SAINT MARY’S COLLEGE OF CALIFORNIA  
STANDARD 1.1.4  

HAZARDOUS ENERGY CONTROL PROGRAM  
INCLUDING LOCKOUT/TAGOUT  

Prepared by  
SAINT MARY’S COLLEGE OF CA  
MORAGA, California  
KAREN LAURICELLA  

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<td>NC</td>
<td>21 November 2003</td>
<td>Karen Lauricella</td>
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Joe Kehoe  
Executive Director,  
Physical Plant

Charles Nikkel  
Superintendent

Karen Lauricella  
Manager, Environmental Health and Safety

Gary Busbee  
Supervisor  
Physical Plant

Peter Michell  
Vice President,  
Finance,  
Planning and Facilities
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</tr>
</tbody>
</table>
CONTENTS

1. INTRODUCTION ......................................................1

2. DEFINITIONS .......................................................1
   2.1 Energy Source ................................................1
   2.2 Energy Isolating Device .......................................1
   2.3 Non-Isolating Devices .........................................2
   2.4 Lockout ......................................................2
   2.5 Lockout Device .............................................2
   2.6 Tagout ......................................................2
   2.7 Tagout Device ...............................................2
   2.8 Lockout/Tagout .............................................2
   2.9 Authorized Employee .......................................2
   2.10 Affected Employee .........................................2
   2.11 Qualified Persons ..........................................2

3. ST. MARY’S COLLEGE LOCKOUT/TAGOUT PROCEDURES ......................4
   3.1 Notification of Employees ...................................4
   3.2 Preparation for Shutdown ....................................4
   3.3 Machine or Equipment Shutdown ...............................4
   3.4 Machine or Equipment Isolation ..............................4
   3.5 Lockout/Tagout Device Application ..........................4
   3.6 Control of Stored Energy ....................................5
   3.7 Verification of Isolation ....................................5
   3.8 Performing the Servicing or Maintenance ..................6
   3.9 Removal of Lockout/Tagout Devices ........................6
   3.10 Removal of Someone Else’s Lockout/Tagout Device ....6

4. CONTRACTORS OR OUTSIDE WORKERS ...................................7

5. TEAM OR CREW LOCKOUT/TAGOUT PROCEDURES ..........................9

6. SHIFT OR PERSONNEL CHANGES .....................................10

7. EMPLOYEE TRAINING ..............................................10

8. ELECTRICAL SAFETY .............................................11

ATTACHMENTS

Attachment I. Removal of Unknown Electrical Source Sign-Off Form 12
HAZARDOUS ENERGY CONTROL PROGRAM
including LOCKOUT/TAGOUT

1. INTRODUCTION

(a) State law, in the form of CAL OSHA Standard CCR Title 8, Section 3314, The Control of Hazardous Energy (including Lockout/Tagout), requires St. Mary’s College (SMC) to establish a program and procedures for affixing a lockout and/or tagout device on an energy isolating device to disable machines or equipment during servicing or maintenance. The main purpose of lockout/tagout is to prevent unexpected start-up or release of stored energy in order to prevent bodily injury to SMC employees or contractors. This document establishes SMC’s Energy Control Program (including Lockout/Tagout).

(b) This program does not apply to equipment in administrative work areas which can be unplugged from the sole electrical energy source and the plug would be under the exclusive control of the person performing the servicing or maintenance.

(c) If any employee, for any reason, is unsure or in anyway feels they are not completely positive when working on a hazardous energy source, including electrical circuits, they should stop work and call for assistance. Proceeding could pose a hazard to personnel or equipment. No one should feel intimidated by asking for help.

2. DEFINITIONS

2.1 Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, steam or other energy.

2.2 Energy Isolating Device

A mechanical device that physically prevents the transmission or release of energy such as: manually operated electrical circuit breaker, disconnect switch, line valve, block, or manually operated switch which disconnects the conductors of a circuit from all Ungrounded supply conductors.
2.3 **Non-Isolating Devices**

Push buttons, selector switches and other control circuit type devices.

2.4 **Lockout**

Placing a lockout device on an energy isolating device to ensure the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

2.5 **Lockout Device**

A device, using positive means such as a lock, that holds an energy isolating device in a safe position which prevents energizing a machine or equipment.

2.6 **Tagout**

Placing a tagout device on or near an energy isolating device to indicate the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

2.7 **Tagout Device**

A prominent warning device, such as a tag, which can be securely fastened to an energy isolating device to indicate the energy isolating device and equipment being controlled may not be operated until the tagout device is removed.

