

The City of
Redlands



Lockout/ Tagout (LOTO) Program
Rev. March 2017

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Lockout/ Tagout (LOTO) Program

I. Policy

This policy establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

II. Authority

California Code of Regulations, Title 8, Section 3314

III. Scope

This program applies to employees and supervisors who service or maintain equipment and machines which could either unexpectedly start up, or work in areas where the possibility of the release of stored energy could cause injury to employees. This includes authorized employees who perform repair, servicing and maintenance operation and affected employees who work with the equipment to be locked or tagged out.

IV. Definitions

- A. **Affected employee**- is any employee whose job requires them to operate or use a machine or equipment on which cleaning, repairing, servicing, setting-up or adjusting operations are being performed under lockout or tagout, or whose job requires the employee to work in an area in which such activities are being performed under lockout or tagout.
- B. **Authorized employee or person**- is a qualified person who locks out or tags out specific machines or equipment in order to perform cleaning, repairing, servicing, setting-up, and adjusting operations on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties including performing cleaning, repairing, servicing, setting-up and adjusting operations covered under this section.
- C. **Locked out**- refers to the use of devices, positive methods and procedures, which will result in the effective isolation or securing of prime movers, machinery and equipment from mechanical, hydraulic, pneumatic, chemical, electrical, thermal or other hazardous energy sources.
- D. **Normal Production Operations**- is the utilization of a machine or equipment to perform its intended production function.
- E. **Prime Mover**- is the source of mechanical power for a machine.

V. Responsibilities

RISK MANAGEMENT

- A. Prepare and maintain a written program which complies with the requirements of Cal/OSHA Title 8, Section 3314.
- B. Review and revise the LOTO Program:
 - 1. On an annual basis;
 - 2. When changes occur to CCR T8 3314, that prompt revision of this document;
 - 3. When operational changes occur that require a revision of this document; and
 - 4. When there is an accident or near miss that relates to this section.
- C. Provide and/or provide training to all potentially impacted employees and their supervisors on the requirements of the program.

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- D. Assist departments in identifying hazardous energy sources and choosing of proper lockout/tagout devices.
 - E. Perform periodic inspections to ensure compliance with program procedures.
 - F. Maintain training records.

DIRECTORS, MANAGERS, AND SUPERVISORS

- A. Evaluate Department activities to determine which activities are covered by the LOTO Program.
- B. Ensure that all new and refurbished equipment is capable of accommodating lockout devices.
- C. Identify “authorized” and “affected” employees of this Program within Department.
- D. Ensure that all authorized and affected employees in Department receive proper training on the Lockout/Tagout Program.
- E. Investigate and document all reported accidents and near misses related to LOTO and recommend corrective actions.
- F. Should an incident occur, complete a Report of Employee Injury or Incident form and any additional documentation needed to investigate work related injuries and illnesses.
- G. Develop, document, and utilize written energy control procedures for each potentially hazardous energy source. Procedures must include designation of the person-in-charge for each division or department/shops.

AUTHORIZED EMPLOYEES

- A. Follow procedures developed for lockout/tagout and ensure compliance with equipment.
- B. Determine the type(s), magnitude and hazards to be controlled, and the method(s) or means to control the energy before starting the service or maintenance task.
- C. Locate and identify all energy isolation devices that will be locked or tagged out before start of service or maintenance task.
- D. Report any lost lockout/tagout equipment immediately to supervisor.
- E. Notify affected employees before lockout/tagout procedures are performed and when energy is restored upon completion.
- F. Participate in the development of equipment specific energy control procedures and reporting any deficiencies in energy control procedures.
- G. Attend assigned training sessions.

AFFECTED EMPLOYEES

- A. Understand and follow the provisions of the Lockout/Tagout Program.
- B. Report to supervisors when lockout/tagout procedures are not followed.
- C. Never attempt to operate any machine, process or piece of equipment that is locked or tagged out.
- D. Never attempt to remove any locks or tags from energy isolating devices.
- E. Attend assigned training sessions.

