

***ZERO ENERGY STATE***  
*(Lock, Tag, & Try Procedure)*

**Executive Summary**

Each employee exposed to a potential hazard associated with the inadvertent or unexpected start-up or energization of machinery or equipment shall affix a No. 7 Masterlock with a danger tag, identifying the person and department applying the lock, to appropriate energy isolation devices or to a group lock box. Tagout shall be used for isolation devices identified in this procedure onto which a lock cannot be applied. The system being locked out shall be tested (try portion of this procedure) to verify all energy sources have been isolated or secured prior to commencing work. Employees shall promptly remove their individual locks and tags upon completion of their involvement in the work activity being performed under lockout.

1.0 **Purpose**

The Lock, Tag, and Try procedure establishes minimum requirements for protecting International Paper employees, contractors, and visitors from injury due to the unexpected energization, startup, or release of stored energy in machines or equipment. It is the means by which any individual may be assured that a potentially hazardous system is properly shut down and isolated, prior to starting service or maintenance activities.

2.0 **Scope**

2.1 This procedure is applicable to all International Paper, Franklin complex employees (except for Converting Innovation Center), visitors, and contractor personnel performing work at this location. This procedure establishes minimum requirements for the Franklin Mill.

2.2 This procedure shall be followed whenever personnel in, on, or around equipment during maintenance, cleaning, repair, inspection, or servicing operations may be injured due to unexpected energization, startup, or release of stored energy from the equipment or process.

2.3 Zero Energy State does not apply to employees performing minor adjustments and other minor servicing activities which occur during normal production operations if these activities are routine, repetitive, and integral to the use of the equipment for production. Alternate, task-specific, Intermediate Energy State procedures shall prevent employee exposure to hazardous energy sources. However, if these activities expose the employee to a potential hazard, ZES procedures shall be implemented.

2.4 Specific energy control procedures and checklists shall be developed by the operating department responsible for the equipment or by the department most familiar with the equipment. These specific, written procedures shall be developed for all equipment and processes involving personnel working at either Zero or Intermediate Energy States. See Appendix "A" for exemptions and generic energy control procedures.

All energy control procedures shall be approved by the operating department.

2.5 Intermediate Energy State procedures, including equipment set-up and clean-up activities occurring during normal production operations requiring jog power or jam clearing, shall be performed in accordance with Section 6.4.

2.6 Due to unique requirements for electrical and electronic equipment, certain troubleshooting and repair functions are performed with the equipment energized. This work, where required, shall be performed only by qualified personnel (see Section 4.18).

2.7 This procedure does not apply to the following activities:

2.7.1 Work on cord and plug connected electrical 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 by the plug being under the exclusive control of the

individual performing the servicing or maintenance.

2.7.2 Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water, or petroleum products when they are performed on pressurized pipelines or vessels, provided that all of the following conditions are met:

- Continuity of the process or service is essential
- Shutdown of the system is impractical; and
- Documented procedures are followed, and special equipment is used, which will provide proven effective protection for individuals involved in the hot tap activity.

### 3.0 **Responsibilities**

- 3.1 The supervisor shall ensure that all employees are aware of the hazards requiring the work to be performed under lockout, and that employees understand and comply with this procedure.
- 3.2 Employee(s) performing work requiring lockout shall ensure that all procedural steps are followed and implemented prior to the start of the work activity.
- 3.3 Each authorized employee shall place an individual lock and tag on energy isolation devices or lock boxes.
- 3.4 In a group lockout situation, the initial responsible person shall ensure that group locks are affixed to energy isolation devices and shall perform the try portion of this procedure to verify the adequacy of the lockout.
- 3.5 Employees shall not knowingly bypass energy isolation devices, attempt to re-position energy isolation devices, or remove energy isolation devices which have been locked/tagged out.

#### 4.0 Definitions

- 4.1 Affected Employee - An individual whose job requires him to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout, or whose job requires him to work in an area in which such servicing or maintenance is being performed.
- 4.2 Authorized Person - A person who locks out machines or equipment in order to perform servicing or maintenance on that machine or equipment.
- 4.3 Competent Person - An individual who by virtue of experience in system operation, knowledge of equipment design and function, and familiarity with potential energy sources, is qualified to train responsible persons on their roles associated with group lockout.
- 4.4 Energy Control Procedure - A written procedure that identifies energy isolation devices (e.g., valves, switches) that shall be secured in order to isolate all energy sources and achieve zero energy state. This procedure shall also identify means to verify that zero energy state has been achieved. See Appendix "A" and "B" to this procedure for Development and Use, and Management of Change, guidelines for energy control procedures.
- 4.5 Energized - Connected to an energy source or containing residual or stored energy.
- 4.6 Energy Isolation Device - A mechanical device that physically prevents the transmission or release of energy. Such devices include, but are not limited to the following:
- \*Manually operated electrical circuit breaker.
  - \*Manually operated primary electrical disconnect switch.
  - \*Blanks or blinds.
  - \*Manually operated blocking valves.
  - \*Blocking pins or similar devices.
  - \*Hooks, locking chains, or chain falls that can be locked in position.
  
  - \*Other similar devices with visible indication of the position of the device.
  - \*Removal of mechanical linkages.
  - \*Installation of grounding wires.

Note: Push buttons, selector switches, or other control circuit type devices are NOT acceptable for energy isolation.

- 4.7 Energy Source - An electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, or stored energy source (e.g., gravity or spring tension) that might cause injury to personnel.

Note: Water above 120 F is considered to be hazardous and requires isolation as outlined in this procedure.

- 4.8 Exclusive Control - A switch or plug which is both visible to and within arm's reach of the exposed individual or dedicated person (during activities involving multiple personnel).
- 4.9 Group Lockout - A system utilizing a lock box to accommodate either large numbers of individuals working under a lockout situation or many different energy isolation points.
- 4.10 Intermediate Energy State (IES) - A state of energy of equipment or processes in which designated hazardous energy sources are at zero energy state while maintaining other designated energies to perform minor changes and adjustments, or other minor, routine, and repetitive servicing activities that are required to operate the equipment or process. Activities performed under IES do not involve extensive disassembly of equipment or process, and these alternate procedures used for employee protection in lieu of ZES must prevent employee exposure to hazards.
- 4.11 IP - International Paper
- 4.12 Lockout - The placement of a lockout device on an energy isolation device in accordance with this procedure ensuring that the energy isolation device and the equipment being controlled cannot be operated until removal of the lock.
- 4.13 Lockout Device - A device that utilizes a positive means to secure an energy isolation device in a safe position and prevents the energizing of a machine or equipment. A lockout device shall consist of a lock, which may be used in conjunction with a chain or similar device as required to secure the energy isolation device. Lockout

devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

4.13.1 Individual (Personal) Locks - The designated lock for use in individual lockout for Franklin facilities is the #7 Master lock. Employees may receive these locks as standard issue from the Main Storeroom. Individual locks protect ONLY the person installing them.

4.13.2 Group Locks - Locks used to secure energy isolation devices under a group lockout are #7 Master locks marked with a color which make them easily distinguishable from individual (personal) locks. Group locks installed to isolate/secure a specific system shall all be marked using the same color code. Group locks protect more than one authorized employee.

4.13.3 Equipment Locks - Any lock, other than a #7 Masterlock, installed on energy isolation devices or lock boxes to secure equipment when there is no personnel exposure. Equipment locks may be used to prevent damage to equipment or its associated system, or to prevent undesirable events such as environmental releases, adverse impact on production, or damage to building facilities.

NOTE: Equipment locks shall NOT be used in lieu of individual or group locks for personnel protection.

No. 7 Master locks shall not be used for any purpose other than for individual or group lockout. In order to maintain lockout integrity, spare or duplicate keys to locks shall be secured to prevent their being readily accessible to personnel other than the individual applying the lock or the responsible person for group lockout. Note: Under no circumstances shall the key to an individual lock be in the possession of anyone except the person applying that individual lock.

4.14 Lock Box - A container into which key(s) to group lock(s) are placed to allow the responsible person and all authorized employees to apply individual

locks & tags in order to secure the equipment and ensure protection under the group lockout equivalent to that afforded by individual lockout. The lock box must be designed to provide containment of the group lock key(s) and prevent inadvertent access to these key(s).

- 4.15 Multiple Lockout Device - A tong/clasp device which allows more than one lock to be applied to an energy isolation device or lock box.
- 4.16 Principal Authorized Person - An authorized person applying a group lock to a lockbox in order to establish a separate satellite lockbox.
- 4.17 PSM - Process Safety Management, OSHA standard 1910.119
- 4.18 Qualified Personnel - Employees assigned to perform tasks that require training in and compliance with Virginia OSHA standards 1910.269, 1910.331-335, the Electrical Safety Related Work Practices standards.
- 4.19 Responsible Person - The primary authorized person for a group lockout. This person shall be an IP employee knowledgeable of the following:
- 4.19.1 Isolation points involved in the group lock situation. These isolation points must be identifiable (e.g., numbered or labeled).
  - 4.19.2 Function and operation of the system or equipment involved in the group lockout.
  - 4.19.3 All work activities being performed under the group lock situation.
- When contractors are involved, the IP employee serving as the responsible person will be assigned by the operating area owner.
- 4.20 Tag - A means of providing identification concerning a lockout device. Tags are not to be used in lieu of locks to isolate energy (except as identified in Section 6.1.2). All lockout devices shall have a tag attached to the lock. Danger tags are for use only with this ZES (Lock, Tag, and Try) Procedure and are not to be used for any other purpose.

