St. Norbert College

LOCKOUT/TAGOUT POLICY (29 CFR 1910.147)

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1. **INTRODUCTION** - The purpose of this policy is to establish minimum requirements for the lockout and/or tagout of machinery and equipment during service and/or maintenance activities in which the unexpected energization, start-up or release of stored energy could cause injury to employees.

   Thousands of employees are severely injured or killed each year as a result of not following proper lockout procedures and working on equipment that remains energized or starts up unexpectedly. It is extremely important that the Human Resources (HR) Environmental Health and Safety Specialist and The Director of Facilities (or their designee) work closely with each other to enforce the Lockout/Tagout Policy. We must ensure that lockout procedures are being followed, and, annually, verify that the lockout procedures are adequate and that employees have the appropriate lockout/tagout devices to perform lockout procedures.

2. **SCOPE** - This policy applies to those who perform service and/or maintenance on equipment or machinery in which they must remove, bypass or otherwise defeat a guard or other safety device, or place any part of the body into an area on a machine or a piece of equipment where work is performed (point of operation) or where an associated danger zone exists during a machine operating cycle. These individuals include all College employees, and all contract employees, working under the direct supervision of College personnel.

3. **EXCEPTIONS TO SCOPE** - This policy applies strictly to the control of hazardous energy during servicing and/or maintenance of machines and equipment, but does not apply to:

   a. Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, if:

      i. They are routine, repetitive and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

      ii. They do not require the removal of any guarding on the machine or equipment.

      iii. An employee is **NOT** required to place any part of their body into an area on the machine or equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operation cycle.

   b. Work on cord and plug connected to electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source, and the plug is under the exclusive control of the employee performing the servicing or maintenance.

4. DEFINITIONS

a. **Affected Employee** – An employee whose job requires them to work in the area of a machine or piece of equipment in which servicing or maintenance is being performed under lockout or tagout or whose job requires them to work in an area in which such servicing or maintenance is being performed.

b. **Authorized** - OSHA (per 29 CFR 1926.32(d)) defines "Authorized person" as a person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the jobsite. The St. Norbert College Director of Facilities (or their designee) will determine which employees have the requisite knowledge, skills, personal protective equipment, etc. to perform work in that area safely.

c. **Authorized Employee** – An employee who utilizes a lockout/tagout procedure on a machine or piece of equipment to perform servicing or maintenance. An authorized employee may be an affected employee when maintenance or service is performed on a machine or a piece of equipment which must be locked and/or tagged out.

d. **Capable of Being Locked Out** – An energy isolation device is capable of being locked out if it is designed with a hasp or other means of attachment where a lock can be attached, or if it has a locking mechanism built into it.

e. **Contract Employees** – Personnel working within St. Norbert College by virtue of a contract, who are performing jobs similar to College employees, and who work under the direct supervision of a St. Norbert College employee.

f. **Energized** – Connected to an energy source or containing residual or stored energy.

g. **Energy Isolating Device** – A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

   i. A manually operated electrical circuit breaker;

   ii. a disconnect switch;

   iii. a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition no pole can be operated independently;

   iv. a slide gate;

   v. a slip blind;

   vi. a line valve;

   vii. a block;

   viii. and any similar device used to block or isolate energy.

   The term does not include push button, selector switch, and other control circuit type devices.

h. **Energy Source** – Any source of electrical, mechanical, hydraulic, pneumatic, kinetic, thermal, chemical and/or stored energy or any other type of potential energy source not listed.

i. **Line Breaking Permit** – An administrative control system that must be completed when opening pipelines that contain or have contained hazardous (flammable, toxic, corrosive, hot, or cold) materials. Unidentified pipelines shall be considered hazardous pipelines.

j. **Lockout** – The placement of a lockout device on an energy isolating device which ensures that the energy isolation device and the equipment being controlled cannot be operated until the lockout device is removed.

k. **Lockout Device** – A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe or "off" position and prevent the energizing of a machine or piece of equipment.

l. **Multiple Lock Adapters** – Devices that are used to provide for the use of multiple padlocks.

m. **Qualified Person** - OSHA (per 29 CFR 1926.32(m) defines "Qualified" as meaning one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.

n. **Servicing and/or Maintenance** – Workplace activities such as installing, constructing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include, but are not limited to, lubrication, cleaning, unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy.

o. **Tagout** – The placement of a tagout device on an energy isolation device to indicate that the energy isolation device and the equipment being controlled may not be operated until the tagout device is removed.

p. **Tagout Device** – A prominent warning device, such as a tag to an energy-isolating device, and the equipment or machine being controlled may not be operated until the tagout device is removed.

