1.0 INTRODUCTION

Lockout/Tagout (LOTO) safety aims to protect workers from the unexpected release of hazardous energy from machinery, equipment and/or process during maintenance, servicing, or repair work. LOTO ensures that machinery, equipment and / or processes are isolated from all energy sources and where practicable properly shut down, and cannot be restarted until work is completed and the equipment is deemed safe to return to service.

2.0 SCOPE

This standard applies to work activities and employees under the operational control of NB Power and its contractors.

Please note: NB Power's Operating Rules and Regulations is a Code of Practice for work on electrical distribution and transmission systems as per Section 292 of NB OHS General Regulation 91-191 and is outside the scope of this standard.

3.0 REFERENCES

NB OHS General Regulation 91-191	New Brunswick Occupational Health and Safety Regulation 91-191 Part XVI: Sections: Section 239 Lock out, 240 Code of Practice, 262 Confined Spaces
CSA Z460-20	"Control of Hazardous Energy - Lockout and Other Methods"
HSEE-03-01	Job Hazard Analysis
HSEE-03-17	Confined Spaces
GS50	Generation Lock out / Tag out (electrical)
GS16	Generation - working on live equipment
Operating Rules and Regs	Transmission & Distribution Lock out / Tag out (electrical)
P1	PLNGS Lock out / Tag out
AMP ###	Asset Management Practices

4.0 TERMS AND DEFINITIONS

Authorized Individual	A person who is qualified to engage in hazardous energy control (LOTO) because of knowledge, training and experience (competency) and has been assigned to engage in such control.
Blank Flange	A solid plate installed through the cross-section of a pipe, usually at a flanged connection.
Blind Flange	A solid plate installed at the end of a pipe that has been physically disconnected from a piping system.
Double Block and Bleed	A drain valve located between two isolating valves to ensure product is not passing by the first isolation valve.
Controlling Authority	The organization or individual responsible for the documentation and implementation of the lockout/tagout process, including identifying the hazards, controlling the boundaries, understanding the impacts, and directing the authorized individuals. The

	designated Controlling Authority may be a contractor responsible to install a system or equipment; the facility owner or manger; or the construction management contractor. The Project/Facility Manager designates which organization(s) or individual(s) acts as the CO.
De-energized	Disconnected from all energy sources and any residual or stored energy has been controlled.
Energy Source	Any source of hazardous energy or materials. Sources include electrical, mechanical, hydraulic, pneumatic, chemical, radiation, and thermal energies; as well as various forms of potential energy such as that stored in springs, compressed gases, or in suspended objects (gravitational)
Energy Isolating Device	A device that physically prevents the transmission or release of hazardous energy or hazardous materials. Examples include restraint blocks, electrical circuit breakers, disconnect switches, slide gates, slip blinds, or line valves. For lockout/tagout purposes, isolating devices that provide visible indication of the device's position are desirable
Lockbox	A device that is capable of being locked in which the key(s) for all the energy isolating devices are stored.
Lock(s)	A device that requires a key to operate (not a combination lock) and holds an isolating device in the required position for the protection of employees. The lock(s) used for control of hazardous energy must be keyed and identified by color, shape, or size to be associated with lockout. This lock(s) shall be the only device used for controlling hazardous energy and shall not be used for other purposes.
Lockout Device	A device that utilizes a positive means such as a lock, key type 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.
Lockout/Tagout	Installation of lock(s) and tag(s) on the energy isolating device(s) to ensure that work can be performed safely. The lock(s) and tag(s) ensure that the isolating device(s) and the equipment or system(s) they isolate, or control cannot be operated until the lock(s) and tag(s) are removed
Safe-Condition Check	The inspection or test of a system or component performed by the authorized individual to ensure that the hazardous energy or materials are controlled adequately to prevent injury or accident. ***Note:*** *This is a mandatory step to ensure safety for employees.*
Servicing and Maintenance	Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining, or servicing

	machines or equipment. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy. This applies to all employees regardless of job title (operator, researcher, maintenance crafts, engineer, or construction craft).
Tagout	The installation of a danger tag on an isolating device to prevent the operation of the component or equipment when operation could cause personal injury or death, and to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tag is removed. A tag is used by itself only when the isolating device is physically incapable of being locked.
Worker	A person whose job requires them to work on equipment or systems that have been deenergized under the LOTO program. A person whose health and safety may be affected by being in the area where work on equipment or systems is taking place.