4.20.1 For individual locks, permanent International Paper employees shall use a Danger tag, with photo identification, indicating name, clock number and department.

Temporary International Paper employees, visitors, and contractor personnel shall use a Danger tag marked with the following information: individual's name, department or company name, and date which the lock was applied. These tags may also be used by permanent International Paper employees who either do not have Danger tags with photo identification, or do not have a sufficient quantity of photo identification Danger tags to enact lockout.

4.20.2 For group locks, a Danger tag labeled Group Lockout shall be used and shall be marked with the following information: Department/Company name, location of lockbox, and equipment name or lockbox identification.

4.20.3 For equipment locks, a Warning tag shall be used indicating Department/Company name, equipment or system being secured, and location of key to the equipment lock(s).

4.21 Zero Energy State (ZES) - A condition in which all energy sources in shutdown equipment are neutralized to eliminate the possibility of unexpected energization, startup, or movement.

## 5.0 References

- 5.1 OSHA's "The Control of Hazardous Energy (Lockout/Tagout)" standard, 29CFR1910.147
- 5.2 IP Corporate Safety & Health "Control of Hazardous Energy Sources - Zero Energy State (ZES)" procedure
- 5.3 IP - Franklin Mill "Barricade" procedure
- 5.4 IP - Franklin Mill "Incident Investigation" procedure

## 6.0 Procedure

**WARNING: Do not use this document after end of shift March 5, 2012**



## 6.1 Energy Control Procedure

### 6.1.1 Machine or Equipment Shutdown and Isolation

6.1.1.1 Operating area personnel shall stop the equipment using established shutdown procedures and normal controls. If the equipment was shut down because of control failures, energy source interruption, emergency stop procedures, or unknown reason, all operating controls shall be placed in the off, neutral, or normal shutdown position. This step will help prevent undesired equipment energization or startup when locks and tags are removed.

6.1.1.2 Equipment or system energy control procedures shall be utilized to identify those energy isolation devices which are to be locked out.

6.1.1.3 The equipment or system shall be placed in zero energy state by installing or actuating appropriate energy isolation devices. Typically, for complex lockout situations, the operating department shall ensure that energy isolation devices have been installed or actuated.

If the operating department is not directly involved in securing a system, those individuals performing the work activity under lockout may install or actuate energy isolation devices, but only after consulting with the operating department to discuss the scope of the work activity, schedule of work activity and anticipated time which the system will be available for

return to operation, use of complex lockout checklists, and the location of energy isolation devices.

NOTE: When authorized by the equipment owner, contractor personnel may install or actuate energy isolation devices to secure a system in preparation for lockout. However, contractors shall not operate electrical energy isolation devices, which is an activity to be performed by IP personnel only.

Contractor activity to secure a system may commence only after prior consultation by the contractor with a designated IP employee with the qualifications of a responsible person for the equipment or system. This IP employee shall identify the energy isolation devices and their locations, and shall monitor the contractor's performance to insure adequate isolation for lockout. The contractor manager shall ensure that negotiated agreements with local unions are not violated.

6.1.1.4 Lockout and tag each energy isolation device for the equipment. Each energy isolation device must be positioned to isolate the energy source from the equipment. Once the device is positioned, the lockout device must prevent the energy isolation device from being repositioned.

Note: Contractor personnel working as authorized employees under lockout shall have a designated IP employee, with the qualifications of a responsible person, review the contractor lockout to insure its

adequacy prior to commencement of work.

- 6.1.1.5 Each employee working on a piece of equipment shall place his individual lock on each energy isolation device (see Section 6.2 for group lockout procedures). Use of multiple lockout devices facilitates lockout involving numerous employees. The last opening on a multiple lockout device should be reserved for the attachment of additional multiple lockout devices.
- 6.1.1.6 Operating equipment, immediately adjacent to but not involved in the work activity being performed under lockout, may pose a potential hazard to employees. When necessary, the Franklin Mill Barricade Procedure should be employed to clearly mark boundaries between secured and unsecured equipment.
- 6.1.1.7 If computer controlled equipment is included in the lockout, additional steps may be needed to ensure that all energy sources are effectively isolated. The method utilized shall ensure that the energy isolation devices remain secured by the lockout devices applied by authorized employees.
- 6.1.1.8 A Danger tag shall be attached to each individual or group lock.
- 6.1.1.9 Except for group lockout situations (see Section 6.2), when an employee is relieved on a job, including at shift change, the oncoming employee shall review the lockout in effect by discussing the lockout procedure with the off going employee (if available) and

obtaining the lockout checklist when a checklist is required. The oncoming employee shall visually verify that energy isolation devices are appropriately positioned to maintain zero energy state, and shall place his individual lock(s) and tag(s) on each energy isolation device.

If a simultaneous exchange of locks occurs between the off going and oncoming employees, repeating the try step of this procedure (see Section 6.1.3) is not mandatory. If any of the energy isolation devices are discovered unsecured by the oncoming employee, the try step of this procedure shall be repeated.

6.1.1.10 Specific energy isolation guidelines include:

\*Manually operated electrical circuit breakers or disconnect switches must be placed in the off or open position and locked to isolate electrical energy sources.

NOTE: Locking of control buttons, switches, or key controls is NOT an acceptable means of isolating electrical energy sources.

\*Removal of fuses from the holders and enclosure if the electrical box housing the fuse is locked and tagged to prohibit reinsertion of the fuse.

NOTE: Removal of a fuse is an alternate method for energy isolation to be used only when an electrical disconnect to isolate electrical energy is not available.

\*Manually operated blocking valves must be fully closed and locked, pipeline blanks or blinds must be installed and locked, or an adequate length of the pipe or duct work must be physically removed and lock installed on flange, to isolate hydraulic, pneumatic, or chemical energy sources.

\*Remote actuated valves are not an acceptable means of isolating hydraulic, pneumatic, or chemical energy sources unless all of the following apply: their design is appropriate for isolation, and their actuating device is de-energized and disconnected, and they are mechanically locked closed.

\*Drain and vent valves on pipelines and equipment between blocking valves must be opened to bleed off stored or trapped pressure energy sources. The Franklin Mill Procedure for Opening Dangerous Systems or approved specific written departmental procedures shall be followed when draining or venting dangerous systems.

\*Braces, blocking pins, chain falls or other similar blocking devices must be locked in place by chains and locks or other means to isolate mechanical systems that might move.

\*Air, fluid, or other stored energy pressure must be bled off of these systems to prevent unexpected motion.

\*Shutters on radiation sources must be closed and locked in place to isolate nuclear energy sources.

6.1.1.11 For work on chemical systems affected by OSHA's PSM standard, isolation of energy sources in order to achieve zero energy state shall be achieved by one of the following methods:

- Double blocking valves with a bleed valve in between.

or

- Physically separating the equipment involved in lockout from the chemical system.

or

- Inserting a blank or blind flange in the pipe line.

6.1.1.12 An energy isolation device included in lockout/tagout shall remain in service throughout the duration of the lockout activity (i.e., an energy isolation device which as been secured and locked out/tagged out cannot be removed from the equipment or system until locks and tags have been removed in accordance with this procedure).

6.1.1.13 Pipeline blanks installed in the top of the blow tanks (blow line or vent line) shall be installed in accordance with the Fiber's Dept. SOP entitled "KAMYR013-Lockout and Procedural Requirements for Installing Blanks in the Top of the A, B, and C Blow Tanks".

## 6.1.2 Tagout

6.1.2.1 Tagout of energy isolation devices is allowed only for situations in which installation of a lockout device is not feasible or provides no physical protection. In these cases,

means shall be employed to isolate energy sources in a way that provides a level of employee protection equivalent to the use of a lockout device (i.e., prevent the inadvertent energization of equipment). Tags shall be located so that they are clearly visible to individuals so as to prevent inadvertent removal or re-positioning of the energy isolation device.

6.1.2.2 Tags identified in 4.20.1 & 4.20.2 shall be utilized to identify energy isolation devices tagged-out for individual and group lockout, respectively, and shall be securely attached to prevent inadvertent or accidental removal and to withstand the environment into which they are placed.

6.1.2.3 Use of danger tags alone (without locks) for tagout is allowed only in the following situations:

6.1.2.3.1 Piping systems isolated by the installation of blanks or blind flanges, which require tools for removal, only when it is not possible to install a lockout device through a bolt hole.

6.1.2.3.2 Piping systems isolated by removing a "spool piece", only when it is not possible to install a lockout device through a bolt hole.

6.1.2.3.3 Electrical systems

isolated by 120v panel board breakers, where lockout devices cannot be installed on the energy isolating breakers, shall have the wire leads to the breaker terminal disconnected, removed, and taped by qualified IP personnel.

