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Document: Moving Equipment Policy

PURPOSE

It is the policy of the Escanaba Mill to protect individuals from potentially harmful situations. The Moving Equipment Policy addresses access to areas of the mill that have unique hazards. This policy is applicable to all individuals at the Escanaba Mill including mill members, visitors, vendors, and contractors.

EXTENT

This policy establishes minimum expectations of members, visitors, vendors, and contractors working at the Escanaba Mill with respect to accessing areas that may contain unique or unusual hazards. This policy is not intended to supersede any procedures or practices for specific job tasks performed by operating department members.

DEFINITIONS

Authorized Personnel: Individuals, who by their training, are qualified to enter the restricted area.

Affected Personnel: Members who work in the areas where moving equipment is operated whom have not reviewed the moving equipment procedures for a given piece of equipment. These members can only enter a moving equipment area under one of the following conditions:

- When accompanied by an authorized user
- After receiving instruction about the hazards of the moving equipment in the area from the authorized member; or
- After the equipment has been locked out

RESTRICTED AREAS

Kraft Mill

- ✓ Requires notification to control room before entering Kraft Mill

Wood Yard

- ✓ Requires notification to Wood Room control room before entering wood pad, chip pad, or areas where heavy equipment are in operation

Boiler House

- ✓ Requires notification to control room before entering Boiler house

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- ✓ Requires mill approved high visibility clothing on the torso to be yellow or orange for anyone entering the department.

Execution

A. General Requirements

1. Operating departments establish access procedures for their individual areas as necessary to ensure the safety of all personnel.
2. Individuals entering a department who do not have a thorough understanding of the department requirements or the procedures outlined below are to first contact the control room operator to ensure their own safety prior to working in the area.
3. **Blue Lines – Moving Equipment:** Certain areas around moving equipment having been identified by solid blue lines painted on the floor, or when not practical, signage indicating no access. Persons other than trained operations or maintenance personnel wishing to enter these areas must request permission and be escorted by operating area personnel.
4. Note that affected members may become authorized members by reviewing the moving equipment procedures for a given piece of equipment. Affected members generally are suppliers, visitors, office personnel and shift maintenance techs who have not reviewed the moving equipment procedures for a given piece of equipment. They can also be members of different operating departments who have not reviewed the moving equipment procedures for a given piece of equipment.
5. A risk assessment shall be performed for all predictable tasks, including those performed during upset conditions, within the boundaries of the moving equipment. The risk assessment process is outlined in Appendix A.
6. Control measures identified through the risk assessment shall be implemented to eliminate or reduce potential exposure to moving equipment.
7. Training must be provided for all authorized personnel who are expected to work within moving equipment boundaries. Affected personnel will be

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advised of the hazards of moving equipment, boundaries and procedures to ensure their safety when working in the general area of moving equipment.

8. Pre-startup alarms (audible or audible/visual, automatic or manually initiated) will be provided for moving equipment as follows:
 - When authorized or affected personnel have the potential to perform tasks within the boundaries of moving equipment that place them at risk of unexpected startup, and
 - When clear means for visual identification and warning (i.e. walk down procedures, clear line of sight, etc) are not otherwise in place to assure that personnel are not within the boundaries prior to equipment being started, or
 - When direct communication by person-to-person radio is not available.

B. Guarding

All prime movers, power transmission equipment, points of operation and other moving parts shall be guarded by enclosure, location, distance or protective devices.

1. All exposed fan blades within seven feet of the floor or working surface shall be enclosed with a guard with openings no larger than one half (1/2) inch.
2. All machines designed for use in a fixed or permanent location shall be secured to prevent movement during operation.
3. Performance of the machine or equipment shall not be impaired by the function of the guard. Installation of guards must be done in a manner so as to not create a new hazard.
4. Guards will be fastened or secured to prevent accidental removal.
5. When job tasks such as lubrication, adjustment or diagnostic procedures must be performed when equipment is operating, provisions will be made to keep guards in place and protective devices functional. Special openings, feed tubes for lubrication, extensions, and other measures may be used to prevent employee exposure. The cover of the opening must require a tool to open it.

