



California State University San Marcos

Safety, Health, & Sustainability

Control of Hazardous Energy (LOTO) Program

Revision	Date	Description of Change
--	2013	Initial Issue
A	October 3, 2025	General program updates
B		

I. Policy

It is the policy of California State University San Marcos (CSUSM) to maintain, insofar as can reasonably be expected, a campus environment for faculty, staff, students, and the public that will not adversely affect their health and safety nor subject them to avoidable risks of accidental injury or illness. CSUSM shall comply with all applicable Cal/OSHA regulations. CSUSM is committed to safeguarding employees from hazardous energy during the servicing or maintenance of machines and equipment.

II. Authority

- California Labor Code §142.3
- California Code of Regulations, Title 8, §2320.1-§2320.10 and §3314

III. Scope

This program applies to all CSUSM employees and contractors who clean, repair, service, set up, and adjust machines and equipment where the unexpected **energization**, start-up, or release of stored energy could cause injury. The program covers all types of hazardous energy, including mechanical, electrical, hydraulic, pneumatic, chemical, thermal, and other energy sources.

IV. Definitions

- **Affected Employee** - An employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lock-out or tag-out, or whose job requires them to work in an area in which such servicing or maintenance is being performed.
- **Automated Integrated Management (AiM)** - The integrated workplace management system used by Facilities Development and Management to perform equipment servicing and repairs.
- **Authorized Employee** - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.
- **Block-out** - The placement or use of a physical device preventing energy or injurious sources from traveling past the block-out, such as securing a valve, blank flanging a pipe/source, mechanical crimping a chemical feed tube, sewage pipe plug insert, etc. Note: Certain blocking devices (sewage plugs, etc.) require tagouts to be placed at a convenient and highly visible location, rather than directly on the blocking device.
- **Capable of Being Locked Out** - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked-out if this is possible without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
- **Energized** - Connected to an energy source or containing residual or stored energy.
- **Energy Isolating Device** - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manually operated electrical circuit breaker.
 - A disconnect switch.
 - A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently.
 - A line valve.
 - A block; and any similar device used to block or isolate energy.
 - **NOTE:** Push buttons, selector switches, and other control circuit type devices are **not** energy isolating devices.
- **Group Lock** - A lock-out/block-out system in which several employees, all of whom are working on the same piece of equipment, each attach their own personal lock to the main shutoff device to ensure the equipment cannot be energized until all locks have been removed. A designated employee controls a group lock.
- **Lock-out** - The placement of a lock-out device 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 lock-out device is removed.
- **Lock-out Device** - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.
- **Normal Production Operations** - The utilization of a machine or equipment to perform its intended production function.
- **Servicing and/or Maintenance** - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.
- **Setting Up** - Any work performed to prepare a machine or equipment to perform its normal production operation.
- **Stored Energy** - A condition in which machinery or equipment appears to be in a deenergized state because it is disconnected or isolated from an external energy source but is, in fact, capable of movement if some element of its equilibrium is disturbed. Also known as potential energy.
- **Tag-out** - The placement of a tag-out 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 tag-out device is removed.
- **Tag-out Device** - A prominent warning device, such as a tag and a means of attachment, which can be 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 tag-out device is removed.
- **ViewPoint** - A software application by SEAM Group with both mobile device (ViewPoint On-Demand) and desktop accessibility used to create and access LOTO procedures.

V. Accountability/Responsibilities

A. All Employees

No employee **shall** attempt to operate any switch, valve, or other energy isolating device when it is locked or tagged out. Nor **shall** any employee attempt to bypass, remove, or disable a lock-out, tag-out (LOTO), or block-out device. Violations of the LOTO program **shall** be subject to disciplinary procedures, up to and including termination.

B. Supervisors

Supervisors are responsible for the implementation of this program by their employees. Supervisors **shall**:

1. Assess the work environments under their control to identify all equipment/machinery that requires a Lockout/Tagout procedure. If equipment/machinery is identified which cannot be locked out, supervisors **shall** work with Safety, Health, and Sustainability (SHS) to develop an alternative method that provides an equivalent level of safety and is documented in a specific energy control procedure. Original Equipment Manufacturer (OEM) manuals **should** be used to create site-specific procedures as needed.
2. Assist in the development of site-specific and equipment/machinery-specific LOTO procedures.
3. Provide ready access to LOTO procedures for authorized employees by:
 - a. Ensuring that hard copies of LOTO procedures are posted on or adjacent to equipment/machinery, where feasible.
 - b. Ensuring all authorized employees have a method to access ViewPoint On-Demand procedures application on a mobile device or other electronic means.
4. Ensure that their personnel receive the appropriate level of LOTO training (authorized, affected, or other) based on the employees' job duties.
5. Ensure that authorized employees receive refresher LOTO training whenever there is a change in job assignment, a new hazard is introduced, or a change in machinery, equipment, or process occurs.
6. Provide authorized employees with the LOTO devices/equipment necessary and appropriate for their work activities.
7. Assign personnel to conduct **annual periodic inspections** of LOTO procedures to evaluate their effectiveness and determine the necessity for updating the written procedure. The periodic inspection **shall** include a review between the inspector and authorized employees of their responsibilities under the hazardous energy control procedure being inspected.
8. Investigate any deficiencies in the LOTO training or procedures.
9. Review AiM work orders during the approval phase to verify the presence of the LOTO notation.
10. If a group lock is appropriate, designate an **authorized employee** to control the lock-out. Inform this individual that they are responsible for ensuring all employees involved in the group lock are accounted for and out of danger prior to the removal of locks.
11. Coordinate with outside personnel, such as contractors and employees from other departments, to provide necessary information regarding the CSUSM LOTO program and procedures.

