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Energy Isolation (Lockout/Tagout) Protocol					

Overview

Purpose

This Devon Energy EHS Protocol establishes minimum requirements for securing, locking and tagging out energy-isolating devices, and for the protection of workers from the unexpected release of hazardous energy during installation, maintenance, service and repair activities involving hazardous energy sources.


Scope

This protocol applies to all Devon operated equipment, facilities and all Devon employees.

Contractors will have their own program that meets or exceeds Devon’s Lockout/Tagout Protocol.

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1.0 RESPONSIBILITIES

Division/Business Unit Leadership

- Reinforce adherence to this protocol and provide resources for application of the protocol.
- Ensure employees responsible for lockout/tagout duties receive required training.

Line Supervisor

- Understand how this protocol applies to personnel in their area of responsibility.
- Ensure employees have training, skills, knowledge and understanding to comply with this protocol.
- Check periodically to ensure the requirements of this protocol are being met.
- Provide equipment needed to complete lockout/tagout (e.g., locks, tags, chains, wedges, key blocks).

Environmental, Health and Safety

- Monitor compliance through the audit process.
- Provide technical resources and tools for protocol application.

Devon Employees

- Adhere to the requirements of this protocol.
- Identify and report gaps in this protocol.
- Complete required training.

Contract Company Representative

- Comply with regulatory requirements and follow the Devon EHS protocol.

2.0 TERMS AND DEFINITIONS

2.1 Lockout/Tagout Terms and Definitions

Affected Employee - an employee whose job requires the individual to operate equipment on which servicing or maintenance is being performed under lockout/tagout, or to work in an area in which servicing or maintenance is being performed.

Authorized Employee - an employee who has been trained and designated by supervision to lockout/tagout equipment to perform service or maintenance on that equipment.

Capable of Being Locked Out - an energy-control device that has a means of attaching a lock, or locking devices, without the need to dismantle, rebuild or replace the energy control device, or permanently alter its energy control capability.

Car Seal - a uniquely numbered steel or plastic zip tie that can be affixed through the hole in the lockbox and cannot be removed unless broken.

Energized - equipment that is supplied with an energy source, or contains residual or stored energy.



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Energy-Isolating Device - a mechanical device that physically prevents the transmission or release of energy. Check valves, push buttons, selector switches and other control circuit-type devices are not energy-isolating devices. Energy-isolating devices include, but are not limited to, the following:

- a manually operated electrical circuit breaker,
- a manually operated disconnect switch,
- a line valve,
- a block, and
- any similar device used to block or isolate energy (e.g., chaining pumpjack counter weights, blocking and locking engine flywheel).

Energy Source - includes electrical, mechanical, hydraulic, pneumatic, chemical, thermal, stored energy, vacuum, wind, gravitational or other energy.

Equipment - any piece of equipment that contains an energy source, which includes but is not limited to:

- Production equipment
- Pipelines and gathering lines
- Power tools
- Mobile equipment

Exclusive Control - when an authorized person is able to work on a piece of equipment with the energy isolation device(s) physically located within arm's reach, and in the line of sight of that person. The authorized person must also be the only individual working on that piece of equipment and lockout/tagout must be implemented if the authorized person steps away from the isolation device(s) without completing the work.

Group Leader - an authorized employee designated and responsible for coordinating and overseeing lockout/tagout for a set number of employees in a group.

Group Lock - locks that are keyed alike and with only one key assigned to a group lockbox and used to lockout isolation devices during group lockout.

Group Lockout/Tagout - a system of securing energy-isolating devices using a set(s) of group locks on the energy-isolating devices, and a lockbox, when multiple individuals or crews are working on the same piece of equipment.

Lockbox - a secure box used to store group lock keys during group lockout, which allows personnel to install their personal locks on the box.

Lockout - the placement of a lock on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the locking device is removed.

Lockout Device - a device that uses a positive means (such as locks, cables, chains, blind flanges or bolted slip blinds) to hold an energy-isolating device in the safe position, and prevent the equipment from energizing.

Personal Lock - a uniquely keyed lock issued to an employee for their personal protection.

Positive Isolation - the use of a double block and bleed, or a combination of blinds and block valves to secure an energy source. (See **Appendix A** for additional information and detailed descriptions.)

Tagout - the placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.



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Tagout Device - a highly-visible tag used as a warning. It is securely fastened to an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Qualified Electrician - an individual who has received training in, and has demonstrated skills and knowledge in, the construction and operation of electric equipment, installations and the hazards involved.

Qualified Person - an individual who has been trained and authorized to operate a specific piece of equipment.

Zero Energy State - a condition in which an isolated piece of equipment is physically prevented from release of all potential and/or stored energy, and verified incapable of an inadvertent release.

2.2 General Terms and Definitions

Appropriate Leader - the level of management necessary to approve documents, changes to documents and deviation for a given Division and/or Functional Group.

Approval Date - date when a document has been finalized and approved by EHS VP, or appropriate leader, via electronic signature on **Attachment A**.

