

ISSUE: **LOCK OUT BLOCK OUT (September 30, 2008)**

Working to field a lock out block out standard operating procedure (SOP) to target procedures staff must perform in securing vehicle systems. This is somewhat related to a lock out tag out program for systems engineered in a building. Request a copy if you have one in place.

REQUESTOR: Thomas Abear, Fleet Manager – Monterey County

COMMENTS

SONOMA COUNTY, Dave Head

Provided the following documents for the group:

- LOBO Program
- LOBO Checklist for CAT H258 Grader
- LOBO Checklist for G142 Dumptruck

He also has checklists for 17 other vehicles if anyone is interested.

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

1. PURPOSE

- a. This Lockout, Blockout and Tagout Program (the Program) has been instituted to safeguard employees, who maintain, service or repair equipment in accordance with the *County of Sonoma – Fleet Operations (Organization)* Injury & Illness Prevention Program policy that:

No function is so critical as to justify or require a compromise of safety.

- b. The dangers involved in this type of work include potential electrocution, amputation or crushing of arms, legs, hands or fingers, and injuries from being caught in between machinery or hit by such machinery due to accidental energizing of the equipment. Energy sources include **electrical, mechanical, pneumatic, hydraulic, gravity, chemical or thermal.**
- c. The Program is designed to provide as close to a fail-safe system as possible. Even though Cal-OSHA permits exceptions to the lockout procedures, the *Organization* does not.

2. SCOPE

The Program applies to all County of Sonoma – Fleet Operations facility and field operations.

3. DEFINITIONS

- a. Authorized employee – a person who locks out, blocks out, and tags out machines or equipment to perform servicing or maintenance, and one who has received documented initial and annual training on the Organization's procedures.
- b. Affected employee – an employee who operates or uses a machine or equipment on which lockout/blockout/tagout systems are installed, or who works in areas affected by these procedures. The authorized employee and the affected employee may be the same employee.
- c. Isolation – a process to ensure that a machine is removed from service and completely protected from inadvertent start up via any power source.
- d. Zero energy state – the mechanical potential energy in all elements of a machine is dissipated so that operation of any control will not produce a movement that could cause injury.
- e. Lockout system – a combination of locks with keys to hold an energy-isolating device in a safe position and to prevent energizing of the machine or equipment.
- f. Tagout system – permanent and durable warning signs that notify affected employees not to operate energy sources, machinery and equipment until the signs are removed.
- g. Blockout system - all potential and/or residual energy has been either released, restrained, isolated or blocked out against any further movement of the equipment or vehicle being worked on.

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

4. RESPONSIBILITIES

- a. Program Manager (Assistant Fleet Manager)
The Program is managed by the Assistant Fleet Manager.
- b. Employees
Employees are responsible for using the procedures outlined in the Program during the normal course of regular operations and in emergency situations, as needed.

5. TRAINING

- a. The Program Manager ensures that qualified trainers train affected employees on the Program's requirements prior to these employees doing work or taking action associated with activities involving hazardous energy sources.
- b. The Program Manager ensures that qualified trainers conduct annual refresher training for all associated employees.
- c. Training records are maintained for three years and include the:
 - 1) Date of each training session
 - 2) Program curriculum
 - 3) Names of those who attended
 - 4) Name of the instructor
 - 5) Handouts that were provided.
- d. Most importantly, the training includes, at a minimum:
 - 1) Why the *Organization* has a lockout, blockout, and tagout system.
 - 2) The equipment and energy sources that must be locked or blocked out.
 - 3) The required procedures.
 - 4) The lockout and tagout equipment that are used.
 - 5) The blockout and tagout equipment that are used.
 - 6) What is done in the event of an incident or accident.

6. ENFORCEMENT

All involved personnel are required to comply with the requirements of this Program. Employees who fail to comply are subject to the disciplinary procedures as established by the *Organization*.

7. CONTRACTORS

The Program Manager and/or designee(s) are responsible for informing outside contractors of the purpose and procedure for energy control through lockout, blockout and tagout. Contractors are required to comply with the

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

Organization's Program or their own equivalent program when doing work associated with the aforementioned energy sources.

