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Hot Work Policy

Purpose and Extent

This program is in place to prevent fires that may result from “Hot Work” processes. Hot Work has historically been the cause of a significant number of major fires and explosions in industry. The reasons for these incidents can be attributed to the lack of proper fire safety precautions.

For this purpose of this policy, “Hot Work” can be described as any temporary operation/task involving open flames or the production of heat and/or sparks. These operations are normally related to maintenance work where grinding, welding, or torch cutting are being conducted. Hot Work is not limited to just these tasks it may also include such common tasks as brazing, soldering, thermal resistance heating, CAD welding, or torch applied roofing work.

This program applies to all personnel (including contractors) who are involved with any of the above activities that can be described as Hot Work. Before any of these activities can be conducted on the Escanaba mill site, a Hot Work permit must be issued prior to performing such work.

Applicable Definitions

Authorizing Signature: This can be a Maintenance Supervisor, Production Supervisor, Operator (Self Managed Areas), or Project Engineer. This is the person responsible for the area where the work will be conducted in and/or the personnel conducting the Hot Work. This person must visit the work site, confirm that the area is safe to work in, check the Hot Work permit to confirm that proper precautions have been taken and marked on the permit prior to signing the permit.

Combustible Material: These materials can be defined as any material that will easily burn when exposed to heat or flame; i.e. paper, wood, grease, oil, dusts, chemicals, etc.

Containers, Tanks, or Piping: Any enclosed vessel that may contain an explosive mixture or dangerous chemical.

Designated Maintenance Shop: These are designated/established maintenance shops located throughout the mill. These are areas where a Hot Work permit is not needed for flame or heat producing operations. Examples of these areas are Area 1 Maintenance shop, Tour Workers shop, Area 4 Maintenance Shop, Heavy Equipment Garage, etc.

Drop Box: These are designated boxes in each of the maintenance areas for the Fire Watch to place the final copy (hard copy) of the Hot Work permit into. These copies are then collected and audited by the Loss Prevention Dept.

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Fire Watch: This is a person whose job is to stand watch for fires or hazards that may occur as a result of the Hot Work that is being conducted. It is their role to extinguish sparks and small smoldering fires that could lead to a large fire. This role is required to be maintained through break time, shift change, and any other time where employees would normally be excused from the jobsite. A relief Fire Watch may need to be assigned by supervision.

It is also the responsibility of the fire watch to sound the alarm/call 2911 (906-233-2911 from mobile) if an uncontrollable fire occurs. After the Hot Work task is complete, the Fire Watch must observe the work site for a period of at least 30-min. (60 minute for high hazard areas) to ensure no fire occurs. After this observation period, the fire watch should sign their name on the permit, enter the time, and place the permit in drop box or turn it into the Loss Prevention Department.

Flammable Liquid: Liquids such as gasoline, kerosene, solvents, etc.

Foreman/Supervisor: This would be the person who the Welder/Burner reports to.

Hot Work: Any activity that creates heat, sparks, or flame. Some examples of Hot Work are torch cutting, grinding, brazing, soldering, CAD welding, or thermal resistance heating.

Hot Work Permit: A paper form that must be filled out prior to any Hot Work being done. Copies of this form are available in the Storeroom free issue area.

Production/Operations Supervisor: These are the salaried personnel who are responsible for the area where the actual Hot Work is taking place. These can be area Superintendents, Supervisors, or in the case of self-managed areas where there is no salaried Supervisor on shift, the Operator may sign as a representative for that area.

Welder/Burner: This is the person who is physically doing the actual Hot Work (welding, grinding, cutting, etc).

Responsibilities

A. Employees

All employees are required to follow the Hot Work permit policy when Hot Work tasks are conducted.