VI. Program

CLEANING, SERVICING AND ADJUSTING OPERATIONS

- A. Machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged, and, if necessary, the moveable parts shall be mechanically blocked or locked out to prevent inadvertent movement, or release of stored energy during cleaning, servicing and adjusting operations. Accident prevention signs or tags or both shall be placed on the controls of the power source of the machinery or equipment.
- B. If the machinery or equipment must be capable of movement during this period in order to perform the specific task, the employer shall minimize the hazard by providing and requiring the use of extension tools (i.e. extended swabs, brushes, scrapers) or other methods or means to protect employees from injury due to such movement. Employees shall be made familiar with the safe use and maintenance of such tools, methods or means, by thorough training.

REPAIR WORK AND SETTING-UP OPERATIONS

- A. Prime movers, equipment, or power-driven machines equipped with lockable controls or readily adaptable to lockable controls shall be locked out or positively sealed in the "off" position during repair work and setting-up operations. Machines, equipment, or prime movers not equipped with lockable controls or readily adaptable to lockable controls shall be considered in compliance with Section 3314 when positive means are taken, such as de-energizing or disconnecting the equipment from its source of power, or other action which will effectively prevent the equipment, prime mover or machine from inadvertent movement or release of stored energy. In all cases, accident prevention signs or tags or both shall be placed on the controls of the equipment, machines and prime movers during repair work and setting-up operations.

EXCEPTIONS

- A. Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations are not covered by the requirements of Section 3314 if they are routine, repetitive, and integral to the use of the equipment or machinery for production, provided that the work is performed using alternative measures which provide effective protection.
- B. Work on cord and plug-connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the **exclusive control** of the employee performing the work.
- C. Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the employer demonstrates that 1) continuity of service is essential; 2) shutdown of the system is impractical; and 3) documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.

HAZARDOUS ENERGY SOURCES

Electrical Gravitational Pneumatic Thermal Flywheel or gravity Radiation	Mechanical Hydraulic Chemical Spring Stored
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HAZARDOUS ENERGY CONTROL PROCEDURE (HECP)

- A. Written procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance. HECPs will be specific to the equipment or machines being operated on. A HECP will include:
1. A statement of the intended use of the procedure
 2. Scope
 3. Name(s) of Authorized Employee(s) responsible for carrying out the HECP
 4. Notification to Affected Employees that a lockout is required and the reasons behind it; and
 5. Rules that apply to HECP
 - a. Failure to comply with HECP will result in disciplinary action as outlined in IIPP
 6. Guidelines for transfer of responsibilities
 - a. Informing all Affected Employees
 - b. Confirming that the Authorized Employee who applied the device(s) is not at the facility
 - c. Making all reasonable efforts to contact the Authorized Employee who applied the device(s) and inform them that the device(s) have been removed
 - d. Naming in advance the new Authorized Person(s) responsible for the removal of devices(s)
 7. Procedural steps for shutdown, isolation, blocking and securing machines or equipment to control hazardous energy
 - a. Prepare for shutdown
 - b. Shutdown operating equipment by the normal procedure (e.g. depressing a button, opening a toggle switch)
 - c. Apply the lockout or tagout device
 - d. Hazardous energy control such as: closing valves, bleeding or draining valves, blocking, etc.
 - e. Requirements for testing a machine or equipment, to determine and verify the effectiveness of lockout devices, tagout devices and other hazardous energy control devices
 8. Procedural steps for re-energizing equipment after servicing is complete
 - a. Inspect the work area to ensure all items have been removed and that the equipment is intact and capable of operating properly.
 - b. Notify affected employees immediately after removing locks or tags and before starting equipment or machines.
 - c. Make sure tags or locks are removed only by those employees who attached them
- B. The procedural steps for the safe lockout/tagout of prime movers, machinery or equipment may be used for a group or type of machinery or equipment, when either of the following two conditions exist:
1. Condition 1
 - a. The operational controls named in the procedural steps are configured in a similar manner, and
 - b. The locations of disconnect points (energy isolating devices) are identified, and
 - c. The sequence of steps to safely lockout or tagout the machinery or equipment are similar
 2. Condition 2
 - a. The machinery or equipment has a single energy supply that is readily identified and isolated and has no stored or residual hazardous energy