8. INSPECTIONS

- a. The Program Manager and/or designee(s), perform an annual inspection of the Program. The purpose of this inspection is to:
- 1) Assure that the procedures are being implemented properly.
 - 2) Check that authorized employees know their responsibilities.
 - 3) Review training records.
 - 4) Ensure that all required equipment is included in the Program.
 - 5) Ensure that the program is in compliance with current Cal-OSHA requirements and general good safety practices.
- b. The inspection is documented, filed for a minimum of three years, and includes the:
- 1) Date of the inspection.
 - 2) Name of the person performing the inspection.
 - 3) Identity of the equipment being reviewed.
 - 4) Names of the employees' that were interviewed.
 - 5) The status of the Program.
 - 6) Suggestions for improvement.

9. ELECTRICAL LOCKOUT AND TAGOUT

- a. De-energize Equipment (Non-Emergency Situations)

When regular maintenance, service or repair is required on equipment or machines that are directly connected to their power source, the trained authorized employee, who is going to initiate the lockout, follows these procedures:

- 1) Obtains Approval - Heavy Equipment Mechanic II may initiate the de-energizing of equipment without approval of managerial or supervisory staff.
- 2) Evaluates the piece of equipment and establishes the magnitude of the energy source or sources that must be locked out.
- 3) Notifies (as necessary) everyone in the vicinity of the equipment that the machine is going to be de-energized for servicing or maintenance, and that the machine is going to be locked out for a specified period of time, unless otherwise notified. If the de-energizing of a specific piece of equipment affects others that are not in the immediate vicinity of the equipment, they are also informed.
- 4) Shuts down the equipment, if it is operating. The shut down is completed using the equipment's normal stopping procedure (depress STOP button, open switch, etc.).
- 5) Follows the steps for blockout as noted below under the heading, Blockout and Tagout, if the machine that needs to be locked out must also be blocked out due to other types of energy sources, such as mechanical, pneumatic, hydraulic, gravity, chemical or thermal.
- 6) Deactivates the energy isolating device(s) so that the equipment is isolated from its electrical energy source(s).

- b. Lockout Devices

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

When equipment does not already have equipped lockout devices, it may be necessary to devise methods of lockout such as:

- 1) A sliding rod that can be locked in place to secure a control handle or switch.
- 2) Use of a lockout bracket that can be padlocked.
- 3) A common hasp may be secured to an access door or panel to lock them out.
- 4) A stationary perforated disk to cover the top of a start button.

c. Recheck

Recheck that the equipment is disconnected from the energy sources(s) by:

- 1) First ensuring that no personnel are exposed.
- 2) Then verifying the isolation of the equipment by operating the push buttons or other normal operating controls or by testing to make certain the equipment does not operate.

WARNING

Return operating control(s) to neutral or OFF position after verifying the isolation of the equipment.

Status: The equipment is now locked out.

d. Accident Prevention Tag

Place an accident prevention tag at the location where the energy is turned on. Include on the tag the following information (write legibly):

- 1) Reason for placing the tag.
- 2) Name of the authorized person and how that person can be contacted.
- 3) Date tag was placed.
- 4) Other pertinent information regarding the situation.

e. Maintenance, Service and Repair – Different Time Periods

The following procedure is not normally required for *Organizational* operations. On the other hand, in the event that work must be continue into another shift, and other employees are going to be doing the work, the lockout system is required to remain in use.

- 1) Authorization for the security and removal of the locks or tags is passed on to the person responsible on the next work segment.
- 2) Locks are exchanged to ensure that new employees' locks are in place and former employees' locks are removed. This exchange occurs at the same time.
- 3) A detailed report by the previous authorized person is given to the oncoming responsible person regarding the need for the isolation device and the status of the maintenance, service or repair that is being done.
- 4) Documentation of this transfer of responsibilities is required.

f. Re-Energize the Equipment (After Maintenance, Service or Repair Has Been Performed)

- 1) Check the equipment and the immediate area around the equipment to ensure that nonessential items have

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

been removed and that the equipment components are operationally intact.

- 2) Check the work area to ensure that all employees have been safely positioned or removed from the area.
- 3) Verify that the controls are in neutral or OFF.
- 4) Remove the lockout devices.
- 5) Re-energize the equipment.
- 6) Remove accident prevention tags.
- 7) Notify affected employees that the equipment is ready to use.