5.0 ROLES AND RESPONSIBILITIES

5.1 Employer (Director, Plant Manager or equivalent)

Each NB Power division is responsibe for complying with this standard by establishing an effective LOTO program for protecting individuals from hazardous energy from servicing and maintenance of machine, equipment, or processes. Including:

- Ensure the energy source to a machine, equipment or process can be isolated and locked, is in a location familiar to all employees, and is properly identified.
- Provide required resources to comply with the LOTO program, including but not limited to training packages, safety locks and keys, labelling, etc.

5.2 Authorized Individuals

- Shall perform hazardous energy control assessments to establish a written lockout procedure for **each and every** machine, equipment or process for servicing and maintenance.
- Apply the lockouts as outlined in the procedure along with verification.
- Assist workers in their understanding of the lockout.
- Returning the equipment back to service.

5.3 Supervisor

- Ensure the employees are trained as required by the LOTO program.

- Acquaint your employees with the hazards and control measures associated with their work.
- Provide the information and instruction necessary to ensure their health and safety.
- Where a lockout procedure is not appropriate or inadequate, establish and enforce a code of practice in consultation with the workers, Authorized Individuals, the Joint Health and Safety Committee or Health and Safety Representative.
- Enforce company safety rules, programs, codes of practice and procedures, including ensuring employees comply with the requirements below.
- Unless working under a code of practice, ensure no one works on a machine, equipment or process until all the energy sources are locked out and it is placed in a zero-energy state by Authorized Individuals.
- Make sure employees who are working on the machine verify:
  - All energy sources are isolated.
  - The machine/equipment/process is locked out with their personal safety lock.

5.4 Employee

- Be instructed, trained and authorized by your employer to use a lockout procedure.
- Always follow the written lockout procedure (or code of practice) for each machine/equipment/process established by your employer and not take any shortcuts.
- Use only the locks and tags specified and provided by your employer.
- Secure your lock and tag with a multiple lock device (scissor clamp), chain, or block is used on a machine, equipment or process.
- Only work on a machine after someone competent verifies the machine is in a zero-energy state, locked out and verified.
- Understand that personal locks are personal security devices that can only be removed by the person who controls the lock.
- Before releasing the machine/equipment/process back to operations, make it safe (clean the work area, re-install guards, etc.)

6.0 STANDARD

A LOTO program is to ensure that risk of exposure to hazards will be eliminated or minimized before any person performs servicing and maintenance on machines, equipment or processes where the unexpected energizing, start-up, or release of stored energy could occur and cause injury.

6.1 Program Contents

A lockout program shall consist of the following elements:

a) identification of the hazardous energy covered by the program

b) identification of the type of energy isolating devices (valves, breakers, etc.)

c) identification of the type of de-energizing devices (permanently installed or portable)

d) selection and procurement of protective materials and hardware

e) assignment of responsibilities

f) determination of shutdown, de-energization, verification (zero energy state) energization and start-up sequences

g) training of personnel

h) auditing of program effectiveness

6.2 General Requirements for LOTO

The LOTO program shall require that all energy-isolating devices that control or remove energy shall be capable of being locked out or otherwise secured in an effective isolating position.

An important element of the hazardous energy control program is the development of lockout procedures and training. For each unique machine, piece of equipment, or process, detailed lockout procedures for the control of hazardous energy for all servicing and maintenance activities shall be developed and documented. These lockout procedures shall be posted or otherwise readily available for authorized individuals to review and use.

6.3 LOTO Procedure Elements

Lockout procedures shall clearly outline the requirements for effective isolation of the machine, equipment, or process. The lockout procedures shall include the following:

a) identification of the machine, equipment, or process;

b) a listing of all required energy-isolating devices and their locations;

c) procedural steps for shutting down, isolating, blocking, securing, and relieving stored or residual energy;

d) procedural steps for placing and removing lockout devices;

e) requirements for verifying that isolation and de-energization have been accomplished; and

f) requirements for verifying that all personnel have been cleared from the work site(s) and that the machine, equipment, or process has been inspected to ensure that it is safe to return to service.

The LOTO program must include Management of Change; to have a process for developing or revising lockout procedures to address new machine, equipment, or process acquisition; changes to existing machines, equipment, or processes; correction of identified hazardous energy control deficiencies; and addition of hazardous energy control improvements.

The program must also establish responsibilities for ensuring that lockout procedures accurately reflect the current requirements and are effective in controlling machine, equipment, or process hazardous energy. Lockout procedures shall be readily accessible to authorized individuals and may be maintained via print or electronic media or available in placard style at the machine, equipment, or process.

