	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 1 of 8

Purpose:

The purpose of this standard is to highlight that lockout procedures are essential in order to provide a safe working environment during maintenance or service of equipment. These procedures will minimize injuries plus prevent the release of hydro-carbons into the atmosphere.

Scope

Lockout procedures are designed to prevent the accidental activation of equipment. Equipment can be powered by electricity, hydraulics, compressed gas, compressed air, etc.

Definitions

AFFECTED EMPLOYEE means any Big Ox Energy - Siouxland LLC employee who is not an Authorized Employee but is required to work in the area of equipment/machine/processes where Lockout procedures are being implemented.

AUTHORIZED EMPLOYEE means any Big Ox Energy - Siouxland LLC employee who utilizes Lockout procedures on equipment/machines/processes.

CONTROL MECHANISM means any lock or combination of locks, multi-lock hasps and/or other types of special mechanisms (chains, valve covers, breaker covers, etc.) applied to an energy-isolating device to ensure that it cannot be moved/operated.


ENERGY ISOLATING DEVICE means a mechanical device that physically prevents the transmission or release of hazardous energy, including, but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; line valve; slide gate; similar device used to block or isolate energy.

HAZARDOUS ENERGY SOURCE means any type of energy that could injure anyone working on or near the equipment/machine/process if released as a result of work activities. Examples of hazardous energy sources include, but are not limited to the following: electrical; hydraulic (fluid/liquids); pneumatic (air); chemical; radiation; thermal; mechanical (from stored energy, like in flywheels and springs); and mechanical (from gravity).

LOCKOUT means the placement of a control mechanism on an energy-isolating device that ensures that the equipment/machine/process being worked on cannot be operated/initiated until the control mechanism is removed.

OTHER PERSONNEL means non- Big Ox Energy - Siouxland LLC personnel or visitors to any work area where Big Ox Energy - Siouxland LLC authorized employees are utilizing processes outlined in this Policy.

OPERATION DEVICE means any switch, button, lever, valve, etc. that is expressly intended for the starting or initiation of the equipment/machine/process.

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 2 of 8

ZERO ENERGY STATE means the equipment/machine/process has been purged of and blocked from hazardous energy sources, that is no hazardous energy is present.

ENGINEERING CONTROLS/WORK PRACTICES

- Where the lock-out process uses a lock and key, Big Ox Energy - Siouxland LLC shall issue to that designated worker a lock that is operable only by that key and a duplicate key issued to a designated worker. After a lock-out device has been installed or a lock-out procedure has been initiated, the worker that initiated the procedure must check the machine or equipment to ensure that the equipment is inoperable.
- Where the process does not use a lock & key, an individual will be designated to coordinate and control the alternative lock-out process. No person shall deactivate a lock-out process that does not use a lock & key except that person designated.
- Never service equipment while it is running unless the operators' manual indicates that operating the machinery is necessary to perform the maintenance, adjustment or repair. If machinery requires maintenance, adjustment or repair while equipment is energized to ensure that the adjustments are correct, the individual performing such activity shall do so only if the individual is qualified, trained and authorized to do so and follows the procedure of the operators manual. The utmost care must be taken to ensure safe operation during the servicing.

Lockout Procedures (in order of action)

PREPARATION

Authorized employees shall verbally notify all affected employees (Big Ox Energy - Siouxland LLC-employed or anyone considered as Other Personnel) of the procedures to be used BEFORE commencing other work activities.


LOCKOUT APPLICATION

Perform the actions BEFORE commencing other work activities, in the following order:

- Identify all known operation devices for the equipment / machine / process, and commit all of them to the 'off' or 'neutral' position
- Identify all known energy controlling devices for the equipment / machine / process, commit all of them to the 'off' or 'neutral' position, and utilize a lockout device to secure them in the 'off' or 'neutral' position

Note 1: The lockout mechanism must have a means of identifying the person that installed the lock.

Note 2: If the proper lockout procedures or a hazardous energy source is unknown, authorized employees shall not conduct further work activities and shall immediately contact their supervisor for assistance/instructions on proceeding.

