Knight/Jacobs Joint Venture WORK INSTRUCTION	Work Instruction No.: 601 Revision: 1	Pages: 12
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Subject: **Lock-out/Tag-out**	Prepared By: Charles W Goodwin Department Approval: Daniel V. Quinn Project Management Approval: 8/2/02	

1.0 PURPOSE

The purpose of this Work Instruction (WI) is to establish a lock-out/tag-out (LOTO) process to ensure the safety and health of construction personnel working on the SNS site who may be required to work on any type of equipment capable of being energized or harboring stored energy.

2.0 SCOPE

This WI covers the use of a lock-out/tag-out process to protect personnel who may be exposed to energized or potentially energized equipment.

3.0 DEFINITIONS/ RESPONSIBILITIES

3.1. Affected Personnel - Any subcontract personnel required to operate or use a machine or equipment on which servicing is being performed under the lock-out/tag-out process, or who works in an area where such servicing is performed.

3.2. Authorized Personnel:

3.2.1. A person who locks and/or tags out machines or equipment in order for work to be performed on that machine or equipment.

3.2.2. Authorized employees must receive training on this WI and the CM's Control of Hazardous Energy (lock-out/tag-out) Training Program (PSM No. 010) at least annually and upon revision of this WI. Record of training must be recorded on LOTO Training Log (Attachment 1).

3.3. Construction Manager (CM) – CM is responsible for implementation of this WI.

3.4. Energy – Electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other source.

3.5. Energy Isolating Device – A mechanical device that physically prevents the transmission or release of energy.

3.6. Lock-out – The placement of a lock-out device (usually a lock), used in conjunction with a tag, on all energy isolating devices in its open position so that the equipment it isolates cannot be energized.

3.7. Lock-out Device - Locking devices used for isolating equipment from its associated energy source with the following features:

3.7.1. A means of identification to distinguish them from any other locking device on the project; red and labeled with company or department identification.

3.7.2. Not be used for any other purpose.

3.7.3. Individually keyed, and while in use, the key shall remain in the possession of the individual who placed the lock.

3.7.4. Master keys for lock-out locks must be placed in a lock box in possession of the Construction Manager or his/her designee.

3.7.5. Durable and able to withstand the environment to which they are exposed for long periods of time.

3.7.6. Mechanical device used to prevent operation of circuit breakers in panels.

3.8. Lock-out Log - A roster used to identify the location of a lock-out lock while it is in use. (Attachment 2)

3.9. LOTO Supervisor – The CM person who ensures adherence to the requirements of this WI.

3.10. Site Supervisor – The one who supervises persons working under this WI and is responsible for the following:

3.10.1. Ensure employees are trained to this WI.

3.10.2. Ensure employees are trained to recognize energy sources and the method and means of isolating such sources.

3.10.3. Continuously monitor the work to assure compliance with this WI.

3.10.4. Ensure an adequate supply of energy isolating devices is readily available.

3.10.5. Ensure each job is properly planned and covered by a JSA prior to implementing lock-out/tag-out process.

3.11. Site Safety Representative – The person who monitors LOTO activities for compliance with lock-out/tag-out requirements and keep the CM informed.

3.12. Lock-Out Tag – To be used in conjunction with a lock-out device to communicate the appropriate warning and contain the following features:

3.12.1. Tags shall be standardized in such a way to serve as a prominent warning, i.e., DANGER – DO NOT OPERATE.

3.12.2. The tag must have informational spaces available for date, identification of energy source and name of individual placing tag.

3.12.3. The tag construction, marking and written information shall be of such to ensure no deterioration occurs due to exposure to weather and/or corrosive environment.

3.12.4. The means of attachment shall be of a non-reusable type, attachable by hand, self-locking with a strength to withstand at least 50 pounds of pull and have the basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

3.13. Equipment Status Tags – A color-coded tag that communicates the status of equipment as described below (Attachment 3):

3.13.1. A RED TAG indicates the equipment is controlled completely by CM.

3.13.2. A YELLOW TAG indicates the equipment is jointly controlled by the CM and the Subcontractor installing the equipment and associated connections.

3.13.3. A GREEN TAG indicates the equipment has been accepted by and is controlled by SNS-CF.

3.14. Tag-out – The placement of a Lock-Out Tag used in conjunction with a lock-out device on an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be energized until the tag-out device is removed. In cases where a lock cannot be used, a tag-out label may be used without a lock.

4.0 METHOD (PROCEDURE)

4.1. Isolation

4.1.1. Prior to isolation (locking-out) or taking equipment out of service, approval must be obtained from the responsible CM representative. The LOTO Supervisor must make certain the requirements of this WI are followed.

4.1.2. The LOTO Supervisor shall determine the appropriate method of lock-out dependent upon the complexity of the system and/or equipment involved.

