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WP 04-AD3011

Revision 6

Equipment Lockout/Tagout

Management Control Procedure

EFFECTIVE DATE: 02/10/10

Dale Parrish

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INTRODUCTION

This procedure provides the administrative configuration controls of Operations tags and locks required in supporting plant work. To ensure personnel safety and comply with Safety Lockout/Tagout requirements of DOE Order 5480.19 and *Title 29 Code of Federal Regulations* (CFR) §1910.147, this procedure must be used in conjunction with procedure WP 10-AD3005 when conducting maintenance activities.

This procedure provides requirements for placing, removing, and auditing Operations tags and locks (danger tags) for configuration control. This procedure provides requirements for use of caution tags.

The following records are generated by performance of this procedure. An example of each form is provided in the indicated attachment. The forms may be obtained from Operations.

- Completed Lockout/Tagout Control Sheet (see example Attachment 2)
- Completed Lockout/Tagout Control Continuation Sheet (see example Attachment 3)
- Completed Tagout Index (see example Attachment 5)
- Completed Tag Audit/Verification Control Continuation Sheet (see example Attachment 7)

REFERENCES

BASELINE DOCUMENTS

- 29 CFR §1910.147, "The Control of Hazardous Energy (Lockout/Tagout)"
- 29 CFR §1910.333, "Selection and Use of Work Practices"
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE-STD-1030-96, *DOE Standard Guide to Good Practices for Lockouts and Tagouts*

REFERENCED DOCUMENTS

- WP 10-AD3005, Control and Use of Maintenance Locks

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PRECAUTIONS AND LIMITATIONS

- Minimum positional requirement for the person responsible for performing the action in each step in this procedure is indicated by the following abbreviations:

  AS - Authorizing Supervisor with required training

  COM - Cognizant Operations Manager

  OT - Operations Technician or AS with required training

  MT - Maintenance Technician with required training

  ZMM - Zone Maintenance Manager

- Use of locks or chains on small instrument lines or valves may contribute adversely to seismic loading and may not have been considered during safety analysis or system design. Care must be taken during Lockout/Tagout (LOTO) to avoid damage to equipment.

- Ensure LOTO Control Sheet matches the current revision.

PERFORMANCE

1.0 LOCKOUT/TAGOUT DETERMINATION

NOTE

A Personal Locking Device (PLD) may be used for work on electrical equipment if the equipment is physically separated from other energized sources of power through permanent shielding or enclosure. If multiple power sources are found within the equipment enclosure where the work will be performed, the PLD will not be used.

1.1 Use the eight criteria listed below to determine if the work will require a standard lockout/tagout (COM/LOTO) or will be released as a PLD/LOTO. (All eight criteria must be met prior to implementing a PLD/LOTO.)

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

- The machine or equipment has a single energy source which can be readily identified and isolated.

- The isolation and lockout of the energy source will completely de-energize and deactivate the machine or equipment.

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- The machine or equipment will be isolated from that energy source and locked out during servicing or maintenance.
- A single LOTO device will achieve a locked-out/tagged condition.
- The LOTO device will be used under the exclusive control of the LOTO holder(s) performing the servicing or maintenance.
- The servicing or maintenance does not create hazards for other employees.
- There have been no known accidents involving the unexpected activation or re-energization of the machine or equipment during previous servicing or maintenance.

NOTE

If all eight criteria are met, the work may proceed as a PLD/LOTO at the discretion of the AS.

1.2 If all eight criteria **ARE** met, **AND** a determination is made to proceed as a PLD/LOTO, **STOP THIS PROCEDURE AND** release work as a PLD/LOTO.

1.3 If all criteria **ARE NOT** met, proceed to Section 2.0 to perform a COM/LOTO.

NOTE

Personnel must read and understand Attachments 1 and 8 prior to performing any steps in Section 2.0.

2.0 DANGER LOCKOUT/TAGOUT PREPARATION

2.1 OT, determine job scope **AND** tagout requirements to ensure personnel and equipment safety for work to be performed.

2.2 OT, complete the following blocks on the Lockout/Tagout Control Sheet:

2.2.1 Enter Facility (equipment location) and Component (equipment identification) in block 1.

2.2.2 Enter personnel and/or equipment hazards involved in work to be performed in block 3, "Personnel/Equipment Hazards Involved." OT may include a short description of work to be performed.

2.2.3 Enter "N/A" **OR** list amplifying information as required (e.g., special configuration, retest requirements) in block 4, "Special Instructions."

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2.2.4 Enter printed name of person preparing the Lockout/Tagout Control Sheet in block 5, "Prepared By."

2.2.5 Enter initiating document Action Request (AR)/work order number **OR** state reason for tagout in block 7, "Initiating Document/Reason for Tagout."

2.2.6 Enter next consecutive number for each tag required in block 13, "Tag #."

2.2.7 List tag numbers from block 13 that are required to place and maintain system or component in a safe condition **OR** are required for personnel protection for work to be performed in block 9, "Applicable Tags." (All tag numbers required will be written in the block [e.g., if a tagout requires tags 1, 2 and 3, "1, 2, 3" will be entered in block 9]).

2.2.8 Enter tagged position **OR** condition of breaker, valve, switch, fuse, etc., in block 15, "Tagged Position." For grounding clusters or blank flanges, enter "in place."

2.2.9 Enter description of device to which tag will be attached in block 16, "Tag Location."

Physical facility location of tag in addition to device description may be added, but is not required.

2.2.10 **IF** all lines in blocks 8, "Date/Time," or 13 are filled in **AND** more jobs or tags need to be added to tagout, **THEN** perform the following using the Lockout/Tagout Control Continuation Sheet:

[A] Enter "X" in "Continued" box, block 23.

[B] Using information entered in blocks 1 and 2, "Log Serial Number," of Lockout/Tagout Control Sheet, copy information into blocks 1 and 2 of Lockout/Tagout Control Continuation Sheet.

[C] Staple Lockout/Tagout Control Continuation Sheet to Lockout/Tagout Control Sheet.

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NOTE

Information should be word-for-word as recorded in corresponding blocks on Lockout/Tagout Control Sheet, whenever possible.

2.3 OT, complete the following information on each danger tag (see Attachment 4 for an example):

- Facility
- Component
- Tag Location
- Tagged Position

NOTE

Tagout serial number will be added to tag when issued by AS for placement in facility.

- Tag number (to right side of "Serial No." blank).

3.0 DANGER LOCKOUT/TAGOUT AUTHORIZATION

NOTE

Serial numbers are to be entered using the X-Y-Z-A format with X, Y, Z, and A representing the following:

X - Last two digits corresponding to calendar year in which tagout was originally issued (e.g., 06 corresponds to calendar year 2006).