The divisions shall establish guidelines for consistent formatting of lockout procedures and ensure a process for validating and approving them.

All protective materials and hardware required to isolate energy shall be made available. All lockout devices (including all tags, locks, lockout devices, etc.) shall:

a. be uniquely identified;
b. be the only devices used for controlling hazardous energy;
c. not be used for other purposes;
d. be capable of withstanding the environment to which they are exposed;
e. be standardized within the facility in at least one of the following criteria:
    - colour;
    - shape;
    - size; or
    - specific markings; and
    - be substantial enough to prevent accidental operation of the energy-isolating device without excessive force,

An information tag shall be used with each lockout device unless the lockout device itself has the required information attached.

6.4 Energy Isolating Device Identification

Human error can be greatly reduced when energy isolating devices are labelled therefore this is a requirement of this standard. All valves, breakers, etc. used for lockouts must be labelled with a divisional nomenclature standard. There must also be a process in place to address deficiencies and situations when maintenance / project activities may remove or add new devices / labels.

6.5 Hazardous Energy Control Assessment

An initial step in developing a lockout for a machine, equipment and/or a process is to assess the energy(s) present. The use of the Energy Wheel may be applicable when considering what energies are in play and on how to control them. Some additional examples include:

Electrical energy is the most common form of energy used in workplaces. It can be available live through power lines or it can also be stored, for example, in batteries or capacitors. Electricity can harm people in one of three ways:

1. By electrical shock.
2. By secondary injury.
3. By exposure to an electrical arc.

Hydraulic potential energy is the energy stored within a pressurized liquid. When under pressure, the fluid can be used to move heavy objects, machinery, or equipment. Examples include: automotive car lifts, injection moulding machines, power presses, and the braking system in cars. When hydraulic energy is released in an uncontrolled manner, individuals may be crushed or struck by moving machinery, equipment or other items. Other injuries include risk of exposure to hydraulic oil or other pressurized liquid which may cut the skin.

Pneumatic potential energy is the energy stored within pressurized air. Pneumatic systems are generally powered by compressed air to power equipment. Examples include spraying devices, power washers, rock drills, and riveters. When pneumatic energy is released in an uncontrolled manner, individuals may be crushed or struck by machinery, equipment, or other items such as hoses.

Chemical energy is the energy released when a substance undergoes a chemical reaction. The energy is normally released as heat, but could be released in other forms, such as pressure. A common result of a hazardous chemical reaction is fire or explosion.

Thermal energy is energy from an explosion, flame, objects with high or low temperatures or radiation from heat sources. Common injuries include burns, scaled, dehydration, frostbite, etc.

Radiation energy is energy related to ionizing, low-frequency electromagnetic, optical, or radio-frequency electromagnetic radiation. Effects depend on radiation levels and length of exposure and may include skin burns, acute radiation syndrome, cardiovascular disease, and changes to genetic material, which may lead to cancer.

Gravitational potential energy is the energy related to the mass of an object and its distance from the earth (or ground). The heavier an object is, and the further it is from the ground, the greater its gravitational potential energy. For example, a 1 kilogram weight held 2 metres above the ground will have greater gravitational potential energy then a 1 kilogram weight held 1 metre above the ground.

Mechanical energy is the energy contained in an item under tension. For instance, a spring that is compressed or coiled will have stored energy which will be released in the form of movement when the spring expands. The release of mechanical energy may result in an individual being crushed or struck by the object.

It is important to understand that all of these energy types can be considered as either the primary energy source, or as residual or stored energy (energy that can reside or remain in the system). Primary energy source is the supply of power that is used to perform work. Residual or stored energy is energy within the system that is not being used, but when released it can cause work to be done.

Not properly assessing and dissipating stored energy can result in injuries or incidents. Control of hazardous energy includes isolating the system from its primary power source **and** residual energy.

6.6 <u>The six steps of lockout/tagout are as follows:</u>

Step 1 Preparation

Authorized individuals must perform the hazardous energy control assessment to identify all required steps in putting the machine, equipment and/or process into a zero energy state. This includes understanding the applicable procedures, the hazards that need to be isolated or controlled, acquire the necessary protective materials and hardware, identify the notification requirements, identify related issues and assess the consequences of the shutdown.

The written lockout procedure should specify:

- The specific machine, equipment, or process involved in the shutdown and isolation process.
- Consideration of the job scope is also required as this may alter the lockout.

