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Purpose

The purpose of this program is to establish procedures for affixing appropriate lockout/tagout equipment to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy to prevent injury or incident.

Scope

This program covers the servicing and maintenance of machines and equipment where the unexpected energization or start-up of the machine or equipment, or the release of stored energy could cause an incident. This program establishes minimum performance requirements for the control of such hazardous energy. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Dee Cramer, Inc. employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

Definitions

Affected employee - An employee whose job requires them to operate or use a machine or equipment on which servicing, and maintenance is being performed under lockout/tagout, or whose job requires the employee to work in an area in which such servicing or maintenance is being performed.

Authorized employee - A person that performs lockout/tagout procedures on machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes authorized when that employee's duties include performing servicing or maintenance covered under this program.

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 lockout can be achieved 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 and no pole can be operated independently, a line valve, a block and any similar device used to block or isolate energy.
- Push buttons, selector switches and other control circuit type devices are not isolating devices.

Energy source - Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy sources.

Hot tap - A procedure used in the repair, maintenance and service activities that involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or other appurtenances

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Lockout - The placement of a lockout 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 lockout device is removed.

Lockout device - A device that utilizes a positive means, such as either a key or combination type lock, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal operation - The utilization of a machine or equipment to perform its intended operation.

Servicing and/or maintenance - Workplace activities such as constructing, setting up, adjusting, inspecting, modifying and maintaining and/or servicing machines and equipment, where the employee may be exposed to an unexpected energization or start-up of the equipment or release of a hazardous energy source.

Tagout: - The placement of a tagout 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 tagout device is removed.

Tagout 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 tagout device is removed.

Key Responsibilities

Managers and Supervisors


- Responsible to enforce this plan and to see that all their employees and contractors that are affected by lockout/tagout procedures, have the knowledge and understanding required for safe application, usage, and removal of all energy controls and devices.
- Ensure employees are competent as demonstrated by being qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.

Employees

- Employees who are affected by this program are required to attend training on an annual basis.
- Are required to follow the provisions of this program and no employee shall perform work on machinery, equipment or powered mobile equipment to be serviced, repaired, tested, adjusted, or inspected until energy sources are isolated, the machinery, equipment, or powered mobile equipment is tested to verify that it is inoperative, and the worker is satisfied that it is inoperative.

General

Dee Cramer, Inc. shall establish and implement written procedures.

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Only an authorized employee or employees performing the servicing or maintenance shall perform lockout or tagout.

If machinery or equipment is shut down for maintenance or to be serviced, repaired, tested, adjusted, cleaned, maintained, or adjusted or driving of piles where the work will expose employees to energy sources or contact with moving parts could injure employees, no work may be done until:

- All parts and attachments have come to a complete stop and secured against inadvertent movement.
- Where the work will expose workers to energy sources, the hazard has been effectively controlled
- All hazardous energy at the location at which the work is to be carried out has been isolated by activation of an energy isolating device and the energy isolating device is secured, or the machinery, equipment, or powered mobile equipment has been otherwise rendered inoperative in a manner that will prevent its accidental activation and provides equal or greater protection.
- Energy isolating devices have been applied, locked out and rendered any hazardous condition safe as required by local regulatory requirements.
- The employee(s) is assured that it is inoperative.

When lockout of energy isolating devices is required, the devices must be secured in the safe position using locks in accordance with procedures that are made available to all workers who are required to work on the machinery or equipment.

Power tools may be maintained, repaired, tested, or adjusted without applying isolation control if the work doesn't put the employee at risk by isolating the energy source from the power tool, dissipating any residual energy in the power tool and the energy source remains isolated during the activity.

If work is to be done that may endanger a worker Dee Cramer, Inc. shall ensure that the work is done by a worker who is competent to do the work. Workers who may be required to use safety equipment shall be competent in the application, care, use, maintenance, and limitations of that equipment.


Lock Out Tag Out Devices

Once all energy isolating devices have been activated to control hazardous energy each worker involved in work at each location requiring control of hazardous energy secures each energy isolating device with a personal lock.

Lockout Device - If an energy source can be locked out a device that utilizes a lock to hold an energy isolating device in a safe position shall be used.