Y - Abbreviations of responsible Operations group (i.e., FO - Facility Operations [Surface], UF - Facility Operations [Underground], CH - Contact-Handled Waste Handling Operations, RH - Remote-Handled Waste Handling Operations, HO - Hoisting Operations).

Z - Next consecutive number from index. This number will reset to 001 on January 1 of the succeeding calendar year.

A - Tag number from block 13 of Lockout/Tagout Control Sheet.

3.1 AS/OT, enter next consecutive log serial number from Tagout Index in block 2 on Lockout/Tagout Control Sheet.

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3.2 AS/OT, complete the following information on the corresponding line of Tagout Index:

NOTE
Information recorded will be word-for-word as recorded in corresponding blocks of Lockout/Tagout Control Sheet, whenever possible.

- Log serial number
- Date issued
- Description (facility, component)
- Initiating document

3.3 AS/OT, enter serial number from Lockout/Tagout Control Sheet onto "Serial No." line on each applicable tag.

3.4 AS, verify Lockout/Tagout Control Sheet **AND** tags to ensure the following:

- Placement of tags in indicated position will configure system, equipment, or component in safe condition for required task.
- All required blocks are filled out and are legible.

3.5 AS, **IF** tagging fire protection or fire detection equipment, **THEN** obtain Fire Protection Representative's (FPR) concurrence in block 6, enter Impairment Number **OR** "Per Telecon" in accordance with Step 10.N in Attachment 1, **OR** enter "N/A" if not fire protection/detection equipment.

3.6 AS, authorize tagout by performing the following:

- Sign block 10, "Authorized By," to authorize tagout.
- Enter date and time that tagout was authorized in block 8.
- Sign tags on "Authorized Signature" line.

4.0 DANGER LOCKOUT/TAGOUT PLACEMENT AND FILING

4.1 AS, issue authorized Lockout/Tagout Control Sheet **AND** tags to OT for emplacement.

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4.2 AS, direct OT to configure system or component in preparation for tagout in accordance with **ONE** of the following:

- Approved operating procedures
- Specific sequence in which components are to be positioned and tags hung to support scope of the work to be performed **AND** to provide continuity of operation of non-tagged equipment

WARNING

In Step 4.3, **IF** any doubt exists concerning the safety of the tagout or the effects of repositioning any equipment controls, user must **STOP** and immediately consult with AS.

NOTE

In Step 4.3, application of danger tag does **NOT** imply that grounding cluster has been correctly installed. Placement of danger tag on grounding cluster is only an assurance that grounding cluster has been installed by MT and will remain in place until removal has been properly authorized.

4.3 AS, **IF** placing danger tags on grounding clusters **AND** MT will affix tag, **THEN** perform the following:

4.3.1 AS, assign two OTs for attaching tag to grounding cluster.

4.3.2 First OT, enter date and time on "Date/Time" line of tag **AND** sign tag in "Signature of Person Attaching Tag" blank.

4.3.3 Second OT, sign tag in "Signature of Person Checking Tag" blank.

4.3.4 First OT, perform the following:

[A] Give signed tag to MT.

[B] Instruct MT to attach tag to installed grounding cluster using an all-environment tolerant nylon cable tie as indicated in block 16 of Lockout/Tagout Control Sheet.

[C] Observe attachment of tag.

4.3.5 First OT, initial "Posted By," block 17, of Lockout/Tagout Control Sheet.

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4.3.6 First OT, return Lockout/Tagout Control Sheet to AS.

4.3.7 AS, issue Lockout/Tagout Control Sheet to Second OT to perform an independent verification.

4.3.8 Second OT, check attachment of tag to grounding cluster as indicated in block 16 of Lockout/Tagout Control Sheet.

4.3.9 Second OT, initial "Checked By," block 18, of Lockout/Tagout Control Sheet.

4.3.10 Second OT, return Lockout/Tagout Control Sheet to AS.

4.3.11 AS, **GO TO** Step 4.16.

4.4 OT, obtain locks and lockout devices necessary to complete requirements of the lockout/tagout.

4.5 OT, configure system as directed in Step 4.2.

4.6 OT, place required locks, tags, and lockout devices on equipment to be tagged out as follows:

4.6.1 Position valve, breaker, switch, etc., in accordance with block 15 of Lockout/Tagout Control Sheet.

NOTE

The cotton cord that comes with danger tags **DOES NOT** meet the 50-pound pull strength requirement of 29 CFR §1910.147(C)(2). Only the methods of attachment listed in Step 4.6.2 will be considered acceptable. The use of high-strength tape (e.g., duct tape), in addition to other approved locking devices, is encouraged in areas where wind and weather can easily destroy or otherwise remove a posted tag.

4.6.2 Attach tag to device using **ONE** of the following methods:

- Hang lock and tag by placing the shackle of the lock through the tag eyelet **OR** by attaching the tag to the lock using an all-environment-tolerant nylon cable tie.

- **IF** lock cannot be used for tagging of switches or valves,
  THEN attach tag to device using an all-environment-tolerant nylon cable tie.

- **IF** lock cannot be used for tagging of removed fuses, **THEN** tape fuse to back of tag **AND** attach tag to panel cover using high-strength tape (e.g., duct tape).

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4.6.3 OT, perform the following:

- Enter date and time on "Date/Time" block of tag.
- Enter lock number on "Lock Number" block of tag **OR** enter "N/A" if no lock is used.
- Sign tag in "Signature of Person Attaching Tag" blank.
- Enter lock number of each applicable tag in block 14, "Lock Number," of Lockout/Tagout Control Sheet.

4.6.4 Initial block 17 as each tag is hung.

4.7 OT, verify tagout is correct by performing the following, as applicable:

- Attempt to operate equipment controls.
- Observe control panel indications.
- Observe indications to confirm depressurization of mechanical equipment and systems.

4.8 OT, return operating controls to NEUTRAL **OR** OFF position after verification test, as applicable.

4.9 OT, return Lockout/Tagout Control Sheet to AS.

4.10 AS, issue Lockout/Tagout Control Sheet to Second OT to perform an independent verification.

4.11 Second OT, check equipment or system is configured in accordance with Lockout/Tagout Control Sheet as follows:

4.11.1 Verify each tag is correctly hung (i.e., position, tag location) in accordance with Lockout/Tagout Control Sheet.

4.11.2 Sign "Signature of Person Checking Tag" blank on tag.

4.11.3 Initial block 18 on Lockout/Tagout Control Sheet.

4.12 Second OT, verify tagout is correct by performing the following, as applicable:

- Attempt to operate equipment controls.
- Observe control panel indications.

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- Observe indications to confirm depressurization of mechanical equipment and systems.