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6. Performance of some tasks during machine operation may require the removal of guards or protective devices. Equivalent protective measures and work practices will be established and used in these situations. Employees shall not be exposed to mechanical hazards or other hazardous energies while performing these tasks. Access to such points must be addressed by either the Control of Hazardous Energy (Lockout/Tagout) Policy or Moving Equipment procedures.
7. Automated systems shall be guarded to prevent employee contact. This may be accomplished through barrier guards, interlocks, and presence sensing devices. Automated systems that are not fully enclosed shall be equipped with audible and visible warning systems capable of alerting pedestrians of their presence and/or operation.
8. Additional requirements beyond the general guarding requirements listed below can be found in the above-mentioned guideline, or as specified by MIOSHA.

C. Moving Equipment Risk Assessment and Procedures

1. This section of the policy covers equipment and processes that require job tasks to be performed in the presence of moving parts or mechanisms.

Exception: This section does not apply to equipment not covered by this section of the policy: equipment with a single energy source, plug in type shop or lab equipment, conveyor belts, and machinery that is completely guarded with fully enclosing guards that are not removed except while in Zero Energy State (ZES) conditions.

2. Risk assessments are required for tasks performed within the boundaries of moving equipment, to supplement guards, protective devices, and ZES procedures. Appendix A (Moving Equipment Risk Assessment and Procedures) contains a format for documenting the risk assessment process.
3. The general requirements for the conduction of a risk assessment and developing procedures are as follows:
 - a. Forming an appropriate team to conduct the risk assessment.
 - b. Identification of equipment boundaries.

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- c. Identification of all predictable tasks performed inside the boundaries, including those performed during upset conditions.
 - d. Analysis of each task for risk, and if the risk can be eliminated or minimized.
 - e. Identification of safety systems, controls, administrative controls, PPE, etc. that are in place or required to safely perform the task.
 - f. Developing a procedure to safely perform the task.
 - g. Communication, training, and maintenance of procedures.
4. Risk assessments and/or procedure updating will be performed when the procedures of the machinery change, new processes or equipment are introduced into the work environment, or facility layout changes.

V. TRAINING

- A. Authorized personnel whose job tasks require them to work within the boundaries of moving equipment must be trained on the requirements of this policy, and the following:
- Boundaries
 - Authorized tasks
 - Hazards of each task
 - Safe work practices (procedures) required to safely perform each task
- B. Initial training will be provided to authorize personnel prior to assignment of job tasks requiring entry within moving equipment boundaries.
- C. Additional training will be provided to authorized personnel as necessary, such as when significant additions or changes are made to the approved tasks or procedures, or when necessitated by incidents.
- D. Training of authorized personnel will be documented and records retained by the operating department.
- E. Affected personnel will receive training on this policy, moving equipment boundaries and access to equipment.

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VI. RESPONSIBILITIES

A. **Safety Department Responsibilities**

1. Initial training of new employees.
2. Maintaining the status of employee training log.
3. Initial training of contractors

B. **Members' responsibilities**

1. Understand and comply with the requirements of the policy.
2. Ensure contractor's compliance.

C. **Department responsibilities**

1. Ensure compliance – address individuals who don't check in
2. Respond to requests for entry – make sure the areas are safe prior to allowing access.

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APPENDIX A MOVING EQUIPMENT RISK ASSESSMENT AND PROCEDURES PROCESS

The risk assessment will be conducted by a team of individuals with operational and technical knowledge of the moving equipment, and the tasks that can be expected to be performed. The method for conducting the risk assessment is as follows:

1. Identify the boundaries of the equipment.
2. Identify all predictable tasks performed inside the boundary of the equipment while the machine is fully energized or in an IES state. Include tasks that may be performed by operations, maintenance, and service representatives. Examples include threading, jam removal, cleaning, adjusting, troubleshooting, inspections, lubrication, and sampling.
3. Analyze each task identified for potential risk. Use the questions provided on the following page to review the tasks. This analysis will focus on the following items.
 - a. Is the task required to be performed within the boundaries? If an alternate means is available for performing the task where personnel do not have to enter the boundaries, this should be considered as the best and safest alternative.
 - b. If the task must be performed, document the reasons why the task is necessary.
 - c. Identify who is authorized to perform the tasks, including the required number of personnel to safely perform the job.
 - d. Evaluate and document the hazards (nip/pinch points, crush potentials, caught between, etc.) that are present when the task is being performed. Consider any opportunities for improvement. Priority for reducing potential hazards is as follows:
 - ✓ **Eliminate exposure**, examples include: perform task under ZES conditions. Add additional guarding to prevent exposure to moving equipment. Perform the task from outside the boundary with tools.
 - ✓ **Reduce exposure**, examples include: reduce the frequency of the task, provide partial automation, provide partial guarding, and perform the task under intermediate energy state.
 - ✓ **Add protective measures** to existing method for performing the task, examples include: develop additional PPE requirements, reduce the number of individuals authorized to perform the task, conducting observations, etc.
4. Identify and document the safety systems, controls, administrative controls, PPE, etc. that are in place or required to perform the task, or needed to protect against the specific hazards identified. Consider any opportunity for improvement.

