lockout/tagout form.

Qualified Worker

3. Using the lockout/tagout authorization form in the walkdown, include the following verifications in the lockout/tagout surveillance:

   - If applicable, proper lockout/tagout authorization form on the lockbox
   - Proper placement of the locks and tags, including that the lockout will perform the intended function **independent** of other locks
   - Correct isolating component position
   - Special instructions, if applicable, entered on tag
   - The tags are completely and accurately filled out to include:
     - Correct lockout/tagout number
     - Correct logbook location
     - All signatures completed
     - All dates entered.
   - No missing, mutilated, or illegible tags in the field.

4. If there are no remaining data entry spaces on the lockout/tagout authorization form, complete blocks 1 and 2 on a CHG Lockout/Tagout Surveillance Continuation form (A-6003-115).

5. Document the performance of the surveillance on each lockout/tagout authorization form surveyed by initialing and dating block 16 on the lockout/tagout authorization form or on the CHG Lockout/Tagout Surveillance Continuation form (A-6003-115).

6. Document any deficiencies found and corrective action(s) taken in block 15 on the lockout/tagout authorization form or in the comments block on the CHG Lockout/Tagout Surveillance Continuation form (A-6003-115).

   a. Discuss with the lockout/tagout administrator to initiate any additional corrective actions that may be required.

4.16 Annual Assessment
(7.1.2)

The CH2M HILL Safety & Health department shall coordinate with Operations and conduct annual assessments of the CH2M HILL Lockout/Tagout Program to ensure employee understanding and compliance, as follows:

- The assessment shall be conducted by a controlling organization qualified worker not directly involved in the lockout/tagout instruction(s) (for example, tagout authorization form, authorized worker single point lockout/tagout forms) being reviewed.

- The inspection shall include field observations of 100% of the controlling organization active lockout/tagout authorization forms and a sampling of both the inactive lockout/ tagout authorization forms and the inactive authorized worker single point lockout/tagout forms.

Safety & Health Manager

1. Develop the lines of inquiry to be used in conducting the annual assessment, which will address:

   a. Are the steps in the lockout/tagout authorization forms and the authorized worker single point lockout/tagout forms being followed?

   b. Are the following correct for the lockouts/tagouts observed?

      - Isolation
      - Equipment shut-down
      - Lockout/tagout placement
      - Verifying equipment deactivation
      - Equipment start-up
      - Documentation (Danger-Do-Not-Operate tags, logbooks, etc.).

   c. Do the controlling organization qualified workers and the authorized workers involved know their responsibilities under the lockout/tagout authorization forms and the authorized worker single point lockout/tagout forms?

   d. Are the lockout/tagout authorization forms and the authorized worker single point lockout/tagout forms adequate to provide the necessary protection, and what changes, if any, are needed?

   NOTE: This review can be performed during the lockout authorization inspection or a group meeting with the controlling organization qualified workers and the authorized workers not involved with the lockout/tagout authorizations and the authorized worker single point lockout/tagout forms inspected.

2. Review with every authorized worker their responsibilities under the lockout/tagout program.

3. In conjunction with the Operations managers, designate authorized worker(s) to conduct the annual assessment.

Controlling Organization Qualified Worker

4. Using the lines of inquiry, conduct the annual assessment by performing field observations of lockout/tagout instructions, review of a sampling of completed authorized worker single point lockout/tagout forms and personnel interviews of all authorized workers.

Safety & Health Manager

5. Formally document and report results for this periodic inspection to the following:

   - Vice Presidents of Waste Feed Operations/Closure Operations
   - Vice President of Business Services
   - Vice President of ESH&Q
   - Vice President of Project Delivery.

5.0 DEFINITIONS

Terms and phrases unique to this procedure are listed in Attachment B.

6.0 RECORDS

(7.1.2, 7.1.7)

The following records are generated during the performance of this procedure. The c~~C~~ontrolling organization's lockout/tagout records are maintained by that ~~the controlling~~ organization and shall contain the following information:

Record Description	Vital Record Y/N	QA Record Y/N	QA Record Retention L/NP	NARA Retention Schedule	Other Retention Requirements	Records Custodian
CH2M HILL Lockout/Tagout Index (A-6003-110)	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
Active CHG Lockout/Tagout Authorization forms (A-6002-312 [page 1] and A-6002-312.1 [page 2])	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
Active CHG Lockout/Tagout Surveillance Continuation forms (A-6003-115)	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
Inactive lockout/tagout authorization forms	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
Active Authorized Worker Single Point Lockout/Tagout (A-6003-013)	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
Inactive Authorized Worker Single Point Lockout/Tagout (A-6003-013)	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations
List of currently authorized lockout/tagout administrators is maintained on the CH2M HILL Training web page. (7.1.9)	N	Y	L	ADM-17.32a	N/A	Base Ops Shift Operations

~~•CH2M HILL Lockout/Tagout Index (A-6003-110)~~
~~•Active CHG Lockout/Tagout Authorization forms (A-6002-312 (page 1) and A-6002-312.1 (page 2))~~

~~•Active CHG Lockout/Tagout Surveillance Continuation forms (A-6003-115)~~
~~•Inactive lockout/tagout authorization forms~~
~~•Authorized Worker Single Point Lockout/Tagout (A-6003-013)~~
~~•List of currently authorized lockout/tagout administrators is maintained on the CH2M HILL Training web page. (7.1.9)~~

The following information must be contained in the facilities' records:

- Unique sequential number
- Type of tag
- Work control document number
- Equipment or component affected
- Date installed
- Reason for installation
- Person authorizing installation
- Date removed
- Person authorizing removal
- Surveillances (may be a separate record).