5. RESPONSIBILITIES

a. **Departments** - Each department manager is responsible for compliance with the criteria set forth in this policy. They must insure that all elements of this policy and related procedures are implemented and followed.

b. **HR Environmental Health and Safety Specialist**

1. Coordinate the overall Lockout/Tagout policy

2. Facilitate initial lockout/tagout training for applicable divisions

3. Assist applicable departments with the development of specific procedural steps required for the lockout and/or tagout of equipment or machinery during service and maintenance activities.

4. Conduct periodic inspections of the department's lockout/tagout procedures.

5. Maintain a listing of all lockout authorized employees.

6. Facilitate to provide Lockout/Tagout supplies as needed or the means to direct them and to safely accomplish lockout procedures.

c. **Departmental Managers**

1. Ensure that an inventory of all College owned machinery and equipment that are serviced or maintained by employees within their area of responsibility is completed.

2. Ensure that specific lockout/tagout procedures are developed for machinery and equipment that are serviced or maintained by employees with their area or responsibility.

3. Ensure that periodic inspections of applicable lockout and/or tagout procedures for machinery and equipment within their area of responsibility are completed.

4. Ensure that affected and authorized employees within their area of responsibility receive training. This training must provide all necessary, on the job, training to safely lockout equipment.

5. Ensure that authorized employees within their area of responsibility are provided with lockout/tagout materials, which are durable, standardized, and substantial (e.g., locks, danger tags, blanks, chains, wedges, etc.).

6. Implement and enforce departmental lockout/tagout procedures within area(s) of responsibility consistent with these procedures.

d. **Employees**

1. Recognize the type and magnitude of hazardous energy sources within the workplace and understand the methods and means necessary to control or isolate this energy.

2. Understand and comply with the nature and limitations of warning tags and the prohibition relating to attempts to restart or re-energize machines or equipment which are locked and/or tagged out.

3. Comply will all pertinent lockout/tagout procedures and understand and adhere with all applicable safety and health rules and regulations.

e. **Contractors -** When outside servicing personnel (e.g. contractors) are engaged in activities covered by the scope and application of this policy, the College representative

in charge of the project shall directly supervise the application and removal of lockout and/or tagout devices from machines and equipment.

There must be a lockout device present for each contractor working on the job. Contractors must supply their own devices that shall be approved by a Department Manager or their designee. The authorized department employee shall place their lockout "first on, last off".

6. LOCKOUT/TAGOUT PREPARATION

a. Before performing service and/or maintenance on a machine or piece of equipment, the authorized employee(s) in charge of the work must insure they thoroughly understand the type and magnitude of energy that the machine or equipment utilizes.

b. Depending on the machine or piece of equipment to be worked on, several energy sources may need to be de-energized, blocked, blanked, etc. These sources may include, but are not limited to, electrical, mechanical, hydraulic, pneumatic, chemical or stored energy sources.

Caution: Questions on energy sources should be resolved before job authorization is obtained and lockout/tagout procedures commence.

7. LOCKOUT/TAGOUT OF ENERGY SOURCES – GENERAL PROCEDURE - For servicing or maintenance activities which do not require the development of a separate Hazardous Energy Control Procedure, the following sequences of steps must be taken prior to and during servicing or maintenance activities in which lockout and/or tagout procedures are being utilized.

Adhering to these procedures will ensure proper notification of employees, and eliminate the chance of unexpected start-up or energy flow to a machine or piece of equipment.

a. Notify all affected employees that a lockout and/or tagout procedure is going to be utilized, the method(s) of isolation to be used, and the duration of the shutdown, if known.

b. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.) **Note:** An orderly shutdown must be performed to avoid any increased hazard(s) to employees as a result of equipment shutdown.

c. De-energize the equipment or machinery by physically operating all applicable operating switches, valves, disconnects, etc., so as to completely isolate the machine or equipment from its energy source(s).

Warning: 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 for electrical equipment may not be used as a substitute for lockout/tagout procedures.

However for production purposes an interlock that is incorporated with a jog button can be used for minor adjustments when installed on a guard.

Affix individually assigned lock(s) to each energy-isolating device on the machine or piece of equipment that is capable of accepting a lock. Lockout devices, where used, shall be affixed in a manner that will hold the energy-isolating device in the "safe" or "off"

position.