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 3 of 8


- Visually inspect the equipment/machine/process and/or use electronic or mechanical means to verify that a zero energy state has been reached. This verification shall be done by the person(s) performing the lockout application.
- Ensure that all affected and authorized employees are clear from the equipment/machine/process, then try to activate the equipment/machine/process by initiating all identified operation devices to ensure that a zero energy state has been reached. Apply additional lockouts to any energy controlling devices having unprotected energy sources and repeat this procedure point until a zero energy state is obtained. Proceed with the required work activities for the equipment/machine/process when the zero energy state is obtained
- If a zero energy state cannot be reached, contact your supervisor for instructions
- If there is a possibility of re-accumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists
- Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.
- Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device

COMPLEX LOCKOUT PROCEDURE

This procedure shall be permitted where one or more of the following exist:

Multiple energy sources
 Multiple crews
 Multiple crafts
 Multiple locations
 Multiple employers
 Different disconnecting means
 A job or task that continues for more than one work period

- A complex lockout procedure shall require a written plan of execution that identifies the person(s) in charge.
- A complex lockout procedure shall vest primary responsibility in an authorized employee for a set of employees working under the protection of a group lockout device. The person in charge shall be

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 4 of 8

accountable for safe execution of the complex lockout. The person in charge shall be the last lock applied and the last lock removed from the lock box.

- Each authorized employee shall affix a personal lockout device to the group lockout device, group lockbox, or similar mechanism when he or she begins work, and shall remove the device when he or she stops working on the machine or equipment being serviced or maintained.
- The complex lockout procedure shall address all the concerns of employees who might be exposed.
- The complex lockout procedure shall be coordinated with all other procedures and qualified persons involved.

RELEASE FROM LOCKOUT


Perform the following steps in order:

- Authorized employees shall visually inspect the equipment / machine / process to ensure that all personnel and tools have been cleared and/or removed.
- Remove all grounding equipment/conductors/devices.
- Notify all personnel involved with the job/task that the lockout is complete, that the energy supply will be restored, and to remain clear.
- Perform any quality control tests/checks on the repaired/replaced equipment.
- Then, only the authorized employee who placed the lockout mechanism into use can remove it. See Section 5.5 of this Policy for Emergency Lock Removal Procedures.
- Return disconnecting means to their normal condition following start-up procedures for the equipment.

Testing/Diagnosis/Re-positioning Procedures During Lockout

Perform the actions, in the following order:

- Clear the equipment/machine/process of tools, materials and personnel
- Remove the applicable lockout mechanisms from the energy isolating device
- Energize the applicable portion of the equipment/machine/process
- Proceed with the test/diagnosis/re-positioning
- De-energize the equipment/machine/process
- Re-apply the applicable lockout mechanisms to the energy isolating device
- Re-test operation devices to ensure a zero energy state is in place
- Document who has performed the test and verification
- Continue work and repeat this procedure as necessary

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 5 of 8

Emergency Lock Removal Procedures

Every effort shall be made to personally contact authorized employees prior to their lock being removed.

The direct supervisor of an authorized employee is the first person allowed to remove their lock. If the applicable supervisor is not physically capable, only another authorized employee can be provided with the authority, directly by the applicable supervisor only.

In either event, the direct supervisor of the authorized employee who originally placed the lockout mechanism(s) to be removed, shall inform that employee of the removal BEFORE that employee returns to that work area. This communication shall be documented. Messages (oral, written, or forwarded) are prohibited.

Lockout Control Mechanisms

LOCKS

Each authorized employee shall be issued a lock (or locks) individually keyed and manufactured of a standard size, shape and/or color. Our standard lock for personal lock is a purple colored Master lock. Purple Master locks shall not be used for any other purpose except personal lockout/tagout.

Each lock should be labeled to identify the assigned employee's name.

Locks for the complex lockout will be colored by groups. Locks are individually keyed aluminum body locks with a 1-1/2" shackle. Locks in a given color group shall be coordinated for a given task/job.

MULTI-LOCK HASPS


A multi-lock hasp shall be utilized when more than one authorized employee is performing work on the equipment/machine/process. As a general rule, employees should always place a multi-lock hasp when installing the first lock. This way a second employee may place a lock without the first employee removing his/her lock.

When a traditional multi-lock hasp will not provide enough attachment points for all authorized employees, another method shall be established (e.g. lockout box, lockout cabinet, etc.). An authorized employee who has primary responsibility for a set number of employees working under the protection of a group lockout or tagout device should ascertain the exposure status of individual group members.

When multiple employees use a lockbox or similar group lockout device, the lockout application shall be verified by a second qualified person in addition to the person performing the application.

OTHER SPECIALIZED EQUIPMENT

Tags shall be durable, standardized in type and have areas to indicate the employee's name and contact information.