4.1.3. Individual Lock-out Method – Used for routine tasks which require locking-out of a single energy source for a short period of time and such work that will affect a minimum number of employees. For Individual Lock-out Method, each employee working on, or who could be exposed to a hazard by the unexpected energization or release of energy, shall:

4.1.3.1. Place a lock-out device on each appropriate energy isolating device.

4.1.3.2. Place a completed tag-out label onto each lock-out device.

4.1.4. Complex Lock-out Method – Used when more than one isolation device must be locked-out to isolate the equipment from its energy source. For Complex Lock-out Method, each supervisor of the workers affected by the lock-out must:

4.1.4.1. Place a single lock-out device on each energy isolating device.

4.1.4.2. Place a single completed tag on each lock-out device.

4.1.4.3. Ensure that all work of employees under his/her supervision is completed and that his/her employees will no longer be affected

by the lock-out prior to removal of lock-out devices and tags in accordance with Section 4.4.

4.1.5. Group Lock-out/Tag-out Method

4.1.5.1. A group lock-out/tag-out must afford each employee a level of protection equivalent to that provided by the implementation of a personal LOTO device.

4.1.5.2. Primary responsibility for a set number of employees working under the protection of a group LOTO device must be vested in a single authorized employee.

4.1.5.3. The single authorized employee must determine the exposure status of individual group members.

4.1.5.4. If there will be more than one group involved in the activity, a single authorized employee must be designated to coordinate affected workforces and to ensure continuity of protection.

4.1.5.5. Each authorized employee must affix a personal LOTO device to the machine or equipment prior to beginning work and when work is completed remove the LOTO device

4.2. Electrical Lock-out

4.2.1. The supervisor of the employee requesting the electrical lock-out must:

4.2.1.1. Complete a Lock-out/Tag-out Request form (Attachment 4).

4.2.1.2. Forward the Lock-out/Tag-out Request form to the CM LOTO Supervisor.

4.2.1.3. The LOTO Supervisor will ensure the isolation of the electrical energy source as follows:

- Place a lock-out device on the appropriate energy isolating device.
- Enter the required information on a lock-out tag described in Section 3.12.
- Place the completed tag on the lock-out device.
- Attempt to operate the equipment locked-out to ensure isolation.

4.2.2. Each supervisor of the group working in conjunction with the electrical lock-out must ensure the lock-out of the equipment.

4.3. Mechanical Lock-out

4.3.1. The supervisor of the employee requesting the mechanical lock-out must:

4.3.1.1. Complete a Lock-out/Tag-out Request form (Attachment 4).

4.3.1.2. Forward the Lock-out/Tag-out Request form to the LOTO Supervisor.

4.3.1.3. The LOTO Supervisor will ensure the isolation of the electrical energy source as follows:

- Place a lock-out device on the appropriate mechanical isolating device.
- Enter the required information on a lock-out tag described in Section 3.12.

- Place the completed tag on the lock-out device.
- Attempt to operate the equipment locked-out to ensure isolation.

4.3.2. Each supervisor of the group working in conjunction with the mechanical lock-out must ensure the lock-out of the equipment.

4.3.3. WHEN the lock-out device is no longer required, THEN the supervisor shall remove the lock-out device in accordance with Section 4.4.

WARNING: Due to the serious consequences of not following this WI:
- Anyone who operates an energy isolating device to which a LOTO device is attached, or removes a LOTO device without authorization, will be subject to immediate discharge in accordance with disciplinary policy of site.
- Any person who works on an energy source without following this WI will be subject to immediate discharge.
- Written approval from Construction Manager or designee must be obtained in order to deviate from this WI.

4.4. Lock-out/Tag-out Removal

4.4.1. The work area must be inspected to ensure that non-essential items (i.e., tools, spare parts) have been removed and that all equipment components are operationally intact.

4.4.2. Each personnel shall be safely positioned or clear the area.

4.4.3. Each lock-out/tag-out device must be removed from the energy isolating device by the personnel who applied the device.

4.4.4. WHEN the authorized personnel who applied the LOTO device is not available to remove it, THEN that device may be removed under the direction of the CM.

4.4.4.1. The CM or designee must verify that the authorized personnel who applied the device is not at the facility.

4.4.4.2. The CM or designee must make all reasonable efforts to contact the authorized personnel to inform him/her that his/her lock-out/tag-out device has been removed.

4.4.4.3. Affected personnel must be notified of the LOTO device removal prior to resuming work on the machine, equipment or system.

4.5. Testing of Equipment

4.5.1. WHEN energizing equipment or system is required for testing, servicing or maintenance, THEN LOTO device may be removed temporarily in order to perform these tasks.