6.1.2.3.4 Electrical systems isolated by the disconnect and removal of motor leads and power conductors.

6.1.2.3.5 Chocks installed to prevent the release of potential or kinetic energy.

6.1.2.3.6 Fire prevention systems, only if the work is being performed on piping, valves, or related components, and if there is no back-up or secondary fire protection system. For example, tagout would be permissible for a sprinkler head, but not an electric fire water pump.

6.1.2.3.7 Ropes secured on paper machines during rope splicing.

### 6.1.3 Verification of Isolation

6.1.3.1 After ensuring that all employees are clear of the equipment, isolation of energy sources shall be verified by trying to start the equipment using the normal startup control buttons or switches. This helps ensure that the proper energy



isolation devices have been included in the lockout and that all energy has been released to achieve a zero energy state before work begins.

NOTE: For contractor work activity to be performed under lockout, a designated IP employee (see the Note under Section 6.1.1.4) shall perform the try step to insure zero energy state has been achieved.

NOTE: Under no circumstances shall the try portion of this procedure be performed if any employee is potentially exposed to injury by the unexpected start-up or energization of the equipment or system.

- 6.1.3.2 If electrical work is to be done, appropriate electrical test equipment must be used to verify that all electrical energy has been isolated and discharged from the equipment. Visual inspection to ensure that all phases of the electrical energy supply have been disconnected can be used to verify proper isolation.
- 6.1.3.3 For systems with hazardous or flammable atmospheres isolated by a blank, blind flange, or closed valve, verification shall be achieved by the use of a direct reading atmospheric detector (gas monitoring device).
- 6.1.3.4 If the equipment unexpectedly starts up, is energized, or moves during this try step, stop the equipment immediately and review the lockout procedure. If the problem cannot be resolved by using the correct energy isolating devices or if the devices do not adequately

isolate the equipment (such as a valve that leaks by), contact the supervisor responsible for the work.

6.1.3.5 Some equipment may be interlocked through control power devices. In this situation, the equipment may not start up or energize during the try step even though the proper energy isolating device(s) may not be properly positioned. Questions regarding the possibility of the status of interlocked equipment must be resolved before the equipment is worked on.

6.1.3.6 No authorized employee shall begin work on equipment which unexpectedly started, was energized, or moved until the problem has been identified and corrected and the equipment has been rendered to a zero energy state.

6.1.3.7 After trying to start the equipment, return all operating controls to the off, neutral or normal shutdown position. This step will help prevent unexpected startup, energization, or movement when the equipment is energized after the completion of work.

#### 6.1.4 Restoring Equipment to Normal Operation

6.1.4.1 Upon completion of the job or when released from the job, each employee shall personally remove his own individual lock(s) and tag(s).

6.1.4.2 Before removing group lock(s) and tag(s), the responsible person must obtain the key(s) from the group lock box.

6.1.4.3 Upon removal of individual

or group locks, the authorized employee, work supervisor, or responsible person (for group lockout) shall promptly notify operating area personnel, and other affected employees as applicable, that work is complete and that lock(s) and tag(s) have been removed. For group lockout situations, the complex lockout checklist shall be marked to indicate that the lockout was terminated.

- 6.1.4.4 Upon removal of all lock(s) and tag(s) by authorized employees, or the responsible person for group locks, the employee or department responsible for securing energy isolation devices for lockout shall also be responsible for restoring the equipment or system to a safe operational condition. If a complex lockout checklist is utilized to secure equipment, the checklist shall also be referenced to restore energy isolation devices to their appropriate position for system operation.

If operating department personnel are not involved in installing or actuating energy isolation devices for system lockout or return-to-service, those placing the energy isolation devices in the appropriate position for system/equipment operation shall consult with the operating department to discuss the steps taken to prepare the system for return-to-service, and shall notify all affected personnel that energy isolation devices have been returned to their operational position.

NOTE: When authorized by the equipment owner, contractor

personnel may remove or actuate energy isolation devices to return a system to operational status. However, contractors shall not operate electrical energy isolation devices, which is an activity to be performed by IP personnel only.

Contractor activity to return a system to operational status may commence only after prior consultation by the contractor with a designated IP employee with the qualifications of a responsible person for the equipment or system. This IP employee shall ensure that all work activity performed under lockout has ceased and the equipment or system is prepared for return to operation. Additionally, this IP employee shall identify the energy isolation devices and their locations, and shall monitor the contractors' performance in restoring the system to an operational status. The contractor manager shall ensure that negotiated agreements with local unions are not violated.

- 6.1.4.5 Operating area personnel (or equipment owner) shall inspect the work area to insure that the equipment or system is operationally intact and that all personnel are clear of any hazard before re-starting equipment. If the equipment being started has a jog feature, the equipment will first be jogged, allowing sufficient time for any vulnerable personnel to escape danger, before going to full speed operation.
- 6.1.4.6 Prior to the system or equipment being re-energized, the operator starting the equipment shall initiate an audible warning

signal distinguishable by personnel in the area from background noise.

6.1.4.6 For equipment which the operator, from the startup location (e.g., control panel) can view the equipment in its entirety, without the use of mirrors, a verbal warning is permissible, if confirmed by hand signals or other means that personnel in the area have received this warning.

6.1.4.7 For larger equipment, which cannot be viewed in its entirety by the operator, a horn or similar audible warning shall be activated either manually or automatically prior to start-up. The signal shall have a volume of 10 dB above the ambient noise level in the area and shall sound for a minimum of three (3) seconds. Start-up of the equipment shall not occur until at least three (3) seconds have elapsed after the conclusion of the audible alarm. Voice notifications over public address systems are not acceptable in meeting this requirement.

6.1.4.8 Departments shall maintain a list of equipment for which the audible alarm is required following completion of lockout.

## 6.2 Group Lockout

Where more than one authorized employee is working on a piece of equipment, each person shall attach his individual lock to energy isolation devices, utilizing a multiple lockout device. However, in situations where either large numbers of people are working on a project or there are many different isolation points, the application of individual locks on energy isolation devices may not be practical. In these special cases, group lockout and energy control procedures for the equipment shall be used. These procedures shall afford the employees a level of protection equivalent to that provided by the implementation of a personal lockout and must meet the following criteria:

- 6.2.1 Primary responsibility is vested in an onsite responsible person for authorized employees working under the protection of a group lockout.
- 6.2.2 The responsible person shall obtain the energy control procedure for the system or equipment. This procedure shall contain the energy isolation devices to be locked out prior to the commencement of servicing or maintenance activities.
- 6.2.3 Group locks shall be installed on the various energy isolation devices for the equipment. Each group lock shall be color-coded alike for each specific lockout situation, and a group lockout tag shall be affixed to each group lock (see Section 4.18.2).
- 6.2.4 The responsible person shall verify that those energy isolation devices included in the energy control procedure are in the appropriate position to achieve zero energy state, and are secured with group locks and tags.
- 6.2.5 The keys to the group locks shall be placed in a group lock box for the duration of the work activity. The responsible person shall be the first to place his individual lock and tag on the group lock box.
- 6.2.6 The initial responsible person shall perform the try step of this procedure (see Section 6.1.3) to verify the adequacy of the lockout.

NOTE: If at any time during the performance of work, the equipment exhibits signs of not being properly locked out, authorized employees shall be removed from exposure to injury from the unexpected start up or energization of the equipment, the problem identified and resolved, and the try step of this procedure repeated.

- 6.2.7 The equipment's energy control procedure shall be posted in the immediate vicinity of the group lock box, visible to all authorized employees involved in the lockout. The procedure shall contain the name or description of the equipment or system secured, work activities authorized by the responsible person under the group lockout, the name and job title of the initial responsible person, date which the group lockout commenced, and shall indicate completion of those activities associated with Sections 6.2.4 and 6.2.6.
- 6.2.8 Authorized employees involved in a specific group lockout shall review the posted energy control procedure and shall personally apply their individual lock and tag on the group lock box. Authorized employees shall ensure that the responsible person has identified/included their specific work activity on the posted procedure. If any questions or concerns about the lockout arise, the authorized employee shall discuss the adequacy of the lockout with the responsible person prior to placing their individual lock and tag on the group lock box and commencing work. If the personal lock and tag of the responsible person is not on the group lock box, authorized employees are prohibited from affixing their personal locks and tags on the group lock box and commencing work.

Having each authorized employee lockout the group lock box ensures their protection during the maintenance or servicing work and provides for personal accountability to remove these individual locks and tags upon completion of their involvement in the work activity covered by the lockout.

- 6.2.9 During shift changes, the oncoming responsible person shall verify the group lockout status by visually observing that all energy isolation devices have been included in the group lockout, are in the appropriate position to maintain zero energy state, and the appropriate group locks and tags are in place. Repeat of the try step of this procedure is not required unless lockout integrity is questioned due to an identifiable problem, and determined necessary by the responsible person.

Verification of lockout during shift changes shall be documented on the initial or current energy control procedure, or by the completion of a new procedure. All energy control procedures shall be maintained at the lock box while a group lockout is in progress. If an energy control procedure is removed from a group lock box during re-verification of lockout status during shift change, no individual locks shall be applied to the group lock box until the procedure has been re-posted in the immediate vicinity of the lock box (see Sections 6.2.7 & 6.2.8). The energy control procedure shall not be removed for any other purpose than to re-verify and document lockout status during shift change.