Lockout/tagout authorization forms shall be retained for at least six months after the last tag is removed, after which they shall be forwarded to Records Management. The record custodian identified in the preceding table is responsible for record management in accordance with TFC-BSM-IRM_DC-C-02.

7.0 SOURCES

7.1 Requirements

1. 29 CFR 1910, Subpart S, "Electrical." (S/RID)
2. 29 CFR 1910.147, "Control of Hazardous Energy (Lockout/Tagout)." (S/RID)
3. 29 CFR 1910.333, "Selection and Use of Work Practices." (S/RID)
4. 29 CFR 1926, "Safety and Health Regulations for Construction." (S/RID)
5. 29 CFR 1926, Subpart K, "Electrical." (S/RID)
6. 29 CFR 1926.417, "Lockout and Tagging of Circuits." (S/RID)
7. DOE 5480.19, "Conduct of Operations Requirements for DOE Facilities." (Contract)
8. RPP-MP-003, "Integrated Environment, Safety, and Health Management System Description for the Tank Farm Contractor."
9. PER-2002-0712.
10. PER-2002-2840.
11. PER-2002-3777.
12. PER-2003-0484.

13. Letter No. CH2M-0303687 R1, CONTRACT NUMBER DE-AC27-99RL14047; CH2M HILL Hanford Group, Inc. Continuing Commitments Based Upon the "Reply To Preliminary Notice Of Violation And Proposed Imposition of Civil Penalty $82,500, Dated August 29, 2003."

7.2 References

1. DOE-STD-1030-96, "Guide to Good Practices for Lockouts and Tagouts."
2. TFC-BSM-TQ_MGT-C-04, "Training Records Administration."
3. TFC-ESHQ-FP-STD-08, "Fire Protection Discrepancies Management."
4. TFC-ESHQ-S-STD-03, "Electrical Safety."
5. TFC-OPS-MAINT-C-01, "Tank Farm Contractor Work Control."
6. TFC-OPS-OPER-C-34, "Independent Verification."
7. TFC-PLN-05, "Conduct of Operations Implementation Plan."
8. NTS-RP-CHG-TANKFARM-2002-0008, "Loss of AN-101 and AN-104 Primary Tank Leak Detection System."

Figure 1. Lockout/Tagout Process Flowchart.

