



**Improperly applied lockout/tagouts have created hazardous conditions.**

**Events**

**Site/Facility: Savannah River Site F-Canyon**

**Valve Locked and Incorrectly Verified in Wrong Position – Reference: [SR--WSRC-FCAN-2005-0001](#)**

On January 27, 2005, during a liquid transfer operation, some of the liquid was inadvertently transferred to the wrong tank. Operators re-verified the position of system valves and discovered one valve that was locked as required but was not closed, resulting in an inadvertent transfer.

Important Points:	<ul style="list-style-type: none"> <li>• The operator who positioned the valve and installed the lockout/tagout was not standing in the correct position to manipulate the chain-operator and incorrectly assumed the direction to operate the chain.</li> <li>• The operator who was supposed to verify that the valve position and lockout/tagout were correct relied solely on witnessing the operation. He should have performed his verification independently, at a later time.</li> </ul>
Contributors:	<ul style="list-style-type: none"> <li>• The operators (a lockout/tagout installer and an independent verifier) involved in the valve lineup were not fully aware or familiar with the proper techniques for opening and closing chain-operated valves, valve seating position, and attention to visual indicators.</li> <li>• The valve was located well above the floor level in a congested piping area and was operated below by a chain mechanism.</li> </ul>

**Site/Facility: Los Alamos National Laboratory Accelerator Complex**

**Wrong Electrical Power Supply Locked and Tagged Out – Reference: [ALO-LA-LANL-ACCCOMPLEX-2004-0001](#)**

On February 2, 2004, radiological control technicians preparing to conduct surveys in an accelerator discovered that a lock was applied to the wrong power supply. The lock secured a beamline bending magnet power supply rather than the kicker magnet power supply called out in the procedure checklist.

Important Points:	<ul style="list-style-type: none"> <li>• Personnel who performed the lockout did not consistently use the checklist during the lockout process in violation of procedures.</li> </ul>
Contributors:	<ul style="list-style-type: none"> <li>• Strict adherence to the procedure eroded over time such that personnel relied on each other to correctly apply locks and tags.</li> <li>• The concept of verification was reduced to only zero-energy checks and did not verify the locking device was on the correct piece of equipment.</li> </ul>

**Site/Facility: East Tennessee Technology Park**

**Inadequate Installation of Lockout Device – Reference: [ORO--BJC-K25GENLAN-2003-0007](#)**

On May 5, 2003, a safety advocate opened the door on an electrical panel and a circuit breaker locking device and locks fell to the floor. Electricians had installed a two-pole locking device on a single-pole 200-ampere circuit breaker and then applied tape to hold it in place because the breaker toggle was tapered.

Important Points:	<ul style="list-style-type: none"><li>• <b>The electricians decided to improvise a solution to lock out the circuit breaker without ensuring that it would provide the required protection.</b></li><li>• <b>The electricians failed to stop work when they were having difficulty installing the locking device. Durable, standardized, and substantial lockout devices were available but not used,</b></li></ul>
Contributors:	<ul style="list-style-type: none"><li>• <b>Although the pre-job briefing and walk through identified the need for the single-source lockout on the breaker, the selection of the lockout device was not discussed or specifically identified.</b></li><li>• <b>The requirement for obtaining appropriate and applying durable lockout devices had not been adequately disseminated to the electricians.</b></li></ul>

**Site/Facility: Savannah River Site H-Canyon**

**Locking Device Fails to Prevent Operation of Locked Valve – Reference: [SR--WSRC-HCAN-2000-0004](#)**

On January 18, 2000, maintenance personnel discovered that a locking device (chain/hasp/lock) was not adequately installed to prevent operation of a valve. The valve was used as a vent and was in the required “open” position, but the chain and lock would not have prevented operation of the valve.

Important Points:	<ul style="list-style-type: none"><li>• <b>The operator who installed the lockout/tagout failed to determine the correct placement of the chain, hasp and lock. He could have do so by more carefully observing the positions of the valve handle and valve handle stop, and the direction of rotation to open and close the valve.</b></li><li>• <b>The lockout/tagout procedure requires a lock to be installed so that the lockout/tagout point is held in the required position and unable to be moved.</b></li></ul>
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**Important Considerations for Lockouts and Tagouts (Lessons Learned)**

- Has the correct component to be locked out been located? Has the component/device (e.g., valve, circuit breaker) been placed in the position required by the lockout/tagout?
  - Has the correct locking device been selected and is it substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools?
  - Has the locking device been installed properly to ensure it prevents operation of the component?
  - Who will independently verify that components are locked in the correct positions? Will the independent verifier be separated by location and time?
  - Who will verify that a zero-energy condition exists following the lockout/tagout?
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