

# MARIPOSA COUNTY LOCKOUT/TAGOUT PROGRAM

## INTRODUCTION

Mariposa County (“County”) facilities have equipment and systems that must be de-energized to allow for safe cleaning, repairing, servicing, setting-up, unjamming and adjusting of the machinery. As a result, the current Cal/OSHA regulations at Title 8 California Code of Regulations, Section 3314 (8 CCR 3314) are applicable to the County’s operations. These regulations require that the County establish a written program and energy control procedures for lockout/tagout of energized equipment to render it safe for work. A list of definitions that will assist in understanding the terminology used in this program and the energy control procedures is included as Appendix A. A list of all applicable Cal/OSHA regulations relevant to the Lockout/Tagout program is included as Appendix B.

## POLICY

This document requires supervisors and employees to follow basic lockout principles when involved in cleaning, repairing, servicing, setting-up, unjamming and adjusting of energized equipment and systems at any of the County’s facilities. All employees will comply with this program and applicable procedures at all times.

Each affected Department, with the help of the Human Resources/Risk Management Department staff will develop and implement a written Lockout/Tagout Program and energy control procedures specific to their department’s equipment and systems. This written program provides standards for employee training, basic procedures to ensure safe work practices, and instructions to be used by each Department in preparing individualized programs.

## PURPOSE

This program establishes the minimum requirements for lockout of energy sources that could cause injury to personnel. Implementation of these program, along with equipment-specific energy control procedures, will ensure the proper lockout/tagout (“LOTO”) of energy sources prior to repairing, cleaning, oiling, adjusting or performing similar work on any equipment, machinery, prime movers and piping systems. Energy sources include, but are not necessarily limited to:

- Mechanical
- Hydraulic
- Pneumatic
- Electrical
- Compressed air
- Stored energy

## **RESPONSIBILITIES**

The responsibility for seeing that these procedures are followed is shared by all employees. All authorized employees will be instructed in the safety significance of the lockout procedure. Each new or transferred affected employee shall be instructed in the purpose of the lockout procedure, and how to confirm that the equipment-specific procedure has been implemented. All employees shall comply with these procedures at all times.

### **Program Manager**

The lockout/tagout program manager is responsible for the following:

- 1) Ensuring compliance with procedures outlined in this program.
- 2) Ensuring an adequate supply of appropriate LOTO locks, tags and accessories are available for authorized employees' use.
- 3) Selection and installation of appropriate lockout/tagout systems for each application.
- 4) Conducting inspections of equipment and operations to identify energy sources.
- 5) Review and approval of equipment-specific energy control procedures.
- 6) Ensuring systems are in place to ensure contractor compliance with this program.
- 7) Ensuring that employees receive training consistent with the requirements of this program.
- 8) Conducting an annual evaluation of program effectiveness.

### **Supervisors**

- 1) Enforce the use of lockout/tagout procedures.
- 2) Assist in employee training.
- 3) Develop specific energy control procedures for machinery and equipment.

### **Employees**

- 1) Know and understand the County's LOTO program and follow all energy control procedures.
- 2) Ensure lockout/tagout equipment is in good repair and used appropriately.

## **PROCEDURES**

### **Energy Control Procedures**

Written energy control procedures are required for each piece of equipment. These procedures are used during repair, servicing or maintenance operations. Machinery, or equipment, with the same energy control systems can be combined into one energy control procedure. Appendix D is an index (list) of equipment with specific procedures. Appendix E has the form which is used to document each Energy Control Procedure. Each energy control procedure must include the following at a minimum:

- A statement indicating how the procedure will be used.
- Specific steps required to shut down, isolate, block, and secure machines or equipment.
- Placement of lockout/tagout devices and the responsibility for them.

- Requirements for testing equipment to verify effectiveness of energy control measures.