After verification of the lockout is performed, the on-coming responsible person shall post the new/updated energy control procedure and affix his personal lock and tag onto the group lockbox, thus assuming the role as "responsible person". The off-going responsible person shall then remove his personal lock and tag from the group lockbox.

- 6.2.10 Satellite lock boxes may be established when different or numerous groups of authorized employees are involved in work activity being performed under group lockout.

- 6.2.10.1 A principal authorized person shall be designated for each satellite lock box, who shall identify and locate the appropriate master group lock box(es) for the work activity, affix a group lock and tag on the



master lock box, and place the key to this group lock inside the satellite lock box, which shall be conspicuously labeled to include the department or company name, equipment on which work is being performed (same as for the master lock box), and location of the master lock box on which the group lock was installed.

6.2.10.2 The principal authorized person for the satellite lock box shall then attach his individual lock and tag on the satellite box, followed by the individual locks and tags for each authorized employee within the work group.

6.2.10.3 During shift change, the oncoming individual serving as the principal authorized person for the satellite lock box shall visually verify that the group lock and tag installed on the master group lock box remains in place prior to affixing his individual lock and tag on the satellite lock box.

6.2.10.4 Establishment of a satellite lock box shall be coordinated with the onshift responsible person for the master lock box.

### 6.3 Equipment Locks

6.3.1 The following precautions apply to the use of equipment locks and warning tags:

6.3.1.1 Employees installing equipment locks and warning tags shall obtain prior approval from the operating area owner.

6.3.1.2 Equipment locks provide no personnel protection. If employees are exposed to potential injury associated with the unexpected start up or energization of the system or

equipment, either individual or group lockout procedures shall be implemented.

6.3.1.3 Installation of equipment locks invalidates the prior individual or group lockout established for personnel protection. All steps outlined in this procedure shall be repeated in order to re-establish a valid individual or group lockout.

6.3.2 When work is performed less than 24 hrs/day (e.g. an 8 hour work shift), and the system or equipment is in a non-operational state, an equipment lock and tag may be utilized to replace the locks and tags of authorized employees leaving the site. An equipment lock and warning tag may be installed by an authorized or affected employee.

6.3.3 For situations involving group lockout and non-continuous work activity, and upon removal of all individual locks and tags of authorized employees, the off going responsible person shall remove his individual lock and tag and affix an equipment lock and warning tag on the lock box. The responsible person does not have to remain onsite after placing an equipment lock and warning tag on the lock box.

6.3.4 Equipment locks may be utilized during installation of new equipment associated with construction activities, prior to the release of the equipment from project personnel to the operating area owner.

#### 6.4 Intermediate Energy State

6.4.1 Intermediate Energy State procedures are permissible as alternate means of personnel protection during minor, routine, and repetitive servicing activities such as minor tool changes and equipment adjustments, lubricating, cleaning, and unjamming, required to

operate the equipment, provided that these activities do not expose employees to injury. IES procedures may also be developed for jog power activities where the introduction of energy is integral to the task being performed, and the energy source does not represent a hazard to employees. Only when tasks cannot be performed under ZES, or when it is necessary to have energy present in order to accomplish the work activity, shall IES procedures, with alternate safety measures, be developed and implemented.

- 6.4.2 IES procedures shall be written, task specific, energy control procedures, and shall be approved by the affected department manager.
- 6.4.3 Alternate means of providing for personnel safety, such as the use of special tools, work methods, personal protective equipment, or other protective measures to prevent employee exposure to hazards, shall be identified in the IES procedure.
- 6.4.4 For IES procedures involving jog power, only those specific sections of equipment which require jog power may be energized. All other energy sources shall be isolated and locked out. The jog function shall be governed by a start switch which is under the exclusive control of the employee performing or directing the set-up activity. This jog switch shall be designed so that it can not be accidentally activated.
- 6.4.5 For IES procedures involving minor jam clearing activities during normal production operations, equipment may be stopped using a control circuit, provided that the control circuit is equipped with a non-bypassable two step restart feature under the exclusive control of the individual performing the jam clearing.
- 6.4.6 For IES procedures involving multiple personnel (e.g., set-up, clean-up, jam clearing), the IES procedure shall identify roles & responsibilities to

ensure the safety of all exposed personnel. One individual, serving the work team, shall be dedicated to remain within exclusive control of switches, plugs, etc., during performance of the task. This individual shall communicate with, and work under the direction of, a designated member of the team or crew performing the activity.

- 6.4.7 IES procedures shall contain the following minimum information:
- Identification of the type and magnitude of all energy sources associated with the equipment or system
  - Location and corresponding identification of energy isolation devices
  - Listing of energy isolation requirements
  - Identification of work task(s) allowed by the IES procedure
  - Methods for verifying control of hazardous energy sources (verification of isolation).
- 6.4.5 IES procedures shall not permit personnel exposure to point-of-operation or power transmission hazards.
- 6.4.6 IES procedures may be used in conjunction with other means to prevent exposure to hazards.
- 6.4.7 Departments shall maintain all IES procedures and ensure that these procedures are readily accessible to all affected employees. These procedures shall be reviewed annually to insure their accuracy.

## 6.5 Removal of Locks

- 6.5.1 When an employee is finished working on a particular system or at the end of his workshift (whichever comes first), he

shall personally remove his own individual lock and tag.

6.5.2 In the case of group lockout, only the on-shift responsible person may initiate the removal of group locks after obtaining the keys from the group lock box. All individual locks and tags shall be removed from the lock box prior to the on-shift responsible person removing his individual lock and accessing the group lock keys. Group locks shall only be removed with those keys contained within the lock box.

6.5.3 No employee shall remove the lock and tag of another employee except as allowed in Section 6.5.4.

CAUTION: Removing the lock(s) and tag(s) of another employee or company is a serious matter and should only be performed under the most extreme of circumstances. The individual removing the lock(s) of another shall ensure that all requirements of Section 6.5.4 are followed and that the safety ramifications of the removal are assessed.

6.5.4 If an employee leaves the mill site and fails to properly remove his lock(s) and tag(s), the following steps must be taken:

6.5.4.1 A supervisor from the employee's department shall attempt to personally contact the employee, normally by telephone.

6.5.4.2 If the employee can be contacted, the employee shall return to the facility and remove his lock(s) and tag(s). If this is not practical, the employee and supervisor shall discuss the lockout situation and determine whether or not the lock(s) and tag(s) can be safely removed.

6.5.4.3 If the employee cannot be contacted, the supervisor will discuss the lockout with other affected and authorized

employees, and with the area owner, where applicable, to determine whether or not the absent employee's lock(s) and tag(s) can be safely removed.

6.5.4.4 When it has been determined that the lock(s) and tag(s) can be safely removed, the supervisor shall notify the operating area department manager, or designee, that the absent employee's lock(s) and tag(s) will be removed.

6.5.4.5 The supervisor shall coordinate the removal of the absent employee's lock(s) and tag(s) using special tools (e.g., bolt cutters or other metal cutting tools).

6.5.5 If the lock to be removed under Section 6.5.4 is a contractor lock, the following guidelines shall apply:

6.5.5.1 The appropriate IP supervisor shall initially make every reasonable effort to personally contact the International Paper contractor manager and the contractor supervisor, normally by telephone.

6.5.5.2 If communication is established, the lockout shall be discussed to determine whether or not the contractor's lock(s) and tag(s) can be safely removed. If necessary, the contractor shall return to personally remove his lock(s) and tag(s).

6.5.5.3 If communication cannot be established, the IP supervisor shall discuss the lockout with affected and authorized employees to determine whether or not the contractor's lock(s) and tag(s) can be safely removed.

- 6.5.5.4 When it has been determined that the locks and tags can be safely removed, the IP supervisor shall notify his department manager, or designee, and as applicable, appropriate operating area personnel, that the contractor's lock(s) and tag(s) will be removed.
- 6.5.5.5 Upon authorization received in Section 6.5.5.4, the IP supervisor will then coordinate the removal of the contractor lock(s) and tag(s) using special tools (e.g., bolt cutters or other metal cutting tools).
- 6.5.5.6 If communication was not established with the IP contractor manager or contractor supervisor, the following additional steps shall be taken:
- 6.5.5.6.1 Signs shall be posted at the job site stating that the contractor's lock(s) and tag(s) have been removed and the lockout invalidated. The signs shall remain posted until after the contractor's next scheduled shift has started.
- 6.5.5.6.2 The appropriate operating department supervisor shall meet with the contractors and IP contractor manager (if available) at the beginning of the contractor's next scheduled shift to ensure that the contractors are aware of the change in lockout status.
- 6.5.5.6.3 If no additional

contractor work activity is scheduled, the signs shall remain in place until after the contractor has been notified that the lock(s) and tag(s) have been removed and the lockout invalidated. The contractor is responsible for notifying their employees of International Paper's need to remove the contractor's lock(s) and tag(s).

#### 6.8 Labeling of Energy Isolation Points

All electrical energy isolation points which are involved in shutdown or startup operations must be legibly labeled indicating the process or equipment controlled. This includes electrical disconnects, circuit breakers, stop/start buttons and other appropriate control switches. Additionally, electrical disconnects shall be labeled with rated voltage. The label must clearly identify the function of the isolation point using names familiar to the authorized employees. Where confusion might result when valves are required isolation points, the appropriate valves shall be labeled. The operating area owner shall be consulted whenever questions arise regarding the identity or location of energy isolation points.