4.13 Second OT, return operating controls to NEUTRAL **OR** OFF position after verification test, as applicable.

4.14 Second OT, verify proper operation of related equipment that was **NOT** tagged as directed by AS.

4.15 Second OT, return Lockout/Tagout Control Sheet to AS for review.

4.16 AS, review Lockout/Tagout Control Sheet for completeness and correctness.

4.17 AS, file Lockout/Tagout Control Sheet in "Active" section of Tagout Log.

5.0 MAINTENANCE ACKNOWLEDGMENT OF LOCKOUT/TAGOUT

5.1 MT, review approved Lockout/Tagout Control Sheet **AND** note location of **ALL** tags pertaining to AR/work order to be accomplished.

5.2 MT, initial block 11 on Lockout/Tagout Control Sheet to acknowledge location of Operations locks and tags.

NOTE

Only one assigned MT per AR is required to initial Lockout/Tagout Control Sheet. By placement of initials, MT acknowledges location of all Operations locks and tags relating to work item to be accomplished **AND** agrees to affix maintenance locks and/or tags at these locations.

6.0 ADDING ADDITIONAL WORK ITEMS TO LOCKOUT/TAGOUT

6.1 OT, evaluate if new work items can be performed using existing tags.

6.2 OT, update block 3 of Lockout/Tagout Control Sheet as necessary to indicate any additional hazards to be mitigated by tagout.

6.3 OT, complete the following blocks on Lockout/Tagout Control Sheet:

- Enter initiating document AR/work order number **OR** state reason for tagout in block 7.

- List tag numbers from block 13 that are required to place and maintain system or component in a safe condition **OR** are required for personnel protection for work to be performed in block 9.

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- All tag numbers required will be written in block (e.g., if a tagout requires tags 1, 2 and 3, "1, 2, 3" will be entered in block 9).

6.4 OT, **IF** additional tags are required to accomplish isolation for new work items,
THEN complete the following blocks on Lockout/Tagout Control Sheet:

6.4.1 Enter next consecutive number for each additional tag required in block 13.

6.4.2 Enter tagged position **OR** condition of breaker, valve, switch, fuse, etc., in block 15. (For grounding clusters or blank flanges, enter "In place.")

6.4.3 Enter description of device to which tag will be attached in block 16. (Physical facility location of tag in addition to device description may be added, but is not required.)

6.4.4 In addition to tag numbers from Step 6.3, list new tag numbers for work to be performed in block 9.

NOTE

Information should be word-for-word as recorded in corresponding blocks on Lockout/Tagout Control Sheet, whenever possible.

6.5 OT, complete the following information on each danger tag (Attachment 4):

- Facility
- Component
- Tag Location
- Tagged Position
- Tag number

6.6 AS, verify Lockout/Tagout Control Sheet **AND** tags to ensure the following:

- Placement of tags in indicated position will configure system, equipment, or component in a safe condition for required task.
- All required blocks are filled out and are legible.

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6.7 AS, authorize lockout/tagout by performing the following:

- Sign block 10 to authorize lockout/tagout.
- Enter date and time that tagout was authorized in block 8.
- Sign tags on "Authorized Signature" line.

6.8 AS, **GO TO** Section 4.0, Danger Tagout Placement and Filing, and perform the LOTO.

7.0 DANGER LOCKOUT/TAGOUT CLEARANCE

NOTE

If tags are not cleared promptly upon completion of Step 7.1, MT who performed work will be informed prior to clearing tags and restoring energy to system/equipment.

Personnel responsible for work activity will sign block 12, "Clearance Requested," blank when work is complete and/or system or component is ready to test, retest, or be returned to service.

7.1 MT, sign block 12 of Lockout/Tagout Control Sheet.

7.2 AS, check tags signed for clearance requested in Step 7.1 are **NOT** required for other work items.

7.3 AS, enter desired clearance position of breaker, switch, valve, etc., in block 19, "Clearance Position," of Lockout/Tagout Control Sheet for applicable tag.

7.4 AS, sign block 20, "Authorized Clearance," of Lockout/Tagout Control Sheet for each applicable tag.

7.5 AS, direct an OT to reconfigure system or component in accordance with **ONE** of the following:

- Approved operating procedures
- Specific sequence in which tags are to be cleared and components are to be positioned to support any required testing and provide continuity of operation of non-tagged equipment

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7.6 OT, verify the following:

- All nonessential items (i.e., safety devices, blank flanges) have been removed from equipment.
- System, equipment, or component is operationally intact.
- All personnel are safely positioned away from system, equipment, or component.

7.7 OT, remove locks and tags authorized for removal by AS.

7.8 MT, **IF** removing tag from grounding cluster,
THEN remove tag in presence of OT **AND** hand tag to OT once it has been removed.

7.9 OT, position breaker, switch, valve, etc., as directed in Step 7.5.

7.10 OT, enter initials and date in block 21, "Cleared by Date/Initials," of Lockout/Tagout Control Sheet as each tag is removed.

7.11 OT, check for expected system response, as required.

7.12 OT, return Lockout/Tagout Control Sheet, cleared tags, and locks to AS.

7.13 AS, verify the following items authorized for clearance have been removed:

- All tags
- Operations locks
- Safety devices

7.14 AS, destroy cleared tags.

7.15 AS, issue Lockout/Tagout Control Sheet to Second OT to perform independent verification.

7.16 Second OT, verify equipment or system is configured in accordance with Lockout/Tagout Control Sheet as follows:

7.16.1 Verify configuration is restored in accordance with Lockout/Tagout Control Sheet.

7.16.2 Initial block 22, "Verified By," on Lockout/Tagout Control Sheet.

7.17 Second OT, return Lockout/Tagout Control Sheet to AS.

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7.18 AS, file Lockout/Tagout Control Sheet in accordance with Section 8.0, Filing of Cleared Tagouts.

8.0 FILING OF CLEARED TAGOUTS

8.1 AS, **IF** Lockout/Tagout Control Sheet has remaining active tags recorded on it,
THEN return Lockout/Tagout Control Sheet to Active section of Tagout Log.

8.2 AS, **IF** all tags on Lockout/Tagout Control Sheet have been cleared, **THEN** perform the following:

8.2.1 Review entire Lockout/Tagout Control Sheet for completeness and correctness.

8.2.2 Print and sign name, date, and enter time in "All Tags Cleared and Removed" blank of Lockout/Tagout Control Sheet.

8.2.3 Enter date in "Date Cleared" blank of Tagout Index.

8.2.4 File Lockout/Tagout Control Sheet in "Completed" section of Tagout Log.

9.0 CAUTION TAG PREPARATION

NOTE

Use of caution tags is restricted to those situations in which a system or component is functional, but when some precaution or item(s) of information is necessary prior to operation. Caution tags are used to provide temporary special operating instructions for use of an item of equipment, system, or component to preclude damage to the equipment or loss of data. They are **NOT** intended to be used in lieu of approved operating procedures and will **NOT** be used to protect personnel from harm.