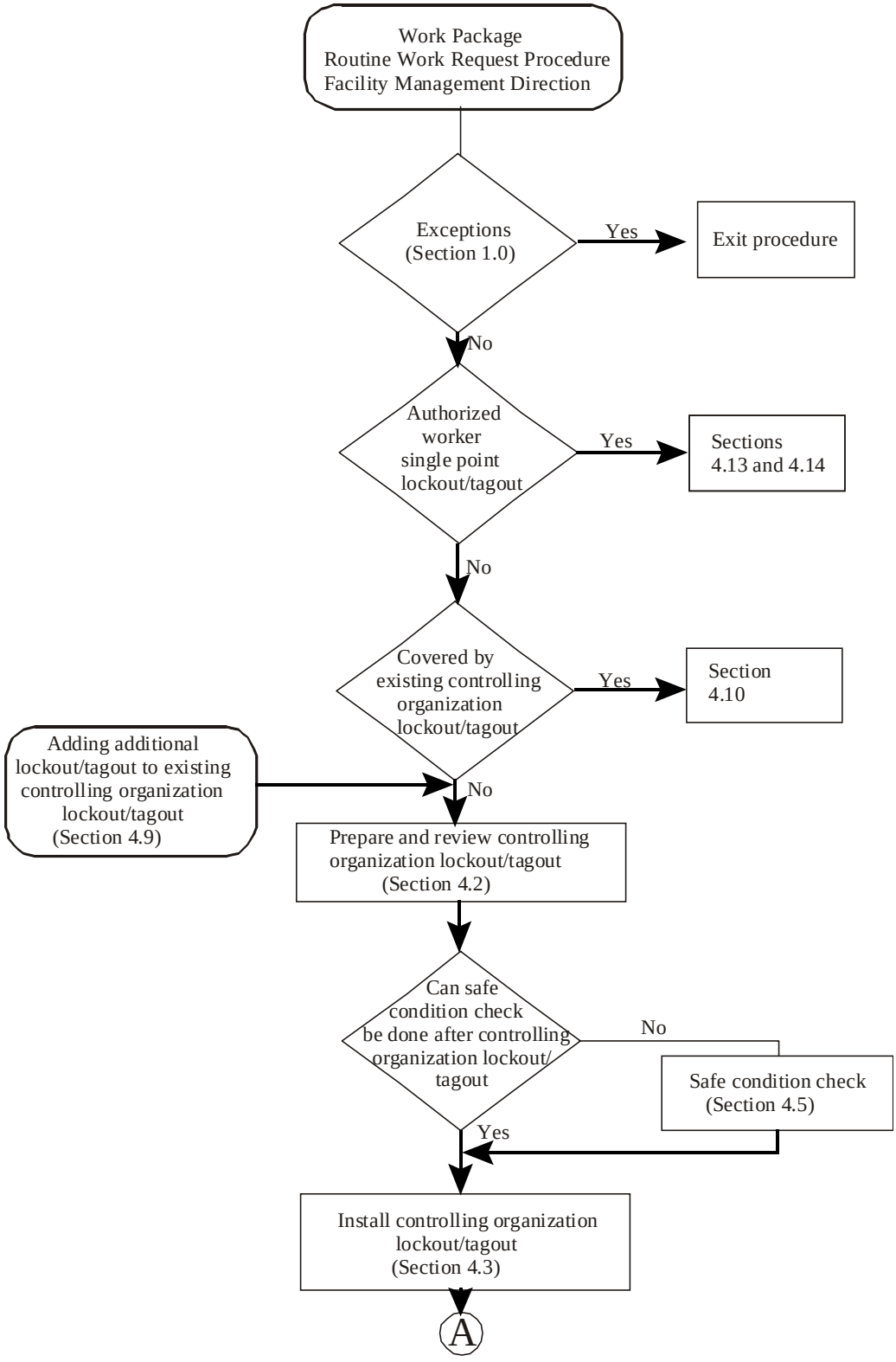
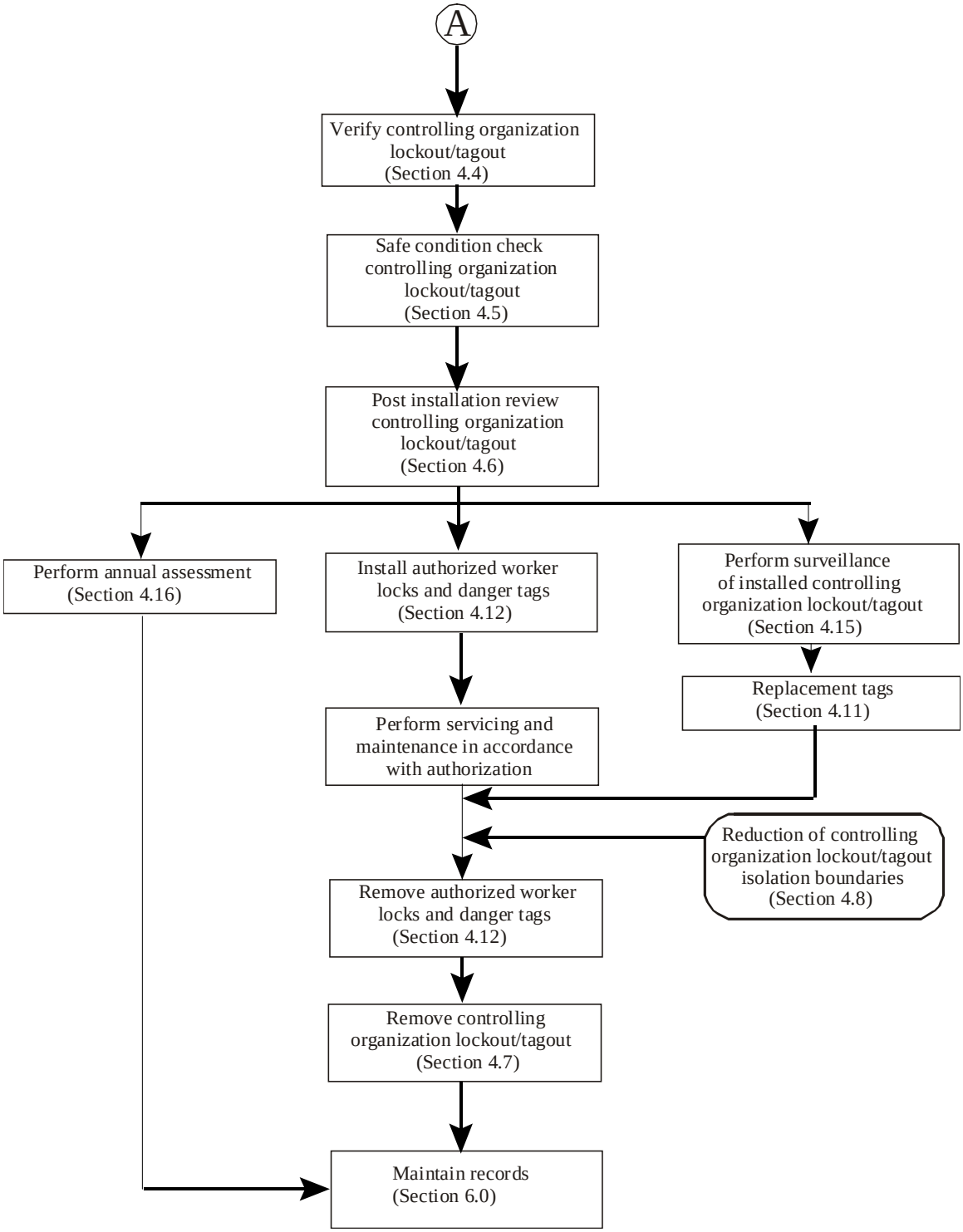


Figure 1. Lockout/Tagout Process Flowchart (cont).



ATTACHMENT A – TRAINING REQUIREMENTS

(7.1.2)

1. Affected Employees

All affected employees, as defined in Attachment B, shall receive lockout/tagout orientation in Hanford General Employee Training (HGET).

2. Authorized Worker Training

All authorized workers, as defined in Attachment B, shall be trained to the "affected employee" criteria and have Lock and Tag Authorized Worker Training.

3. Controlling Organization Qualified Worker Training

a. Qualified workers, as defined in Attachment B, shall have the same training as authorized workers and shall have completed the Tank Farm Controlling Organization Lockout/ Tagout Training. (7.1.11)

b. Complete a Tank Farm Operations Lock and Tag Controlling Organization Qualified Work Qualification card.