#### 6.9 Training

6.9.1 Initial training on this ZES procedure and specific energy control procedures shall be conducted prior to an employee performing work under lockout.

6.9.2 Refresher training shall be performed at least annually, or more frequently, if procedure or equipment changes occur, or if incidents or inspections indicate deficiencies.



6.9.3 Personnel who do not work under lockout, but work in areas where others are locking out equipment, shall be trained prior to assignment on how to recognize energy sources.

6.9.4 Personnel working under an Intermediate Energy State procedure shall be trained on its requirements.

#### 6.10 Certification

6.10.1 Each individual who implements lockout shall be certified prior to assignment, and at least annually thereafter, on their proficiency in applying this ZES procedure.

6.10.2 This certification of proficiency may be performed during the annual inspection process.

#### 6.11 Inspection

6.11.1 Each individual who implements lockout shall be inspected at least annually to insure the individual's compliance with this ZES procedure and specific energy control procedure(s) being followed at the time of the inspection.

6.11.2 The inspection process shall cover at least the following topics:

- Individual's roles and responsibilities
- Steps of the energy control procedure
- If the lockout effectively controls hazardous energies.

6.11.3 Inspections shall include contractor & service personnel as applicable.

6.11.4 Inspections shall be conducted by individuals knowledgeable of this ZES procedure, the specific energy control procedure being utilized, and the equipment involved in lockout.

#### 6.12 Compliance

Violations of this procedure may result in disciplinary action up to and including termination.

## 7.0 Documentation

- 7.1 Employees designated as Responsible Persons for a group lockout situation shall be trained and evaluated by a competent person to ensure that the employee is aware of all the requirements to carry out the procedure. This training shall be documented and remain on file as long as the employee remains a responsible person. Whenever new isolation points are introduced, the energy control procedure shall be updated prior to future use.
- 7.2 To ensure that this ZES Procedure is thoroughly understood and properly used, its application shall be regularly reviewed during normal departmental self-auditing activities. These audits shall be documented and shall be conducted by an authorized employee other than the ones utilizing the energy control procedure being inspected. Copies of these audits should be sent to the Loss Prevention Department.
- The audit shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the audit, the employees included in the audit, and the person performing the audit.
- 7.3 An annual audit to determine compliance with this program will be accomplished through the Key Element Survey (KES).
- 7.4 Energy isolation procedures provide equipment-specific procedures to be accessed and followed for identifying and installing/actuating energy isolation devices for both individual and group lockout situations.
- 7.5 For contractor lockout situations, energy isolation procedures shall be utilized by the designated IP employee (see the Note in Section 6.1.1.4) to document the adequacy of system or equipment isolation. For equipment without an energy isolation procedure, the designated IP employee shall develop a handwritten list of the

isolation points which were secured prior to beginning the work activity. The energy isolation procedure, or the handwritten list, shall be maintained for the duration of the contractor's work activity performed under lockout.

- 7.6 Departmental procedures shall be developed and documented for equipment requiring Intermediate Energy State in accordance with Section 6.4.
- 7.7 If a violation of this procedure occurs, the supervisor of the work activity being performed under lockout shall initiate and document an investigation. This report shall be provided to the Franklin Mill manager and Loss Prevention Manager.
- 7.8 Personnel training, certification, and inspection shall be documented. Inspections shall include at least the date and time the inspection was performed, name of person evaluated, name of person conducting the inspection, equipment & specific energy control procedure involved, and findings & corrective actions (where applicable).

## Appendix "A"

### **ENERGY CONTROL PROCEDURE USE & DEVELOPMENT GUIDELINES**

#### **1.0 PURPOSE**

Energy control procedures identify process and equipment energy sources, methods for isolating these energy sources, and techniques to verify that zero energy state has been achieved.

#### **2.0 SCOPE**

Energy control procedures shall be utilized by all personnel, including IP employees, contractors, and visitors, for work performed at the Franklin Mill under the zero energy state procedure, except as follows:

Exception: A written energy control procedure is not required if all of the following conditions are met:

- Energy is controlled by a single, readily identifiable energy source.
- This energy source can be locked out by a single lockout device.
- There is no potential for stored or residual energy.

Generic energy control procedures exist for work on some equipment as identified in Section 7.0.

Work activities performed under intermediate energy state are not covered by this appendix.

#### **3.0 RESPONSIBILITY**

Personnel working under lockout are responsible for implementation of equipment specific energy control procedures used to achieve zero energy state.

#### **4.0 DEFINITIONS**

4.1 DEPARTMENT LOCKOUT COORDINATOR (DLC): A person assigned in each operating area who is responsible for managing all Management of Change (MOC) activities for energy control procedures in their individual operating areas

**WARNING: Do not use this document after end of shift March 5, 2012**

- 4.2 APPLICATION: The actual electronic residence (database) of all real data which sends electronic energy control procedure facsimiles to Document Management for millwide access.
- 4.3 APPLICATION OWNER: An authorized person who has been thoroughly trained in managing the energy control procedure application and publishing to SDM. Can be assigned by delegation from a DLC.
- 4.4 MANAGEMENT OF CHANGE GUIDELINE (MOC): A guideline developed for handling required changes to energy control procedures, including deletions, additions, corrections, making draft changes, etc., that are identified on existing lists. It provides a procedure for converting and entering of handwritten energy control procedures to the Complex Lockout Checklist computer system. All of these functions are coordinated through the DLC
- 4.5 DRAFT 1 PROCEDURE : A preliminary energy control procedure developed with input from mechanics and/or operators, entered in the working portion of the computer for field access. A message is printed on the first page of a Draft 1 procedure alerting users "This Draft has NOT been field verified at this time". A MANDATORY FIELD VERIFICATION IS REQUIRED TO UPDATE A DRAFT 1 TO A DRAFT 2. Verification can be done as a 'dry run' or checked when securing the equipment the first time, in both cases the verification must involve a qualified 'Responsible Person'.
- 4.6 DRAFT 2 PROCEDURE : A list thoroughly checked by mechanics and/or operators in a 'dry run' and loaded in the working portion of the computer for field access. A MANDATORY FIELD VERIFICATION IS REQUIRED TO UPDATE A DRAFT 2 TO A DRAFT 3.
- 4.7 DRAFT 3 PROCEDURE : A list in Draft 2 form field verified on a shutdown by a 'Responsible' or 'Authorized Person' and has any identified changes made and incorporated into the list on the computer for field access. A Draft 3 is the highest level of draft possible. Any additional changes after initial Draft 3 achievement are merely defined and dated revisions.

4.8 SAROS DOCUMENT MANAGER (SDM): An 'electronic library' for storing and accessing documents and procedures via any mill computer that has SDM software.

## 5.0 REFERENCES

5.1 Franklin Mill ZES (Lock, Tag, & Try)

## 6.0 PROCEDURE

### 6.1 OBTAINING A PRINTED ENERGY CONTROL PROCEDURE

Printed procedures are obtained from any mill computer that has Saros Document Manager software. If a procedure does not exist in the system for a specific task, a handwritten procedure shall developed and used to secure or isolate the equipment or system to be worked on .

### 6.2 OBTAINING AN ENERGY CONTROL PROCEDURE WHEN THE SDM COMPUTER SYSTEM IS UNAVAILABLE

When SDM System is not available a procedure may be obtained from the EMT on duty in the IP Medical Dept. Equipment number and task description must be provided to the EMT at time of request.

NOTE: Print one and only one copy of the energy control procedure. Do not make multiple copies.

### 6.3 USE OF A PRINTED ENERGY CONTROL PROCEDURE

**Note:** The first page is the cover page and is sometimes the only page.

6.3.1 First, check the date on the bottom of the procedure This date should be the same as the date the lockout is done. (To allow for job planning activities the list should be relatively current to the date the equipment is being secured.) NOTE: This step does not apply when using a list from the stand alone backup system referenced in 6.2.

6.3.2 Note the Draft Status at the top of the printed page.

- 6.3.3 Review the step numbering in the right hand column. Confirm that these are sequentially numbered and no page is missing. Confirm that all isolation steps were printed by verifying the number found at the end of the checklist.
- 6.3.4 Review the 'Special Instruction' comments. These instructions identify critical factors such as 'PSM procedures required' or 'Isolation must be done in sequence as listed'.
- 6.3.5 The following items identify the required input:
- 6.3.5.1 Write the current date and time in the area indicated in the upper right hand corner of the first page.
  - 6.3.5.2 If you are the only person securing and locking out equipment, print your name, date, shift and job title on the lines provided for the 'Person(s) Securing System' and the 'Responsible Person(s)'.
  - 6.3.5.3 If you are the 'Responsible Person' and are directing others in what to lock out and secure, print your name, date, shift and job title on the line for 'Responsible Person(s)' and have those who are actually securing the system print their name(s) and other information on the lines for 'Person(s) Securing System'.
  - 6.3.5.4 All isolation step input is located on the right hand side of the page in the vertical column marked 'CONTROL INITIAL'. As each isolation step is done or confirmed by a 'Securing Person' and the control method put 'in place', the equipment 'tried' and upon completion of work, the locks 'removed', the person 'securing, trying and removing', writes his/her initials on the appropriate lines.
  - 6.3.5.5 When the lockout is complete, refer to the end of the procedure at the 'Additional notes or changes' section. List all changes made to the list when the

equipment was secured. If no changes were made, make note that the list is correct, or okay (OK), as written.