C. Authorized Employees

Authorized employees are responsible for implementing LOTO procedures. They are also authorized to disable equipment through LOTO to prevent an unsafe condition. Authorized employees **shall**:

1. Actively participate in the general, site-specific, and equipment/machinery-specific LOTO training.
2. Assist in the development of site-specific and equipment/machinery-specific LOTO procedures.
3. Utilize the appropriate LOTO procedures prior to, during, and after maintenance/repair activities.
4. Notify affected employees via AiM and/or email that LOTO will occur, as well as when the equipment is placed back in service.
5. Respect all locks or blocks placed by other persons. **Never** remove or attempt to bypass a lock, tag, or block placed by another worker or attempt to energize equipment that has been locked or blocked.
6. Maintain key(s) in their immediate possession at all times unless a supervisor has explicitly directed a different procedure for a specific group LOTO.
7. If designated by a supervisor to control a group lock, they **shall** place their lock in the first position and ensure that all employees involved in the group lock are accounted for and out of danger prior to the removal of locks.
8. If participating in a group lock, they **shall** adhere to the group lock plan or the site-specific standard operating procedure.
9. Record LOTO information in the applicable AiM work order.
10. Conduct annual periodic inspections of LOTO procedures as directed by a supervisor.
11. Immediately report any deficiencies in the LOTO training or procedures to their immediate supervisor.

D. Safety, Health & Sustainability (SHS)

Safety, Health and Sustainability (SHS) is responsible for providing guidance and support to Facility Services (FS) and Energy Management & Utility Services (EMU) regarding safety compliance. SHS **shall**:

1. Assist FS & EMU in developing, reviewing, and updating LOTO procedures.
2. Provide regulatory, CSU system, and policy updates to affected supervisors and employees as necessary.
3. Coordinate with FS and EMU in developing and delivering LOTO training.
4. Maintain training records and training materials on file.
5. Provide assistance in identifying equipment and machinery requiring LOTO procedures.

VI. Program

A. Equipment Evaluation and Lock-Out/Block-Out/Tag-Out Procedure

Existing equipment **shall** have the LOTO procedure QR tags posted on or adjacent to the equipment and are also housed in the ViewPoint App. LOTO procedures **shall** be created for new or modified machinery/equipment using the following process.

1. Equipment and machinery **shall** be evaluated to identify sources of hazardous energy requiring control.
2. Sources of Hazardous Energy shall include, but are not limited to:
 - a. Electric
 - b. Hydraulic
 - c. Mechanical
 - d. Pneumatic (Compressed Air)
 - e. Thermal
 - f. Water (pressure or temperature)
 - g. Potential energy from suspended parts subject to gravity or energy stored in springs
 - h. ARC Flash Potential
3. Once the sources are identified, the ViewPoint App will be used to draft the specific LOTO procedure. The applicable supervisor or their designee **shall** review the draft procedure and then designate approved procedures as "ready to use."

B. Standard Lock-Out/Block-Out/Tag-Out Steps

These steps are general in nature. Specific energy control procedures should be followed each time the energy control is required.

1. Affected employees **shall** be notified that a lock-out is going to be implemented and the reason for it. Notification is accomplished via the AiM work order process for those with access and via email for those who do not have access to AiM.
2. The authorized employee **shall** shut down the equipment/machine according to manufacturer's instructions and University procedures.
3. The authorized employee **shall** isolate the equipment/machine from **all** sources of energy.
4. The authorized employee **shall** lock-out/block-out/tag-out all disconnecting means with university approved and provided devices. Each person who will be working on the machinery **shall** place a personal lock on the machine's lock-out device(s). Each lock **must** remain on the machine until the work is completed or a shift change occurs. Only the employee who placed the lock **shall** remove it. Tags **shall** include the name of the person placing the tag, how they may be contacted, and the work order number. Tag-out devices **shall** be durable enough to withstand environmental conditions and have a pull strength of at least 50 pounds.
 - **EXCEPTION:** LOTO is not required for equipment for which the source of hazardous energy is controlled by the unplugging of the equipment **and** the plug is under the exclusive control of the employee performing the work.
5. Steam, air, and hydraulic lines **shall** be bled, drained, and cleaned out as needed to protect personnel. Blinds may be placed in pipes as needed.
6. Any mechanism under load or pressure, such as springs, **shall** be released and/or blocked.
7. Blocks will be placed under any equipment that might inadvertently move by sliding, falling, or rolling. If the machinery or equipment must be capable of movement in order to perform the specific task, then the use of extension tools or other equivalent methods **shall** be used to minimize the hazard and protect employees from injury.