4. Lockout/Tagout Technical Reviewers

a. Technical reviewers shall be trained to the same criteria as a controlling organization qualified worker and possess, by virtue of other training and/or experience, additional facility-specific knowledge.

b. Complete a Tank Farm Operations Lock and Tag Technical Reviewers Qualification Card.

5. Lockout/Tagout Administrator Training

a. Shall be trained to the same criteria as a technical reviewer.

b. Shall complete a Tank Farm Operations Lock and Tag Administrators Qualification Card.

6. Retraining

Retraining shall be provided to employees annually, or whenever there is a significant change in work assignment, a new hazard is identified, or when there is a significant change in the CH2M HILL Lockout/Tagout Program, or the applicable implementation procedures, or at the discretion of tank farms management.

7. Training Records

Shall be maintained by the CH2M HILL training manager in accordance with TFC-BSM-TQ_MGT-C-04.

ATTACHMENT B – LOCKOUT/TAGOUT DEFINITIONS

(7.1.2)

These lockout/tagout terms and definitions shall be used by all CH2M HILL and subcontractor employees who are required to use this procedure for lockout/tagout.

Affected employee. A person not performing work under the protection of a lockout/tagout but who is in the general area (building or farm) and needs to be aware of the lockout/tagout program.

Authorized worker. A person who installs and removes an authorized worker lock and Danger tag on isolating components for machines, equipment, or systems to perform service or maintenance on that machine, equipment, or system. The authorized worker will install boundary isolation, if needed, to include:

- For electrical hazards, all personnel who will enter the limited approach boundary distance in accordance with TFC-ESHQ-S-STD-03
- For work in an excavation, see TFC-ESHQ-S_IS-C-03 for lockout/tagout requirements
- For work in a containment, all personnel who enter the containment
- For work in a catch (bullpen), all personnel who will break the plane of the catch
- For fluid systems, all personnel who enter the area where they could be sprayed
- For rotating equipment, all personnel who could inadvertently come in contact with the rotating components
- For confined space isolated by a lockout/tagout, all personnel who will enter the confined space.

Authorized worker isolation verification. A process performed by the authorized worker or primary authorized worker that includes both the field walkdown to confirm full verification of boundary isolation and the required safe-to-work check to ensure the absence of hazardous energy.

Controlling organization**.** The organization or individual responsible for the operation of a building, utility, facility, system, or equipment associated with the work to be performed. CH2M HILL controlling organizations are Closure Operations, Waste Feed Operations, Cold Test Facility, Facilities and Property Management, 242-A Evaporator, and 222-S Laboratory.

Controlling organization qualified worker**.** The person who installs and removes controlling organization lockout/tagout. Only nuclear chemical operators and stationary operating engineers who are controlling organization qualified workers shall install or verify or remove controlling organization lockout/tagouts for the tank farms.

Danger tag**.** The tag used by authorized workers to perform authorized worker lockout/tagout. This tag is for the personal protection of the authorized worker who is performing servicing or maintenance under this tag.

Danger-Do-Not-Operate tag. The tag used by controlling organizations to perform hazardous energy or hazardous material lockout/tagouts. This tag, and its use, is specific to the controlling organization. No servicing or maintenance may be performed under this tag unless a Danger tag has been installed by an authorized worker either as an overlock or on a lockbox.

ATTACHMENT B – LOCKOUT/TAGOUT DEFINITIONS (cont.)

Energy source. Any source of hazardous energy or materials. Sources include electrical, mechanical, hydraulic, pneumatic, chemical (toxic, hazardous, dangerous, radiological, carcinogenic), x-ray generating equipment, and thermal energies, as well as various forms of potential energy, such as that stored in springs, compressed gases, or in suspended objects (gravitational).

Equivalent protection indicator. A small phenolic or Bakelite™ label hung in a lockbox to indicate that equivalent protection to a lock is being used in place of a lock in conjunction with a tagout.

Isolating boundary. Those isolating components that are configured and checked to provide a safe condition where the servicing and maintenance is to be performed.

Isolating component. A component that controls the transmission or release of hazardous energy or hazardous materials (for example, restraint blocks, electrical circuit breakers, disconnect switches, slide gates, slip blinds, or line valves). For lockout purposes, isolating components designed to accept a lock and provide visible indication of the isolating component's position are desirable.

Lockout. Installation of a lock and Danger or Danger-Do Not Operate tag on an isolating component. The lockout/tagout ensures that the isolating component, and the equipment or systems they isolate or control, prevents inadvertent operation until the lockout/tagout is removed.

Lockout instruction. Written documentation detailing the work scope, hazards involved, the isolation methods and other information specific to the task. They may apply strictly to the controlling organization portion of this program, strictly to the authorized worker portion of this program or may be shared between the two. CH2M HILL lockout instructions are (1) the lockout/tagout authorization form (A-6002-312 (page 1) and A-6002-312.1 (page 2)) used by the controlling organizations and (2) the authorized worker single point lockout/tagout forms (A-6003-013).

Overlock. Installation of a lockout/tagout on top of another lockout/tagout. Examples are:

- The installation of a lock and Danger tag by an authorized worker on top of the controlling organization's lock and Danger-Do Not-Operate Tag
- The installation of a controlling organization lockout/tagout on top of an Electrical Utilities Operations clearance
- The installation of a CH2M HILL lockout/tagout on top of another facility's lockout/tagout; for example, Liquid Effluent Facility.

Primary authorized worker. A person designated with the responsibility to verify for a group of authorized workers that the boundary isolation steps taken have in fact isolated the machine or equipment effectively from the employees. The primary authorized worker may be used for initial authorized worker isolation verification or the daily safe-to-work checks for a group of employees working under the same lockout/tagout authorization.