Note: The key(s) to the authorized employee's lock(s) must remain with the employee or be properly locked in a "lockbox" for the duration of the job.

d. Attach a properly completed "Danger – Do Not Operate" tag to each lock. If a machine or piece of equipment will not accept a lockout device, properly completed warning tag(s) must be attached at the same location(s) that the lockout device(s) would have been placed.

e. The employee shall list their name, contact phone number and lockout date on the tag(s).

f. In addition to locking out and tagging power driven machinery or equipment at the motor starter, motor control center, disconnect switch, etc., when additional warning is appropriate, tags and locks (where possible) must be placed on start/stop switches, remote start/stop switches, valves, suspended parts and along pressure lines to warn others of the operating status of the machine or equipment.

g. When equipment, by design, retains stored energy (such as springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc.), there is the possibility of re-accumulation of stored energy to a hazardous level or the possible re- energization of electrical components, the energy must either be dissipated or restrained by placing the equipment in the bottom or closed position, or it shall be blocked to prevent movement.

h. As an additional means of verifying a de-energized condition the requirements outlined below shall be complied with:

    i. A qualified employee shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.

    ii. A qualified employee shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that circuit elements and equipment parts are de-energized. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been de-energized and presumed to be safe.

    iii. After ensuring that personnel are safely removed from the machine or equipment, a final check on the disconnected energy source and tested electrical circuits is to operate start buttons, valves, and/or other normal operating controls to make certain the equipment or machine will not operate and is isolated from its energy source(s).

Caution: Return operating control(s) to the "neutral" or "off" position after verification test is complete.

i. If stored electrical energy may endanger personnel, all capacitors shall be discharged and high capacitance elements short-circuited and grounded. **Note:** If employees handle the capacitors or associated equipment they must then be treated as energized.

j. Uncord and plug connected equipment, the equipment shall be shut down, unplugged and a “Danger” tag and red lockout device with padlock attached to the equipment plug.

k. Only upon the completion of each of the aforementioned steps shall the machine or piece of equipment be deemed safe to work on and a “Zero-Energy State” achieved.

8. **RESTORING MACHINES OR EQUIPMENT TO SERVICE** - After servicing and/or maintenance work is complete and the equipment or machine is ready to resume normal operations, the following actions must be taken before lockout and/or tagout devices are removed:

    a. If special electrical isolation techniques were performed on the machine or piece of equipment, a qualified employee shall conduct testing and visual inspection, as necessary to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely re-energized.

    b. Ensure that all tools and nonessential items have been removed from the machine or equipment and that all machine guards, components, etc., have been reinstalled and are operationally intact.

    c. Perform a thorough visual inspection of the area around the machine or equipment to ensure that all employees are safely positioned or removed from the area, equipment, circuit(s), etc. about to be re-energized.

    d. Notify all affected employees in the area that lockout and tagout devices will be removed.

    e. Operate applicable energy isolating devices to restore energy to the machine or equipment.

    f. Ensure that locks and/or tags are removed from each energy isolating device only by the authorized employee(s) who applied them.

9. **REMOVAL OF A LOCKOUT DEVICE – EMPLOYEE ABSENCE -** If the authorized employee who applied the lock and/or tag, is unavailable to remove their own lock and/or tag, the employee’s direct manager shall investigate the situation thoroughly. The authorized employee’s lock and/or tag device may only be removed by the employee’s manager after necessity for removal has been positively established, and all of the following conditions have been met:

    a. Verification has been made that the authorized employee who applied the lock and/or tag device(s) is not at the facility.

    b. All reasonable efforts have been made to contact the authorized employee to inform them that their lockout and/or tagout device(s) will be removed.

    c. The authorized employee’s manager is certain that removal of the lock and/or tag will not endanger employees.

    d. Prior to resuming work within the facility, the authorized employee shall be notified that their lock and/or tag were removed in their absence. The lock and/or tag should be replaced before the employee resumes servicing or maintaining equipment that requires lockout.

10. **TESTING OF MACHINES, EQUIPMENT, OR COMPONENTS** - In situations which lockout and/or tagout devices must be temporarily removed from energy isolating device(s), and

the machine or equipment re-energized to test or position the machine, equipment, or component, the following actions must be taken:

a. Clear machine or equipment of tools and materials.

b. Ensure that employees are safely removed from the machine or equipment.

c. Remove applicable lockout/tagout devices.

d. Energize and proceed with testing or positioning.

e. De-energize all systems and reapply lockout or tagout devices.