6.3.6 The procedure is kept on the job site or with the Lockbox until the task has been completed. Note: If task runs for several days, a 'Responsible Person' Attachment Sheet is to be used.

6.3.7 After the task is completed and the equipment brought back on line, the completed energy control procedure is given to the DLC. The DLC reviews comments under 'Additional Notes or Changes' section of the procedure, verifies their validity, and updates the data base.

**NOTE:** In any circumstance or condition when using an existing energy control procedure, or when creating a new procedure, a concern arises regarding procedural compliance and the DLC is not available for confirmation, the decision for change (addition, deletion or substitution of isolation devices) is determined by the on duty supervisor in whose assigned area the task is being done. His/her evaluation and decision is to be based on a thorough review of the Franklin Mill Safety and Health procedures for strict procedural compliance, and the input of personnel knowledgeable of the equipment or system to be secured. On an as needed basis, the evaluation process will include maintenance supervisors, mechanics, contractors or engineers when they are involved in an activity associated with the equipment or system to be secured.

#### 6.4 DEVELOPMENT OF A HANDWRITTEN ENERGY CONTROL PROCEDURE

If a specific task is to be done on equipment or system, and an energy control procedure has not been developed for that task, then the following steps must be followed:

6.4.1 The 'Responsible Person' from the operating department in which the equipment or system to be worked on is located and who is responsible for shutting down and securing the equipment obtains a 'blank' form from the computer. He then develops a handwritten procedure as the equipment or system is isolated.

6.4.2 If the order in which the equipment or system is secured is important, then the handwritten procedure is written in sequence so that it



indicates the necessary order that is followed to safely secure the equipment or system.

- 6.4.3 The procedure includes all isolation points such as valves and electrical breakers. Items that are blocked or locked in a certain position are identified including blanks that are required.
- 6.4.4 Methods to verify isolation are outlined and noted as being performed.
- 6.4.5 The procedure is completed and signed by the individual who isolated the equipment or system.
- 6.4.6 The completed procedure is posted at the job site attached to the outside of the lockbox when one is used.
- 6.4.7 After job completion the 'Responsible Person' gives the handwritten procedure to his DLC. The DLC is responsible for list verification and computer entry. The list is entered as a draft 2.

## 7.0 GENERIC ENERGY CONTROL PROCEDURES

7.1 Equipment specific energy control procedures are not required for the following tasks governed by generic procedures outlined below:

1. PROCEDURE FOR PERFORMING WORK ON PUMPS
2. PROCEDURE FOR PERFORMING WORK ON REMOTE-ACTUATED VALVES
3. PROCEDURE FOR ISOLATING PIPING SYSTEMS

The following procedure is to be used with the Mill's ZES (Lock, Tag & Try) Procedure when applicable:

### **PROCEDURE FOR PERFORMING WORK ON PUMPS**

#### **1.0 PURPOSE**

When employees are performing work on pumps, this procedure will insure that the pump is secured in a manner that insures the safe working conditions for those working on the pump and making the repair.

#### **2.0 SCOPE**

The use of this procedure and special instructions applies to all International Paper employees, visitors and employees of contractors that are performing work on this piece of equipment.

#### **3.0 RESPONSIBILITY**

All International Paper employees and contractors performing work on this piece of equipment are responsible for implementing and adhering to these special instructions.

#### **4.0 DEFINITIONS - N/A**

#### **5.0 REFERENCES - N/A**

#### **6.0 PROCEDURE**

An equipment-specific energy control procedure is not required for performing work done on a pump, if when standing at the pump you can see:

- The suction valve,
- The discharge valve, and
- If they exist, any steam or flush-out line valves.

If these components are not readily visible or if the piping associated with the pump is complicated to the extent that some explanation is needed, a detailed, equipment-specific energy control procedure is required.

When preparing to change or perform work on a pump, insure that:

- 6.1 Electrical power to the pump is disconnected, locked and tagged. Be sure to confirm that potential problems with electrical interlocks have been checked and resolved.
- 6.2 The nearest valve in the suction line and the nearest valve in the discharge line are closed, locked and tagged.

- 6.3 If steam or flush-out line valves exist, these valves are to be closed, locked and tagged.
- 6.4 The drain valve between the valves in the suction and discharge line is to be locked and tagged in the open position.
- 6.5 'Try' the pump to insure that it will not start. Also ensure the valves are isolating system pressure from personnel.
- 6.6 When applicable, the Procedure for Opening Dangerous Systems is also to be followed.

The following procedure is to be used with the Mill's ZES (Lock, Tag & Try) Procedure when applicable:

### **PROCEDURE FOR PERFORMING WORK ON REMOTE-ACTUATED VALVES**

#### **1.0 PURPOSE**

When employees are performing work on remote-actuated valves, this procedure will insure that these valves are secured in a manner that insures the safe working conditions for those working on the remote-actuated valve and making the repair.

#### **2.0 SCOPE**

2.1 The use of this procedure and special instructions applies to all International Paper employees, visitors and employees of contractors that are performing work on remote actuated valves.

2.2 This procedure does not apply to diagnostic and preventative maintenance activities which must be performed with the system pressurized/energized. A separate standard operating procedure governs these types of activities.

#### **3.0 RESPONSIBILITY**

All International Paper employees and contractors performing work on remote-actuated valves are responsible for implementing and adhering to these special instructions.

#### **4.0 DEFINITIONS - N/A**

#### **5.0 REFERENCES - N/A**

#### **6.0 PROCEDURE**

An equipment-specific energy control procedure is not required to change or perform work on remote-actuated valves when the following procedure is followed:

6.1 When circumstances indicate it, the system is to be drained.

6.2 Insure the energy source (air, electricity, hydraulics) that provides power to the valve is disconnected, locked, tagged, and tried.

6.3 Insure the first valve upstream of the remote-actuated valve that is to be worked on and the first valve downstream are closed, locked and tagged. **NOTE!!** Because remote actuated valves are not generally accepted as a means of isolation, if the next valve up or downstream of

the automatic valve to be worked on is also an automatic valve, one of the following conditions is to be met:

- 6.3.1 The automatic valve must be de-energized and mechanically closed, locked and tagged.
- 6.3.2 A blank is installed at the nearest flange and locked/tagged. **(NOTE!!** Systems must be properly de-energized and mechanically locked and tagged before blanks can be installed.)
- 6.3.3 Some other positive means is used to assure protection. Simply disconnecting the power supply lines from a remote-actuated valve is not an accepted method of isolation.

- 6.4 Procedure for Opening Dangerous Systems is to be followed when applicable.

The following procedure is to be used with the Mill's ZES (Lock, Tag & Try) Procedure when applicable:

### **PROCEDURE FOR ISOLATING PIPING SYSTEMS**

#### **1.0 PURPOSE**

When employees are isolating piping systems, this procedure will insure that the piping system is secured in a manner that insures the safe working conditions for those working on the piping system and making the repair.

#### **2.0 SCOPE**

The use of this procedure and special instructions applies to all International Paper employees, visitors and employees of contractors that are performing work on this system.

#### **3.0 RESPONSIBILITY**

All International Paper employees and contractors performing work on this system are responsible for implementing and adhering to these special instructions.

#### **4.0 DEFINITIONS** - N/A

#### **5.0 REFERENCES** -N/A

#### **6.0 PROCEDURE**

An equipment-specific energy control procedure is not required to perform work on a piping system when the following is done:

6.1 When manual valves are used to lock out a system, the valves shall generally be locked out using chain, a lock, a lockout hasp and tagged with either an individual Lockout Danger Tag or a Team Lockout Danger Tag, as the situation requires.

6.2 Remote actuated valves are not a generally accepted means of isolation unless one of the following conditions is met:

- They can be de-energized and mechanically closed, locked and tagged.
- A blank is installed at the nearest flange and tagged. (**NOTE!!** Systems must be properly de-energized and mechanically locked and tagged before blanks can be installed.)

- Some other positive means is used to assure protection. Simply disconnecting the power supply lines from an automatic valve is not an acceptable method of isolation.

Exceptions to the above requirements must be discussed with and approval given by the Mechanical Maintenance First Line Supervisor whose crew is working the job and the Production Supervisor/Operator in whose area the work is being done.

- 6.3 When blanks are used to isolate lines for lock out purposes, the blanks must be tagged with a danger tag.
- 6.4 All work on systems containing hazardous materials must be performed in accordance with the Procedure for Opening Dangerous Systems.

## **DEVELOPMENT OF A HANDWRITTEN 'FIELD' COMPLEX LOCKOUT CHECKLIST**

The following information is to be included in a handwritten energy control procedure that is developed in the 'field' during the securing and isolation procedure prior to working on the equipment or system. A handwritten procedure starts as a Draft 2.