B. Loss Prevention Department

It is the responsibility of the Loss Prevention Department to ensure that the Hot Work permit program is carried out within their area of authority. They ensure the safety of mill employees and property by routinely auditing hot work jobs in the field to make



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sure proper fire safety precautions are being taken. Loss Prevention has the authority to stop a job if proper safety measures are not being taken which could result in an injury or a fire.

C. Craft Supervisor

It is the responsibility of the supervisor to make sure their employees understand and follow the proper Hot Work procedures. The supervisor is responsible for assigning properly trained personnel to complete the job in a safe and compliant manner. Properly equipping their personnel to safely do the job is also a key role in this program. Properly equipping personnel can include such things as:

1. The personnel performing Hot Work are suitably trained in the safe use of the equipment.
2. Ensuring proper personal protective equipment is used.
3. Making sure the appropriate fire extinguisher and/or hose is available to control sparks or to extinguish a fire.

The supervisor is also responsible for notifying outside contractors and service personnel that they may hire, of the expectation to follow all mill requirements for Hot Work practices. They also need to inform these individuals of hazardous conditions or flammable materials that may exist in the area where they will be working.

D. Individuals Performing Hot Work

The individual performing the actual Hot Work is responsible for:

1. Obtaining and filling out the permit
2. Noting service status of fire protection sprinklers in area
3. Ensuring that their equipment is in good repair
4. Using appropriate personal protective equipment (PPE) (welding jacket, gloves, face shield, goggles, etc)
5. Remove/shield/cover combustible material within 35 ft of the job site
6. Obtaining the Permit Authorization signature
7. Obtain permit number by calling the Front Gate at ext. 2676 (906-233-2676 from an outside line)
8. Working with the Fire Watch to control the spread of sparks or molten material
9. Distribute copies of permit to proper personnel (see bottom of permit for distribution)
10. Discontinuing work and contacting their supervisor if an unsafe condition exists or should occur

E. Fire Watch

The fire watch plays one of the most important roles in this program. The along with the person performing the Hot Work, the fire watch must:

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1. Be aware of the inherent hazards involved with the Hot Work job
2. Ensure that safe conditions are maintained during the job
3. Use appropriate personal protective equipment (PPE) (welding jacket, gloves, face shield, goggles, etc)
4. Have fire hose or extinguisher at the job site
5. Know how to report a fire or other emergency situation (2911 or 906-233-2911 from an outside line)
6. Discontinuing work and contacting their supervisor if an unsafe condition exists or should occur
7. Maintain watch of the area
8. After the Hot Work job has been completed, the fire watch must:
 - Remain on scene for the required observation period.
 - Keep fire extinguishing equipment accessible
 - Return hoses or extinguishers to racks when observation period is completed

Once the observation period is completed, Fire Watch is to sign the bottom of the permit and enter the time they left the job site. This represents verification that the job site was safe and secure when the fire watch left the scene. The Fire Watch is to place their copy of the permit into the drop box in their maintenance area or it can be forwarded to the Loss Prevention Department

F. Production/Operations Supervisor

These are the personnel who are in charge of the actual area where the work is taking place. These supervisors must either be notified of a Hot Work job being conducted in their area or they can act as the Authorizing Signature; giving permission for work to be done in that area. They may at that time point out to the person doing the Hot Work, special conditions or hazards associated with the work site. They will receive one of the copies of the permit to post in their area. Their copy of the permit will remain posted for 24 hours, so the following shifts can make checks of the area to ensure no problems exist. At the end of this 24 hour period they can discard this copy of the permit.

G. Authorizing Signature

This is the person who will be responsible for the work environment and safe operation of Hot Work activities. The person who signs the permit must visit the job site, within 6 hours prior to the hot work starting, to ensure that proper precautions have been checked on the permit and proper safety measures have been taken at the job site. These may include: Ensuring sprinkler systems are in service, having the work moved to safer location, properly protecting combustibles (shielding, covering, blanketing, etc), shutting down conveyors or equipment that may move or

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transport sparks/fire to another location, the fire watch is equipped with the proper type of fire extinguishing device, etc.