ATTACHMENT B – LOCKOUT/TAGOUT DEFINITIONS (cont.)

Safe condition check. The comprehensive inspection or test of the isolating boundary performed for/by the controlling organization to ensure that the isolating boundary is controlled to prevent exposure from all sources of hazardous energy/material. All safe condition checks are performed by controlling organization qualified workers except for zero electrical energy checks that are performed by electricians using test equipment.

Safe-to-work check. The inspection or test the authorized worker performs to ensure that no hazardous energy exists where they will perform servicing or maintenance.

Servicing and maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining or servicing machines or equipment. These activities include lubrication, cleaning, unjamming of machines or equipment, or making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy. This applies to all personnel regardless of job title (for example, operator, researcher, maintenance crafts, engineer, or construction personnel).

Tag. A "Danger tag" or a "Danger-Do-Not-Operate tag" and the means of attachment to securely fasten them to an isolating component or locking device in accordance with this program. These tags are typically installed with a lock and indicate that the isolating component and the equipment being controlled cannot be operated until the tag is removed.

Tagout. The installation of a Danger or Danger-Do-Not-Operate tag without a lock on an isolating component to prevent the operation of any component or equipment when operation could cause personal injury or death. This is used only when the isolating component is physically incapable of being locked and equivalent protection to a lockout is provided.

Tank farms. Operational tank farms, cribs, ponds, ditches, diversion boxes, valve pits, lift and vent stations, and all interconnecting piping, electrical, and instrument and control systems under the operational responsibility of the Tank Farm Contractor.

Zero electrical energy check. A test performed by electricians to ensure the absence of electrical energy equal to or greater than 50 volts. The zero electrical energy check shall consist of two parts:

- The first part is always accomplished by ensuring the isolating component is in the position specified on the lockout/tagout authorization form
- The second part is accomplished by performing either a zero voltage check or a satisfactory continuity check using test equipment.

For equipment supplied electrical power by a plug and cord, an acceptable safe-to-work check can consist of verification that:

- The plug is unplugged and a lockout device is installed on the plug (or on the receptacle where the receptacle is installed on the equipment; for example, a core-sampling truck or portable exhauster) and the authorized worker's lock and Danger tag is installed in the lockout device.

ATTACHMENT C – TAGS

(7.1.2, 7.1.7)

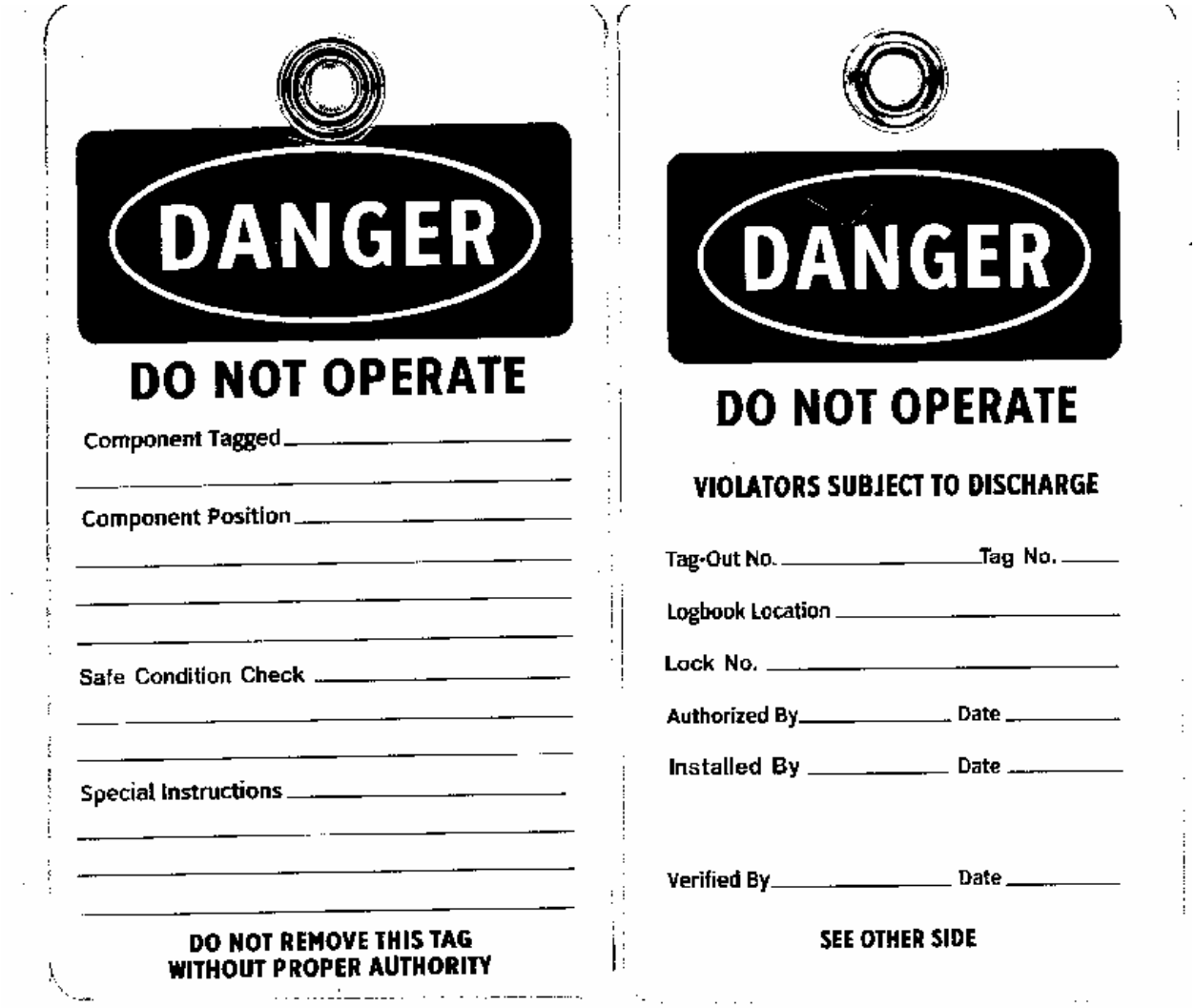
The authorized worker "Danger tag" signifies that an authorized worker is performing servicing or maintenance on a component, equipment, or system. This Danger tag is installed by the authorized worker identified on the Danger tag prior to starting work and is removed when the authorized worker leaves that work assignment. Danger tags are assigned to the authorized worker for use with locks for the implementation of this procedure and are reusable. These Danger tags are installed by authorized workers. The form number is 54-6001-955.