GROUP LOCKOUT OR TAGOUT

- A. When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the utilization of a personal lockout or tagout device.
- B. Group lockout or tagout devices shall be used in accordance with the procedures required by section HECP and also in accordance with requirements that include, but are not necessarily limited to, the following:
 - 1. Primary responsibility shall be vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock);
 - 2. Provision shall be made for the authorized employee to ascertain the exposure status of individual group members with regard to the lockout or tagout of the machine or equipment;
 - 3. When more than one crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility shall be given to an authorized employee designated to coordinate affected work forces and ensure continuity of protection; and
 - 4. Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

SHIFT OR PERSONNEL CHANGE

- A. Specific hazardous energy control procedures (i.e. lock-out/tag-out) shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including, but not necessarily limited to, provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, in order to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.

LOCKOUT/TAGOUT DEVICES

In every instance, a lockout device is preferable to a tag because tags do not present a physical restraint to the startup of equipment. Tags are warning devices which can be easily removed, bypassed, obscured or ignored. When a tag is used, further steps must be taken to ensure the safety of others.

The following are requirements for lockout/tagout devices:

- A. Departments are responsible for providing employees with a sufficient number of devices for control of hazardous energy. Employees in each affected department will be issued locks to be used for lockout/tagout.
- B. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds.
- C. Identification of owner and contact information shall be clearly visible on lockout and tagout devices. Tagout devices shall clearly state the reason for the interruption of equipment usage.
- D. Lockout/Tagout devices must be only used for controlling energy and shall not be used for other purposes.
- E. Lockout/Tagout devices must be capable of withstanding the environment for the period of time they will be applied. Tagout devices must be constructed and printed so that the exposure to weather, wet conditions, or corrosive environments will not alter the tag or make it illegible.
- F. Lockout/Tagout devices must be standardized within the City.
- G. Lockout devices must be sturdy enough to prevent removal without the use of excessive force.
- H. Tagout devices must be sturdy enough to prevent inadvertent or accidental removal.
- I. Devices must indicate the identity of the employee applying the device.

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- J. Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include warnings such as "Do Not Open, Do Not Close, and Do Not Operate."
 - K. Warning labels will be fixed on equipment, machines and processes that require LOTO.

INSPECTION PROCEDURES

To ensure compliance with this program, the department must conduct an annual inspection of the procedures.

- A. The inspection must be conducted by an authorized employee other than the one using the control procedures, and a copy must be sent to Risk Management upon completion.
- B. The inspection must be designed to correct any deficiencies that are found.
- C. The inspection shall include a review of procedures with the authorized employees.
- D. The inspection must be documented with the name of the machine or equipment for which the procedures are utilized, the date, the employees included and the person conducting the inspection.
- E. Records must be kept for five years.

EMPLOYEE TRAINING

- A. Authorized Employees must receive training in the recognition of hazardous energy sources and the methods used for isolation of these sources.
- B. Affected Employees shall be instructed in the purpose and use of the energy control procedure.
- C. All other employees who work in the area must be made aware of the control procedures and about the prohibition on restarting equipment that has been locked or tagged out.
- D. Retraining shall be provided:
 - 1. Whenever there is a change in job assignment;
 - 2. A change in machines, equipment or processes;
 - 3. When there is a change in the energy control procedures; and
 - 4. On a two year basis.

CONTRACTORS

- A. Contractors who perform work on City property must adhere to the City's LOTO procedures. It is the responsibility of the Project Manager to ensure these procedures are carried out.
- B. Contractors must also make a copy of their LOTO Program available to Risk Management for review.
- C. Contractors are expected to enforce these guidelines at all times while performing work for the City.
- D. If there is a conflict in procedures between Contractor and City programs, notification will be sent to Risk Management for support.
- E. Contractors with an insufficient program will not be allowed to begin work until their program meets or exceeds the requirements of this program.

VII. Recordkeeping

All training records, inspections, and HCEPs' prepared in association with the Lockout/Tagout Program will be maintained by the Office of Human Resources/Risk Management.