### **General Shutdown and Lockout/Tagout Requirements**

- The authorized County employee(s) must notify all affected employees prior to initiating any energy shut down and prior to implementing LOTO procedures.
- The authorized employee must follow the written energy control procedure for that specific machine, or category of equipment.
- Energy isolating devices must be physically located and operated in such a manner that the machine or equipment is isolated from the energy source.
- The authorized County employee must attach lockout and/or tagout devices to each energy-isolating device.
- Whenever feasible the energy source must be isolated by the installation of a lockout mechanism along with a tagout label to prevent inadvertent activation.
- Lockout/tagout devices must be installed in such a manner to prevent activation, or clearly indicate that the operation or movement of energy isolating devices from the “safe” or “off” position is prohibited.
- Following installation of lockout/tagout devices, all potentially hazardous stored or residual energy must be relieved, disconnected, blocked or otherwise rendered safe.
- Electrical circuits must be made safe through discharge of capacitors, and short circuiting and grounding of high-capacitance elements.
- If the possibility of re-accumulation of stored energy exists, verification of the isolation systems must be performed until the service or maintenance process is completed.
- A motor that can restart automatically after shutdown shall not be used if its automatic restarting can result in injury to employees.
- Prior to starting work on machines or equipment that has been de-energized and lockout/tagout devices installed, the County employee must verify energy isolation through the following actions:
  - Operate all the equipment controls to verify that the equipment cannot be restarted.
  - If electrically de-energized, test the circuits and equipment by use of appropriate test equipment such as voltage testing equipment.

### **Restart/Re-Energizing Procedures**

The following procedures must be taken by the authorized employee prior to removing lockout/tagout devices and restoring energy to the equipment:

- Each lockout/tagout device must be removed by the person who installed it.
- Inspect work area to ensure that all non-essential items have been removed and to ensure that all machine/equipment components are operationally intact.
- Inspect area to ensure that all tools, mechanical restraints and electrical jumpers, shorts or grounds have been removed.
- Inspect work area to ensure all employees are safely away from equipment prior to re-energizing.

- Notify all affected employees that the lockout/tagout devices have been removed and that the equipment is available for use.

### **Electrical Equipment or Systems**

- Only qualified County employees are permitted to work on electrical equipment or systems.
- All electrical systems must be considered energized, until tested or otherwise proven to be de-energized.
- Whenever possible, electrical equipment must be de-energized prior to starting work on the equipment. No work is to be done on exposed, energized parts of equipment or systems until:
  - A responsible supervisor has determined that the work must be done while the part or system is energized.
  - Employees have been trained in the techniques and hazards involved in the job.
  - Necessary barriers, barricades, tags, or signs are in place.
  - Employees have donned the appropriate protective gear.
- The electrical disconnect must be locked in the open position, or other positive methods must be implemented that will effectively prevent the inadvertent energizing of the system. A tag indicating “Danger-Do Not Operate” must also be installed along with the lockout device.
- Whenever it is not practical or feasible to use a lockout device, a tagout system can be used alone. In these cases, the tag must be attached at the point of activation of the circuit and it must be clearly legible to all affected employees.

### **Pressurized Equipment**

- When working on pressurized equipment, the pressurizing source, such as compressors, pumps, boilers, etc., must be shutdown, and locked out and/or tagged out.
- Pipes or lines that convey pressurized substances must be bled to atmospheric pressure prior to opening the system.
- Once the system has been bled to atmospheric pressure, the pipes or lines must be disconnected, blinded, or closed by a valve and locked out and/or tagged out.

### **Machinery or Equipment with Moveable Components**

- All moving parts that may present a hazard during servicing of the equipment must be blocked or locked to prevent inadvertent movement. Whenever the equipment or component must be capable of movement in order to perform the service, the supervisor must provide the use of extension tools or devices to minimize the hazard.
- Prime movers or power driven machines must be locked out or positively in the OFF position during repair work and setting up operations. If locking devices or off switches are not available, then the equipment must be de-energized and disconnected from its source. Danger tags must be used in all cases.
- Equipment must be tested after locking out by activating its normal operating mechanism to verify that the proper device has been disconnected.

## TRAINING

Training is provided to all County employees categorized as “Authorized” and “Affected” by the lockout/tagout standard. The County will maintain a list of Authorized Employees and Affected Employees who have successfully completed the required training. Refer to Appendix F to this document. Training must be conducted prior to performing any work that falls under this standard. Retraining must take place whenever one of the following conditions occurs:

- A change in an employee’s job assignments.
- A change in equipment or energy control procedures.
- Findings of an inspection indicate deviations from established procedures.

### **Authorized Employee Training**

An authorized employee is a qualified County employee whose job responsibilities include service or maintenance of machinery or equipment covered by the lockout/tagout standard. Authorized employees can lockout and tagout equipment to perform maintenance or service operations. Training for these employees includes:

- Knowledge of the types and magnitude of energy sources for machinery and equipment in the County.
- Methods and means necessary to isolate and control those energy sources.
- Understanding and use of equipment-specific energy control procedures.
- Energy control procedures and systems to be used when working with contractor employees.

### **Affected Employee Training**

Affected employees are County employees who use the machinery or equipment that is being serviced or maintained under lockout/tagout procedures or who works in an area where the equipment is being serviced or maintained. Training for affected employees includes:

- Recognize when the control procedure is being used.
- Understand the purpose of the energy control procedures.
- Understand the warning tags, signs and lockout systems in use.
- Know how these procedures protect them.