2.8 **Lockout/Tagout**

Applying both a lockout and a tagout device to an energy isolating device to hold the energy isolated device in a safe position and prevent energizing machinery or equipment.

2.9 **Authorized Employee**

A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on the machine or equipment. This function is normally performed by ST. MARY’S COLLEGE building and maintenance personnel or a contracted vendor.

2.10 **Affected Employee**

An employee who works in an area in which servicing or maintenance is being performed under lockout/tagout.

2.11 **Qualified Persons**
An employee trained and qualified in accordance with the OSHA Electrical Standards.
3. ST. MARY’S COLLEGE LOCKOUT/TAGOUT PROCEDURES

3.1 Notification of Employees

All affected and authorized employees in the area or involved in the operation must be notified that lockout/tagout procedures are about to be implemented. Authorized employees who will apply the lockout/tagout devices must take appropriate action, and advise of service / repair time frame, and ensure accurate accountability of all affected employees. The work area must be checked to ensure it is safe to proceed. **Work may commence only after at least one supervisor has been notified of the work task.**

3.2 Preparation for Shutdown

In preparing to shutdown offices, the kitchen, etc. personnel in that area should be told power will be turned off, in order to give notice so personnel have time to shut down computers and equipment. Any applicable affected employees, must ascertain the type, amount, and hazards of the energy to be controlled. They must also be informed of the method to use for controlling the energy.

**NOTE:** If this information is not known or available, the shutdown may not proceed and the authorized employee(s) must contact the EH&S Department or the Director of the Physical Plant.

3.3 Machine or Equipment Shutdown

The machine or equipment must be shutdown using the correct shutdown procedures. Authorized employees may need the assistance of affected employees for this procedure.

3.4 Machine or Equipment Isolation

After the machine or equipment is shutdown the authorized employee must locate ALL energy isolating devices that control the energy supply to the machine or equipment. Again, assistance from an affected employee may be necessary. Once the energy isolating devices are identified, they are to be placed in a "safe" or "off" position.

3.5 Lockout/Tagout Device Application

(a) Only an authorized employee may place lockout/tagout devices on an energy isolating device to hold it in its "safe" or "off" position.
(b) The preferred method is to use a lockout device AND a tagout device. However, there are situations where it is physically impossible to use a lockout device. In those instances, a tagout device may be used alone. The authorized employee must position the tagout device on the energy isolating device. The only other acceptable position for the tagout device (when a lockout device cannot be used) is as close as safely possible to the energy isolating device. It is very important that the tagout device be securely fastened on or near the energy isolating device.

(c) Pole lights are exempt from lockout/ tagout, if applicable, due to the fact that this may be a one person operation at times, and the employee is greater than 10 feet from the disconnect. Disconnect power at the base of the pole whenever possible. The employee working alone on the pole cannot be physically on the pole and reconnect the circuit at the same time.

(d) Scoreboard lighting, including but not limited to the football stadium scoreboard, may be exempt from lockout / tagout, if applicable, and **MUST** always be a two person operation in this instance.

3.6 Control of Stored Energy

The following steps must be taken to release any hazardous energy that may be stored in the machine or equipment.

(a) Inspect the machine or equipment to make sure all parts/components have stopped moving.

(b) Relieve trapped pressure. Release the tension on springs, or block the movement of spring driven parts. Block or brace parts that could fall because of gravity. Block parts in hydraulic and pneumatic systems that could move from loss of pressure. Bleed the lines and leave vent valves open.

(c) If stored energy could possibly re-accumulate, it must be monitored to ensure it stays below hazardous levels. When working on main switch gear bus bars, a grounding strap **must** be applied.

3.7 Verification of Isolation

After the lockout/tagout devices are in place and before work starts on the machine or equipment, authorized employees must verify that the machine or equipment is in fact isolated from its energy source. Additional verification is accomplished by appropriate electrical testing equipment, which will be tested on a live known circuit before use, then the electrical testing equipment will be used to verify that indeed power is on or off to the circuit being worked on.
3.8 Performing the Servicing or Maintenance

(a) The machine or equipment is now safe for the authorized employee to perform the necessary work. Do not perform any activity that could re-activate the machine or equipment. NEVER by-pass the lockout/tagout to perform a test or position a part/component.

(b) Should the authorized employee need to test or position a part/component, the steps in paragraphs 3.9(a) through 3.9(e) must be followed to remove the lockout/tagout devices and energize the machine or equipment.

