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PURPOSE & SCOPE

To provide a system for ensuring that adequate boundaries are established to safely perform work on plant and campus equipment.

Applies to all UCSF employees and Building Staff working on UCSF sites.

Lockout Tag out (LOTO) is a critical process designed to prevent employee exposures to hazardous energy sources and from equipment that might otherwise start up un-expectedly. The process ensures that those potentially exposed to this type of risk, have knowledge and control over its activation and/or release of energy.

TRAINING

All employees assigned to facilities shall receive training on this procedure at the time of arrival on site, at least annually, anytime this procedure is revised, and anytime there is a LOTO violation re-training will be required.

Training documentation including copies of all quizzes and training records shall be maintained at each site, and a copy forwarded to EH&S.

PRECAUTIONS

Violation of this procedure will in disciplinary action up to and including dismissal.

No electrical equipment may be worked on without its associated breaker opened, locked and

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tagged, except as required for testing and tuning.

No mechanical equipment may be worked on without its associated process or working fluid being valved out, depressurized and isolated, except as required for testing or tuning.

Large equipment may have multiple energy sources and each must be controlled. But there are many other types of hazardous energy, besides electrical, that must be controlled in order to work safely.

Under no circumstances shall anyone ever operate a device with a "DO NOT OPERATE" tag in place.

Only Facilities personnel are authorized to isolate equipment. Outside contractors may place their own locks and tags on plant equipment, but they must be accompanied by an in-house lock and tag.

OPERATIONAL PROCEDURE

General

This procedure is applicable to all UCSF personnel working on plant & campus equipment.

A lock and tag signifies that equipment has been rendered safe for the specific work for which the lock and tag was issued. It does not, however, warrant that no hazard exists. It is the responsibility of the person performing the work to verify that the equipment is safe to work on. All equipment shall be tested before work proceeds

Energy Isolating Devices-Locks

Multi-lock devices and locks (hereafter "lockout devices") used for the purpose of isolating an energy source shall not be used for any other purpose. Lockout devices for energy source isolation must have a means of identification that distinguishes them from any other locking device on the project. A particular color, shape or size may be used as the means of identification. Each lockout boxes set of lockout lock keys must be locked inside the lock out box while in use. Every affected employee must have an individually keyed lock on lock to lock onto required lockout box when working on tagged out equipment. A master Key will be kept with the Trades Supervisor for all trades and with the Chief Engineer for all engineers

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Systems or equipment under a lock and tag may not be operated, pressurized, energized or electrically tested, except as authorized by the Trades Supervisor or designated representative.

A physical disconnect is required for all lock outs. Shutdown via the BMS or using a hand off auto switch are unacceptable means of lock out.

It is the responsibility of the Trades Supervisor to ensure that all site and contractor personnel have a thorough understanding of these procedures to ensure compliance with said procedures.

LOCK AND TAG IMPLEMENTATION

The lock and tag requestor initiates a lock and tag by filling out the equipment/system affected, reason for lock and tag and special conditions or instructions on the "Lock/Tag Authorization Form".

Prior to any lock and tag being granted, a work order, authorized by the Shift supervisor will be completed. This work request must include a listing of the specific equipment to be worked on, the nature of the work to be performed, whom will be performing the work and how long the work will take. Special conditions affecting safety or operations must also be included.

The Lockout/Tag number is the location of the equipment to be worked on and the next sequential number of the total locks and tags completed. EXAMPLE: C-12 is the twelfth Authorization to be issued for Campus Engineers. T-21 would indicate the twenty first to be issued for the Trades.

All equipment device tags will be numbered with the Lockout/Tag number and tag sequence number. For example, a device tag number of **T-12-3** will indicate the **12th** trades Lockout/Tag Authorization and **3** as the **3rd** individual tag associated with the specific Lockout/Tag.

More than one Lockout/Tag requestor can be listed on a Lockout/Tag form when multiple jobs are to be performed on the same piece of equipment. If a Lockout/Tag requestor requires the same isolation point as another Lockout/Tag requestor, a series lock shall be used with all individual locks on a common lock box. Locks shall not be removed until

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all jobs are complete.

There are two methods of locking-out, dependent upon the complexity of the system and/or equipment involved. The Lead person shall determine which method is appropriate.

- **Individual Lockout Method**

- The individual lockout method may be used for routine tasks that require locking-out an energy source for a short period of time and such work will affect only a minimum number of employees. In this instance, each employee working on, or who could possibly be exposed to a hazard by the unexpected energization or release of energy shall:
 - fill in the lockout request log.
 - Overview the lockout to ensure full energy isolation and place his/her personal locks on all lockout devices and tags (use multi-hasp locking device if more 1 person affected).
 - Sign on in the affected employee box on the lock/tag authorization form.
 - When work is complete notify the Lead Engineer, remove personal locks from isolations and Sign off as the affected employee.

- **Complex Lockout Method**

- The complex lockout method may be used when many isolation devices must be locked-out such as a unit or system shutdown or multiple people are working on the same systems. In this instance, the Lead person shall:
 - Fill out the lockout request log.
 - Overview the lockout to ensure full energy isolation and place his/her issued lock-on lock on the lock box after all lockout devices and tags have been hung by a trained and qualified operator and lock keys have been placed inside the lock box.
 - Sign onto the lock box in the Affected Employee lock ON box on the lockout/tag out authorization form.
 - Ensure that all work of employees/contractors is completed and that employees/contractors will no longer be affected by the lockout prior to removal of lockout devices and tags.
 - remove lock-on lock from the lockbox and sign off as the affected employee.

Operations will place all locks and tags in the positions required for the equipment isolation.

After each device is positioned as required, the operator will sign, date, write the Lockout/tag number on the "DO NOT OPERATE" tag and hang the tag on the appropriate device.

Operations will drain, vent, and purge all associated systems to the extent possible to support

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maintenance. Once all tags are and the system isolated, the Operator or person hanging the tags will sign the Authorization Form as "issued". In the cases where system configuration prevents draining, venting or purging the Lockout/tag requestor will be informed.

Operations will notify the requestor when the established. Once the requestor has verified that the mechanically and electrically isolated they will sign the Authorization Form as "accepted".

CLEARING A LOCK OUT

When work is complete the requestor will inform Operations that the system is ready to be realigned. When the requestor reports the work complete, they are to sign the Lockout/Tag Authorization Form as "reported clear".

Prior to any lock and tag clearance, the tag out clearance will be authorized by the Shift supervisor.

The Operator shall walk down the system insuring the repairs are complete and verifying system integrity. The Operator will then release each individual tag and lock.

The tags and locks will be removed and the system realigned as necessary to return the system to normal configuration. The operator who removed the Lock and tag will then initial the Lockout/Tag "removed by" line of the Lockout/Tag Authorization Form.

Temporary Removal

In situations where the lockout/tag out devices have to be temporarily removed for the purpose of testing or positioning the machine, equipment, and components thereof, the following sequence shall be followed:

- Clear the machine or equipment of tools and/or material.
- Re-install all guards where possible.
- Remove employees from the machine or equipment
- Energize and complete the testing or positioning
- De-energize all systems and repeat isolation procedures.

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Audits

Audits shall be conducted monthly by the Trades Supervisor or designated alternate. Discrepancies shall be noted and corrected immediately.

References

OSHA LOTO Standard 29 CFR 1910.147