Locks

- Each site shall have the same type of lock as specified by Dee Cramer, Inc.
- Are made available to all employees who are required to work on the machinery or equipment and shall be provided at the expense of Dee Cramer, Inc.
- Combination locks must not be used for lockout. Each personal lock must be marked or tagged to identify the person applying it.

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Keys

COMPANY shall:

- Issue to each employee who is required or permitted to work on a machine a lock that is operable only by that employee's key or a duplicate key,
- Designate an employee to keep the duplicate key,
- Ensure that the duplicate key is accessible only to the designated employee,
- Ensure that the lock used has a unique mark or identification tag on it that identifies the employee to whom the lock is assigned, and
- Ensure that a logbook is kept recording the use of the duplicate key and the reasons for that use each time the duplicate key is used.

Tagout Device – If an energy source cannot be locked out with a lockout device, then a tagout device shall be used. Tagout devices is a warning only level of protection and shall be weather and chemical resistant, standardized in color with clear written warning of hazardous energy, i.e. Do Not Operate, Do Not Start, Do Not Energize, etc. Each site shall have the same style of tags specified by Dee Cramer, Inc. Each tag will identify the employee who attached it.

Requirements for Tags

If a tag is used as a means of communication, the tag:


- Shall be made of non-conducting material,
- Shall be secured to prevent its inadvertent removal,
- Shall be placed in a conspicuous location,
- Shall state the reason the switch is disconnected and locked out,
- Shall show the name of the employee who disconnected and locked out the switch, and
- Shall show the date on which the switch was disconnected and locked out.

Unable to Stop Equipment

In the rare case that the manufacturer's specifications require the machinery, equipment or powered mobile equipment to remain operative while it is being serviced, repaired, tested, adjusted, or inspected, or there are no manufacturer's specifications and it is not reasonable practicable to stop or render the machinery, equipment or powered mobile equipment inoperative Dee Cramer, Inc. shall develop and implement written procedures and controls that ensure the machinery, equipment or powered mobile equipment can be serviced, repaired, tested, adjusted or inspected safely only by qualified and authorized to do the work. If it is not practicable to shut down machinery or equipment for maintenance, only the parts which are vital to the process may remain energized and the work must be performed by workers who are qualified to do the work, have been authorized by Dee Cramer, Inc. to do the work and have been provided with and follow written safe work procedures (see operators manual).

Either of the cases above requires a written authorization to proceed from senior management due to the increased risk exposure.

No person shall deactivate a lock-out process that does not use a lock and key except the person designated.

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Energy Control Procedures

Each manager or supervisor is responsible for developing specific step-by-step shutdown and start up procedures for a particular machine or piece of equipment in their respective area. Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy sources must be identified.

- A machine must be locked out and tagged out prior to performing maintenance activities. The power supply to electrical installations, equipment or conductors shall be disconnected, locked out of service and tagged before any work is done, and while it is being done, on or near live exposed parts of the installations, equipment or conductors.
- A written, step-by-step isolation procedure for shutdown and start up shall be prepared for each type of machine or piece of equipment.
- This procedure shall include:
 - Equipment number if assigned.
 - Equipment location.
 - Potential Energy Source(s) (i.e., steam, electrical, hydraulic, tension, gravity, gas pressure, etc.)
 - Location of isolating controls (i.e., breaker switches, valves, etc.)
 - Quantity of isolating controls
 - Quantity of locks required to isolate the equipment
 - Other hardware required to isolate the equipment (i.e., chains, valve covers, blocks, etc.)
 - List any residual energy required to be dissipated before work begins.

Specific Sequence for Application of Energy Control

1. Notification

Authorized employees must notify all other affected employees of the application and removal of lockout/tagout devices. Notification shall be given before the controls are applied and before they are removed from the machine or equipment.

2. Preparation for Shutdown


Before an authorized or affected employee shuts down a machine or equipment, the authorized employee shall have the knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means (locks) to control the energy sources.

3. Machine or Equipment Shutdown

The machine or equipment shall be shut down using the procedures established for that machine or piece of equipment. The shutdown shall be orderly to avoid any additional hazards to employees as a result of the stoppage.