(c) Upon completion of testing/positioning, the authorized employee must follow the procedures described in paragraphs 3.1 through 3.7 before proceeding with servicing or maintenance.

3.9 Removal of Lockout/Tagout Devices

Upon completion of servicing or maintenance the following steps must be followed.

(a) The authorized employee must notify all affected employees that the lockout/tagout devices are about to be removed and the machine or equipment will be energized.

(b) The authorized employee must inspect the work area to ensure tools and non-essential items are removed and the machine or equipment is operationally intact.

(c) The authorized employee must check the work area to ensure all authorized and affected employees are safely positioned or removed.

(d) Each lockout/tagout device is to be removed only by the authorized employee who applied it.

(e) After energy is turned back on, a meter or tester should be used to test voltages AND proper ground. Only after, will machines or equipment be put back into operation.

3.10 Removal of Someone Else's Lockout/Tagout Device

(a) Before an authorized employee's lockout/tagout device is removed by one of the people identified in Paragraph (a), the following actions must be taken.
(1) Verify that the authorized employee who applied the device is not on SMC premises.

(2) Make all reasonable efforts to contact the authorized employee to inform him or her that his or her device will be removed.

(3) Ensure the authorized employee knows his or her lockout/tagout device was removed before he or she returns to work at St. Mary’s College.

(4) If to this point, treat as an entirely new job. Research and Retrace original problem step by step, interview involved personnel or people, and only proceed if the authorized employee is not found.

(b) If the authorized employee who applied a lockout/tagout device is not available to remove it, it can only be removed by the SMC Director of the Physical Plant or a directive by the Director of the Physical Plant designating an authorized employee representative.

(c) The unauthorized removal of a lockout or tagout device may be grounds for immediate St. Mary’s College employment termination.

4. CONTRACTORS OR OUTSIDE WORKERS

(a) All contractors must receive lockout/tagout orientation BEFORE they begin any work. During the contractor orientation at SMC, a determination must be made whether the contractor employees need lockout/tagout training.

(1) If the contractor's work involves only equipment which can be unplugged from the electrical energy source and the cord will be under the exclusive control of the person performing the servicing or maintenance, then no training is required.

(2) If the contractor's work will not involve performing service or maintenance on SMC machines or equipment, but the work will be in work areas that contain equipment or machines for which lockout/tagout procedures are required, familiarization training is required.
(3) If the contractor's work will involve service or maintenance on SMC machines or equipment requiring lockout/tagout procedures, lockout/tagout procedures training is required. Contractors will receive the same training required for SMC employees. Contractors must furnish their own lockout/tagout devices.

(b) Any training must be conducted as soon as practical, usually at the time of contractor orientation, to expedite the contractor's work.

(c) Failure of a contractor to comply with SMC lockout/tagout requirements may be grounds for immediate action by SMC against the contractor, up to and including termination of the contract.
5. **TEAM OR CREW LOCKOUT/TAGOUT PROCEDURES**

(a) When the service or maintenance is performed by more than one authorized employee, those authorized employees shall be known as a team or crew. Each team or crew must have a designated supervisor. The supervisor is responsible for ensuring correct lockout/tagout procedures are followed.

(b) When the supervisor is ready to apply lockout/tagout devices, the supervisor applies his or her device(s) first. Then each team/crew member must apply his or her own lock to the supervisor's lockout device.

(c) If only a tagout device is used [see paragraph 3.5(b)], each team member must affix their own tagout device on or adjacent to the supervisor's tagout device.

(d) The supervisor must ascertain the exposure status of each team member.

(1) Ensure all team members wear appropriate personal protective equipment.

(2) Monitor each team member for signs of tiredness, heat stress, inattention to the task, or any other signals that the team member is becoming a safety hazard to the rest of the team.

(e) Upon completion of the servicing or maintenance, the entire team goes to the lockout/tagout devices together. Each team member removes only their own device. The last person to remove the device(s) must be the supervisor.
6. **SHIFT OR PERSONNEL CHANGES**

(a) If it becomes necessary to make a shift change or team/crew personnel changes under lockout/tagout status, all changes must be accomplished under the guidance of all supervisors involved.

(b) All work on the locked out/tagged out machine or equipment must cease.

(c) All authorized employees must go to the lockout/tagout device(s) together to observe the shift or personnel changes.

(1) The personnel who are departing shall remove their lockout/tagout devices. If new authorized employees are replacing them, the new workers shall put their lockout/tagout devices in place.