11. GROUP LOCKOUT/TAGOUT

a. **Single Disconnect Device -** When work involves more than one employee from the same trade group or employees from multiple trade groups (e.g. electricians, riggers, mechanics, etc.), and a single disconnect device will affect the lockout, the following procedures should be followed:

   i. Each authorized employee in charge of a group shall fasten a multiple lockout adapter to the energy-isolating device on the machine or piece of equipment. The employee in charge of each group shall then attach their individually assigned lock to the multiple lockout adapter, and a "Danger – Do Not Operate" tag to their lock.

   ii. Additional employees with each group shall also attach a similar lock and tag to the multiple lockout adapter of the employee in charge of their respective trade group.

   iii. Only the employee in charge of that group shall remove any multiple lockout adapters, protecting a particular trade group, and only after all other employees in that group have removed their locks and tags.

b. **Multiple Disconnect Device -** When work involves one or more trade groups, and multiple disconnects or other isolation devices must be locked out at different locations, the following procedures shall be followed:

   i. Each specifically designated employee in charge of a trade group shall obtain the necessary number of extra locks.

   ii. Each employee in charge of a respective trade group shall attach their lock to each disconnect or other isolation device, (utilizing a multiple lockout adapter if necessary), "Danger – Do Not Operate" tags must then be attached to each lock.

   iii. Additional employees within each trade group shall attach a "Danger – Do Not Operate" tag to each lock of the tradesmen in charge of their respective trade group.

   iv. There shall be at least one lock, attached to each disconnect, for each trade group on the job. Each employee in charge of a trade group shall keep in their sole possession, the key to all locks affecting the lockout.

v. Only the employee in charge of that group shall remove any lock, protecting a particular group, and only after all other employees in that group have removed their tags from each lock.

c. **Shift Changes**

i. If an employee's shift ends before service or maintenance on a machine or piece of equipment is completed, the employee's lock(s) shall not be removed until the relief employee has placed their own lock(s).

ii. If an employee is not relieved by another employee and the operating division has positively determined that no one else will work on the machine or equipment in the interim, the employee may leave their lock and tag in place until the next work day, when upon the employee's return, the employee must inspect and retry all equipment operating controls to make certain that they are all still deactivated.

iii. If an employee is not relieved by another employee and the operating department cannot positively determine that no one else will need to work on the machine or equipment, the operating department shall assume the responsibility for locking and tagging the machine or equipment. Once the lock and/or tag of the operating department are in place, the employee may then remove their lock and/or tag.

12. **TAGOUT-REQUIREMENTS AND LIMITATIONS** - If an energy-isolating device is not capable of accepting a lockout device, and only a tagout system can be utilized, the following requirements and limitations involving tags must be observed:

a. At least one additional safety measure, which will provide a level of safety equivalent to that obtained by the use of a lock, must be utilized. Examples of additional safety measures include the removal of an isolating circuit element, blocking a controlling switch, or opening an extra disconnecting device.

b. Tags are essentially warning devices and do not provide the physical restraint that locks provide.

c. The tags and fasteners must be made out of materials that cannot be easily destroyed, fall off, become illegible or destroyed by the weather or other elements.

d. Employees attaching the tags shall write their name, contact phone number and lockout or tagout date on the tags.

e. When "Danger – Do Not Operate" tags are attached to energy isolating devices, they are not to be removed without authorization of the person attaching it, and they are never to be bypassed, ignored, or otherwise defeated.

f. Tags may evoke a false sense of security, and their meaning must be understood and respected in order to be effective.

g. Tags must be attached to the same location that the lockout device would have been attached in such a manner, which will prevent their inadvertent or accidental detachment while in place.

13. **TRAINING AND COMMUNICATIONS -** The College shall facilitate initial training for all new authorized and affected employees within the College to ensure that the Lockout/Tagout procedure is complied with. The level of training provided will be determined by the level of involvement the employee has with the LOTO procedures. Specific elements covered in the training shall include:

    a. "Authorized employees" will be trained in the purpose and use of LOTO procedures, the recognition of applicable hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods and means necessary to control or isolate hazardous energy.

    b. The proper placement, removal, and transfer of lockout and tagout devices and the responsibility for them.

    c. Specific procedures to be followed during shift changes, removal of locks and multiple lockouts.

    d. The nature and limitations of warning tags.

    e. How and where to obtain personal locks, tags, and other miscellaneous lockout equipment/hardware.

    f. "Affected employees" and other employees will be trained in the purpose of LOTO procedures. They will be shown samples of the locks and tags used during LOTO procedures. They will also be trained in the prohibition relating to attempts to restart or re-energize machines or equipment which are locked and/or tagged out.

    g. Training documentation must be signed by instructor. Training records will be retained for a period encompassing the employment period of the individual trained and for at least 3 years, thereafter.

    h. Whenever there is a change in an authorized or affected employee's job assignment, a change in machines, equipment or processes that present a new hazard, or when there is a change in the machine or equipment energy control procedure, the employee(s) shall be re-trained by the employee's respective supervisor on any new or unusual hazards associated with machinery or equipment they may be required to work upon.