The individual signing as the Hot Work Authorizing Signature must be a Verso Supervisor or designee. This person can be a Maintenance Supervisor, Planner, Production Supervisor, Operator (Self Managed Areas), or Project Engineer.

H. Contractors

Contractors are the responsibility of the personnel who hired them. Maintenance, engineering, and production-oriented areas that hire contractors are responsible for making sure the contractor and their people are trained and follow Escanaba's Hot Work policy. The personnel that hire a contractor to do work in their area are responsible for authorizing the Hot Work jobs they may conduct. They may work in conjunction with area supervision or project engineers to authorize hot work.

I. Mutual Responsibility

Management, contractors, Authorizing Individual, fire watch, and individuals performing hot work shall recognize their mutual responsibility for safety in hot work operations. All parties involved must work together to ensure safe operations are conducted surrounding a Hot Work job.

Times When Hot Work is Not Allowed

There may be times or circumstances when Hot Work cannot be allowed in an area. Items that could bar Hot Work from an area can include (but are not limited to):

1. In the presence of explosive atmospheres (see Section VI. below)
2. Impaired fire protection system
3. Areas with large accumulations of combustibles or heavy accumulation of dust
4. Work to be done on tanks or piping with unknown contents

In these instances the Hot Work will have to be delayed until the environment the Hot Work is to be conducted in is cleared of the dangerous atmosphere, area is cleaned up, multiple Fire Watches are in place for the entire area due to fire protection system impairments, or the tank or piping can be checked for explosive atmospheres or dangerous contents. Please contact either the Safety Department or the Loss Prevention Department with any questions concerning these restrictions.

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Hot Work Procedures

Not following proper Hot Work procedures can have disastrous results; from loss of life injuries to multi million dollar losses as a result of improper Hot Work procedures. Most every fire that is caused by Hot Work could have been prevented if the work was conducted properly. Properly following Hot Work procedures involves working with trained employees to ensure proper precautions are taken to complete the job in a safe manner.

Team Members are required to wear proper protection when cutting, welding or grinding (depending on the activity, the use of goggles, face shield, welding jacket, welding gloves, etc. may also be required). The welding jacket will be inspected prior to the commencement of hot work activities (by the wearer) to ensure a clean and appropriate/ready jacket. Appropriate PPE applies to anyone working within 35 feet of the Hot Work activity as they are also exposed to the Hot Work hazard.

Hot Work Permit

In an effort to reduce the potential for fires when conducting Hot Work activities, a Hot Work Permit is required. The Hot Work permit is a paper form that must be properly filled out prior to any actual work being done. This form consists of:

- ◆ The permit duration: Date & Time
- ◆ Name of the company that person who is doing the Hot Work works for
- ◆ Name of the building where the work is taking place
- ◆ Location in the building: floor & column #
- ◆ Craft: what type of work (welding, grinding, torch soldering and brazing, etc.)
- ◆ Job Description (what is being worked on...heating a bearing, handrail repair, cutting bolt, repair bracket)
- ◆ Name of the Craft Supervisor
- ◆ Name of the Area Production/Operations Supervisor
- ◆ Name of the person who is doing the Hot Work
- ◆ Name of the Fire Watch(s)
- ◆ Permit Authorization Signature
- ◆ Permit Number (obtained from Loss Prevention Dept by calling ext. 2676 or 906-233-2676 from an outside line)
- ◆ Actual Hot Work start and finish times
- ◆ Signature of Fire Watch and time: at least 30 min after job was completed (60 minutes for high hazard areas)
- ◆ Proper distribution of permit copies (see bottom of permit)

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Permits are audited weekly by the Loss Prevention Department. Permit violations are sent to the proper supervisor for employee educational purposes. Based on the error(s), team member retraining may need to be completed. Completed permits are kept on file by the Loss Prevention Department for one year.