Note: In the event that an employee, whose lock is being used as a lockout, is incapacitated or unavailable for some reason, and the equipment is ready to be re-energized, the lock can be removed with cutters, as long as the other parts of the procedures are complied with, and the involved employee is notified verbally and in writing.

10. **BLOCKOUT AND TAGOUT**

a. De-energize Equipment (Non-Emergency Situations)

When regular maintenance, service or repair is required on equipment or machines that have energy sources that could injure the involved employees, the trained authorized employee, who is going to initiate the blockout, follows these procedures:

- 1) Obtains Approval
 - a) Journey level workers may initiate the blocking out of equipment without approval of managerial or supervisory staff.
 - b) Non-journey level workers assure approval from their respective first-line manager, supervisor, or on-site management to proceed with the blockout.
- 2) Evaluates the piece of equipment and establishes the magnitude of the energy source or sources that must be blocked out.
- 3) Notifies (as necessary) everyone in the vicinity of the equipment that the machine is going to be de-energized for servicing or maintenance, and that the machine is going to be blocked out for a specified period of time, unless otherwise notified. If the de-energizing of a specific piece of equipment affects others that are not in the immediate vicinity of the equipment, they are also informed.
- 4) Shuts down the equipment, if it is operating. The shut down is completed using the equipment's normal stopping procedure (depress STOP button, open switch, close valve, etc.)
- 5) Follow the steps for lockout as noted above under the heading, Electrical Lockout and Tagout, if the machine that needs to be blocked out must also be locked out due to electrical energy.
- 6) Dissipate or restrain stored or residual energy (such as that found in capacitors, hydraulic systems, and air, gas, steam or water pressure systems) by methods such as grounding, repositioning, blocking, bleeding down, etc.
- 7) Use a chain and padlock if the energy-isolating device is a valve that must be locked out. Check to see that the valve cannot be turned.
- 8) Take steps, when necessary, to assure that mechanical equipment, which may move or slip, is blocked out by:
 - a) Bleeding down steam, air or hydraulic cylinders.
 - b) Blocking gears, dies or other mechanisms.
 - c) Releasing coiled springs, spring-loaded devices, and securing arms.
 - d) Putting blocks under raised dies or any equipment that might descend, slide or fall.

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

- e) Using blocks or special stands under raised vehicles or hydraulic equipment to prevent failure or slippage of the hoist or elevating device.

b. Lockout Devices

When equipment does not already have equipped blockout devices, it may be necessary to devise methods of lockout such as:

- 1) A sliding rod that can be locked in place to secure a control handle or switch.
- 2) Use of a lockout bracket that can be padlocked.
- 3) A common hasp may be secured to an access door or panel to lock them out.
- 4) A stationary perforated disk to cover the top of a start button.

c. Recheck

Recheck that the equipment is disconnected from the energy sources(s) by:

- 1) First ensuring that no personnel are exposed.
- 2) Then verifying the isolation of the equipment by operating the push buttons or other normal operating controls or by testing to make certain the equipment does not operate.

WARNING

Return operating control(s) to neutral or OFF position after verifying the isolation of the equipment.

Status: The equipment is now blocked out.

d. Accident Prevention Tag

Place an Accident Prevention tag at the location where the energy is turned on, and, if necessary, where the energy is being blocked out. Include on the tag the following information (write legibly):

- 1) Reason for placing the tag.
- 2) Name of the authorized person and how that person can be contacted.
- 3) Date tag was placed.
- 4) Other pertinent information regarding this situation.

e. Maintenance, Service and Repair – Different Time Periods

The following procedure is not normally required for *Organizational* operations. On the other hand, in the event that work must continue into another shift, and other employees are going to be doing the work, the blockout system is required to remain in use.

- 1) Authorization for the security and removal of blockout devices or tags is passed on to the person responsible on the next work segment.
- 2) Blockout devices, when necessary, are exchanged to ensure that new employees' blockout devices are in place and former employees' blockout devices are removed. This exchange occurs at the same time.
- 3) A detailed report by the previous authorized person is given to the oncoming responsible person regarding the need for the isolation device and the status of the maintenance, service or repair that is being done.