9.1 AS/OT, enter Facility (equipment location) and Component (equipment identification) in block 1 on Lockout/Tagout Control Sheet.

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NOTE

Serial numbers are be entered using the X-Y-Z-A format with X, Y, Z, and A representing the following:

X - Last two digits corresponding to calendar year in which tagout was originally issued (e.g., 96 corresponds to calendar year 1996).

Y - Abbreviations of responsible Operations group (i.e., FO - Facility Operations (Surface), UF - Facility Operations (Underground), CH - Contact Handled Waste Handling Operations, RH - Remote-Handled Waste Handling Operations, HO - Hoisting Operations)

Z - Next consecutive number from index. This number will reset to 001 on January 1 of the succeeding calendar year.

A - Tag number from block 13 of Lockout/Tagout Control Sheet.

9.2 AS/OT, complete the following information on corresponding line of Tagout Index:

NOTE

Information recorded will be word-for-word as recorded in corresponding blocks of Lockout/Tagout Control Sheet, whenever possible.

- Log serial number
- Date issued
- Description (facility, component)
- Initiating document

9.3 AS/OT, complete the following blocks on Lockout/Tagout Control Sheet:

- Enter "N/A" in block 3.

NOTE

OT and AS will verify that special instructions for caution tags do **NOT** deviate from established facility procedures or Technical Safety Requirements (TSRs).

- Enter special operating instructions for component or system in block 4.
- Enter printed name of person preparing tagout in block 5.

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- Enter initiating document AR/work order **OR** state reason for caution tag in block 7.

- Enter next consecutive number for each tag required in block 13.

- List tag numbers from block 13 required for this caution tag in block 9 in accordance with the following example:

  All tag numbers required will be written in block (e.g., if a tagout requires tags 1, 2 and 3, "1, 2, 3" will be entered in block 9).

- Enter "N/A" in block 11, "Craft Initials."

- Complete block 15 on Lockout/Tagout Control Sheet by performing **ONE** of the following:

  - Enter desired position, if applicable.

  - Enter "N/A," if there are no positional requirements.

- Enter description of device to which tag will be attached in block 16.

  Physical facility location of tag in addition to device description may be added, but is not required.

- Enter "N/A" in block 14.

9.4 AS/OT, complete the following information on each caution tag, Attachment 6:

NOTE

Information should be word-for-word as recorded in corresponding blocks on Lockout/Tagout Control Sheet, whenever possible.

- Tag Number in X-Y-Z-A format, where "A" represents tag number from Lockout/Tagout Control Sheet

- Component or System

- Special Instructions

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10.0 CAUTION TAG AUTHORIZATION

10.1 AS, verify Lockout/Tagout Control Sheet **AND** tags meet the following:

- Caution tagout is absolutely necessary to prevent damage to equipment or preserve data **AND** tagout does not replace a more appropriate administrative action (e.g., danger lockout/tagout).
- Special instructions on caution tag do not deviate from approved operating procedures or TSRs.
- Required blocks are properly filled out and are legible.

10.2 AS, enter next consecutive log serial number from Tagout Index in block 2.

10.3 AS, enter "N/A" **OR** if tagging fire protection or fire detection equipment, obtain FPR's concurrence in block 6.

10.4 AS, authorize caution tagout by performing the following:

- Sign to authorize tagout in block 10.
- Enter date and time that tagout was authorized in block 8.
- Sign tags on "Authorized By" line.

11.0 CAUTION TAG PLACEMENT AND FILING

11.1 AS, direct an OT to configure system or component in preparation for caution tagout in accordance with Special Instructions on caution tag.

WARNING

In Step 11.2, **IF** any doubt exists concerning safety of tagout or effects of repositioning any equipment controls, the user must **STOP** and immediately consult with AS.

11.2 OT, configure system or component in accordance with approved operating procedures **OR** instructions from AS.

11.3 OT, place required tags on affected equipment/system as follows:

11.3.1 Position valve, breaker, switch, etc., in accordance with Lockout/Tagout Control Sheet, block 15.

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NOTE

The cotton cord that comes with caution tags **DOES NOT** meet the 50-pound pull strength requirement of 29 CFR §1910.147(C)(2). Only the methods of attachment listed in Step 11.3.2 will be considered acceptable. Use of high-strength tape (e.g., duct tape) in addition to other approved locking devices is encouraged in areas where wind and weather can easily destroy or otherwise remove a posted tag.

11.3.2 Attach tag to device using all-environment-tolerant nylon cable tie **OR** high-strength tape (e.g., duct tape).

11.3.3 Enter date on "Date" block of tag.

11.3.4 Sign tag in "Posted By" blank.

| 11.3.5 Initial block 17, "Posted By," of Lockout/Tagout Control Sheet as each tag is hung.

11.4 OT, return Lockout/Tagout Control Sheet to AS.

11.5 AS, issue Lockout/Tagout Control Sheet to Second OT to perform an independent verification.

11.6 Second OT, check equipment or system is configured in accordance with Lockout/Tagout Control Sheet as follows:

11.6.1 Check each tag is correctly (i.e., position, tag location) hung in accordance with Lockout/Tagout Control Sheet.

11.6.2 Sign "Checked By" blank on tag.

11.6.3 Initial block 18 on Lockout/Tagout Control Sheet.

11.7 Second OT, return Lockout/Tagout Control Sheet to AS for review.

11.8 AS, review Lockout/Tagout Control Sheet for completeness and correctness.

11.9 AS, file Lockout/Tagout Control Sheet in "Active" section of Tagout Log.

12.0 CAUTION TAG CLEARANCE

12.1 AS, sign block 12 when caution tag is no longer needed.

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12.2 AS, complete block 19 of Lockout/Tagout Control Sheet by performing **ONE** of the following:

- Enter desired clearance position of breaker, switch, valve, etc., in "Cleared Position" block for each applicable tag.
- **IF** there is an "N/A" in corresponding block 15 of Lockout/Tagout Control Sheet, enter "N/A."

12.3 AS, sign block 20 for each applicable tag.

12.4 AS, issue Lockout/Tagout Control Sheet to OT with instructions to clear appropriate tags.

12.5 AS, direct OT to reconfigure system or component in accordance with **ONE** of the following:

- Approved operating procedures.
- Specific sequence in which tags are to be cleared and components are to be positioned to support any required testing and provide continuity of operation of non-tagged equipment.

12.6 OT, remove tags authorized for removal by AS.

12.7 OT, position breaker, switch, valve, etc., as directed in Step 12.5.

12.8 OT, enter initials and date in block 21 of Lockout/Tagout Control Sheet as each tag is removed.

12.9 OT, check for expected system response as required.

12.10 OT, return Lockout/Tagout Control Sheet and cleared tags to AS.

12.11 AS, verify all tags authorized for clearance have been removed.

12.12 AS, destroy cleared tags.

12.13 AS, issue Lockout/Tagout Control Sheet to Second OT to perform an independent verification.

12.14 Second OT, verify equipment or system is configured in accordance with Lockout/Tagout Control Sheet as follows:

12.14.1 Verify configuration is restored in accordance with Lockout/Tagout Control Sheet.

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12.14.2 Initial block 22 on Lockout/Tagout Control Sheet.