- The hazardous energy present and the type of energy-isolating or de-energizing devices required.
- Where the lockout devices are required and how they are installed.
- The steps for shutting down, isolating, blocking, securing, and relieving stored or residual energy.
- The steps for placing and removing all lockout devices.
- How the isolation can be verified.
- How others in the area will be informed of the lockout and the return to service.

Not all energy isolating devices can be locked out. For example with stored energy cribbing may be used to control a gravity hazard. For these unique situation additional measures shall be taken to prevent the device from being inadvertently removed.

Note: This process requires a validation step; i.e. a second Authorized Individual to ensure all the required isolations and steps are identified.

Step 2 Communication

Communication is essential throughout the LOTO program, and a clear line of communication should be established between all parties involved. This includes the authorized individuals responsible for implementing the lockout procedure for the scope of work to be performed, supervisors, and affected employees. The communication must include verifying the equipment status, verifying isolating devices are in place, and providing updates throughout the LOTO process.

Step 3 Shut Down

Before beginning the LOTO process, shutting down the equipment or machinery safely and properly is essential. This may be critical for both the equipment reliability and the safety of the employees. This may involve following the manufacturer's instructions or established procedures for shutting down the equipment. Ensure all processes that may create energy hazards are safely stopped and isolated (moving parts stopped, gases vented, chemicals removed, etc.).

Step 4 Isolation

Isolation is the fourth step in the LOTO process. Applying the lockout requires an authorized individual, one at a minimum to install the isolating devices and to follow the steps outlined in the lockout procedure. A lockout device shall be affixed to each energy isolating device in a manner that will ensure the device remains in the "safe" position. Where only locks are used (no tags), locks shall at a minimum have a means of identification to the person if it is a personal lock or a lockout lock. The isolation process is divided into four sub-points:

1. **Applying Lockout Devices To Energy-Isolating Devices:**

   Locks are applied to energy-isolating devices such as valves, switches, or breakers to prevent energy from being restored during maintenance or servicing. Lockout devices shall be durable, standardized, and used for a single purpose, preventing accidental

disengagement or accidental operation. The devices shall be applied to prevent any inadvertent release of hazardous energy.

2. **Ensuring All Energy Sources Are Properly Isolated:**

   Once the lockout devices are in place, verifying that all energy sources are properly isolated is essential. This shall involve following the equipment-specific LOTO procedure, verifying that all energy sources have been identified and that the appropriate devices are in place to isolate them. Where applicable this will involve jog or bump tests, verification of pressure gauges, drains, instrumentation such as Geiger counters, volt meters, etc..

   Note: Bump/jog tests must be done in exclusion of interlocks.

3. **Identifying And Releasing Stored Energy:**

   Some energy sources, such as capacitors or springs, may store energy even after being isolated. Identifying and releasing this stored energy is essential before beginning maintenance or servicing. Stored energy release can be done by following established procedures, using appropriate tools, or performing a system test to ensure all stored energy has been released.

   Note: The Authorized Individual may not be able to release the stored energy as they may require a tradesperson, or the task could be assigned to a specific workgroup with the appropriate communication/planning.

   Systems may not be able to drain / vent due to equipment limitations. This must be clearly documented and communicated to the workers for them to use the appropriate first break methods.

4. **Utilizing Tagout Devices When The Lockout Is Not Possible:**

   Tagout devices are used to provide an additional level of safety when lockout devices cannot be applied (for example on cribbing when used to isolate a gravity hazard). Tagout devices should be standardized, durable, and warn others that energy sources are isolated. They should be attached to the energy-isolating device, indicating that the device should not be operated until the tagout device is removed by an authorized person.

   The isolation step is critical in ensuring that energy sources are effectively controlled, reducing the risk of accidents and injuries during maintenance and servicing.

Step 5 Verification

The application of a lockout requires another authorized individual to independently verify the lockout procedure was applied appropriately. Concurrent verification shall only be performed when the locking devices obstructs the position of the isolating device. Verification includes:

- visually inspecting locks are on the properly labelled isolating devices
- visually inspecting the position of devices (open, closed, etc.)
- observing bleeds, gauges, indicators, etc.

The Authorized Individual shall determine the techniques that provides the best degree of

isolation assurance while ensuring that no new hazards will be created.

Workers can also verify the lockouts they are working under by visually inspecting locks on equipment, using voltmeters, asking for bump tests to be performed, etc.. Please note some divisions has made this mandatory.