## INSPECTIONS/AUDITS

A periodic inspection/audit of an energy control procedure will be conducted at least annually to ensure that the procedures and the requirements of this program are being followed. A procedure evaluation checklist is provided as Appendix C, Lockout/Tagout Procedure Inspection/Audit.

## **RECORDS**

### **Training Records**

A record of training provided to County employees includes the following information:

- The employee's name.
- The employee's signature.
- The date the training took place.
- The name and signature of the individual conducting the training.
- The length of the training.
- The content of the training.

### **Inspection/Audit Records**

Records of all periodic inspections/audits of energy control procedures and surveys of equipment and operations related to the lockout/tagout standard must be maintained. Inspection records must include the following information:

- Date of inspection/evaluation.
- Name of person(s) conducting the inspection.
- Identity of the procedure evaluated.
- Findings of the inspection.
- Corrective actions with target dates for completion.

Training records are maintained for the term of employment by Human Resources/Risk Management. For employees who work for the County for less than one year, the employee's records will be provided to the employee upon termination of employment. Employee training records are maintained by the applicable Department for at least three years.

## **WORK PERFORMED BY CONTRACTORS**

Contractors that require a LOTO to perform their contracted work will require a County authorized employee to first implement the appropriate energy control procedure prior to the contractors' lock(s) being applied to the affected system or equipment.

The County's authorized employee will be responsible for keeping the Contractor's work scope within established clearance points and for monitoring the contract employees while they perform such work.

After the Contractor has reviewed all isolation points, understands the LOTO limits, and has walked down the LOTO, then the Contractor's employees may begin work on the affected system or equipment. Under no circumstances will the Contractor or their employees be allowed to independently perform LOTO on County systems or equipment. When the Contractor has completed all work, and all their employees and equipment are clear, they shall notify the County's authorized employee. The County's authorized employee will then implement the restart/reenergize procedures.

Contractors are solely responsible for lockout/tagout procedures on new construction.

Signed by,

  
Chairperson, Mariposa County Board of Supervisors

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#### **LIST OF APPENDICES**

- A. Lockout/Tagout Program Definitions
- B. Lockout/Tagout Applicable Safety Orders
- C. Lockout/Tagout Procedure Inspection/Audit
- D. Index of Equipment with Energy Control Procedures
- E. Energy Control Procedure Form
- F. Authorized and Affected Employees

**APPENDIX A**  
**LOCKOUT/TAGOUT PROGRAM**  
**DEFINITIONS**



## **LOCKOUT/TAGOUT PROGRAM DEFINITIONS**

- ❑ Affected Employee  
A person who uses equipment that is being serviced or maintained under lockout or tagout procedures, or who works in an area where equipment is being serviced or maintained.
  
- ❑ Authorized Employee  
A person who locks out or tags out equipment to do service or maintenance work. An affected employee becomes an authorized employee when that employee's duties include service or maintenance covered in the lockout/tagout standard.
  
- ❑ 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 if it has a locking mechanism built into it.
  
- ❑ Energy-Isolating Device  
A mechanical device that physically prevents transmission or release of energy. Examples: valve locks, chains, u-bolts with locking clips, and cribbing/shoring/blocking devices.
  
- ❑ Energy Source  
A source of energy. Examples: electrical, mechanical, hydraulic, pneumatic, chemical, and thermal.
  
- ❑ Lockout  
Placing a lockout device on an energy-isolating device, under an established procedure, to ensure that the energy-isolating device and the equipment it controls cannot be operated until the lockout is removed.
  
- ❑ Lockout Device  
A device that locks an energy-isolating device in the safe position.
  
- ❑ Procedure  
A series of steps taken to isolate and shut down a piece of equipment. A procedure can be generic or machine-specific.
  
- ❑ Service and/or Maintenance  
Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining machines or equipment. Also includes lubricating, cleaning, unjamming, and making adjustments or tool changes if a worker may be exposed to the unexpected startup of the equipment during such activities.

- ❑ Setting Up  
Any work that prepares a machine or equipment to perform its normal production operations.
  
- ❑ Tagout  
Following established procedures to place a tagout device on an energy-isolating device to indicate that the energy-isolating device and the equipment it controls cannot be operated until the tagout device is removed.