12.15 Second OT, return Lockout/Tagout Control Sheet to AS.

12.16 AS, file Lockout/Tagout Control Sheet in accordance with Section 8.0.

13.0 TAGOUT VERIFICATION/AUDITS

NOTE

Tagout verification/audits will be done once per month during the last calendar week of the month.

Caution tagouts remaining in an active status for longer than three months will be brought to the attention of AS. AS should determine and implement corrective actions necessary to resolve continued use of caution tag(s).

13.1 AS, review Tagout Index to ensure all active tagouts are still required.

13.2 AS, verify all active Lockout/Tagout Control Sheets listed in Tagout Index are accounted for.

13.3 AS, assign OT to physically check that each active tagout is correct.

13.4 OT, examine each active Lockout/Tagout Control Sheet to ensure administrative correctness.

13.5 OT, using Lockout/Tagout Control Sheet, complete physical check of each active tagout by performing the following:

NOTE

Operators **WILL NOT** attempt to operate any danger tagged device.

- Visually sight each tag on Lockout/Tagout Control Sheet.
- Check tag is on correct component.
- Check that specified component is in correct position by observation only.
- Check tag is in good condition (e.g., not ripped or torn, and all information legible).
- Check all information on tag and Lockout/Tagout Control Sheet agree.

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NOTE

If Lockout/Tagout Control Continuation Sheets are used, only one entry of audit results is to be made per tagout (e.g., audit results are **NOT** to be entered on each page of tagout).

NOTE

If "Tag Audit/Verification" section of Lockout/Tagout Control Sheet is full, the Tag Audit/Verification Control Continuation Sheet is to be used.

13.6 OT, if discrepancies are found, list them in the "Discrepancies/Corrective Actions" block of the "Tag Audit/Verification" section of the Lockout/Tagout Control Sheet, and return the sheet to the AS.

13.6.1 AS, proceed to Step 13.9.

13.7 OT, if no discrepancies are found, complete the "Tag Audit/Verification" section of the Lockout/Tagout Sheet as follows:

13.7.1 Enter "N/A" or "NONE" in the "Discrepancies/Corrective Actions" block.

13.7.2 Enter date and sign in the appropriate blocks of "Tag Audit/Verification" section.

13.8 OT, return Lockout/Tagout Control Sheet to AS.

NOTE

AS will resolve any discrepancies found during audit in the most conservative and expeditious manner possible.

13.9 AS, correct discrepancies found during audit as follows:

13.9.1 Determine required corrective actions.

13.9.2 Direct OT to take required corrective actions.

13.9.3 Enter corrective actions taken in "Discrepancies/Corrective Actions" block of "Tag Audit/Verification" section of Lockout/Tagout Control Sheet.

13.9.4 Enter date and sign in the appropriate blocks of "Tag Audit/ Verification" section.

13.10 AS, verify all completed Lockout/Tagout Control Sheets are completely and correctly filled out.

13.11 AS, verify information on Lockout/Tagout Control Sheet agrees with information recorded in Tagout Index.

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13.12 AS, verify "Date Cleared" block of Tagout Index is filled in for each completed Lockout/Tagout Control Sheet.

13.13 AS, file completed Lockout/Tagout Control Sheets.

13.14 AS, file completed Tagout Index sheets.

13.15 AS, signify that tagout audit was completed satisfactorily by writing "Tagout Audit Completed SAT" on next available line of Tagout Index.

13.16 AS, sign and date entry on Tagout Index.

13.17 AS, **IF** audit is being conducted at end of December, **THEN** perform the following:

13.17.1 Consolidate Tagout Index by copying remaining active tagout information onto new Tagout Index page.

13.17.2 Remove all previously used Tagout Index pages from Tagout Log.

13.17.3 On last page of previously used Tagout Index pages, signify consolidation of Tagout Index by writing: "Tagout Log consolidated. Active tagouts recopied to new index pages."

13.17.4 Sign and date entry on previously used Tagout Index page.

13.17.5 File superseded Tagout Index pages.

Attachment 1 - General Requirements for Lockout/Tagout

DEFINITIONS

Authorizing Supervisor (AS) - Washington TRU Solutions LLC (WTS) employee designated by Cognizant Operations Manager (COM) and qualified to authorize placing or removing Operations locks and/or tags. Designation as an AS will be performed by signature on the qualification or certification card entry level requirement. AS may serve as OT for purposes of this procedure.

Caution Tag (Attachment 6) - Yellow tag that is restricted to those situations in which a system or component is functional, but when some precaution or item(s) of information is necessary prior to operation. Caution tags **SHALL** be standardized throughout the facility in color, print, format, shape, and size. Caution tags **SHALL NOT** be used for any other purpose other than those specified in this procedure.

Danger Tag (Attachment 4) - Red tag that prohibits operation of equipment to preclude injury to personnel and/or damage to equipment while maintaining boundaries to allow the operation of a portion or portions of systems. Danger tags **SHALL** be standardized throughout the facility in color, print, format, shape and size. Danger tags **SHALL** be clearly and conspicuously marked with the words "DANGER - DO NOT OPERATE." Danger tags **SHALL NOT** be used for any other purpose other than those specified in this procedure.

Fire Protection Representative (FPR) - WTS employee designated in writing by Industrial Safety who is responsible for the condition and operating status of all Waste Isolation Pilot Plant (WIPP) fire protection systems.

Fire Protection Systems - Includes (1) fire mains, pumps, storage tanks, distribution lines and individual sprinklers; (2) all fire detection and alarms systems; (3) all halon systems; (4) all dry chemical extinguishing systems.

Locking Device - A device that uses a positive means to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Lockout devices shall be substantial enough to prevent removal without the use of excessive force or tools.

Maintenance Locks - Key-operated padlocks issued to qualified personnel working in or on a system or component that is tagged and/or locked out by Operations, and used to inform personnel that maintenance is in progress. Maintenance locks **SHALL NOT** be used for any purpose other than those stated in this procedure or in WP 10-AD3005.

Attachment 1 - General Requirements for Lockout/Tagout

Zone Maintenance Manager (ZMM) - WTS employee (Maintenance Supervisor, Engineer, Section or Department Manager, etc.) designated by their manager to issue, place or remove Maintenance locks. An employee may only be designated after completing formal instruction given by the Technical Training Section on lockout/tagout procedures.