4.5.2. The machine or equipment must be cleared of tools and materials.

4.5.3. Personnel must be removed from the area.

4.5.4. Each LOTO device must be removed.

4.5.5. Authorized personnel may then proceed to energize the equipment for testing, servicing or maintenance.

4.5.6. WHEN testing, servicing and maintenance has been completed, THEN the LOTO devices must be re-installed.

4.6. General

4.6.1. Tags and tag attachment devices are never to be reused, and are to be appropriately disposed of after removal.

4.6.2. Alterations or use of tags for other than this WI is prohibited.

4.6.3. No equipment shall be operated with a LOTO device attached, regardless of the circumstances

4.6.4. No one shall remove another person's LOTO device unless done in accordance with Section 4.4.

4.6.5. If the lock-out of a system must be in place for a long period of time, periodic inspections, for instance, weekly, must be performed to ensure lock-out devices and tags are still in place.

4.6.6. Lock-out devices must be inspected periodically and prior to each use to ensure they are working properly.

4.7. Periodic Review/Inspection

4.7.1. The LOTO Supervisor shall perform a periodic review of this LOTO WI and an inspection of the LOTO process, at least annually, and after an incident involving implementation of the LOTO process to ensure the requirements of this WI are being followed.

4.7.2. WHEN lock-out/tag-out is used for energy control, THEN the periodic review shall include a review of affected employee's responsibilities while using this LOT WI.

4.7.3. IF a discrepancy is found in the LOTO process or WI, THEN this WI may be revised to correct discrepancy.

4.7.4. The results of the periodic inspections must be recorded on Lock-out/Tag-out Inspection Report (Attachment 5).

5.0 RELATED DOCUMENTATION (REFERENCES)

5.1. OSHA 29 CFR 1910.147; Control of Hazardous Energy; Lock-out/Tag-out

5.2. OSHA 29 CFR 1926.417; Lock-out and Tagging of Circuits

5.3. PSM Training Program No. 010; Control of Hazardous Energy

6.0 RECORDS

6.1. Lock-out/Tag-out Training Record (All training documentation will be maintained at the site on the lock-out/tag-out Training Record Forms.)

6.2. Lock-out/Tag-out Log

6.3. Equipment Status Tag

6.4. Lock-out/Tag-out Request Form

6.5. Lock-out/Tag-out Inspection Report

7.0 ATTACHMENTS/APPENDICES

7.1. Attachment 1; Sample Lock-out/Tag-out Training Record

7.2. Attachment 2; Sample Lock-out/Tag-out Log

7.3. Attachment 3; Sample Equipment Status Tag

7.4. Attachment 4; Sample Lock-out/Tag-out Request Form

7.5. Attachment 5; Sample Lock-out/Tag-out Inspection Report

Attachment 1
Sample Lock-out/Tag-out Training Record

LOCK-OUT / TAG-OUT TRAINING RECORD

My signature below acknowledges that I have received training on the Knight/Jacobs SNS Lockout/Tagout Safety Procedures, and that I fully understand the requirements of this procedure. I further agree to abide by these requirements and understand that violation is subject to disciplinary action up to and including discharge.

Name (print)	Signature	Social Security No.	Date of Training

Attachment 2
Sample Lock-out/Tag-out Log

LOCK-OUT/TAG-OUT LOG

Date Applied	Lock #	Location	Equipment Tag	Requester	Date Removed	Comments	Locked Pos.

Attachment 3
Sample Equipment Status Tag

EQUIPMENT STATUS TAG

Equipment No. _____ Date _____
Equipment Type _____ Location _____
CF Installation Complete Yes or No
Entry Authorization Required Yes or No
Contact _____
Phone No. _____
C.P. No. _____

See KJJV Lock-out/Tag-out WI-601 attachment 3

Tags will be red, yellow or green.

Attachment 4
Sample Lock-out/Tag-out Request Form

LOCK-OUT/TAG-OUT REQUEST

Equipment I.D.: _____ Location: _____

Single or multiple lock-out/tag-out: _____

Estimated duration of lock-out/tag-out: _____

Date – time lock-out/tag-out required: _____

Reason for lock-out/tag-out: Maintenance _____ Testing _____ Other work

Drawing number: _____

Crafts involved: _____

Requested by: _____

Approved by: _____

Contact for emergency removal: _____

Attachment 5
Sample Lock-out/Tag-out Inspection Report

LOCK-OUT / TAG-OUT INSPECTION REPORT

Project Number:_____ **Location:**_____

Project / Site Manager:_____ **Date:**_____

INSPECTION

Machine / Equipment Utilized:_____

Employees Included In Inspection: _____ _____

Inspection Results:_____

Review of Incidents (involving lock-out / tag-out):_____

Conclusion and Findings:_____

Annual Training Completed and Documented: Yes_____ No_____

Inspector:_____ **Signature:**_____

Site Manager:_____ **Signature:**_____