Step 6 Restoration

An authorized individual must return the equipment back to service. This is the final step in the LOTO safety and procedures. It involves inspecting the work area for completion and safety, removing LOTO devices properly, informing affected employees of equipment status, and restarting. This step is divided into three sub-points:

1. **Inspecting The Work Area For Completion And Safety:**

   Before restoring equipment, the work area must be inspected for completion and safety. This will include; verifying that all maintenance and servicing tasks have been completed, ensuring all personal safety locks are removed, verifying that all tools and equipment have been removed from the work area and that the work area is clean and debris-free. This may also include ensuring all guards are re-installed, catwalks returned to normal, etc..

2. **Removing Lockout/Tagout Devices In The Proper Sequence:**

   Lockout/tagout devices should be removed properly and in proper sequence, i.e. drains and vents closed before recharging the lines.

3. **Informing Affected Employees Of Equipment Status And Restart:**

   After all LOTO devices have been removed, affected employees should be informed of the equipment status and restart. This may include verifying that all employees are clear of the equipment and that there are no obstacles to restarting the equipment. Employees should also be informed of any additional safety procedures necessary when restarting the equipment.

   Effective restoration is critical to ensure all LOTO devices have been removed and the equipment is safe to operate. Failing to properly restore equipment can result in serious accidents and injuries.

6.7 Confined Space

There is an inherently high level of risk associated with work inside a confined space. This increases the rigor involved in locking them out. NB Power has adopted a risk-based isolation approach that aligns with many jurisdictions which may include blanking, blinding, disconnecting and/or double block and bleed. The requirements are outlined in HSEE-03-17 Confined Spaces and will not be duplicated in this standard.

In the rare event a code of practice is required for isolation variant for a confined space; NB Power has a specific form to be completed in consultation with Total Health & Safety; Form HS09.

Lock Removal

A procedure shall be established for the remove a personal safety lock that has been left in place after the employee has left the workplace. Every effort shall be made to contact the employee to confirm they are off-site and no longer working on the equipment. If the employee cannot be contacted, two authorized individuals may remove the lock after first ensuring that it is safe to do so:

- The status and conditions of the machine, equipment or process is verified to be in a safe state
- Confirming the person has left the site and is no longer working on the machine, equipment or process

The Authorized Individuals removing the lock will assume total responsibility for the start of the piece of equipment. A written report shall be issued as to the circumstance and how it was deemed safe to remove the personal safety lock (see Form #0579 Personal Lock Removal).

Procurement / Maintenance (Lockable devices)

NB Power currently has equipment that requires chains, aviation cable, lockout covers, etc. to lock them out. As safety continues to evolve so does the need to update our standard equipment list to include lockable devices to improve and simplify lockouts. Consideration must be given when updating inventories, modifying equipment, etc. to move towards lockable devices. For example: valves can come with lockable tabs and/or pins to eliminate the need to wrap chain around the handle or to use lockout covers that poses other hazards.

Projects

Project Managers must keep safety top of mind in designing and procuring equipment. Confined spaces may be eliminated with design changes or established with the appropriate isolating devices. As outlined above, those isolating devices can come designed to facilitate lockouts and hazardous energy control.

Radiation Sources

Radiation sources are to be locked out as per the Canadian Nuclear Safety Commission license and are to be verified with as found and as left radiation readings.

Freeze Plugs

Freeze plugs provide a non-intrusive method of isolation for critical systems that may not support traditional isolating devices. This specialized technique provides the same degree of protection providing the divisional LOTO program clearly outlines all the necessary requirements.

Fire System

Fire systems are not to be locked out without consultation with the NB Power Fire Prevention Department and the submittal of FM Global's Fire Impairment Permit.

Types of Lockouts

There are typically Three types of lockouts:

1. **Individual Lockouts:**

   This basic approach to lockout requires each individual involved in activities requiring lockout to be knowledgeable about the hazards associated with the machine, equipment, or process to be isolated and about the isolation points required to ensure their protection. Every such individual shall be accountable for ensuring before work begins that the required energy-isolating devices have been placed in the required positions and each locked with their personal locks. They shall also verify before work begins that the machine, equipment, or process has been de-energized. Note: This approach should involve no more than 5 isolating points.