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 6 of 8

Lock boxes for complex lockouts shall be clearly identified for lockout use by paint and/or labeling and shall not be used for any other purpose.

Multi-Contractor Site/Subcontractor

Authorized employees shall inform the supervision of other employers in a multi-employer work site of all aspects covered by this manual section.

Subcontractors for Big Ox Energy - Siouxland LLC are required to meet or exceed all aspects covered by this manual section.

Policy Review and Certification

Annually, this manual section (and applicable addendums and related training programs) shall be reviewed and documented (certified) by the Safety Department for updating and verifying the use of these procedures. Inspections verifying that these procedures are being followed shall be a component of this review.


ELETRICAL SYSTEMS

Prior to locking out any equipment, there should be an agreement between supervisors, staff members and contractors to specify which machine is to be taken out of service. The following actions, including but not limited to, are taken for LOTO of electrical systems:

- Switch appropriate control center to “off”. Operations authority is responsible for shutting down equipment. Lockout and tag must be placed by a qualified electrician.
- Lock and tag switch in “off” position. Work crew must have its own padlock and tag placed. The date, time, reason and signature must be stated on tag.
- Remove fuses of disconnect wires if switch cannot be locked. Only qualified electricians are to do this.
- Test to ensure equipment is de-energized at switch.
- Proceed with scheduled work.
- Remove all locks and destroy tags. No person shall remove a lock-out device except the worker that installed the lock.
- Where that worker is not available or it is not practical to use the worker’s key, the workers supervisor may remove the lock if that designated person:
 - has determined why the worker’s key is not available;
 - has determined that it is safe to remove the lock and activate the machine;

PRESSURE SYSTEMS

Prior to locking out any equipment, there should be an agreement between supervisors, staff members and contractors as to the specific equipment that is to be taken out of service. On-site inspection should be conducted.

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 7 of 8

Refer to drawings to ensure that the system is understood. The following actions, including but not limited to, are taken for LOTO of pressure systems:

- Shut off local start/stop switch. Be sure rotation of equipment stops.
- Turn main power control breaker off. Check local start/stop switch to be sure the equipment is deactivated.
- Tag and lockout main breaker. Tag must include date, time, reason for lockout and name.
- Block rotating equipment to ensure against accidental inertial movement.
- Isolate the system. All valves leading to the system must be closed by the equipment operator.
- De-pressurize and drain the system. Operations representatives are responsible for this action.
- If combustible gas or H2S exists, purge the system.
- Isolate all lines tying into the system. All lines containing hazardous substances shall be disconnected, blanked or blinded.
- Install locking devices and tags on all valves that would affect the system, if operated. Workers must have their own locks and tags on valves.
- Proceed with work. Monitor area for combustible or H2S gas. No unauthorized personnel should touch anything in the lock-out area.
- Complete all work on the machine before operation is resumed. Ensure that putting the machine in motion will not endanger any worker.
- Remove lockout device and destroy tags. Only the person who installed the lockout can remove the lockout device and tag.

*NOTE: In some cases, multiple locking devices will be required due to the number of locks being used.

TRAINING

Initial Training

Each affected employee shall receive training during orientation on the procedures of this Policy Section for the expressed purpose of ensuring awareness of the prohibition of removing control mechanisms and/or operation/initiation of applicable equipment/machines/processes.

Each authorized employee shall receive special training in the recognition of hazardous energy sources, the specific and/or common equipment/machines/ processes within respective work areas, types of necessary control mechanisms, and the procedures of this Policy Section. The training shall include signed and documented certification.


Annual Re-fresher Training

Both affected and authorized employees shall receive annual re-training.

Other Re-training

Any affected or authorized employee shall be immediately re-trained if:

- Their actions during related work activities violated any portion of this Policy;
- There is a change in job assignments or machines;
- There is a change in energy control procedures; or

	Big Ox Energy - Siouxland, LLC Safety Management System		SSC.SAFE.POL.140-018.LockoutTagout	
			Initial Issue Date	09/01/2016
LOCK OUT-TAG OUT			Revision Date:	06/08/2017
			Next Revision Date:	09/01/2018
Preparation: Safety Manager	Authority: President	Issuing Dept: Safety	Page:	Page 8 of 8

- A new hazard is introduced.

DETAIL

Refer to detail lockout procedures for each equipment component. Lockout procedures will be prominently posted and available in the plant control room.