4. Machine or Equipment Isolation

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

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5. Lockout/Tagout Devices and Application

- Each authorized employee shall have the proper number of locks and devices to be able to independently of each other perform proper lockout/tagout procedures for machines or equipment that they may be working on.
- Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.
- Each lockout and tagout devices shall include the name of the individual placing the device.
- Lockout devices shall be affixed in a manner to hold the energy isolating devices in a safe or offposition.
- Tagout devices shall be affixed in a manner that will clearly indicate that the operation or movement of isolating devices to the safe or off position and prohibiting the operation of the control device.
- Tagout devices used with energy isolating devices with the capability of being locked out shall be fastened at the same point at which the lock would have been attached. If a tag cannot be directly attached to the energy isolation device, it shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
- Each energy source shall be locked out completely isolating the equipment.
- If more than one employee is involved, the employee who disconnected and locked out the power supply shall communicate the purpose and status of the disconnecting and locking out.
- Isolating machines or equipment shall include, but are not limited to:
 - Pumps, compressors, generators, electric distribution, storage tanks, etc.
 - Each type of equipment, including isolating pipes and pipelines, to be isolated shall have specific documented procedures for isolation, i.e., for compressors: suction, discharge, power, starting, fuel, dumps shall be closed, locked, and tagged out properly.
 - For pipes and pipelines see #8.

6. Stored Energy and the Possibility of Reaccumulation


Dee Cramer, Inc. will verify that all potential energy sources are released prior to performing maintenance activities. Before beginning the work, each worker shall determine if energy sources have been properly de-energized and locked out.

7. Isolating Pipes and Pipelines Requirements

If piping, a pipeline or a process system containing a harmful substance under pressure is to be serviced, repaired, tested, adjusted or inspected Dee Cramer, Inc. shall ensure that no worker performs such work on the piping, pipeline, or process system until flow in the piping, pipeline, or process system has been stopped or regulated to a safe level and the location at which the work is to be carried out is isolated and secured.

To ensure that harmful substances under pressure are not released Dee Cramer, Inc. will utilize the following methods (with Disconnection/Misalign as the preferred method):

- Blinding - Install full-rated blind(s).
- Disconnection/Misalign - This involves physically removing part of the equipment, or misaligning piping. Isolation devices shall then be attached as close to the energy source as possible and listed on the Energy Isolation Log.
- Double Block and Bleed - This involves three valves: two block valves and a bleed valve in between. For Energy Isolation purposes, all three valves shall be tagged with a "Danger" tag and listed on the Energy Isolation Log. In addition, the two block valves shall be locked.

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- Single Block - This involves closing one block valve, then applying locks and tags. Note, this option requires the prior approval of the supervisor.

Note: Control valves shall not be used for energy isolation.

Remote operated valves, designed for positive pressure containment, can be used provided they are disconnected from all Energy Sources and manually closed.

Multiple Groups of Workers

If more than one worker is involved, the worker who disconnected and locked out the power supply shall communicate the purpose and status of the disconnecting and locking out.

- A tailgate meeting shall be conducted to review the written group lockout procedure and other information as required for safe work to continue. The written group lockout procedure must be conspicuously posted at the place where the system is in use.
- An authorized employee will isolate the equipment.
- All employees will then place their locks on the device's group lockout or tagout device after they have verified the procedure.

Release from Lockout/Tagout


When servicing or maintenance is completed or when Lockout / Tagout devices must be temporarily removed, the equipment requires testing and the machine or equipment is ready for testing or to return to normal operating conditions, the following steps shall be taken, in this order:

- Check the machine or equipment and the immediate area surrounding the machine or equipment to ensure that all nonessential items such as tools have been removed and that the machine or equipment components are operationally intact.
- Check the work area to verify that no employee is in danger before an employee removes the securing devices and the machinery, equipment, powered mobile equipment, piping, pipeline or process systems is returned to operation.
- Remove the Lockout/Tagout device
- Energize and proceed with testing
- Deenergize and reapply control methods including Lockout / Tagout devices
- Document the procedure by use of the completed isolation log and provide to supervisor for filing.

Removal of Locks

A person must not remove a personal lock or other securing device unless the person is the worker who installed it. In an emergency, or if the worker who installed a lock or other securing device is not available, a worker designated (supervisor or manager in charge who will be responsible for its removal) by Dee Cramer, Inc. may remove the lock or other securing device in accordance with a procedure that includes verifying that no worker will be in danger due to the removal.