Area - individual operating fields or components that collectively comprise a Region. Areas normally include an area office.

Area Office - a field office with assigned employees that support an area. (e.g., Havre, Groesbeck, Riverton and Fort St. John).

Business Unit - individual components that collectively comprise a Division. Business Units may also be referred to as Basins.

Contract Company Representative - a contractor who is assigned responsibilities and oversight for a specific task that requires adherence to Devon EHS Procedures.

Division - the division operations of Devon are Canada, Corporate, Marketing & Midstream and U.S.

Enterprise Classification Structure - is part of Devon's strategic plan for managing information assets. The ECS is the published list of all records classes, the period of time for retaining each and their designated disposition.

Facility - a collection of structures, piping, valves, vessels, tanks, compression and processing equipment located in close geographic proximity, that are involved directly in the development, production, processing or delivery of oil and gas to market (e.g., a tank battery, drill site, well-site, compressor station, pipeline and gas plant).

Field EHS - a titled position that provides EHS guidance and support within a Division.

Line Supervisor - a titled position that has assigned authority and responsibility for financials, production, maintenance, projects and personnel for a defined area. In Devon, this could be any Supervisor, Superintendent, Foreman or Assistant Foreman.

Person In Charge (PIC) - a person that has been authorized by Devon to perform specific tasks to comply with Devon EHS Protocols and/or regulatory requirements related to EHS. The PIC is defined in all procedures in the second column of the protocol section.

Region/District - individual components that collectively comprise a Division.



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3.0 PROTOCOL		
3.1 Provision of Lockout/Tagout Devices Lockout/tagout devices must be uniquely identified and not issued for any other purposes (such as locking gates, toolboxes, lockers, out of service equipment, etc.)		
Step	Person In Charge (PIC)	Action
3.1.1	Line Supervisor	Issue lockout/tagout devices to individuals upon successful completion of required training listed in Section 5. Note: Lockout/tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
3.1.2	Line Supervisor	Standardize lockout/tagout equipment for the facility or area, which will uniquely identify the lock types listed below in at least one of the following criteria: color, shape, or size. <u>Personal Locks</u> - assigned to individuals for use during a personal lockout, or to attach to a lockbox during group lockout. Personal lock will be uniquely identified and have a single key. <u>Group Locks</u> - assigned to a work group for use during a group lockout application. Locks will be uniquely identified in a manner that is durable enough to withstand workplace and weather conditions.
3.1.3	Employee	Maintain control of key for personal locks.
3.1.4	Line Supervisor	Upgrade equipment to accommodate lockout devices during major modifications or when replacement of equipment is performed.
3.2 Isolation Procedure The Authorized Employee must establish Equipment Specific Isolation Procedures, or use a previously developed procedure, for removing the energy sources from equipment and using the appropriate lockout/tagout devices on energy control devices.		
Step	Person In Charge (PIC)	Action
3.2.1	Authorized Employee	Establish Equipment Specific Isolation Procedure by identifying and documenting the following on the Equipment Specific Isolation Procedure Form (Attachment B or equivalent): <ul style="list-style-type: none"> • Equipment • Authorized Employee(s) • Affected Employee(s) • Lockout/tagout type: Group Lockout or Individual Lockout • All types of energy sources (including, but not limited to: flammable gas/liquids, electric, hazardous chemical, hydraulic, steam, stored potential and pneumatic) • Each individual isolation point required to render equipment/system safe (list in order of isolation)



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		<ul style="list-style-type: none"> • Drains, blow downs and vents required to depressurize a system and prevent the re-accumulation of pressure • Shutdown position (i.e., Open, Closed, Off, Blinded) • Isolation method • Individual responsible for isolation • Additional measure(s) required to provide the same level of effectiveness for tagout operations (see step 3.2.2) • Method(s) to remove residual energy • Specific steps to verify zero energy state, absence of trapped pressure and electrical systems have been disconnected <p>Note: The Equipment Specific Isolation Procedure is required to be on-site when lockout/tagout operations are being conducted.</p> <p>Note: Written procedures are not required under certain circumstances; use the flow chart in Appendix B to determine if a written Equipment Specific Isolation Procedure is required.</p>
3.2.2	Authorized Employee	<p>Identify and document additional measures to be taken when isolation is managed only with tagout methods. Additional measures will be taken and can include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • the removal of an isolating circuit element, • blocking of a controlling switch, • opening of an extra disconnecting device, and • removal of a valve handle(s). <p>Note: Additional measures will reduce the likelihood of inadvertent activation.</p>
3.2.3	Authorized Employee	<p>Apply locks when energy-isolating devices are capable of being locked out in combination with chains, wedges, key blocks or adapter pins.</p>
3.3	Shutdown and Isolation	
	<p>The Authorized Employee must ensure that equipment is safely shutdown and isolated. During the shutdown and isolation process stored energy (i.e., trapped pressure) will be safely removed from the equipment.</p>	
Step	Person In Charge (PIC)	Action
3.3.1	Authorized Employee	<p>Perform the following actions in preparation for shutdown:</p> <ul style="list-style-type: none"> • Conduct a pre-task tailgate. • Notify affected persons of shutdown and lockout/tagout prior to equipment shutdown. • Inform contract workers of the isolation procedure.
3.3.2	Authorized Employee	<p>Follow the standard operating procedure for equipment when one exists for shutdown, startup and energy release activities.</p>