### **I. FIRST PAGE INFORMATION:**

1. **DATE:** This is the date that the list and work are being done. Located in the upper right hand corner of first page.
2. **CURRENT TIME:** This is the time that the lockout procedure is started.
3. **EQUIPMENT NUMBER:** The equipment number used should be the same number that is used in the Maintenance data base or on the cost center list. (This should be a minimum of 6 digits. Ex: 405-009)
4. **EQUIPMENT NAME:** The common name of the equipment. Use the same name that is used in the Maintenance data base or cost center list. (Ex: 405-009 is #5 PM COLORED BROKE CHEST #18)
5. **TASK DESCRIPTION:** This is a description of the work or service that is to be performed on the system or equipment that is named. Note: Some equipment requires different checklists for different tasks. An example: External broke chest agitator repairs would be secured differently than Internal agitator repairs; hence, same equipment name and number but different tasks and CLOC.
6. **NAME(S) OF PERSON(S) SECURING SYSTEM:** Individuals securing the equipment or system.
7. **NAMES(S) OF RESPONSIBLE PERSON(S):** Names indicated here and above could, under certain circumstances, be the same.
8. **SPECIAL INSTRUCTIONS:** This is any special instructions that apply to the lockout. An example may be: a special draining procedure, blocking equipment in a special manner, or if isolation procedure is done in a specific sequence.
9. **I.D. NUMBER AND DESCRIPTION:** The number and description requested in this case are for individual pieces of equipment that are used in the isolation sequence for a system or equipment prior to starting work. Equipment I.D. numbers and descriptions have been assigned by the materials group. If neither exist, describe enough to identify and the DLC will assign numbers for permanent



- use. Flanges and valves used in an isolating procedure are to be given I.D. numbers and description by the DLC.
10. LOCATION: This is the physical location of the item to be secured, such as: '3rd floor, southeast corner' or 'Control Room #, Bucket #'.
  11. HAZARD: This describes the potential hazard that exists, such as: 'thermal burns', 'chemical burns', 'crushing', etc..
  12. CONTROL METHOD: This is the method or safe position for control of the hazardous energy source, such as: 'blank & tag', 'breaker off/locked & tagged', etc..
  13. CONTROL VERIFICATION: The means or techniques used to verify (try) isolation.
  14. CONTROL INITIAL: These are the initials of the person(s) who put the control method in place and tried it and then the person who removes the method of control.

Repeat items 9 through 14 for additional isolation points that are required.

## II. ADDITIONAL PAGE INFORMATION:

1. Each additional page requires the EQUIPMENT NUMBER, EQUIPMENT NAME AND TASK DESCRIPTION, which are the same as found on the first page.
2. Repeat items 9 through 14 in section I for additional isolation points that are required.

**ATTACHMENT**

**INTERNATIONAL PAPER  
FRANKLIN, VIRGINIA**

**ENERGY CONTROL PROCEDURE  
RESPONSIBLE PERSONS ATTACHMENT**

Equipment  
Number: \_\_\_\_\_

Equipment/Name: \_\_\_\_\_

Task/Description: \_\_\_\_\_

RESPONSIBLE PERSON(S)  
(Please Print)

Date	Shift	Name	Job Title

This sheet must be attached to the Energy Control Procedure and kept at the job site or Lockbox.

**WARNING: Do not use this document after end of shift March 5, 2012**

**DEPARTMENT LOCKOUT COORDINATOR TASK DESCRIPTION**

(Defined as a 'TASK' because not perceived to be a full time position.)

**TITLE:** DEPARTMENT LOCKOUT COORDINATOR (DLC)

**REPORTS TO:** SUPERINTENDENT OF DEPARTMENT HE/SHE IS ASSIGNED IN.

**I. PURPOSE & OBJECTIVE OF THE ASSIGNED TASK:**

To have a single qualified individual in each operating area who has been trained:

- 1) To review and coordinate all Management of Change activity on an as needed basis in his specific area of assignment.
- 2) To ultimately convert the results of;
  - a) A system or equipment modification that changes an existing energy control procedure,
  - b) A new field developed handwritten energy control procedure
  - c) The verifying use of a Draft 1 or Draft 2 procedure that allows it to be updated to a higher Draft level,
  - d) Revisions identified during the use of a Draft 3 procedure that indicate a revision needs to be made, and
  - e) An energy control procedure that is developed because of a new system or equipment installation, to a handwritten 'hard copy', in a standard procedure format, and enter in the computer data base, with computer revisions made within five working days. This entry coordination is to include a 'proof read' of a printed copy of the procedure, by the DLC and the individuals that generated the procedure changing or developing activity.

**II. RESPONSIBILITIES/EXPECTATIONS:**

- 1) With the help of department personnel develop and write an energy control procedure on a 'blank form' when necessary.
- 2) Assist operators, contractors, mechanics and engineers in the development and writing of procedures .
- 3) See that updated information is entered in the data base. (Ex. New procedures, revisions and updates.)
- 4) See that all new procedures or revisions are proof read after entry in the data base. Proof reading can also be done by a qualified individual selected by the DLC.
- 5) To personally field verify procedures or assign a qualified individual to verify.

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- 6) To provide required departmental training for personnel in how and when to develop an energy control procedure, and how to retrieve a printed procedure from the computer.
- 7) Review any equipment or system changes in his area of responsibility for their impact on existing procedures.
- 8) Review any new equipment installations for procedure requirements and see that they are developed, equipment is tagged and checklists are field verified and put in the data base.
- 9) Act as his/her departments consultant with regards to all energy control procedure activity.
- 10) Physically do (monthly) field audits on the use and adherence of energy control procedures and document the results of these audits, or in lieu of doing them himself, provide a qualified individual to do so. Copies of the audits and their results are to be sent to the Application Point Person.
- 11) Ensure that CLO checklists are being provided and used as required by procedures in the Mill Safety and Health Manual in his/her area of responsibility.
- 12) Collect all used checklists; review and verify edit requests.
- 13) Identify the need for new isolation device tags or the replacement of existing tags. The DLC is responsible for the fabrication and installation of isolation device tags required for isolation procedures on existing equipment. Project engineers are responsible for the fabrication and installation of isolation device tags required for isolation procedures on newly installed equipment. In both cases the tags shall conform with present standards both in the tag that is used and numbering structure.
- 14) To act as a single coordinator for his/her operating area in obtaining clarification on specific procedural interpretation needs from the Loss Prevention Department, to include approval on special procedural changes. (Example; Jogging procedure development and approval.)
- 15) Make changes as required and maintain the 'Rationale Backup File' for his area of responsibility. (This is basically a Word or equal file that is kept, by equipment number, on any deviations from the 'Letter of our procedures' or the Federal Register.)
- 16) The DLC's will run a comparison report that evaluates several lockout lists and identifies duplications of isolation devices. The DLC will use this data to develop a single checklist.

- 16) Provide monthly reporting on procedure use in area as required by department management and/or Loss Prevention.
- 17) Participate as required in development of goals associated with energy control procedures.
- 18) Make changes to his part of the data base effected by changes of the Materials Group.
- 19) Review changes made by the Materials Group on the Equipment Transaction Review Screen in the Complex Lockout application and make changes/adjustments as required.
- 20) Test New versions of Software and handle associated data maintenance.
- 21) Validate data conversion to new software versions/updates.

### **III. QUALIFICATIONS:**

The DLC should have:

- A thorough understanding of the Mill Safety and Health Manual and the procedures therein, with emphasis on Zero Energy State (Lock, Tag, & Try)
- An understanding of the equipment, systems and process' in his specific assignment area or who in his area does.
- A potential to learn how to completely and accurately develop and write an energy control procedure in the standard form.
- Enough time available to see that Energy Control Procedure Management of Change activities are done in a timely manner.
- The ability to work with engineers, mechanics, operators and contractors in executing MOC activities.
- Good written communication skills.
- The ability to perform field audits on the use of ZES and energy control procedures.
- The ability to train and present training, in his/her area, as needed for MOC, list development and list use and retrieval.
- The ability to train and use the Complex Lockout application software.

## Appendix "B"

### Energy Control Procedure Management of Change

#### **1.0 PURPOSE**

The Management of Change (MOC) guideline establishes and defines the minimum guidelines followed in handling changes associated with use and maintenance of the Energy Control Procedure system.

The guideline is designed so that the requirements of OSHA regulation CFR 1910.147 are met, the quality and integrity of the energy control procedures are not compromised and the procedures stay current and accurate, insuring employees a safe method of securing equipment or systems before working on them. The guideline handles the change associated with, but not limited to:

- Addition, deletion or modifications, to include draft changes, to existing procedures.
- New procedures that result from handwritten field developed lists.
- New procedures that result from the installation of new equipment.
- Changes to an existing procedure that are the result of a modification to the original system.

#### **2.0 SCOPE**

Use of the Energy Control Procedure /MOC guideline applies to all International Paper, Franklin Mill employees, visitors and contractor employees engaged in activities that require the use of the Mill ZES Procedure and energy control procedures in performing work at this location.