VIII. Additional References

<http://www.dir.ca.gov/dosh/etools/08-003/>

Requirements for working on energized electrical systems are prescribed in Chapter 4. Subchapter 5. Electrical Safety Orders Sections 2320.1-2320.9 or 2940-2945

Sample Hazardous Energy Control Procedure

Lockout Tagout Energy Control Procedure						
Company Name:	Sample Company	Revision Date:	2/28/17			
Address:	1234 First Ave, Anytown, CA 91710	Audit Date:				
Equipment Name / Description:	1A Primary Clarifier #1					
Equipment Location:	Water Reclamation Plant #1, center of plant facilities					
Work Activity:	When cleaning, servicing, adjusting, setting up or unjamming upper and/or main skimmer equipment where employees are exposed to sudden, unexpected movement of equipment, live electrical systems, inflow of water from primary gates.					
SPECIAL NOTE: Entry into this tank constitutes confined space entry. This Lockout Tagout procedure must be used in conjunction with the City's Confined Space Entry procedures. Additionally, employees must be protected from fall into hoppers at East side of tank.						
Each person exposed or potentially exposed to hazardous energy must apply their own personal lock and tag to each energy-isolating device.						
After the complete draining of the tank, Authorized personnel must effect energy isolation via closing and locking and tagging of gate valves, switching off and locking and tagging electrical energy sources. If working on the chain drive mechanism, support of drive system is required to protect employees from the gravitational energy of this equipment (included in a separate procedure). This procedure applies AFTER Tank has been drained.						
# of locks and tags needed for this procedure: 5						
Device type(s) needed:	Hasp?	5	Clamshell Lockout Device:	1	Gate Valve device	2
Initiate Shutdown	<ol style="list-style-type: none"> 1. Notify ALL affected employees that the equipment will be shut down. 2. Turn all machine controls to the "OFF" position. 3. Proceed with the following steps. 					
Note:	Energy	Device	Location	Actions to be taken		
Photo 1	Water flow	Clamshell device, Hasp, Padlock & tag	Ground level, West side of clarifier #1. Three large, white-handled valves.	Install clamshell lockout devices to secure all three gate valves in the CLOSED position. Install hasp, padlock & tag.		
Photo 2	220v	Hasp, Padlock & tag	Ground level, West side of clarifier #1 in stainless steel cage	After clutch is pulled and chain drive verified as stopped, close cage and install hasp, lock & tag		
Photo 3	220v	Hasp, padlock, & tag	Surface skimmer motor isolation device is located downstairs in MCC2.	Identify disconnect labeled as "Primary Scum Skimmer 1". Pull to OFF position, install hasp, lock & tag.		
Photo 4	Fluid under pressure	Gate valve LOTO device, hasp, Padlock & tag	Orange polymer lines mounted at top East wall of MCC2 pit	Turn both orange valves perpendicular to lines. Install gate valve LOTO device, hasp, padlock and tag.		
				Verify that no water seepage is detected at West side gates. Verify that the Primary and Secondary skimmers are deenergized by attempting start or testing at motors with meter.		
				If LOTO procedure proves effective, conduct work activity		
Initiate Start Up	<ol style="list-style-type: none"> 1. Clear working area and machine / equipment of tools and other debris. 2. Notify ALL affected employees that the machine will be re-energized. 3. Remove locks, tags, and devices. 4. Restore power to equipment. 					
Photo 1	Photo 2	Photo 3	Photo 4			
 <p style="font-size: small; background-color: #eee; padding: 5px;">On all THREE gates, turn white handle to the right until stops. Install stainless steel clamshell devices, locks and tags.</p>	 <p style="font-size: small; background-color: #eee; padding: 5px;">Ensure chain drive stops, then close, lock, and tag cage.</p>	 <p style="font-size: small; background-color: #eee; padding: 5px;">Pull this disconnect to OFF. Note label to the right states this is for Primary Scum Skimmer #1</p>	 <p style="font-size: small; background-color: #eee; padding: 5px;">Turn both orange valves perpendicular to lines, install gate valve LOTO device, hasp, lock, and tag</p>			