Dee Cramer, Inc. shall ensure that securing devices are not removed until each involved worker is accounted for, any personal locks placed by workers are removed, and the following procedures are implemented to verify that

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no worker is in danger before a worker removes the securing devices and the machinery, equipment, powered mobile equipment, piping, pipeline, or process system is returned to operation.

The following procedures shall be followed to allow for the emergency removal of a lock that another person has applied:

- If the key(s) cannot be made available, the employee who requests removal of the lock shall contact their supervisor.
- Every reasonable effort shall be made by the manager or supervisor to contact the authorized employee who applied the lock to obtain the key(s).
- The manager or supervisor shall ensure that the machinery or equipment can be operated safely before removing the lock and no employees will be in danger if it is removed.
- The competent person removing the lock shall document the lock(s) were removed with permission by manager or supervisor.
- All reasonable efforts will be made by supervisor to notify that employee their lock has been removed and ensuring that the authorized employee is notified at the start of his or her next shift if the employee's personal lock(s) have been removed since the employee's previous shift.
- If the equipment is client owned, the supervisor or employee requesting to remove the lock(s) shall contact the client to get the lock removed. Clients must remove their lock(s).
- NOTE: Dee Cramer, Inc. employees shall not remove any client locks.

Shift or Personnel Changes

In the event shift or personnel changes occur during maintenance and/or repair activities, the designated Dee Cramer, Inc. employee in charge shall take the necessary steps to maintain the continuity of the lockout/tagout protection. This includes maintaining that all provisions in this procedure are adhered to and the transfer of lockout/tagout devices between authorized employees is accomplished in an orderly manner.

Procedures must be implemented for shift or personnel changes, including the orderly transfer of control of locked out energy isolating devices between outgoing and incoming workers.

Contractors


Contractors performing lockout procedures on Dee Cramer, Inc. property shall comply with this procedure. Contractors shall supply their own locks.

Dee Cramer, Inc. shall initially lockout Dee Cramer, Inc. machines and equipment before the contractor will be allowed to apply their own lock in addition to the one assigned to Dee Cramer, Inc.

Annual Audits

Each year the manager or supervisor, or his representative, will perform an inspection of the Lockout Tagout Program in their respective areas to verify the effectiveness of the program. An authorized employee other than the one(s) utilizing the energy control procedure being inspected shall perform the audit and shall verify that:

- Each authorized and/or affected employee has been trained as required.

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- Any new equipment added has specific lockout procedures developed and documented.
- Current procedures are adequate for performing complete isolation of equipment and resulting in a zero-energy state.
- The annual audit will be certified in writing and a copy of the audit maintained on file at the managers/supervisors office.

Training

Dee Cramer, Inc. shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

- The recognition of applicable hazardous energy (lockout/tagout) sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- The purpose and use of energy control procedures.
- When tagout systems are used, employees shall also be trained in the following limitations of tags:
 - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
 - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
 - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
 - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
 - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
 - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.


All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

Retraining

Retraining shall be conducted whenever a periodic inspection reveals, or whenever Dee Cramer, Inc. has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures. The retraining shall re-establish employee proficiency and introduce new or revised control methods and procedures, as necessary.

Training Documentation

Dee Cramer, Inc. shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

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ISOLATION LOG

Date of Isolation:

Description of Work:

List of Equipment out of Service:

Necessary Requirements of Clear Isolation:


Authorized Employee Signature: _____

Person Continuing Work Signature: _____

Locks/Tags for GROUP LOCKOUT or Multiple Locks/Tags

Lock # or Tag	Date Installed	Date Removed	Print Name (for Group Lockout)	Signature

(If additional space is needed, please attach an additional page)

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ANNUAL AUDIT OF THE CONTROL OF HAZARDOUS ENERGY PROGRAM

I certify that an audit of the Dee Cramer, Inc. Lockout Tagout Program was conducted, and that each employee has been trained in the recognition and procedures to lockout equipment they may be required to work on or may be affected by.

I further acknowledge that the current procedure is adequate to safely lockout equipment in this department for servicing and maintenance.

Department: _____

Manager (or representative): _____

Date: _____

Original to file: _____