8. Prior to starting work on machines or equipment that have been locked out, the authorized employee **shall** verify that isolation and de-energization of the machine or equipment have been accomplished.
 - When the equipment being serviced is electrical, it **must** be tested using the following steps to ensure that it is de-energized:
 - A voltage detecting instrument **shall** be used.
 - Verify proper instrument operation on a known live source **before** testing for absence of voltage.
 - Test for absence of voltage on all conductors and circuit parts.
 - Verify proper instrument operation on a known live source **after** testing for absence of voltage.
 - Where it is required, install grounding equipment/conductor device on the phase conductors or circuit parts to eliminate induced voltage or stored energy, before touching them. Where it has been determined that contact with other exposed energized conductors or circuit parts is possible, apply ground connecting devices rated for the available fault duty.
 - The authorized employee **shall** attempt to re-start the machine/equipment to verify de-energization. **CAUTION:** Return disconnects and operating controls to the off position after each test.
9. After the work is completed and the equipment is ready to be returned to normal operation, this procedure must be followed:
 - a. Remove all non-essential items and tools from the work area.
 - b. See that all equipment components are operationally intact, including guards and safety devices
 - c. Repair or replace defective guards before removing lockouts.
 - d. Remove any block-out devices, including blinds.
 - e. Remove each lock-out device using the correct removal sequence. Only the employee who placed the device shall remove it.
 - f. Make a visual check before restoring energy to ensure that everyone is physically clear of the equipment.
 - g. Notify affected employees that the equipment is being returned to service.
 - h. Re-energize the system and restart the equipment/machinery.

C. Testing Equipment During Lock-Out

In many maintenance and repair activities, machinery may need to be tested (made temporarily functional and therefore re-energized) during the operations.

1. In circumstances such as these, the following steps must be followed:
 - a. Clear all personnel to a safe area.
 - b. Clear away tools and materials from the equipment.

- c. Remove lock-out devices and re-energize systems, following the established safe procedure.
 - d. Proceed with tryout or test.
 - e. Neutralize all energy sources once again; purge all systems, and lock-out prior to continuing work.
2. If the machinery or equipment must be capable of movement in order to perform the specific task, then the use of extension tools or other equivalent methods **shall** be used to minimize the hazard and protect employees from injury.

D. Shift Changes and Work Interruption

When maintenance work extends beyond one shift, or when there are changes in personnel on the job for any reason, the area lead or supervisor **shall** coordinate the change via AiM and work control. In situations involving group lock-outs, the designated group leader **shall** be the coordinator.

E. Outside Services or Contractors

1. Outside personnel or contractors involved in operations relating to equipment or machinery **shall** utilize appropriate LOTO procedures. FS, EMU, SHS, or Planning, Design & Construction **shall** review the outside contractor's LOTO procedures and ensure that requirements are met. In addition, the outside contractor's written program **shall** be provided to SHS upon request.
2. CSUSM personnel responsible for projects involving group lockouts with contractors **shall** place their locks in the first position.

F. Training

Training in LOTO procedures is mandatory for all affected and authorized employees and **shall** be conducted by qualified maintenance, safety, or supervisory staff.

1. Affected employees.

Affected employees are required to be trained on the purpose and use of LOTO procedures. They shall be instructed on the prohibition against tampering with or removing a LOTO device.
2. Authorized employees.

Authorized employee training shall consist of the following elements:

 - a. The LOTO Program documents, energy control procedures, and the ViewPoint App.
 - b. The steps of a LOTO procedure.
 - c. The hazards related to performing LOTO activities.
 - d. Equipment-specific training prior to the initial involvement with any LOTO procedure.
3. **Retraining** will be provided for authorized and affected employees whenever there is a change in job assignment, new machinery, equipment, or a process that presents a new hazard or a revision to the LOTO procedure. Retraining will also be given whenever a periodic inspection identifies a deficiency in the procedures.
4. Periodic refresher training will be conducted for all affected and authorized employees at least annually.

5. Training records will be maintained by SHS.

G. Inspections

Periodic review and inspection of LOTO procedures of the ViewPoint App in the field **shall** be conducted at least annually. The purpose of the inspection is to evaluate the effectiveness of the LOTO Procedures being used. These inspections **shall** be conducted by an authorized employee **other than** the one(s) utilizing the LOTO procedure that is being inspected. Verification of the annual inspection will be noted in the procedure on the ViewPoint App.

Attachment A - Equipment Inventory

- Aeration Equipment
- Air Compressors
- Air Conditioners
- Air Distribution Systems
- Air Dryers
- Air Handling Units
- Alarms and Annunciators
- Audio-Visual Equipment
- Backflow Preventers
- Balers
- Assorted Laboratory Equipment (still to capture accurate lists)
- Security Systems