Danger Tags required for this program shall have the following information, as a minimum, in a permanent form:

1. The name of the authorized worker who installed the Danger tag.
2. Name of the authorized worker's supervisor.
3. Name of the authorized worker's organization.
4. Phone number of the authorized worker.

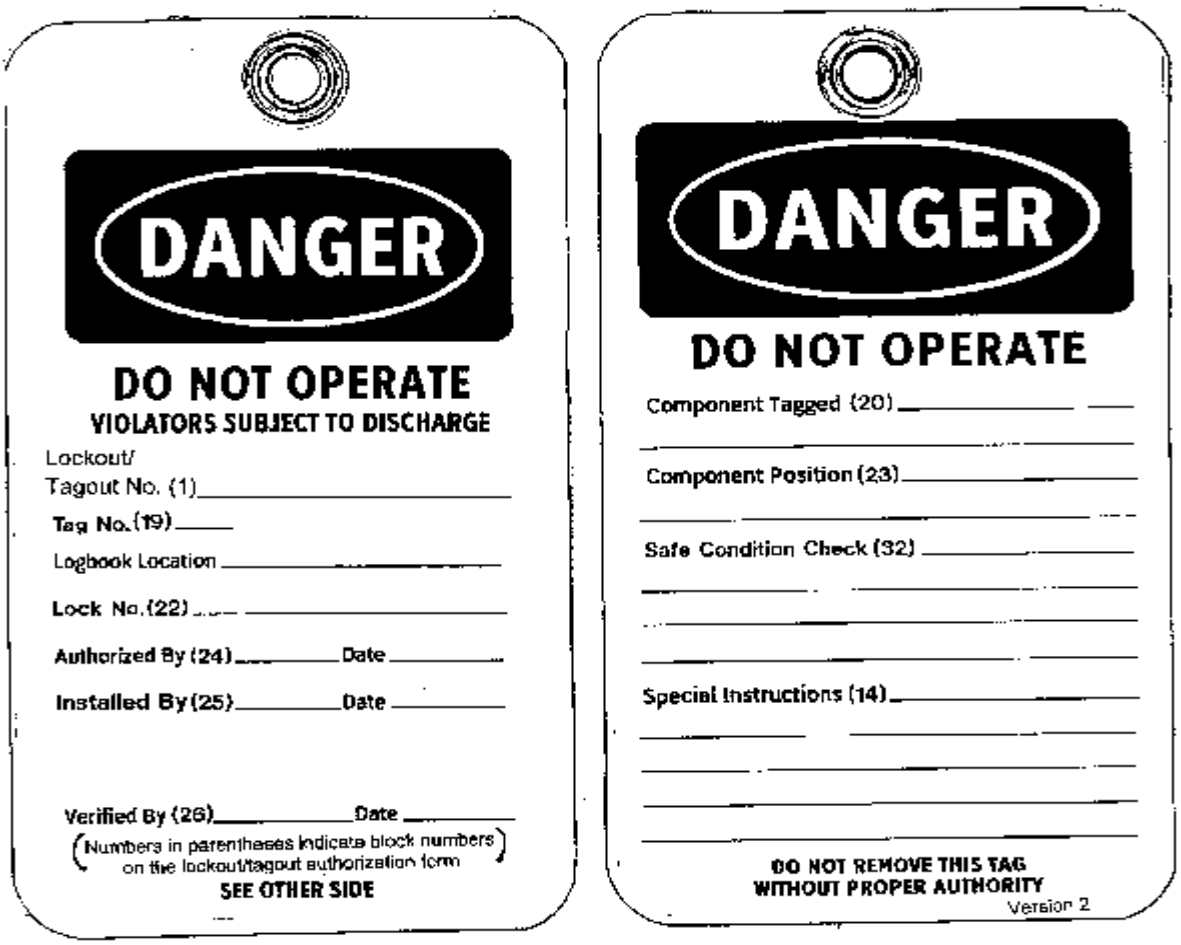
ATTACHMENT C – TAGS (cont.)

This is an earlier version of the Danger-Do-Not-Operate tag that is used by the controlling organization to set energy control boundaries. This version of the Danger-Do-Not-Operate tag may be used until supplies are exhausted.



ATTACHMENT C – TAGS (cont.)

This is version 2 of the Danger-Do-Not-Operate tag. The numbers in parentheses on the tag indicate the block numbers on the lockout/tagout authorization form that contain the same information.