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3.3.3	Authorized Employee	Isolate equipment and release stored energy to achieve a zero energy state following the sequence listed in the Equipment Specific Isolation Procedure.
3.3.4	Line Supervisor	Use blinds that are pressure rated for the system when the blind is used as the primary isolating device.
3.3.5	Employee	Implement positive isolation for confined space entry work or when welding, cutting or grinding is to be performed. Positive isolation includes: <ul style="list-style-type: none">• Double block and bleed with Lockout/Tagout• Blinding• Physically disconnecting Note: For completions operations, the Well Completion Procedure/Plan will be implemented to control hazardous energy from the well during wellhead installation.
3.3.6	Authorized Employee	Document blinds installed during energy isolation on the Lockout/Tagout Procedure Form (Attachment B).
3.3.7	Authorized Employee	Affix appropriate lockout/tagout device in accordance with the lockout/tagout procedure. Attach a tag, shown in Appendix C or equivalent, to each lockout device used. Note: When tagout is used, the tag will be affixed to clearly indicate that the operation or movement of the energy-isolating devices is prohibited.
3.3.8	Authorized Employee	Verify equipment and process has been isolated, equipment will not start and stored or trapped energy has been released. Verification of isolation can be accomplished by using: <ul style="list-style-type: none">• visual verification,• flow diagrams,• schematics, or• other positive means. Verification of de-energization includes, but is not limited to: <ul style="list-style-type: none">• actuating on/off switches (local),• checking with a voltmeter,• opening bleeder valves, or• drilling a hole in piping before cutting. Note: When opening bleeder valves, it is important to ensure that the bleeder valve is not plugged inside. In situations where there is the potential for having trapped pressure behind a blind flange or a bull plug, care should be taken to relieve the pressure before the blind flange or bull plug is disengaged from the thread.
3.3.9	Authorized Employee	Keep sole possession of personal lockout key. When group lockout/tagout is used, place the group lock key(s) in the group lockbox for isolation by individuals working on the equipment.
3.3.10	Authorized Employee	Verify isolation and de-energization after shift changes, and following extended breaks or absences greater than one hour, to validate the equipment and



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		<p>process has been isolated, equipment will not start and stored or trapped energy has been released.</p> <p>Verification of de-energization includes, but is not limited to:</p> <ul style="list-style-type: none"> • actuating on/off switches (local), • checking with a voltmeter, • opening bleeder valves, and • drilling a hole in piping before cutting.
3.4	<p>Group Lockout/Tagout</p> <p>Group lockout/tagout process can be used in situations where there are multiple employees, contractors or crews working under lockout/tagout on a piece of equipment. All group lockout/tagout situations will use a lockbox and a set, or multiple sets, of group locks. Each employee in the group must have control over the sources of hazardous energy while involved in service or maintenance activities.</p>	
Step	Person In Charge (PIC)	Action
3.4.1	Line Supervisor	Designate an Authorized Employee to act as the Group Leader for the group lockout.
3.4.2	Group Leader	<p>Verify that a group lock and a tag have been affixed to each energy-isolating device in accordance with the Equipment Specific Lockout/Tagout Procedure, and that the group lock key(s) is placed inside the lockbox prior to affixing a personal lock on the lock box.</p> <p>Note: Each employee participating in the group LOTO must be informed of their right to verify the effectiveness of the lockout measures, and each authorized employee must be allowed to personally verify, if they so choose, that hazardous energy sources have been effectively isolated.</p>
3.4.3	Group Leader	Install a numbered car seal on the group lockbox when the work will span more than a single shift, or when the box may have all the locks removed prior to completing all work. Document the car seal number on the Equipment Specific Isolation Procedure.
3.4.4	Group Leader	Verify that each employee working on the equipment applies a personal lock and tag to the group lockbox.
3.4.5	Group Leader	Verify that each employee working on the equipment removes their personal lock from the lockbox when they have completed their work.
3.5	<p>Re-Energize and Test Equipment During the Job</p> <p>While performing maintenance on equipment, it is occasionally necessary to test the equipment as part of the diagnosis, or to verify resolution of the problem. The steps below list the Lockout/Tagout Process for re-energizing and testing equipment when necessary during the job.</p>	
Step	Person In Charge (PIC)	Action
3.5.1	Authorized Person	Notify affected employees in the area of the need to re-energize and test the equipment.