#### **3.0 RESPONSIBILITY**

All International Paper Franklin Mill employees, visitors and contractor employees, engaged in activities requiring use of the Mill ZES Procedure and energy control procedures in performing work at this location, are responsible for adhering to the Management of Change guideline. Adherence includes not only the use of energy control procedures for securing systems and equipment, but providing input and follow up on identified errors in list development or equipment changes, either of which could negatively effect the safety of those who use the Mill ZES Procedure and energy control procedures to secure systems or equipment.

#### 4.0 DEFINITIONS

- 4.1 DEPARTMENT LOCKOUT COORDINATOR (DLC): A person assigned in each operating area responsible for, regardless of whether he has 'Application Ownership' or delegates, managing all Management of Change (MOC) activities occurring in their individual operating areas, in compliance with the Energy Control Procedure Management of Change Guideline.
- 4.2 DRAFT 1 PROCEDURE: A preliminary procedure developed with input from mechanics and operators, entered in the working portion of the computer for field access. A message is printed on each page of a Draft 1 procedure alerting users "This Draft has NOT been field verified at this time". A MANDATORY FIELD VERIFICATION IS REQUIRED TO UPDATE A DRAFT 1 TO A DRAFT 2. Verification can be done as a 'dry run' or checked when securing the equipment the first time, in both cases the verification must involve a qualified 'Responsible Person'.
- 4.3 DRAFT 2 PROCEDURE: A procedure thoroughly checked by mechanics and/or operators in a 'dry run' and loaded in the working portion of the computer for field access. A MANDATORY FIELD VERIFICATION IS REQUIRED TO UPDATE A DRAFT 2 TO A DRAFT 3.
- 4.4 DRAFT 3 PROCEDURE: A procedure in draft 2 form field verified on a shutdown by a 'Responsible' or 'Authorized Person' and has any identified changes made and incorporated into the procedure on the computer for field access. A draft 3 is the highest level of draft possible. Any additional changes after initial D3 achievement are merely defined and dated revisions.
- 4.5 'USE AND DEVELOPMENT' GUIDELINE: Written guideline that provide information for access, handwritten procedure development and identification of exemption criteria.
- 4.6 SAROS DOCUMENT MANAGER (SDM): An 'electronic library' for storing and accessing documents and procedures via any mill computer that has SDM software.

#### 4.0 REFERENCES

- 5.1 The Franklin ZES (Lock, Tag and Try)



## 6.0 PROCEDURE

6.1 The MOC guideline is followed anytime, anyone\*:

- 6.1.1 Does a task requiring development of a handwritten field energy control procedure.
- 6.1.2 Uses an existing energy control procedure
- 6.1.3 Considers modifications to an existing system or equipment.
- 6.1.4 Is involved in the installation of a new system or equipment.

(\* 'Anyone' can be, but not limited to, Mechanics, Operators, Engineers or Contractors.)

6.2 Conditions associated with the need for or use of the MOC guideline for energy control procedures are as follows:

- 6.2.1 A Draft 3 procedure is used that is not correct as written or can be improved and needs to be revised/updated. (A procedure is never elevated above a Draft 3.)
- 6.2.2 A Draft 2 procedure that has been written and computer loaded but never actually used to secure equipment is successfully used in the field to secure/isolate equipment for repair work or service. During its use, correction/changes have been identified and the procedure can be revised/updated to a Draft 3.
- 6.2.3 Conditions indicate a procedure is required, but a procedure does not exist and is created in the field in handwritten form.
- 6.2.4 A written procedure exists for a system, but the system or equipment has been or will be modified to the point that it needs to be revised/updated.
- 6.2.5 New equipment has been or will be installed that requires new procedure development.

6.3 When the need for a new procedure is identified, or during the use of an existing procedure, one of the aforementioned conditions are indicated, the following procedures are followed:

6.3.1 **CONDITION A:** An existing Draft 3 procedure with required changes indicated.

6.3.1.1 The person using the procedure makes a notation under 'Additional Notes or Changes'

section located at the bottom of the energy control procedure

6.3.1.2 The person using the procedure also makes legible notes on the procedure itself, regarding the changes or corrections that have been identified on specific isolation steps. The back of the procedure may be used if additional room is needed to make these notes.

6.3.1.3 After the person using the procedure has completed the, they give the procedure with the handwritten corrections to their 'Department Lockout Coordinator' (DLC).

6.3.1.4 The DLC verifies the changes on the procedure and

- makes the indicated changes on the energy control procedure data base.
- defines the revision in the 'Version Comments' section.
- runs a hard copy of the procedure after it has been revised and reviews the procedure for accuracy with the person that initiated the changes
- sees that any additional lockout identification tags required are made
- installs lockout identification tags.

6.3.2 CONDITION B: An existing Draft 2 procedure is successfully used for securing equipment and has been field verified.

6.3.2.1 The procedure for this condition is identical to the one used for condition 'A', with the exception that it should be noted on the energy control procedure under 'Additional Notes or Changes' section that it is to be revised to a Draft 3 form and no changes are indicated.

6.3.3 CONDITION C: Use of a procedure is indicated, but does not exist, and a new procedure requires creation in the field in handwritten form.

- 6.3.3.1 The 'Responsible Person' from the operating department in which the equipment or system to be worked on is located obtains a 'blank' energy control procedure form from the SDM system.
- 6.3.3.2 Using the blank form, a handwritten energy control procedure is developed as the equipment or system is isolated or secured. If the order/sequence in which the equipment is secured is important, then the handwritten procedure reflects that importance and sequence.
- 6.3.3.3 The procedure is completed, signed by the individual(s) who isolated the equipment or system and posted at the job or attached to the outside of the lockbox if used.
- 6.3.3.4 After job completion, the 'Responsible Person' gives the handwritten procedure to his DLC.
- 6.3.3.5 The DLC is responsible for:
- Procedure verification.
  - Seeing that the procedure is entered in the energy control procedure database system.
  - Seeing that any lockout identification tags that may be required are made and installed.
  - Proof reading of a hard copy of the computer entered procedure , at a minimum, by the person that generated the procedure and the DLC or his designated representative
- 6.3.3.6 A handwritten field developed procedure is entered in the computer system as a Draft 2.
- 6.3.4 CONDITION D: A written procedure exists for a system, but the system or equipment has been or will be modified to the point that the procedure needs to be revised or updated.

**NOTE 1:** If the changes are identified during the use of the energy control procedure, depending on whether the procedure is a Draft 2 or 3, the procedure sequence for CONDITION A or B can be followed.

**NOTE 2:** If the system changes and/or modifications are identified before the procedure is used, the following procedure is to be followed.

6.3.4.1 The DLC will identify the specific changes/modifications that are made on the affected system. The DLC will select a 'Responsible Person' from the affected area who updates a copy of the existing procedure to reflect the changes made to the system. After this is done, the DLC and 'Responsible Person' do a 'dry run' of the revised procedure.

6.3.4.2 The DLC makes the revisions in the energy control procedure system. The DLC and the 'Responsible Person' who assisted with the procedure revision proof read the computer version of the revised procedure. Once confirmed to be correct, the DLC identifies any required identification tags, assigns equipment numbers, insures tag fabrication and installation. The DLC defines the revision in the version comments section.

6.3.5 **CONDITION E:** New equipment has been installed requiring development of a new energy control procedure

Having confirmed that a procedure is required:

6.3.5.1 If the equipment is installed by Corporate Engineering, an energy control procedure is developed by that engineer or his/her qualified representative and verified by the DLC or his representative.

6.3.5.2 If the equipment is installed under the direction of a Franklin Mill Engineer, a procedure is developed by that engineer or his/her qualified representative and verified by the DLC or his representative.

6.3.5.3 Equipment installed under the direction of a Maintenance Engineer and/or Maintenance First Line Supervisor has a procedure developed with the input of the DLC for the operating

department in which the new equipment resides. They will mutually determine who is best qualified to develop the procedure and together verify its accuracy. The DLC loads the procedure on the energy control procedure database system and sees it is properly proof read thereafter. The procedure is to be loaded as a Draft 2.

- 6.3.5.4 If lockout identification tags are required, the personnel that have been identified for procedure development work with the DLC to insure identification tags are made and installed.

**NOTE:** In any circumstance or condition when using an existing energy control procedure, or when creating a new procedure, a concern arises regarding procedural compliance and the DLC is not available for confirmation, the decision for change (addition, deletion or substitution of isolation devices) is determined by the on duty supervisor in whose assigned area the task is being done. His/her evaluation and decision is to be based on a thorough review of the Mill Safety and Health Manual for strict procedural compliance, and the input of personnel knowledgeable of the equipment or system to be secured. On an as needed basis, the evaluation process will include maintenance supervisors, mechanics, contractors or engineers when they are involved in an activity associated with the equipment or system to be secured.

- 6.4 TAGGED EQUIPMENT: When any equipment that is tagged, especially valves and tagged flanges, is removed and replaced, the tag is taken from the equipment removed and attached to the newly installed piece of equipment.
- 6.5 DATA BASE CHANGES: All revisions done by the Materials Group are to be reviewed on a regular basis in the Equipment Transaction Review Screen by the DLCs and indicated action is taken.

## 7.0 DOCUMENTATION

Annual training on Management of Change and its written documentation is required for all employees who may be required to use Energy Control Procedures. Training may be done at team

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meetings, safety meetings or Annual Safety and Health Training meetings.