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5. Develop the procedural steps required to safely perform the task (see last page of this appendix for further guidance). Document the risk evaluation and procedures for the task in the same document, following the format included in the appendix.
6. Conduct a formal review and approval of the procedures and issue within the operating department and on SharePoint.
7. For identified improvements (change in work practices, tools, PPE, light curtains, etc.), the department is responsible for resolution in a timely fashion, including any updates to the moving equipment procedures.

RISK ASSESSMENT CHECKLIST

The following questions are provided as a tool/checklist to ensure appropriate review of each of the job tasks that are necessary within moving equipment boundaries. Results of reviews are to be captured in the documentation of the moving equipment procedures (see next page).

Job Tasks/Boundaries/Authorization

- Does the task have to be done within the boundaries?
- Are the moving equipment boundaries clearly identified (painting, signage, barricade, etc.)
- Do employees have to cross the boundary of the high-risk area during operation for reasons other than performing the task (path of travel, in harm's way)?

Hazards/Risks/Guarding

- What are the primary hazards in this job (nip/pinch, caught between, struck by, etc)?
- Are all pieces of moving equipment fully enclosed or otherwise guarded (barriers, distance, etc.) so that they are out of reach of employees?

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- Are partially guards provided where complete guards would impede equipment operation?
- Are all nip points effectively guarded?
- Are mechanical power transmission devices effectively guarded?

Safety Systems/Tools/PPE

- Are there any interlocks, light curtains, etc provided to prevent startup or cause shutdown of equipment when employees are performing the task?
- What tools are necessary to perform the task safely? Are they adequate?
- What PPE is provided to perform the task? Is it adequate?
- Is the equipment provided with pre-startup alarms? If so, what is their operation?
- Are means provided for emergency shutdown? What are they?
- Are protective devices provided specifically to prevent operator injury? (light beams, safety gates, two operating devices, etc)
- Have Maintenance practices been established for periodic testing of safety controls?

Procedures

- If the task was conducted under LO/ZES condition does this reduce the overall risk to the member? Is this practical? Can the task be performed under partial lockout?
- What special or unique hazards can occur in the process of conducting the task?
- What procedural steps must be performed in a specific order to prevent injury?
- How many personnel are required to perform this task safely? Are there steps that require additional beyond those initially required?

MOVING EQUIPMENT PROCEDURES – RISK ASSESSMENT DOCUMENTATION

The following format is recommended for documenting and communicating the results of the risk assessment process, and the job task procedures. These sections correspond to the previous risk assessment questions.

Dept.:	MOVING EQUIPMENT PROCEDURE	Revised:
Name:	Risk Assessment Documentation	
Task: Name of Job task covered by proced		

INTENT

Why the task is necessary (i.e. this procedure is necessary to safely thread up the machine)

BOUNDARIES

A description of the boundaries around the equipment where only authorized personnel are allowed to enter to perform the task, either designated by description or marking

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HAZARDS/RISKS IDENTIFIED

Identify and document the hazards (pinch, nip, caught between, struck by, etc.) and risks that may be present when performing the task. This can be used for training.

SAFETY SYSTEMS/TOOLS/PPE

Identify guarding, systems, tools, PPE, etc. that must be operational, used, or in place for the tasks to be performed safely. This could be an inventory of key safety items, including use of emergency shutdown systems, interlocks, guard positions, equipment features, etc. This summary can be used for training on what is provided/required.

PROCEDURE

1. Each step should be a complete, concise statement of what is to be performed, and to what extent.
2. Detail must be clearly written so that it is understood by department personnel expected to perform the task.
3. Steps should include notes, cautions and warnings where appropriate, with emphasis provided by boldface or other means for caution, and/or warnings where a particular risk is created during the procedure.