County of Sonoma – Fleet Operations
(The Organization)
LOCKOUT, BLOCKOUT AND TAGOUT PROGRAM

- 4) Documentation of this transfer of responsibilities is required.
- f. Re-Energize the Equipment (After Maintenance, Service or Repair Has Been Performed)
 - 1) Check the equipment and the immediate area around the equipment to ensure that nonessential items have been removed and that the equipment components are operationally intact.
 - 2) Check the work area to ensure that all employees have been safely positioned or removed from the area.
 - 3) Verify that the controls are in neutral or OFF.
 - 4) Remove the blockout devices.

Note: The removal of some forms of blocking may require re-energizing before safe removal. Consequently, extra care must be taken in these cases.
 - 5) Re-energize the equipment.
 - 6) Remove accident prevention tags.
 - 7) Notify affected employees that the equipment is ready to use.

11. **GENERAL REFERENCES**

All information in this Program comes from Cal-OSHA Title 8 references (see below) and the National Safety Council's Accident Prevention Manual for Business & Industry (Engineering & Technology Edition), 1992, pages 395-397.

12. **Cal-OSHA REFERENCES**

California Code of Regulations, Title 8:

- a. Section 2320.4 De-energizing Equipment or Systems
- b. Section 2320.5 Re-Energizing Equipment or Systems
- c. Section 2320.6 Accident Prevention Tags
- d. Section 2320.9 Backfeeding or Interconnection
- e. Section 2940 General Provisions
- f. Section 3314 The Control of Hazardous Energy for the Cleaning, Repairing, Servicing, Setting-Up, and Adjusting Operations of Prime Movers, Machinery and Equipment, including Lockout/Tagout.

Current information is found on the Internet at www.dir.ca.gov

**COUNTY OF SONOMA – FLEET OPERATIONS
VEHICLE AND MOBILE EQUIPMENT
LOCKOUT, BLOCKOUT, AND TAGOUT PROCEDURE**

EQUIPMENT MFG: CAT

EQUIPMENT TYPE: Grader
MODEL: H258

EQUIP. LOCATION: Landfill

STEP	REF	ACTIONS TO BE TAKEN
1		De-Energize Equipment (Electrical)
	a.	<u>Notify</u> (as necessary) everyone near the equipment the machine is going to be de-energized for servicing or maintenance, and the machine is going to be locked/blocked out for a specified period, unless otherwise notified.
	b.	<u>Shut down</u> the equipment, if it is operating.
	c.	<u>Deactivate</u> the electrical energy sources.
	d.	<u>Lockout</u> the electrical energy sources. Use an approved positive lockout device. Follow a separate procedure for two or more individuals working on the same equipment.
	e.	<u>Recheck</u> (test) that electrical equipment is disconnected from energy sources.
	f.	<u>Return</u> operating control(s) to neutral or off position after rechecking (testing) the electrical equipment is disconnected.
	g.	<u>Place</u> a completed standard lockout tag at the location(s) where the electrical energy is being locked out .
2		Blockout Equipment (Other Energy Sources)
	a.	<u>Block</u> tires of wheeled equipment and, if applicable, place implements of all types of equipment on the ground.
	b.	<u>Completely release or restrain</u> stored or residual energy:
		<u>Hydraulic</u>
		<u>Pneumatic</u>
		<u>Water</u>
		<u>Pressurized gases</u>
		<u>Springs & spring-loaded devices</u>
		<u>Heat</u>
		<u>Gravity</u>
	c.	<u>Isolate</u> energy sources by closing and locking out valves, if the job requires such action.
	d.	<u>Take</u> steps, when necessary, to assure that mechanical equipment, which may move or slip, is blocked out, such as placing blocks or stands under raised equipment.
	e.	<u>Verify</u> that all potential and/or residual energy has been either released, restrained, isolated or blocked out by: <ol style="list-style-type: none"> 1) First ensuring that no personnel are exposed. 2) Then verifying the isolation of the equipment by operating the push buttons or other normal operating controls or by testing to make certain the equipment does not operate. 3) IMPORTANT: <u>Return</u> operating control(s) to neutral or OFF position after verifying the isolation of the equipment.
	f.	<u>Place</u> a completed standard blockout tag at the location(s) where the energy is being blocked out .
3		Work Continuation – Other Work Shifts (If Applicable)
	.	<u>Transfer</u> lockout/blockout responsibilities to the next mechanic, if the job continues.
4		Re-Energize The Equipment (After Maintenance, Service Or Repair Has Been Performed)
	a.	<u>Check</u> the equipment and the immediate area around the equipment to ensure nonessential items have been removed and the equipment components are operationally intact.
	b.	<u>Check</u> the work area to ensure all personnel have been safely positioned or removed from the area.
	c.	<u>Verify</u> the controls are in neutral or OFF.
	d.	<u>Remove</u> the lockout and blockout devices.
	e.	<u>Remove</u> lockout and blockout tags.
	f.	<u>Re-energize</u> the equipment and test the equipment to ensure the maintenance activities have been properly completed.
	g.	<u>Notify</u> affected personnel the equipment is ready to use (if necessary).