ATTACHMENT D – HAZARDOUS ENERGY ISOLATION REQUIREMENTS

(7.1.2, 7.1.3, 7.1.6, 7.1.7)

This section establishes CH2M HILL minimum requirements for hazardous energy or material boundary isolation and safe condition checks.

1.0 ISOLATION BOUNDARIES AND SAFE CONDITIONS CHECKS

This section provides requirements to ensure safe conditions are established when specifying the lockout/tagout boundaries.

2.0 SAFE ISOLATION FOR ELECTRICAL ENERGY EQUAL TO OR GREATER THAN 50 VOLTS

1. This section applies to situations where the potential exists for personal contact with electrical parts operating at voltages equal to or greater than 50 volts to ground. Lockout/tagout is not required for electrical parts or components operating at less than 50 volts.

2. Whenever the potential for personnel contact with energized electrical parts equal to or greater than 50 volts exists, verify that all electrical energy has been de-energized as specified in Section 2.1 of this attachment. Work on energized systems in accordance with the CH2M HILL electrical safety guidelines.

3. Open electrical breakers, disconnects, or hot leads that provide direct power to the area to be worked and lock them out.

4. Isolate and lockout/tagout control power, as appropriate, for the work to be performed.

5. Requirements applicable to other hazards associated with electrically driven equipment (for example, rotating or moving equipment) are provided in Section 3.0 of this attachment.

6. Supplement a tag used without a lock by at least one additional safety measure that provides a level of protection equivalent to that obtained by the use of a lock (for example, the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting component).

2.1 Testing of Deenergized Electrical Circuits

During the lockout/tagout process, and before starting work, an electrician shall test the circuit elements and electrical parts of equipment to which employees will be exposed and verify that the circuit elements and equipment parts are deenergized, as follows.

1. Whenever possible, visually verify that all blades of the disconnecting devices are fully open or that draw-out type circuit breakers are withdrawn to the fully disconnected position.

2. If not possible to visually verify open condition, an ohm meter may be used to verify open condition following completion of voltage testing.

ATTACHMENT D – HAZARDOUS ENERGY ISOLATION REQUIREMENTS (cont.)

3. Use an adequately rated voltage detector to test each phase conductor or circuit part to verify they are deenergized.

4. Test each phase conductor or circuit part both phase-to-phase and phase-to-ground.

5. Before and after each test, determine that the voltage detector is operating satisfactorily.

6. Electrical safe condition check(s) are to include the physical work location unless exceptions are approved by the applicable Vice President. Such exceptions may include situations with numerous work locations as in electrical maintenance outages, or in the presence of greater hazard (e.g., unnecessary exposure; (entry into tank farm is not considered an unnecessary exposure).

7. If electrical safe condition checks are not performed at the physical work location(s), and the safe-to-work check(s) cannot be performed at the component or on the equipment where the exposure to electrical energy could occur (i.e., where conduit is to be cut), the job will be treated as work on energized equipment per an approved Energized Electrical Work Permit. (7.1.10)

2.2 Electrical Control Circuits

Locks and/or tags shall only be installed on circuit disconnecting components. Control devices, such as pushbuttons or selector switches, shall not be used as the primary isolating component.

3.0 ISOLATING, ROTATING, OR MOVING EQUIPMENT

1. Isolate, lockout/tagout power disconnect(s) for working on rotating equipment. As a minimum, a zero electrical energy check shall be performed.

2. Lockout/tagout shall only be installed on circuit disconnecting components. Control components, such as push-buttons or selector switches, shall not be used as the primary isolating component.

3. If isolation from an energy source does not eliminate the potential for hazardous movement of equipment, block or otherwise secure the equipment to prevent such movement. Lockout/tagout the blocking or securing devices in place.

4.0 ISOLATING ENGINE-DRIVEN EQUIPMENT (EXCEPT MOTOR VEHICLES)

To perform isolation of engine-driven equipment, except motor vehicles:

1. Disconnect and lockout/tagout batteries or other sources of power

2. In addition, remove or disconnect and lockout/tagout one or more essential operating parts (coil wire, rotor, etc.) if there is the possibility of inadvertent starting of the engine due to the servicing and maintenance.

ATTACHMENT D – HAZARDOUS ENERGY ISOLATION REQUIREMENTS (cont.)

5.0 ISOLATING LOW TEMPERATURE/PRESSURE FLUID SYSTEMS

For fluid (liquid or gas) systems with maximum operating temperature of less than 200°F (93.3°C) and maximum operating pressure of less than 500 psig (35.2 kg/cm^2) which presents a hazard to the worker, the following methods shall be used:

1. Use at least one shutoff valve to provide isolation from each energy source.

2. If possible, the equipment shall be maintained depressurized by a lockout/tagout on an open vent or drain in the isolated portion of the system (allowing for thermal expansion/contraction).

3. If a normal depressurization path cannot be provided within the work boundary, use other methods to ensure that the system or component is adequately depressurized and drained (such as loosening the fasteners on flanged connections or valve bonnets, removing instrument tubing, etc.).

6.0 ISOLATING HIGH TEMPERATURE/PRESSURE FLUID SYSTEMS

NOTE: Although steam-condensate systems usually operate at relatively low temperatures and pressures, backfeeds, multiple energy sources, trap failures, water hammer (steam systems operating at or near saturation temperature and pressure), etc., may create significant hazards to personnel. For this reason, evaluate each situation carefully.