- ◆ **Required Precautions** (taken as they apply to your job):
 - Fire Protection Sprinklers in service. If they are not in service work may have to be delayed or additional Fire Watch personnel will be required. When you call in for your permit number the LPO will let you know if the sprinklers are out of service in the area you will be working in.
 - Cutting and welding equipment in good repair.
 - **Precautions within 35ft.**
 - Air monitoring for explosive atmospheres required for:
 - For all Boiler House and Kraft Mill areas, and Process Safety Management (PSM) processes: ammonia, chlorine, chlorine dioxide, methanol, and turpentine.
 - Working near all tanks and vessels, and any lines containing flammables
 - All wall and floor openings covered. Covered with a fire blanket to keep sparks from traveling away from job site.
 - Combustibles removed from area. If you can physically move the combustibles from the work area; please do so. i.e. Paper, broke, chips, dusts, boxes, etc.
 - Floors swept clean or wet down. (To remove combustible materials, dusts, that may support combustion)
 - Combustible floors wet down and/or covered with a fire blanket. (wooden floors, resin anti slip covered floors, etc)
 - Flammable liquids removed; other combustibles protected with fire blankets, metal shields, or wet down. Removing paint cans, solvents, or tote bins of materials that could support a fire if they become exposed to sparks or fire.
 - Moving conveyors shut down. Conveyors can carry sparks to distant areas and cause fires a great distance from the actual hot work.
 - Protect or shut down air ducts and conveyors that may carry sparks. Air ducts may have a build up of dusts inside them that could support combustion and carry a fire to a roof or other great distance.
 - **Work on Walls, Ceilings or Floors**
 - Construction is of noncombustible material and without covering or insulation. These coverings or insulations can burn. Check both

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sides of the work area: Work side and the opposite side of the work surface, coverings might be different on the opposite side.

Combustible coverings/materials may need to be removed.

- Combustibles moved away from other side of wall, ceiling, or floor. Sparks may blow around on opposite side of work surface.

- **Work on Enclosed Equipment**

- Enclosed equipment cleaned of all combustibles (solids, dusts, liquids)
- Containers and piping purged of all flammable liquids and vapors. When flammable materials may be present, use monitoring equipment to confirm vessel and area is safe to work in.

Flammable Atmospheres

Hot Work can only be conducted once flammable atmospheres have been eliminated (refer to confined space policy). If work is to be conducted on or near a system containing flammable materials (turpentine, methanol, gasoline, natural gas, propane, kerosene, hydrogen, etc.), explosive atmospheres must be evaluated and eliminated. All evaluations should be conducted with a combustible gas monitor or other explosion limit monitoring equipment that offers direct readout in percent Lower Explosive Limit (LEL).

Explosive atmospheres can be found throughout our mill, particularly in the Kraft Mill and Boiler House areas due to the use of flammable materials and the by-products of our process. In addition, we have specific requirements under PSM to perform explosive atmosphere monitoring around PSM covered chemicals.

Initial atmospheric testing for flammable and explosive gases prior to conducting hot work is required in the following areas:

- Kraft Mill
- Boiler House
- Within 35 feet of a PSM covered process, including all tanks and lines
- Within 35 feet of ALL tanks and vessels throughout the mill
- Within 35 feet of tanks and lines containing a flammable product
- For hot work or grinding on the **outside** of tanks or vessels containing white water/stock/broke or other organic materials that could develop a head space of hydrogen or methane gas from bacterial action, the headspace **MUST** first be tested to assure that the levels of gas are at 0% of the Lower Explosive Level (LEL)

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The immediate area where the work is to be conducted must be evaluated, but it is encouraged that the entire 35 foot work zone also be checked. In addition, if there is an open tank or line in the area the combustible meter must be placed at the opening.

Depending on the work to be conducted on or around a tank; the inside of the tank must be checked giving consideration to the entire tank as gases and vapors can stratify (top, middle and bottom). If monitoring all levels of the tank is not possible, forced ventilation inside the tank will be required.