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3.5.2	Authorized Person	Inspect the work area to ensure that nonessential items have been removed, guards have been reinstalled and the equipment's components are operationally intact.
3.5.3	Authorized Person	Inspect the work area to ensure that all personnel are safely positioned or have been removed.
3.5.4	Authorized Person	Remove the lockout/tagout devices.
3.5.5	Qualified Person	Energize and test the equipment.
3.5.6	Authorized Person	De-energize all equipment and implement lockout/tagout devices in accordance with the Equipment Specific Isolation Procedure. If a car seal was on the group lockbox, document that the old car seal was removed, and the new car seal number after Lockout has been re-implemented.
3.5.7	Authorized Person	Notify affected persons in the area that the testing is complete.
3.6	Release from Lockout/Tagout	
Step	Person In Charge (PIC)	Action
3.6.1	Authorized Person/ Group Leader	Inspect the work area to ensure that nonessential items have been removed, guards have been reinstalled and the equipment's components are operationally intact.
3.6.2	Authorized Person/ Group Leader	Inspect the work area to ensure that all personnel are safely positioned or have been removed.
3.6.3	Authorized Person/ Group Leader	Verify work is complete and that all personal locks have been removed from equipment or group lockbox.
3.6.4	Authorized Person/ Group Leader	Notify all affected persons that the lockout/tagout devices have been removed and the equipment is ready for use.
3.6.5	Qualified Person	Re-energize the equipment; follow equipment start-up procedure when equipment has start-up procedures.
3.7	Shift Change	
	When a group lockout will exceed a single shift (e.g., work will continue the following day, or the next shift), a numbered car seal will be placed on the group lock box and the number recorded on the Equipment Specific Isolation Procedure as an isolation device. This will allow the oncoming shift to verify that no keys were removed from the lock box during the shift change, and that the locks on the equipment are still in their original location.	
Step	Person In Charge (PIC)	Action
3.7.1	On-Coming Authorized Person/Group Leader	Verify that the car seal number on the lockbox matches the number on the Equipment Specific Lockout/Tagout Procedure, and that the car seal has not been broken.
3.7.2	On-Coming Authorized	If the car seal has been broken, then verify that all lockout/tagout devices are in-place according to the equipment specific lockout/tagout procedure. Once



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	Person/Group Leader	verified place a new car seal on the group lockbox and record the car seal number on the equipment specific lockout/tagout procedure.
3.8	Non-Owner Lock or Tag Removal	
	The non-owner lock removal process is written for the few instances when the individual that applied a personal lockout/tagout device to a piece of equipment or group lockbox is not available to remove the lockout/tagout device. Non-Owner Lock or Tag Removal will not be used if the lock owner is at work.	
Step	Person In Charge (PIC)	Action
3.8.1	Authorized Person/ Group Leader	Verify that the lock/tag owner is not on location, at the facility or working elsewhere. If lock/tag owner is either at the facility or working elsewhere, stop the non-owner lock removal process.
3.8.2	Authorized Person/ Group Leader	Attempt to make contact with the lock/tag owner using normal communication methods.
3.8.3	Authorized Person/ Group Leader	<p>Contact superintendent to obtain written approval to remove the personal lockout/tagout device. Written approval can be obtained using the Non-Owner Lockout/Tagout Device Removal Approval Form (Attachment C) or via email. Email approval will contain the following information:</p> <ul style="list-style-type: none"> • Date • Location • Requestor name • Lock owner name and employer • Method used to attempt to contact lock owner • Reason for removal • Is equipment safe to operate • Authorizing superintendent • Method used to document notification of authorized person <p>Note: Unauthorized removal of a personal lockout/tagout device can result in disciplinary action up to, and including, termination.</p> <p>Note: In the event the superintendent is unavailable, the superintendent's manager can be contacted for approval.</p> <p>Note: Devon superintendent approval and contract company manager approval is required for contractor lock removal.</p>
3.8.4	Authorized Person/ Group Leader	Verify removal of isolation device will not endanger anyone associated with the equipment or facility being locked out.
3.8.5	Authorized Person/ Group Leader	Identify any safety concerns and apply corrective actions.
3.8.6	Authorized Person/ Group Leader	Remove the personal lockout/tagout device
3.8.7	Authorized Person/ Group Leader	Notify the authorized person whose personal lockout/tagout device was removed prior to their returning to the work site.