14. **LOCKOUT EQUIPMENT**

    a. **Lockout Devices**

        i. Lockout devices include hasps, valve covers, circuit breaker lockouts, plug lockouts and a variety of other devices such as these.

        ii. When using a lockout device the device must be locked with a lock. Simply using the device without a lock is not acceptable practice.

    b. **Locks**

        i. Department managers are responsible for ensuring that an adequate supply of locks are available to authorized employees.

ii. Lockout locks shall only be used for locking out machines and equipment. They shall not be used for any other purpose except for lockout activities (such as securing toolboxes, lockers, etc.).

iii. Each lock shall only have one key. If a second key is provided with the new locks, the second key shall be given to the Departmental Manager.

c. **Tags**

i. "Danger – Do Not Operate" tags are to be used whenever a lock is applied.

ii. Must legibly contain the name and contact phone number of the user and the date of the lockout.

iii. Must be securely attached. Locking nylon cable ties are the preferred attachment mechanism for tags.

iv. Tags must be able to withstand the environmental conditions that they are going to be exposed to.

15. LOCKOUT PROCEDURE FORMS – DOCUMENTATION

a. All machinery and equipment, which are owned by the College, shall be inventoried. A Lockout Procedure form detailing specific lockout/tagout procedures for machinery and equipment shall be developed by the HR Environmental Health and Safety Specialist.

b. Only one Lockout Procedure Form needs to be developed for machinery and/or equipment (e.g., those using the same type and magnitude of energy), which have the same or similar type of controls. Employees are to be referred to the applicable lockout procedures before, during, and after lockout/tagout operations.

c. Lockout Procedure Forms for machinery and equipment covered by the scope of this policy need not be developed when ALL of the following elements exist:

i. The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees;

ii. The machine or equipment has a single energy source that can be readily identified and isolated and a single lockout device will achieve a locked-out condition;

iii. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment;

iv. The machine or equipment can be isolated from its energy source and locked out during servicing or maintenance;

v. The lockout device will be under the exclusive control of the authorized employee performing the servicing or maintenance;

vi. The servicing or maintenance activity will create no hazard(s) for other employees;

vii. The employee, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

Completion of the machine/equipment inventory and specific lockout procedures shall be the responsibility of authorized employees who have a thorough knowledge and understanding of the steps necessary to de-energize and secure the machine or piece of equipment.

16. PERIODIC INSPECTIONS

a. The HR Environmental Health and Safety Specialist shall inspect each individual lockout procedure on an annual basis.

b. The purpose of the inspection(s) shall be to correct any deviations or inadequacies observed in the lockout procedures.

c. When lockout procedures are involved, the employee conducting the inspection shall observe the actual implementation of the lockout (where feasible).

17. VARIANCES - Any modification, deviation, or exception to this policy must be submitted in writing and approved by the HR Environmental Health and Safety Specialist.

a. The HR Environmental Health and Safety Specialist shall review all new machine and equipment installations during the design process to ensure that proper lockout capabilities have been built into the equipment and machines.

18. POLICY EVALUATION - The HR Environmental Health and Safety Specialist will conduct periodic evaluations of the workplace to ensure that the provisions of this policy are being implemented. The evaluation will include regular consultations with employees who use the lockout/tagout equipment and their supervisors, site inspections and review of records. Identified problems will be noted and addressed by the HR Environmental Health and Safety Specialist. These findings will be reported to management, and the report will list plans to correct deficiencies in the specific equipment-related lockout/tagout issue and target dates for the implementations of those corrections.

19. DOCUMENTATION AND RECORDKEEPING - Copies of training will be retained in the affected department and in the Human Resources Department. These records will be updated as new employees are trained and as existing employees receive refresher training.

20. POLICY REVIEW AND UPDATE - This policy shall be reviewed and updated on an annual basis or sooner if necessary.

21. VIOLATIONS - Any violation of this policy may subject an employee to disciplinary action, up to and including termination from employment.

Date	Update or Revision	By Whom
2/8/18	Initial Policy Creation	M. Eddy
6/22/18	Applied recommendations made by E. Jahnke.	M. Eddy