**APPENDIX B**

**LOCKOUT/TAGOUT APPLICABLE SAFETY ORDERS**

**LOCKOUT/TAGOUT  
APPLICABLE SAFETY ORDERS**

2320.4	De-energized Equipment or Systems
2320.5	Energizing (or Re-energizing) Equipment or Systems
2320.6	Accident Prevention Tags
2530.43	Automatic Restarting
2530.86	Motor Not in Sight from Controller
3203	Injury and Illness Prevention Program
3314	Cleaning, Repairing, Servicing and Adjusting Prime Movers, Machinery and Equipment
6004	Accident Prevention Tags

**APPENDIX C**  
**LOCKOUT/TAGOUT PROCEDURE INSPECTION/AUDIT**

## LOCKOUT/TAGOUT PROCEDURE INSPECTION/AUDIT

Note: A selection of specific energy control procedures must be inspected/audited annually for effectiveness. These procedures must also be certified annually by the employer.

Conduct the annual procedure inspection/audit by completing the following checklist of questions, and then certifying the findings by signing and dating the form at the end.

- Is all machinery or equipment capable of movement, required to be de-energized or disengaged and locked out during cleaning, adjusting or setting up operations, whenever required?
- Where the power disconnecting means for equipment does not also disconnect the electrical control circuit:
  - Are the appropriate electrical enclosures identified?
  - Are means provided to ensure the control circuit can also be disconnected and locked out?
- Is the locking out of control circuits in lieu of locking out main power disconnects prohibited?
- Are all equipment control valve handles provided with a means for locking out?
- Does the lockout procedure require that stored energy (mechanical, hydraulic, pneumatic, etc.) be released or blocked before equipment is locked out for repairs?
- Are authorized employees provided with individually keyed personal safety locks?
- Are authorized employees required to keep personal control of their key(s) while they have safety locks in use?
- Is it required that only the employee exposed to the hazard place or remove the safety locks?
- Is it required that employees check the safety of the lockout by attempting a startup after making sure no one is exposed?
- Are employees instructed to always push the control circuit stop button immediately after checking the safety of the lockout?

- Is there a means provided to identify any or all employees who are working on locked out equipment by their locks or accompanying tags?
- Are a sufficient number of accident preventive signs or tags and safety padlocks provided for any reasonably foreseeable repair emergency?
- When machine operations, configuration or size requires the operator to leave his/her control station to install tools or perform other operations, and that part of the machine could move if accidentally activated, is such element required to be separately locked or blocked out?
- In the event that equipment or lines can not be shut down, locked out and tagged, is a safe job procedure established and followed?

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Certified by (Print and sign)

Date

Identify which machine or equipment's hazardous energy control procedure was being inspected:

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List the employees included in the inspection:

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Action items identified:

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Corrective actions and date(s) completed:

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**APPENDIX D**

**INDEX OF EQUIPMENT WITH ENERGY CONTROL PROCEDURES**





**APPENDIX E**  
**ENERGY CONTROL PROCEDURE FORM**

## ENERGY CONTROL PROCEDURE

- I. Machine Identifier:
1. Manufacturer: \_\_\_\_\_
  2. Model: \_\_\_\_\_
  3. Serial number: \_\_\_\_\_
  4. Location: \_\_\_\_\_

II. Preparation and Procedure for Energy Control

1. **P**repare for shutdown. Authorized Employee will inform all affected employees that they will be performing a lockout procedure. Obtain locks, keys and the following hardware:

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

2. **S**hut down this equipment by its normal start/stop method. This equipment can be shut down by the following methods:

- a. \_\_\_\_\_
- b. \_\_\_\_\_

3. **I**solate all energy sources and turn them to their OFF position. The following are the locations of all the energy sources:

Energy Source & Location	Lockable?	Type of lock/hardware needed
a. _____	Yes/No	_____
b. _____	Yes/No	_____

4. **A**pply energy isolating device, locks and tags to appropriate energy source.

5. **C**ontrol all residual energy by the following methods:

- a. \_\_\_\_\_ at location \_\_\_\_\_
- b. \_\_\_\_\_ at location \_\_\_\_\_

If checked, this equipment has no residual or stored energy.

6. **V**erify lockout procedures are effective by the following methods:

- a. \_\_\_\_\_
- b. \_\_\_\_\_

**APPENDIX F**  
**AUTHORIZED AND AFFECTED EMPLOYEES**

## AUTHORIZED AND AFFECTED EMPLOYEES

List each person authorized to use this procedure and those affected by it.

### Authorized Employees

NAME	JOB TITLE

### Affected Employees

NAME	JOB TITLE

\_\_\_\_\_  
Certified by (Print and sign)

\_\_\_\_\_  
Date