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3.9 Well Servicing		
Step	Person In Charge (PIC)	Action
3.9.1	Line Supervisor	Develop site-specific SOP/JHA detailing how energy will be controlled during well servicing Operations. (This includes swabbing, wireline, workover etc.)
3.9.2	Line Supervisor	Discuss and review the SOP/JHA in detail during the pre-task tailgate meeting.
3.9.3	Line Supervisor	Isolate well using LOTO when connecting or disconnecting well production equipment that is supplied with an energy source, or contains residual or stored energy (e.g., flow line, pump jack, ESP, etc.).
3.9.4	Line Supervisor	Follow SOP/JHA during rig up well servicing equipment (e.g., fluid pump, N ₂ Tank, foam air unit, etc.).
3.9.5	Line Supervisor	Use SOP/JHA for energy control.
3.9.6	Line Supervisor	Re-implement LOTO after well servicing operations are complete and before removing well servicing equipment to isolate the well and connected equipment to protect personnel during rig down process.
3.9.7	Line Supervisor	Follow SOP/JHA during rig down well servicing equipment.
3.10 Tasks Exempt from Lockout/Tagout		
Step	Person In Charge (PIC)	Action
3.10.1	Authorized Person	<p>Exclude the following tasks from lockout/tagout:</p> <ul style="list-style-type: none"> work on cord and plug electric powered equipment provided the equipment is unplugged and the plug is under the exclusive control of the employee performing work, battery operated electrical tool (batteries shall be removed before performing maintenance or adjustment), tasks performed where the energy isolation devices are under exclusive control of the individual performing the work, and hot tap operations provided a written specific hot tap is developed and approved by division management prior to the hot tap operations. <p>Note: Exclusive control is achieved when the authorized person is the only person working on the piece of equipment, and an energy-isolation device(s) is physically located within arm's reach and in the line of sight of that person.</p>
3.11 Energized Electrical Systems		
If work is required on an energized electrical system that cannot be shut down and de-energized, then the following steps are required to be completed.		
Step	Person In Charge (PIC)	Action
3.11.1	Line Supervisor	Assign employees who are trained and qualified for the type of work.
3.11.2	Line Supervisor	Follow written safety-related work protocols and practices for energized electrical systems.



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3.11.3	Qualified Electrician	Use safeguards and PPE necessary for protection. Note: PPE will be used as written in NFPA 70E and Devon Electrical Safety Practices.		
3.12	Inspection Periodic lockout/tagout inspections verify that written procedures are completed properly and adequately to provide worker protection. Additionally, it ensures that employees are familiar with their responsibilities under the Energy Isolation Protocol and continue to implement the Equipment Specific Lockout/Tagout Procedures properly. These inspections can be performed by any authorized Devon employee.			
Step	Person In Charge (PIC)	Action		
3.12.1	Line Supervisor	Conduct periodic inspections by observing authorized employees executing equipment specific lockout/tagout procedures. Note: Foremen and assistant foremen with authorized employees will perform at least four inspections per year.		
3.12.2	Lockout/Tagout Inspector	Observe the application of the procedure reviewing the following: <ul style="list-style-type: none"> - the employees are following the steps in the lockout/tagout procedure, - the employees involved know their responsibilities under the procedure, - the procedure is adequate to provide the necessary protection, and - are any changes needed. 		
3.12.3	Lockout/Tagout Inspector	Document the lockout/tagout inspection and procedure review by completing and signing the Lockout/Tagout Annual Inspection & Review Form (Attachment D).		
3.12.4	Lockout/Tagout Inspector	Correct any deviations from and/or inadequacies identified in the lockout/tagout procedures during the lockout/tagout inspection.		
3.12.5	EHS	Review the compliance of the Energy Isolation Protocol during an annual EHS field review or corporate EHS audit.		
4.0	RECORDKEEPING			
Step	Person In Charge (PIC)	Action		
4.1	Authorized Person/Group Leader	File completed Equipment Specific Isolation Procedures.		
4.2	Lockout/Tagout Inspector	File completed Lockout/Tagout Annual Inspection & Procedure Review Forms.		
4.3	Line Supervisor	File the records as noted below:		
	Record	File Location & Number	Retention Period	Enterprise Classification Structure Code
	Equipment Specific Lockout/Tagout Procedure	See Field Office File Directory	3 Years	EH45



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	Non-Owner Lockout/Tagout Device Removal Approval Form	See Field Office File Directory	3 Years	EH45
	Lockout/Tagout Annual Inspection & Review Form	See Field Office File Directory	3 Years	EH45
	Lockout/Tagout Hands on Checklist	See Field Office File Directory	Employment + 5 Years	HR 80
<p>Note: The Records Management Enterprise Classification Structure Code is listed as a reference, which should be used when records are sent to stored records.</p>				
5.0	Training Requirements Lockout/tagout training ensures that employees understand the purpose, function, and restrictions of the Lockout/Tagout Protocol.			
Step	Person In Charge (PIC)	Action		
5.1	Line Supervisor	Provide awareness level training to employees who enter the field, but are not authorized employees as defined in this protocol, that provides the purpose and use of energy-control procedures, including: <ul style="list-style-type: none"> – recognition of when and why energy-control procedures are being used, – purpose of lockout/tagout procedures, – importance of not tampering with lockout/tagout devices, and – importance of not starting or using equipment that has been locked or tagged out. 		
5.2	Line Supervisor	Provide the information and skills necessary for the safe application, use and removal of lockout/tagout devices, including the following: <ul style="list-style-type: none"> • recognition of hazardous energy sources, • type and magnitude of the hazardous energy, • hazardous energy sources in the workplace, and • lockout/tagout procedures (to include the methods and means to isolate and control those energy sources). 		
5.3	Line Supervisor	Assign an Authorized Person to perform the Lockout/Tagout Authorized Employee Hands On Checklist with any employee prior to their initial authorization to perform lockout/tagout duties. <p>Note: The Line Supervisor can perform the hands on checklist or can assign another Authorized Person to perform the hands on checklist.</p>		
5.4	Line Supervisor	Provide refresher training to be conducted whenever a periodic inspection under section 3.12 reveals, or whenever the employer has reason to believe that there are deviations from, or inadequacies, in the employee's knowledge or use of the energy control procedures.		
5.5	Line Supervisor	Provide retraining for all authorized and affected employees whenever there is a change in their job assignments; a change in machines,		



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equipment or processes that present a new hazard; or when there is a change in the energy control procedures.