Reference: Sonoma County Fleet Operations Lockout/Blockout/Tagout Program

Thursday, June 14, 2007

**COUNTY OF SONOMA – FLEET OPERATIONS
VEHICLE AND MOBILE EQUIPMENT
LOCKOUT, BLOCKOUT, AND TAGOUT PROCEDURE**

EQUIPMENT TYPE: Dump Truck

EQUIPMENT MFG:

MODEL: G142

EQUIP. LOCATION: Landfill

STEP	REF	ACTIONS TO BE TAKEN
1		De-Energize Equipment (Electrical)
	a.	<u>Notify</u> (as necessary) everyone near the equipment the machine is going to be de-energized for servicing or maintenance, and the machine is going to be locked/blocked out for a specified period, unless otherwise notified.
	b.	<u>Shut down</u> the equipment, if it is operating.
	c.	<u>Deactivate</u> the electrical energy sources.
	d.	<u>Lockout</u> the electrical energy sources. Use an approved positive lockout device. Follow a separate procedure for two or more individuals working on the same equipment.
	e.	<u>Recheck</u> (test) that electrical equipment is disconnected from energy sources.
	f.	<u>Return</u> operating control(s) to neutral or off position after rechecking (testing) the electrical equipment is disconnected.
	g.	<u>Place</u> a completed standard lockout tag at the location(s) where the electrical energy is being locked out .
2		Blockout Equipment (Other Energy Sources)
	a.	<u>Block</u> tires of wheeled equipment and, if applicable, place implements of all types of equipment on the ground.
	b.	<u>Completely release</u> or <u>restrain</u> stored or residual energy:
		<u>Hydraulic</u>
		<u>Pneumatic</u>
		<u>Water</u>
		<u>Pressurized gases</u>
		<u>Springs & spring-loaded devices</u>
		<u>Heat</u>
		<u>Gravity</u>
	c.	<u>Isolate</u> energy sources by closing and locking out valves, if the job requires such action.
	d.	<u>Take</u> steps, when necessary, to assure that mechanical equipment, which may move or slip, is blocked out, such as placing blocks or stands under raised equipment.
	e.	<u>Verify</u> that all potential and/or residual energy has been either released, restrained, isolated or blocked out by: 1) First ensuring that no personnel are exposed. 2) Then verifying the isolation of the equipment by operating the push buttons or other normal operating controls or by testing to make certain the equipment does not operate. 3) IMPORTANT: Return operating control(s) to neutral or OFF position after verifying the isolation of the equipment.
	f.	<u>Place</u> a completed standard blockout tag at the location(s) where the energy is being blocked out .
3		Work Continuation – Other Work Shifts (If Applicable)
	.	<u>Transfer</u> lockout/blockout responsibilities to the next mechanic, if the job continues.
4		Re-Energize The Equipment (After Maintenance, Service Or Repair Has Been Performed)
	a.	<u>Check</u> the equipment and the immediate area around the equipment to ensure nonessential items have been removed and the equipment components are operationally intact.
	b.	<u>Check</u> the work area to ensure all personnel have been safely positioned or removed from the area.
	c.	<u>Verify</u> the controls are in neutral or OFF.
	d.	<u>Remove</u> the lockout and blockout devices.
	e.	<u>Remove</u> lockout and blockout tags.
	f.	<u>Re-energize</u> the equipment and test the equipment to ensure the maintenance activities have been properly completed.
	g.	<u>Notify</u> affected personnel the equipment is ready to use (if necessary).

Reference: Sonoma County Fleet Operations Lockout/Blockout/Tagout Program

Thursday, June 14, 2007