Maintenance Technician (MT) - WTS employee or subcontractor (MT, Engineer, etc.) designated by their manager to place or remove maintenance locks. An individual may only be designated after completing formal instruction given by the Technical Training Section on lockout/tagout procedures.

Mobile Equipment - Equipment that moves under its own power or is pulled/pushed by a tractor or other device and utilizes diesel, hydraulic, or electric energy as its motive force.

Multiple Locking Device - Device which, when emplaced, allows multiple padlocks to be used to ensure positive lockout of breakers, switches, and valves.

Operations Locks - Key-operated padlock series assigned to the responsible Operations section. All padlocks used in the lockout/tagout program **SHALL** be painted red. Keys for locks **SHALL** be controlled by the responsible Operations section and restricted to use by authorized personnel only. For the purpose of this procedure, Operations locks **SHALL** include one or more Multiple Locking Devices. Operations locks **SHALL NOT** be used for any other purpose other than those stated in this procedure.

Operations Technician (OT) - WTS employee designated by the COM and qualified to place or remove Operations locks and/or tags. Designation as an OT will be performed by signature on the qualification or certification card entry level requirement.

Personal Locking Device (PLD) - A PLD denotes stand-alone, CRAFT-applied lock and tagout.

Portable Equipment - Cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start-up of the equipment is controlled by 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. This does not include small hand tools or equipment checked out of or in to the WIPP site tool crib.

Subcontractor - Non-WIPP personnel who perform work under the cognizance of an Operations or Maintenance group.

Lockout/Tagout Control Sheet - Control sheet that shows date and time of issue, serial number, reason for lockout/tagout, location of tags, and signature of the AS.

Attachment 1 - General Requirements for Lockout/Tagout

Lockout/Tagout Control Continuation Sheet - Continuation for the Lockout/Tagout Control Sheet which allows additional jobs or tags to be listed. It contains serial number, reason for tagout, location of tags, and signature of the AS.

Tagout Index - Log maintained by each responsible Operations group listing the status of each tagout under their cognizance.

Tagout Log - Log maintained by each responsible Operations group containing the Tagout Index, an active Lockout/Tagout Control section, and a completed Lockout/Tagout Control section.

GENERAL REQUIREMENTS

1.0 Responsible Operations group, ensure **ALL** stored energy is depleted from a system or component prior to releasing work on that system or component **EXCEPT** in cases where special equipment, tools, or training are necessary to accomplish the depletion. Stored energy may take the form of residual energy in cables or springs; hydraulic, air, gas or water lines or cylinders; elevated machine members; rotating flywheels; etc. Special equipment will be put into the rest position, bled down, set upon the ground or locked into position, as applicable.

2.0 Responsible Operations group, whenever possible, provide a vent path between the work site and pressure source when maintenance is to be performed on pressurized systems. Danger tag this vent path to prevent inadvertent closure unless the venting device is to be removed as a part of the work to be performed.

3.0 Responsible Operations group and Maintenance group, isolate and render inoperative potentially hazardous energy or toxic material sources during servicing or maintenance; or in any case where unexpected energizing, start-up or release of stored energy or toxic material may cause injury.

4.0 Responsible Operations group, provide locks, wedges, chains, blocks, lock pins, self-locking fasteners or other hardware whenever possible for isolating, securing, or blocking machines or equipment from energy sources.

5.0 Maintenance group, deplete stored energy from systems and/or components that require special equipment, qualifications and/or training (e.g., electrical systems, hazardous or toxic substances, regulated substances, etc.).

6.0 Maintenance group, include procedure steps in work instructions to verify stored energy is depleted. Compliance with this requirement will be by signature in the work instructions.

Attachment 1 - General Requirements for Lockout/Tagout

7.0 Maintenance group, periodically verify that stored energy has not re-accumulated to hazardous levels during the course of work being performed.

8.0 Responsible Operations group, copy Lockout/Tagout Control Sheet, and Lockout/Tagout Control Continuation Sheet, from single-sided to double-sided to reduce amount of paper used.

9.0 Operations Section Manager will ensure the following:

- Personnel under their cognizance comply with all requirements of the lockout/tagout procedure.
- Personnel are qualified and designated in writing to authorize, hang and remove tags and locks as required.

10.0 All responsible Operations personnel qualified to authorize, place, or remove tags and locks **SHALL** be cognizant of, and adhere to, the following requirements:

A. Any employee found intentionally violating the lockout/tagout procedure will be subject to disciplinary action. **DO NOT** attempt to operate any switch, valve, or other energy isolating device when it is locked or tagged out. **DO NOT** move or attempt to move any mobile or portable equipment when it is locked or tagged out. In no case **SHALL** danger tags be allowed to leave the site.

B. Tagouts shall be prepared, after a review of applicable associated open ECCS, only from controlled copies of prints, drawings, or from physical verification at the equipment or component site.

C. Only authorized personnel will hang Operations locks and tags, and then only for the facilities and equipment over which they have cognizance.

D. Operations lock and tag **SHALL** be the first installed upon any equipment and the last removed. The only approved exception occurs when tagging and locking out the main incoming electrical feeder to the WIPP site. In that case, if the electrical utility is to hang a lock, the Operations lock **SHALL** be the second installed following the electrical utility representative's lock. On removal, the operations lock and tag will be followed only by the electrical utility representative's lock.

E. All tags **SHALL** be hung so that they are visible to anyone attempting to operate a tagged-out system or component, and so that tags **DO NOT** obscure any gauge or indication on an item of operating equipment.

Attachment 1 - General Requirements for Lockout/Tagout

F. Danger tags **SHALL** be placed on valves positioned for maintenance isolation **EXCEPT** for condition listed below. Maintenance-in-Progress tags **SHALL** be used to identify valves closed for maintenance isolation, but not danger tagged:

- Instrument isolation valves positioned by specific steps in work instructions.
- Domestic water system isolation valves for plumbing fixtures positioned for maintenance on those fixtures.

G. Danger tags **SHALL** be accompanied by an Operations lock or approved locking device for the following conditions. Devices that cannot be locked out **SHALL** be tagged:

- Any electrical circuit where voltages that equal or exceed 50 volts may be encountered
- Any air or fluid system valve except as noted in item F, above.

H. Mobile equipment **SHALL** be danger tagged as follows:

- Mobile equipment that presents a safety hazard to personnel **SHALL** be danger tagged and/or locked.
- Mobile equipment **SHALL** be danger tagged by removing and tagging the negative (-) battery cable/lead **AND** by placing a danger tag on the appropriate control device (steering wheel, control lever, etc.).
- Mobile equipment that **DOES NOT** present a safety hazard to personnel (e.g., mobile equipment to be placed out of service for planned/preventive maintenance or minor corrective maintenance) **SHALL** be controlled by Maintenance personnel using Maintenance-in-Progress tags in accordance with WP 10-AD3005.