6.0

REFERENCES

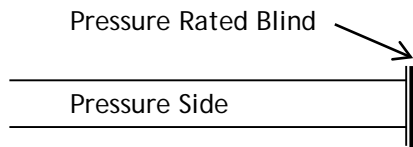
OSHA Lockout/Tagout Regulation - 1910.147
OSHA DIRECTIVE NUMBER: CPL 02-00-147, 2/11/08
Devon Lockout/Tagout Standard

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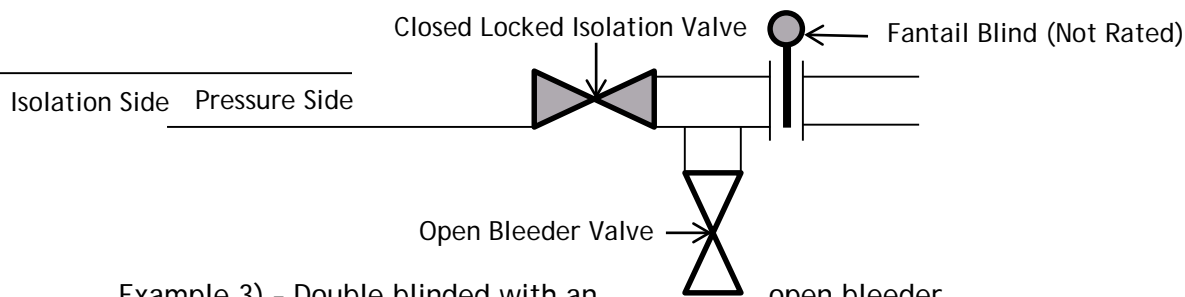
Appendix A - Positive Isolation

Positive isolation can be achieved using several techniques. These techniques can include use of valves, blinds and bleeders.

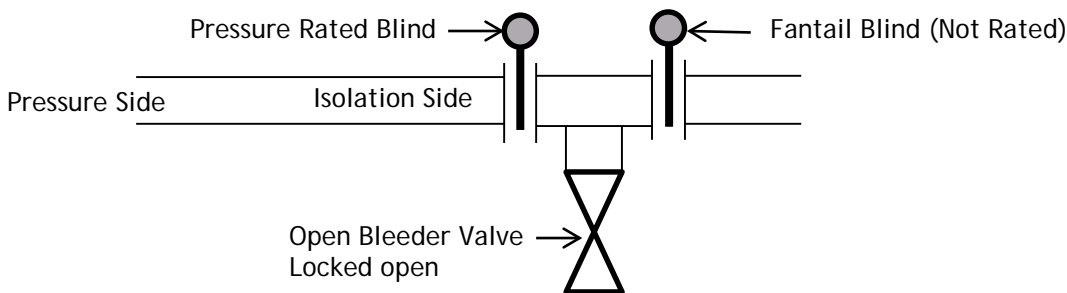
Example 1) - Single blind inserted in a line



Example 2) - Isolation Valve, with an open bleeder valve followed by a blind

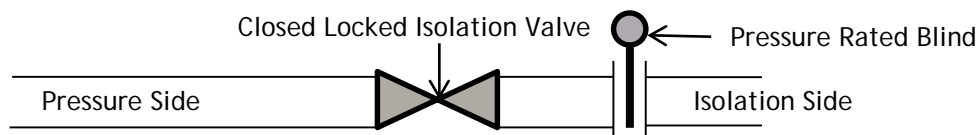


Example 3) - Double blinded with an open bleeder



Best practice not to have the unrated fantail blind.

Example 4) - Single isolation valve and blind without a bleeder valve



Example 5) - Single Isolation Valve with plumbers plug and vent



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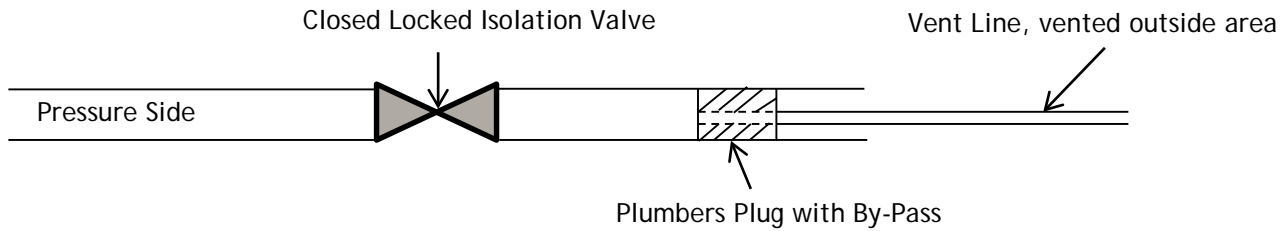
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Complex System Isolation