(2) The new authorized employee(s) has the right to insist on a re-verification of isolation (reference paragraph 3.7).

(3) If the entire work crew is being replaced, the outgoing supervisor must follow the procedures in paragraph 3.9 for removal of his crews' lockout/tagout devices. The incoming supervisor must then follow the procedures in paragraphs 3.1 through 3.7 before allowing any member of his crew to perform service or maintenance.

7. **EMPLOYEE TRAINING**

(a) St. Mary’s College employees who work in areas that contain machines or equipment that can be isolated from the electrical source by unplugging do not require training if the plug will be under the exclusive control of the person performing the servicing or maintenance. All other employees shall receive lockout/tagout familiarization training so they will know the purpose and function of SMC Energy Control Program (Lockout/Tagout). Those employees are considered to be potentially affected employees.

(b) All designated authorized employees shall receive in-depth training on SMC Energy Control Program (Lockout/Tagout).
(c) Retraining will be an event-based occurrence whenever there is a change in an employee's job assignment that changes the employee's status from affected to authorized employee; a change in machines or equipment that presents new hazards; or a change in the Energy Control Procedures.

8. ELECTRICAL SAFETY

(a) An AC current of 16 mA can be dangerous; a current of 100 mA can be fatal. A DC current of 60 mA is dangerous and 500 mA can be fatal.

(b) While any employee is exposed to contact with parts which have been de-energized, the circuits shall be locked and tagged out in accordance with this procedure.

(c) Conductors or parts, which have been de-energized but not locked and tagged out, shall be treated as energized parts.

(d) Safe procedures for de-energizing or re-energized circuits and equipment shall be determined before the circuits and equipment are de-energized or re-energized.

(e) The circuits and equipment to be worked on shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks may not be used as a substitute for lockout/tagout procedures.

(f) Stored electrical energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electrical energy might endanger personnel.

(g) A lock and tag shall be placed on disconnecting means of equipment.

(h) A qualified person, as defined by this procedure and trained in accordance with 1910.332, shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
(i) A qualified person shall use test equipment to test the circuits elements and electrical parts of equipment to which employees will be exposed and shall verify that the equipment and parts are de-energized.

(j) **If the circuit to be tested or worked on is over 277 volts, nominal, the College’s Electrical Contractor will be called. There will be no exceptions to this policy.**

(k) A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other devices have been removed before energizing the circuits or equipment.

(l) Employees exposed to the hazards associated with re-energizing the circuit or equipment shall be warned to stay clear. A visual determination shall be made to verify that all employees are clear.

(m) Only qualified persons may work on circuits and equipment that has not been de-energized. Appropriate PPE, shields, or barriers will be used to protect the employees. **Two people will be present when working on energized circuits or equipment.**

(n) Employees may not enter spaces containing energized circuits or parts unless properly illuminated. Employees may not reach blindly into areas with energized circuits or parts.

(o) Conductive articles of jewelry and clothing may not be worn if they might contact exposed energized circuits or parts.

(p) Only qualified persons may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system shall be returned to operation as soon as the work is completed.

(q) Electrical panel covers must be properly reinstalled upon completion of work.

(r) When an electrical panel cover or deadfront is to be removed, or a live breaker replacement is worked on, two people must on the project at all times.
ATTACHMENT 1

REMOVAL OF UNKNOWN ELECTRICAL SOURCE SIGN-OFF FORM
Removal of Unknown Electrical Source Sign-Off Form

Must be fully completed before any unknown cable or wire is sliced, cut, or pulled from its origin.

Check Box:

1. **Staff Electrician**
   - □ Line is dead & for removal.... Signature ___________________
   - Go to Next Person below for signature

   □ Line is live, keep live for tracing Signature ___________________
   - out circuit (Call 2nd Electrician)

2. **2nd Staff Electrician**
   - □ Line is dead & for removal Signature ___________________
   - Go to Next Person below or signature

   □ Line is hot and clear for work Signature ___________________
   - (Notify one person on list)

3. **Supervisor In Charge**
   - □ Line is dead & for removal Signature ___________________
   - Go to Next Person below or signature

   □ Line is hot & clear for work Signature ___________________
   - (Notify one person on list)

4. **Facilities Director**
   - □ Line is dead & Verified by 2 others Signature _________________
   - (Begin work or Call Electrical Contractor)

   □ Line is hot and not clear for work Signature _________________
   - (Call Electric Contractor)

**Work will not begin until at least 3 of the 4 persons above has signed this form. No exceptions will be made to the policy.**