I. Danger tags **SHALL NOT** be placed on small hand tools. Hand tools in need of repair **SHALL** be immediately returned to the tool crib.

J. Portable equipment that presents a safety hazard to personnel **SHALL** be danger tagged.

Attachment 1 - General Requirements for Lockout/Tagout

K. All lockouts **SHALL** be performed using an approved multiple locking device except when it is not practical nor possible to tag or lock an entire system, individual circuits or components may be de-energized, disconnected, or defused by the following methods:

- Individual leads may be lifted and tagged.
- Fuses may be removed, taped to the back of the tag, and the tag attached to the fuse holder or panel cover.
- Key switches may be turned off, the key removed, the tag taped over the key socket, and the key placed in the responsible Operations group lock box.

L. The device used to deplete or restrict stored energy (vent and drain valve, blank flange, grounding cluster, etc.) in a system or component **SHALL** be tagged in position to ensure the safest possible environment for the worker whenever possible.

- In cases where the device or situation requires specialized training or equipment to install (e.g., grounding clusters, blank flanges, etc.), the device **SHALL** be tagged following installation.

M. Before tagging a fire protection and/or detection system or component, the FPR **SHALL** be contacted and concurrence obtained. This notification and concurrence may be obtained per telecon.

N. When obtaining concurrence per telecon, the AS **SHALL** enter the following information in the appropriate block of the Lockout/Tagout Control Sheet:

- Words "Per Telecon"
- Person's name that provided concurrence
- AS initials
- Date and time concurrence was obtained

O. When a tagout requires coordination between two or more Operations groups, all affected organizations **SHALL** review and agree with lockout/tagout locations. Indicate agreement by initialing block 10 of the Lockout/Tagout Control Sheet.

Attachment 1 - General Requirements for Lockout/Tagout

P. Minimum working clearance on an electrical component in accordance with the National Electrical Safety Code **SHALL** be observed.

Q. Positions of components to be locked **SHALL** be checked or operated in accordance with Attachment 8, Techniques for Verifying or Positioning System Components, or applicable component technical manuals. Whenever possible, a hands-on physical check or observation of a reliable position indicator should be used.

R. Tags should be designed to withstand the environment to which they are exposed for the maximum time of expected exposure. Tags should be designed to minimize deterioration of the tag, and the printed or written message, when exposed to weather conditions or corrosive atmospheres.

S. Tags **SHALL** identify individuals and organizations applying tags and locking devices.

T. AS should notify personnel affected by application of a lockout/tagout at the following times:

- Before and after application of lockout/tagout
- Before clearing of lockout/tagout
- After equipment restoration

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Attachment 2 - Example Lockout/Tagout Control Sheet

FACILITY, COMPONENT: (1)	LOG SERIAL NUMBER: (2)
PERSONNEL/EQUIPMENT HAZARDS INVOLVED (MANDATORY FOR DANGER TAGS) (3)	SPECIAL INSTRUCTIONS (MANDATORY FOR CAUTION TAGS) (4)
PREPARED BY: (5)	FPR CONCURRENCE (6)

INITIATING DOCUMENT/REASON FOR TAGOUT (7)	DATE/TIME (8)	APPLICABLE TAGS (9)	AUTHORIZED BY (10)	CRAFT INITIALS (11)	CLEARANCE REQUESTED BY (12)

ALL TAGS CLEARED AND REMOVED:
PRINTED NAME: _____ SIGNATURE: _____ DATE/TIME: _____

CONTINUED (23) ☐

Working Copy

Attachment 2 - Example Lockout/Tagout Control Sheet

TAG # (13)	LOCK # (14)	TAGGED POSITION (15)	TAG LOCATION (16)	POSTED BY (17)	CHECKED BY (18)	CLEARANCE POSITION (19)	AUTHORIZED CLEARANCE (20)	CLEARED BY DATE/INITIALS (21)	VERIFIED BY (22)

TAG AUDIT/VERIFICATION

DATE	DISCREPANCIES/CORRECTIVE ACTION	SIGNATURE

Working Copy

Attachment 3 - Example Lockout/Tagout Control Continuation Sheet

FACILITY, COMPONENT: (1)				LOG SERIAL NUMBER: (2)	
INITIATING DOCUMENT/REASON FOR TAGOUT (7)	DATE/TIME (8)	APPLICABLE TAGS (9)	AUTHORIZED BY (10)	CRAFT INITIALS (11)	CLEARANCE REQUESTED BY (12)

CONTINUED (23) ☐

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Attachment 3 - Example Lockout/Tagout Control Continuation Sheet

TAG # (13)	LOCK # (14)	TAGGED POSITION (15)	TAG LOCATION (16)	POSTED BY (17)	CHECKED BY (18)	CLEARANCE POSITION (19)	AUTHORIZED CLEARANCE (20)	CLEARED BY DATE/INITIALS (21)	VERIFIED BY (22)

TAG AUDIT/VERIFICATION

DATE	DISCREPANCIES/CORRECTIVE ACTION	SIGNATURE

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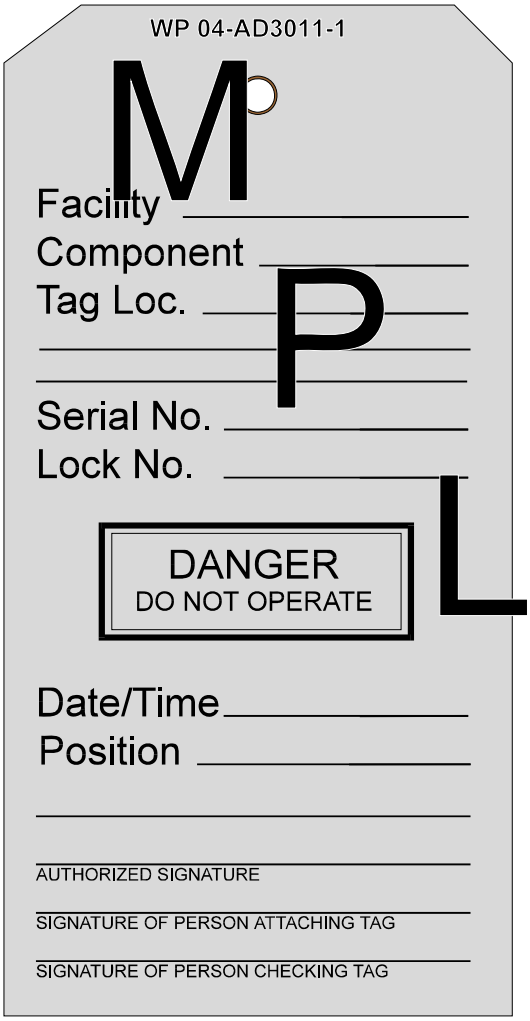
Attachment 4 - Sample Danger Tag



SAMPLE

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Attachment 5 - Example Tagout Index