The isolation and de-inventory of a complex system needs to be well planned out. Isolating a pump may require the isolation of the energy source to the driver, as well as the inlet valve and outlet valve. Complex systems such as gas plants, compressor stations or water treatment facilities have a variety of systems that are interlocked and work together. These systems cannot be completely and effectively isolated for a complete or partial shutdown simply by isolating the inlet and outlet of the facilities. These systems' isolation procedures need to correlate with the shut down and de-inventory process, to ensure the most efficient and effective isolation. The following items need to be taken into account when isolating a complex system:

- Scope of work to be done (e.g., confined spaces, hot work, line breaks)
- Effect of any ongoing facility or unit operations (i.e., flare system, storage tanks, vent lines)
- De-inventory system and connection (i.e., does it have a flare system, are there any system blocks)
- Is the system designed to allow trapped pressure to accumulate?

Best Practices

- Shut system down to allow for systematic isolation and de-inventorying.
- Select blow down valves in system low points for liquids and high points for gases.
- Select multiple blow down valves to open for a system.

Verification Prior to Restoring to service

When restoring a complex system back into service, it is equally important to verify that all of the energy isolation devices have been removed (e.g., locks and blinds). Equipment will need to be re-energized and started up using the equipment or unit start up procedure to eliminate potential releases or overpressure situations.



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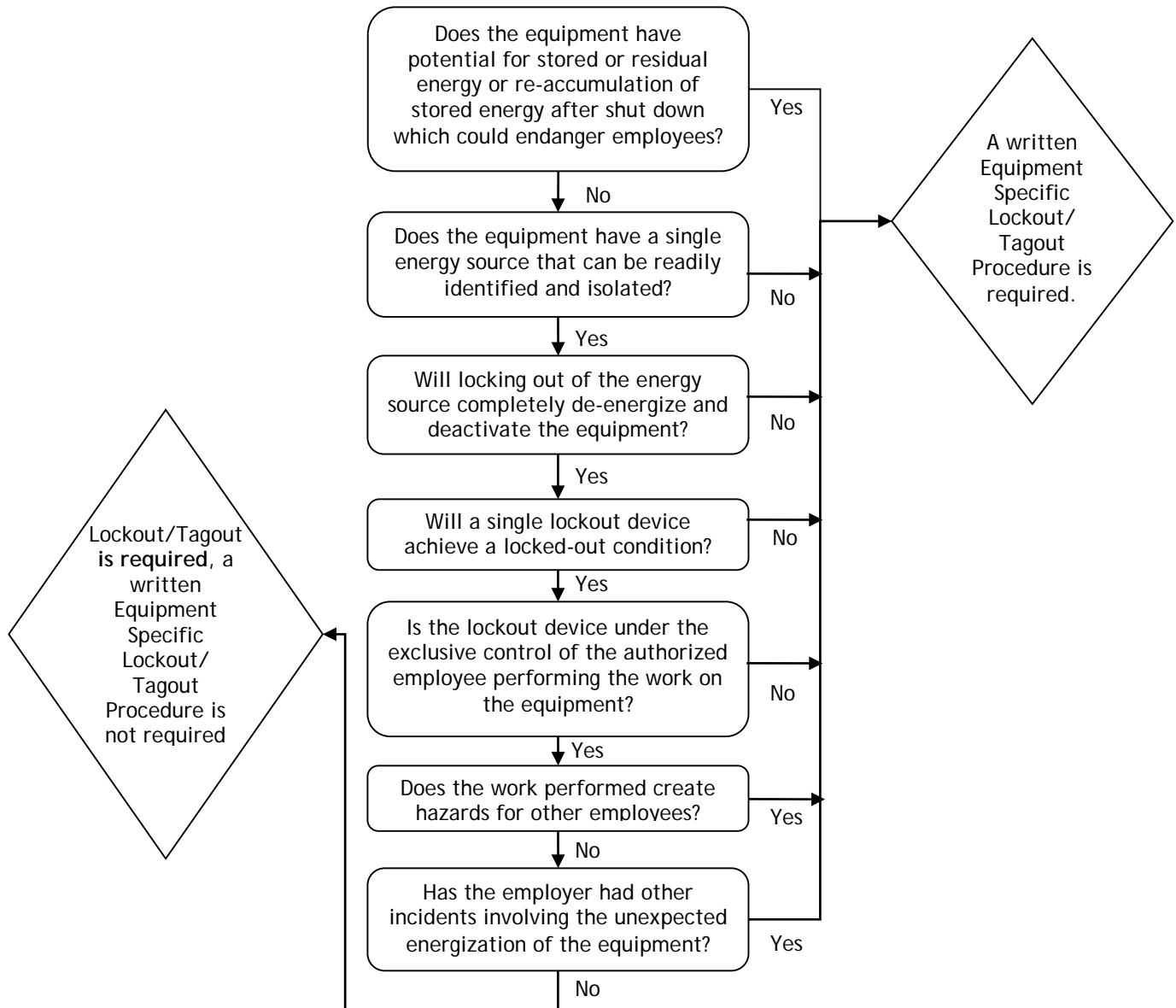
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Appendix B - Equipment Specific Isolation Procedure Exclusion Flow Chart