When isolating systems or equipment with operating temperature exceeding 200°F (93.3°C) or operating pressure exceeding 500 psig (35.2 kg/sq cm), the following methods shall be used:

1. Use at least two shut-off valves in series to provide isolation from each energy course. The requirement for two-valve protection applies to all paths where the fluid could cross the work boundary.

2. Whenever possible, install a lockout/tagout on an open atmospheric drain or vent between the valves to depressurize the line and to accommodate thermal expansion or contraction.

ATTACHMENT D – HAZARDOUS ENERGY ISOLATION REQUIREMENTS (cont.)

3. If the required two-valve protection and vent path is not achievable, a specific written work plan must be prepared identifying the hazards and work methods to achieve equivalent protection to two-valve isolation. The plan shall be approved by safety, the operations manager or the building administrator, and the controlling organizations. It shall be communicated to the authorized workers prior to performing work. The work plan must satisfy these three requirements:

   a. Alternate isolation devices (such as blank flanges, blocks, or freeze seals) have been considered and determined to be unfeasible or impracticable.

      Approval of the single valve isolation is documented on the lockout/tagout authorization form.

      The integrity of the single isolation valve is verified by venting or draining the portion of the system to be worked on and observing for leakage for at least 15 minutes to verify positive valve closure and leak tightness before starting work.

4. Verifying depressurization by breaking flanged connections, loosening valve bonnets, removing instrument tubing, or other similar actions should be avoided unless no other means for verifying depressurization exists. Strict supervisory control and advance planning are required if these methods are used.

7.0 ISOLATING HAZARDOUS MATERIAL FLUID SYSTEMS

Systems containing hazardous materials should be isolated by two valves in series, and the isolated section should be depressurized.

1. If double-valve isolation is used to isolate pits from waste transfers, it has been determined that this satisfies the safe condition check requirement for the valves. This is not acceptable for confined space pit entries where work scope includes breaching waste transfer systems.

2. Verifying depressurization by breaking flanged connections, loosening valve bonnets, removing instrument tubing, or other similar actions should be avoided unless no other means for verifying depressurization exists. Strict supervisory control and advance planning are required if these methods are used.

8.0 VALVE ISOLATION PRACTICES

1. **Valves that fail in the desired position**

   Pneumatically or electrically operated valves that fail in the desired position shall not be considered adequate for isolation purposes unless the valves are placed in the desired position, the valve operating supplies are isolated, and a jacking device or gag is installed to keep the valve in the desired position.

ATTACHMENT D – HAZARDOUS ENERGY ISOLATION REQUIREMENTS (cont.)

2. **Valves that fail in an undesired position**

Pneumatically or electrically operated valves that fail in an undesired position shall not be considered adequate for isolation purposes unless the valves are placed in the desired position, the valve operating mechanisms are isolated and locked out, and a jacking device or gag is installed and locked out to keep the valve in the desired position.

3. **Valve operating power for motor operated valves**

To use a pneumatically or electrically operated valve as an energy control boundary, the valve is placed in the desired position and lockout/tagout the motive energy source for the valve after the valve is in the desired position.

4. **Lockout/tagout all valve operators**

Lockout/tagout all local and remote pneumatic and electric valve operators when the valve is used as a system isolation boundary point.

5. **Regulators/check valves**

Do not use regulators and check valves as isolation boundary valves unless the valve is mechanically restrained in the required position with a gagging device designed for that purpose and a lockout/tagout is applied to the gagging device.

6. **Relief valves**

Relief valves and pressure safety valves shall not be used for isolation purposes. Relief valves may be gagged open to provide a vent path.

7. **Valve actuator work**

Additional isolation shall be considered and specified, as necessary, to ensure protection when working on valve motor actuators with manual overrides, springs, or other operating mechanisms.

9.0 STORED ENERGY CONSIDERATIONS

After lockout/tagouts are applied to energy isolating components, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise made safe. Lockout/ tagout any restraint or disconnection point used to make the situation safe.

ATTACHMENT E – LOCKBOX OPTION

A lockbox may be used in situations where the methods to overlock are overly cumbersome. In this situation, the key(s) for the controlling organization lock(s) are secured in the lockbox by the authorized worker using his/her authorized worker lock and Danger tag.

Items placed in the lockbox are not limited to keys. Other items used to control the isolating component (such as hand wheels, fuses) or "Equivalent Protection indicators" may be placed in the lockbox.

The controlling organization defines how the lockbox will be used for each lockout and conveys that information to the authorized worker. All authorized workers apply their authorized worker lock and Danger tag to the lockbox.

The use of a lockbox does not eliminate the requirement for the primary authorized worker(s) or the authorized worker(s) to perform the safe-to-work check. Specifically identify the lockbox to the job being performed. Posting the lockout/tagout authorization form on the lockbox is one method of meeting this requirement.

Typical situations where lockboxes may be used.

1. Multiple isolation points - Apply controlling organization lockout/tagout to the isolation points and place the keys in the lockbox.

2. Energy isolation points - Where the isolation points may not support or accept multiple lockouts.

3. ALARA - If the isolation points are in an area of radiation, chemical, confined space or other hazards, a lockbox may be used to keep the authorized workers from being exposed to the hazard.

In situations where a tagout is used with equivalent protection to a lockout, enter in block 14 on the lockout/tagout authorization form and in the "Special Instructions" block on the Danger-Do-Not-Operate tags(s), "The controlling organization lock on the lockbox indicates that the equivalent protection is still in place."

If the scope of work requires a second lockbox, this may be used if approved by the facility operations manager.