LOG SERIAL	DATE ISSUED	DESCRIPTION (FACILITY, COMPONENT)	INITIATING DOCUMENT	DATE CLEARED

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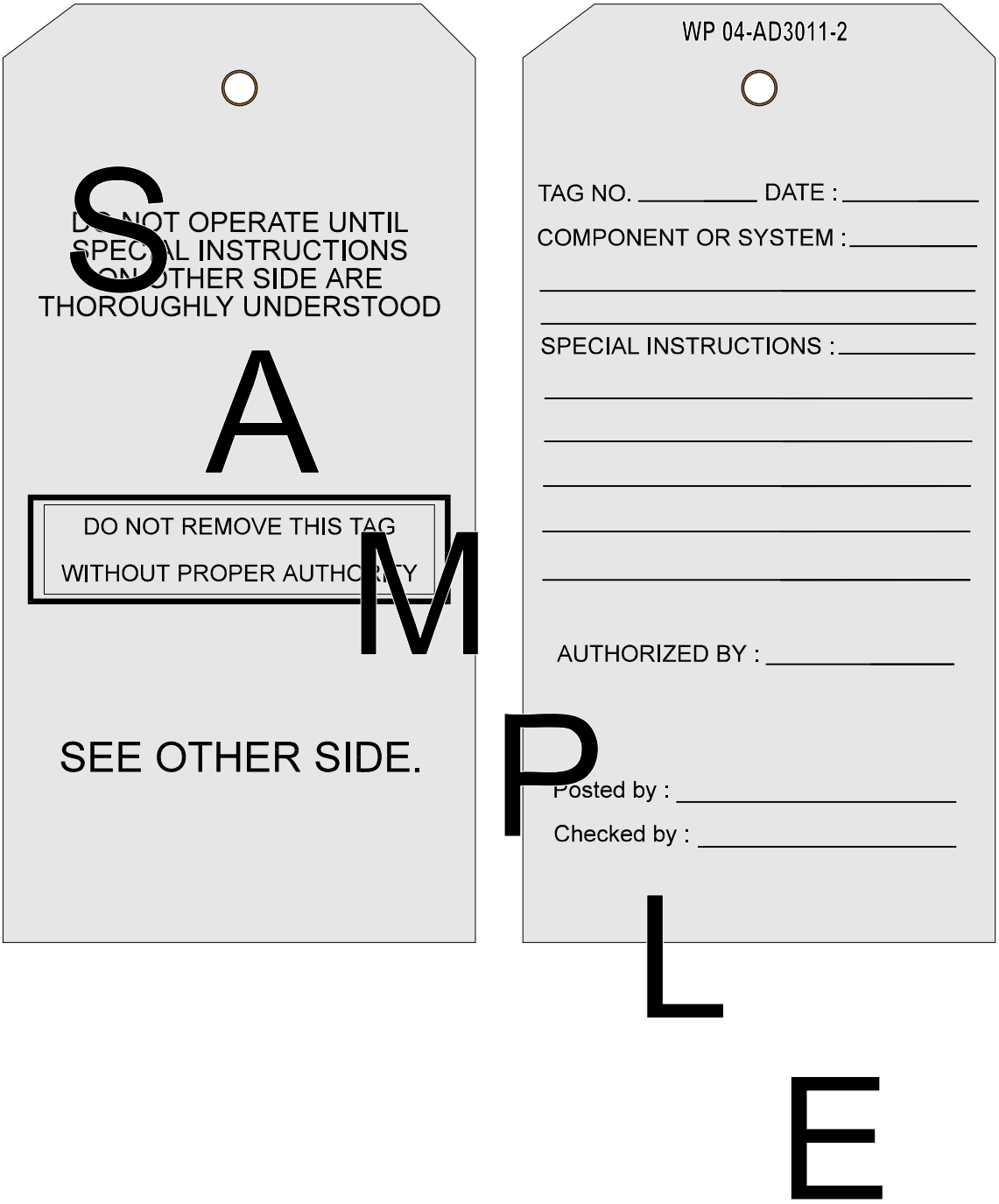
Attachment 6 - Sample Caution Tag



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Attachment 7 - Example Tag Audit/Verification Control Continuation Sheet

FACILITY, COMPONENT: (1)		LOG SERIAL NUMBER: (2)
DATE	DISCREPANCIES/CORRECTIVE ACTION	SIGNATURE

CONTINUED (23)

Attachment 8 - Techniques for Verifying or Positioning System Components

1.0 MANUALLY OPERATED VALVES

1.1 If valves are danger tagged to a specific position, verify position by noting position indicated on tag.

1.2 If position of danger-tagged valve is in question due to physical appearance, perform the following:

1.2.1 **STOP IMMEDIATELY**.

1.2.2 Contact cognizant supervisor.

1.2.3 When/if authorized by cognizant supervisor, check valve in CLOSED direction.

1.3 If gate and globe valves are to be verified OPEN, move valve in CLOSED direction only as necessary to remove any slack from operating mechanism **AND** to verify valve stem movement. Valve shall then be fully opened.

1.4 If gate and globe valves are to be verified CLOSED, move valve in CLOSED direction only as necessary to verify valve is not binding **OR** difficult to operate.

1.5 Verify position of ball valves by observing that the operating lever corresponds to required position as follows:

1.5.1 Lever parallel to flow - OPEN against physical stop.

1.5.2 Lever perpendicular to flow - CLOSED against physical stop.

2.0 AIR-OPERATED GLOBE VALVES

Air-operated globe valves used at WIPP are normally in a throttling position and are continuously moving to control process parameters. Since these valves cannot be adequately verified, these valves shall **NOT** be used for lockout/tagout isolation.

Attachment 8 - Techniques for Verifying or Positioning System Components

3.0 SOLENOID OPERATED VALVES

Solenoid-operated air valves are either fully open or fully closed and have no position indicators. Since these valves depend on continuity of electrical power to function properly, these valves shall **NOT** be used for lockout/tagout isolation.

4.0 VALVE OPERATOR CLUTCHES

4.1 Verify position of clutches by observing position of the clutch control lever as follows:

4.1.1 Clutch lever in detent - clutch engaged.

4.1.2 Clutch lever pulled out of detent **AND** rotated 90 degrees - clutch disengaged.

5.0 DAMPERS

Verify position of throttled dampers by observing position indicators, when provided, **OR** by noting installation of locking devices.

6.0 CIRCUIT BREAKERS/SWITCHES

6.1 Verify circuit breaker position by observing local position indicators.

6.2 Verify switch position by observing indicated position on associated switch label plate **AND**, if available, indicator lights.

6.3 Tag major component circuit breakers with breakers racked to the DISCONNECT position (where possible).

6.4 Operate major circuit breakers or load interrupter switches in accordance with applicable operating procedures or component technical manuals.