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Appendix C - Lockout/Tagout Tag

Tags used for lockout operations shall meet the following requirements (example of a tag is provided below):

- The word "DANGER" must be written on both sides of the tag in red font, or white font with a red background.
- The only colors allowed to be used on the tag are Red, White and Black.
- One side of the tag will read the following or equivalent:

DO NOT
 OPERATE
 EQUIPMENT
 LOCK-OUT
 THIS TAG & LOCK
 TO BE REMOVED ONLY
 BY THE PERSON
 SHOWN ON BACK

- Opposite side of tag shall have the following information: Name, Date, and Reason for Lockout.



Attachment B - Equipment Specific Isolation (LO/TO) Procedure

Area:		Location:	
Specific Equipment:			
Authorized Employee(s):		Affected Employee(s):	
Group Lockout?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, name of Group Leader:	
Transfer Lockout Responsibility?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, name of new Group Leader:	
Identify all types of hazardous energy sources (Check all that apply):			
<input type="checkbox"/> Hazardous chemical	<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Steam	<input type="checkbox"/> Pneumatic
<input type="checkbox"/> Flammable gas/liquids	<input type="checkbox"/> Electric	<input type="checkbox"/> Other (specify):	

Sequence of Isolation Steps

STEP 1: Notify all affected employees of equipment shut down.

STEP 2: Identify & list below each individual isolation point required to render equipment safe. *(list in preferred order)*

STEP 3: Isolate each hazardous energy source in the order listed below.

STEP 4: Apply Lockout/Tagout devices in the order listed below.

Isolation Point/Device	Isolation Position (Open/Closed/ Off/Blinded)	Isolation Method		Normal Position (Open/Closed/ Off/Blinded)	Individual Responsible	Valve/Device returned to "Normal Position"? (Initial)
		Lockout	Tagout			
1.		<input type="checkbox"/>	<input type="checkbox"/>			
2.		<input type="checkbox"/>	<input type="checkbox"/>			
3.		<input type="checkbox"/>	<input type="checkbox"/>			
4.		<input type="checkbox"/>	<input type="checkbox"/>			
5.		<input type="checkbox"/>	<input type="checkbox"/>			
6.		<input type="checkbox"/>	<input type="checkbox"/>			
7.		<input type="checkbox"/>	<input type="checkbox"/>			
8.		<input type="checkbox"/>	<input type="checkbox"/>			
9.		<input type="checkbox"/>	<input type="checkbox"/>			
10.		<input type="checkbox"/>	<input type="checkbox"/>			
11.		<input type="checkbox"/>	<input type="checkbox"/>			

STEP 5: Additional measures required for tagout only to provide same level of effectiveness as lockout:

STEP 6: Method(s) to remove residual energy:

STEP 7: Method(s) to try/test hazardous energy sources are isolated and equipment is safe by:

Restoring Equipment to Service

STEP 1: Inspect the work area and clear personnel and tools.

STEP 2: Verify work is complete and Lockout/Tagout devices have been removed.

STEP 3: Notify affected employees.

STEP 4: Refer to operating procedure for proper alignment of valves and operations of equipment.

Prepared by:		Date:	
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Attachment C - Non-Owner Lockout/Tagout Device Removal Approval Form

Date:	Location:
Requestor Name:	
Lock Owner Name:	
Lock Owner Employer:	
Method used to attempt to contact lock owner:	
Reason for Removal:	
Is equipment safe to operate:	
Authorizing Superintendent:	
Signature:	
Method Used to Notify Lock Owner:	

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Attachment D - Lockout/Tagout Annual Inspection & Procedure Review Form

Facility/Site		
Equipment name or description		
Date		
Employee(s) being reviewed		
1.	6.	11.
2.	7.	12.
3.	8.	13.
4.	9.	14.
5.	10.	15.
Review the energy control procedure and employee responsibilities with the involved employees and complete the following.		
	Yes	No
1. Is the Lockout/Tagout Procedure being followed and used correctly?	<input type="checkbox"/>	<input type="checkbox"/>
2. Do the involved employees understand their responsibilities under the procedure?	<input type="checkbox"/>	<input type="checkbox"/>
3. Is a copy of the Equipment Specific Isolation Procedure on location?	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the procedure provide adequate instructions to protect personnel from injury?	<input type="checkbox"/>	<input type="checkbox"/>
5. Are the employee's knowledge, abilities and use of the procedure adequate?	<input type="checkbox"/>	<input type="checkbox"/>
Corrective Action: Address "no" answers by creating and implementing corrective actions. List the corrective actions below.	<input type="checkbox"/>	<input type="checkbox"/>
Corrective Action	Assignment	Due Date
Person(s) Conducting the Inspection & Review		
Name	Signature	Title