2. **Group Lockouts:**

   For larger lockouts involving multiple energy-isolating devices, each energy-isolating device may be secured by a single lockout in accordance with the following steps:

   a) a primary authorized individual is assigned responsibility for the lockout of each energy-isolating device;
   b) the keys for the lockout devices are controlled by a lockable device (e.g., lock box or key ring) that is locked by the primary authorized individual;
   c) once the lockout is applied, a verification procedure is used to determine the effectiveness of the energy isolation before workers start work, they familiarize themselves with the energy-isolating devices, assess their adequacy for the work to be performed, and then apply their personal lock (and tag) to the lockable device.
   d) as the workers complete their work, they remove all non-essential items from the worksite. When they are sure that they have no reason to return, they can then consider their need for isolation to have ended, following which they remove their personal lock from the lockable device; and
   e) when all workers have removed their personal locks, the primary authorized individual assigned responsibility for the lockout walks down or around the isolated machine, equipment, or process to check that all authorized individuals are clear before removing the locks from the isolating devices.

   Note: Attempts should be made to properly define the boundaries of a group lockout as the larger they are the more complex they become. They can also impact the business in the following manner:

   - Releases will impact larger workgroups resulting in delays
   - Shutdown work sequences can be delayed
   - Startup can be delayed
   - Etc.

3. Complex Group Lockouts:

A complex group lockout approach can be used when it is not practicable for a workplace to directly comply with the individual lockout approach or with the group lockout approach to hazardous energy control because of one or more of the following:

a) the physical extent (remoteness) of the equipment or process being serviced;
b) the relative inaccessibility of the energy-isolating devices;
c) the interdependence and interrelationship of the components in the system or between different systems.

Whenever a complex group lockout approach is used, an equivalent level (to individual lockout) of personal protection for each member of a working group shall be established.

Releases

In situations where lockout devices are to be temporarily removed from an energy isolating device:

- Notification of personnel working under the lockout is needed
- Approval of the release is needed to ensure the equipment is in a safe state
- All employees working under the lockout must remove their personal safety locks and stand-down until a new lockout is provided

Note: Adequate planning should aim to minimize the need for releases as they present a human error likely scenario.

Code of Practice

There are tasks that can not be performed under a typical lockout procedure; adjusting limit switches, installing fabric on a vacuum drum, etc.. For these scenarios a detailed job hazard analysis (risk assessment) is required to perform these tasks under a code of practice.

Developing a Code of Practice requires a team approach; including authorized individuals, subject matter experts, the workers, a JHSC member or safety representative, etc.. The code of practice must ensure the adequacy of controls to an acceptable level of risk.

This code of practices can be converted to work procedures providing proper training and communication.

Contractors

Typically, contractors will work under the divisional LOTO program. However, during large scale projects there is an opportunity for boundaries to be establish and for contractors to adopt their own LOTO program. This approach requires upfront planning in the project planning phase and program coordination and communication. This approach can only be adopted with the approval of the NB Power host.

Training

The division shall provide initial training that will ensure that all authorized individuals understand the purpose and function of the control program to an extent appropriate for the level of hazard exposure they will possibly encounter. The training program shall comply with the following requirements:

a) Individual training shall be carried out prior to authorized individuals developing and implement lockouts

b) Training shall be specific to the divisions' LOTO program.

c) The training program shall be developed using applicable manufacturer's documentation, industry best practices, regulatory requirements, and input from authorized individuals.

d) Each worker shall receive training related to the type and magnitude of the energy available in the workplace.

e) Each worker shall receive training related to the type of energy that might be encountered during servicing or maintenance and the methods or means to control and isolate that energy.

f) Training shall include samples of machine-specific procedures and enable personnel to interpret and implement procedures.

g) The division shall document that all initial and additional training has been conducted. The documentation shall include the name, date(s) of training, and the training topic(s) for each individual trained. Documentation of the information covered during training sessions should be maintained.

Each division shall perform an assessment of training to ensure effectiveness; workers to demonstrate:

- Knowledge of the program
- Recognition and understanding of hazardous energy types
- Use of appropriate energy control procedures

Program Review

The divisions shall periodically assess the condition and effectiveness of each element of the hazardous energy control program at their determined frequency. Adequate frequency can be determined by incidents, field safety visit observations, etc.

The assessment shall include, at a minimum, the written program; specific machine, equipment, or process procedures; lockout hardware; energy-isolating devices; other hazardous energy control methods; and communication and training.

7.0 TRAINING

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8.0 APPENDIXES

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Director of

Total Health & Safety

DOCUMENT APPROVAL/REVISION RECORD

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