HIGH HAZARD AREA

These are locations with normally occurring high volume of combustible material such as paper storage warehouses, areas with combustible construction, or any area which because of combustible process materials; a fire could be expected to rapidly become a large, disastrous fire.

Examples include by aren't limited to:

- Woodyard
 - Bark System
 - Chip System
 - Chip Screen Building
 - Woodroom
- Pulp Make Down (PMD)
- PS&D (Roll Wrap/Shipping)
- All machine Dryer Sections
- Paper storage area

REQUIREMENTS FOR HOT WORK IN HIGH HAZARD AREAS:

1. **Must** have portable fire extinguisher present at the job site.
2. **Must** have fire hose available. In wood processing and other high hazard areas that do not have fire hoses readily available, two additional fire extinguishers (for a total of 3) may be used in lieu of a fire hose.
3. If hot work is taking place in a high hazard area that involves multiple floors where sparks can drop to a lower level, then an extra fire watch is required (example – hot work on paper machine dryer section operating floor and other areas with open grating between floor levels).
4. Fire watch **must** stay at job site for **60 minutes** after job is complete.
5. Area Supervision or designee **must** complete and document (on back of permit) field audits every hour for an additional three hours after the fire watch leaves the hot work site.



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Escanaba Mill			
Subject: Hot Work Permit Program		Number: PC-04	
Effective Date: April 1, 2008		Pages: 8	
Revision Date: January 8, 2008		Approved By: Safety Leadership Committee	
Revision History			
REVISION	PAGE(S) AFFECTED	DATE	DESCRIPTION OF CHANGE
01	Pages 6 & 7 – Section VI. Flammable Atmospheres	01/08/08	<ol style="list-style-type: none"> Hot Work can only be conducted once flammable atmospheres have been eliminated. Escanaba now requires air monitoring of the lower explosion limit (LEL), at a minimum, initially, for all hot work jobs conducted on site (regardless of the proximity of flammable or combustible materials). This includes contractors as well as our employees. The rationale for this requirement came about as a result of flammable atmospheres developing in and around tanks not containing flammable products. In addition, if work is to be conducted on a system containing flammable materials (turpentine, methanol, gasoline, natural gas, propane, kerosene, hydrogen) explosive atmospheres must be evaluated and eliminated. All evaluations must be conducted with a Passport or other explosion limit monitoring equipment. This must be noted/documentated on the permit in the Required Precautions within 35 FT section. If at any time during the air monitoring, the monitor goes into an LEL alarm state the work is to stop immediately and is not to resume until the dangerous atmosphere has been eliminated. As a result of the Process Safety Management requirements in our mill we are required to evaluate all Hot Work performed on the turpentine and methanol systems. A Passport or other explosion limit monitoring equipment must be used in the work area prior to conducting Hot Work. Continuous air monitoring in Turpentine and Methanol areas is recommended to ensure employee safety.
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02	Page 3 – Section III – Item D – Individuals Performing Hot Work	08/11/10	1. Verbiage added.
03	Page 3 – Section III – Item E – Fire Watch	08/11/10	1. Verbiage added.
04	Page 4 – Section III – Item E – Production/Operations Supervisor	08/11/10	1. Verbiage added.
05	Page 4 – Section III – Item G – Authorizing Signature	08/11/10	1. Verbiage added.
06	Page 5 – Section III – Item I – Mutual Responsibility	08/11/10	1. Verbiage added.
07	Page 5, 6 & 7 – Section V – Hot Work Procedures	08/11/10	1. Verbiage added.
08	Section VII	8/15	2. Section Added
09	All	December 2021	3. Reorganized some of the sections for better transition through the policy, added the PPE requirements within 35' of hot work, added PMD as a high hazard area, added requirement to conduct one-hour audits of high hazard areas, added requirements for hot work on outside of tanks.