

PROCEDURE FOR OPENING DANGEROUS SYSTEMS

1.0 Purpose

The purpose of this procedure for opening dangerous systems is to ensure that proper precautions are taken during line-breaking, blockage clearing, and tank opening activities of any system which contains or has contained any dangerous material. By following this procedure, employees will reduce the risk of injury to themselves and others during these potentially dangerous tasks.

2.0 Scope

2.1 This procedure for opening dangerous systems is applicable to all International Paper – Franklin Mill employees, including the Fiber Recycling Plant and Franklin Sheet Converting, and employees of contractors performing work at this location.

2.2 This procedure is applicable to any line-breaking, clearing blockages, or tank opening activity.

2.3 This procedure presents the minimum requirements which must be met or exceeded by anyone involved in opening a dangerous system.

2.4 In the absence of specific departmental procedures covering normal sampling, venting, and draining activities, this procedure for opening dangerous systems will be used.

2.5 Connecting or disconnecting railroad tank cars, tanker truck, 55-gallon chemical drum, and portable chemical bin lines will not be included in this procedure whenever specific departmental procedures cover these activities.

2.6 Use of some portions of this procedure may be deemed necessary by the supervisor responsible for the activity on the basis of potentially dangerous internal pressure on a system.

3.0 Responsibilities

3.1 It is the responsibility of the supervisor of the employee(s) opening a dangerous system to ensure that all involved employees are familiar with and understand this procedure and its application and are aware of the hazards involved.

3.2 It is the responsibility of the employee opening a dangerous system to ensure the requirements of this procedure are met.

4.0 Definitions

4.1 **Opening dangerous systems** - any activity during which normally closed systems such as pipelines, hose rigs, pumping systems or sight/gauge glasses which contain or have contained any dangerous materials are opened to atmosphere pressure by unbolting/separating flanges, removing valves, opening pump covers, or removing instruments or gauges.

4.2 **Blockage clearing** - any activity associated with removing actual or suspected blockages or obstructions from lines, fittings, valves, pumps, or vessels which contain or have contained any dangerous materials. This is a special group of line-breaking activities which may involve the additional hazards of opening a closed system without being able to drain dangerous materials or depressurize the system.

4.3 Tank opening - any activity during which normally closed tanks or other vessels which contain or have contained any dangerous materials are opened. Examples of tank openings are opening manholes, removing inspection covers, disconnecting pipelines at the point they enter a tank and similar activities.

4.4 Dangerous materials - for the purpose of this procedure, dangerous materials include, but should not be limited to, corrosive liquids and gases, hot (150 or above) liquids and gases, including steam and condensate, toxic liquids and gases, combustible, flammable, or explosive liquids and gases, and hot dusts such as fly ash or lime.

4.5 ZES – Zero Energy State procedure -“Lock, Tag, & Try”

5.0 References

5.1 Franklin Mill ZES “Lock, Tag, & Try” procedure

6.0 Procedures

6.1 Opening a dangerous system is essentially breaking into a closed system. Regardless of the precautions taken, the checking done, or the procedure followed, the question should be asked if it is still possible that at the place where the system is to be opened, that there is dangerous material which may spray or spill out. Employees involved in any activity covered by this procedure must treat the system as if it is still full and dangerous and should prepare for the worst to happen. Proper planning before the job begins will ensure that everyone involved knows the dangers and dangerous material involved, knows what action to take to reduce or control them, and knows what protective equipment is required for the job. Details may vary from one job to the next but there are several steps that are common to all activities covered by this procedure.

6.2 Protective Clothing Requirements

6.2.1 These are the minimum requirements for the use of protective equipment during activities covered by this procedure. Supervisors are responsible for requiring additional protective clothing to provide protection against specific dangers associated with specific jobs.

6.2.2 While opening dangerous systems, employees must wear the following protective clothing unless exceptions are approved in advance by their supervisor and recorded on the opening dangerous systems checklist:

- * hardhats
- * chemical goggles and faceshield (unless full-face respiratory protection is worn)
- * chemical suit
- * protective gloves
- * rubber boots
- * respiratory protection if release of any dangerous material might present respiratory hazard

6.2.3 The openings between boots and pants, and gloves and sleeves must be sealed when the situation warrants. Tape, velcro closures, or elasticized inner cuffs or legs are suggested means of

sealing these openings. When openings are not sealed, pant legs must be worn outside of boots. Sleeves should be positioned such that material will not be directed toward unprotected skin. For example, sleeves should be inside gloves while working overhead.

6.2.4 In case of severe and continuing spraying or heavy gassing, fully enclosed chemical suits with appropriate respiratory protection are required. This would normally occur in response to an emergency situation.

6.2.5 Exceptions to these requirements are to be made by the supervisor only when it is clear that there is absolutely no safety advantage gained by wearing the specific piece of protective clothing.

6.3 Job Site Requirements

6.3.1 Before any activity covered by this procedure is begun, a checklist for opening dangerous systems (attachment A) must be completed and signed by the employee and the appropriate supervisor. If the employees are relieved, the on-coming employees must review and sign the checklist. The purposes of the checklist are to remind employees of the precautions required to be taken and to ensure the right steps are done in the correct order. The checklist is to remain conspicuously posted at or near the worksite until the opening is satisfactorily completed.

6.3.2 Employees must take reasonable steps to ensure that others passing through the work area will not be exposed to potential hazards or injury. These steps may include:

- * blocking the job site with warning signs, barricades, or barricade tape. A standby person to warn other employees might also be necessary.

- * Allowing only people involved in the job inside the blocked off area.

- * Requiring everyone inside the blocked off areas to use the required protective clothing.

- * Using containers to collect drainage or spills.

- * Blocking off exposed areas on lower floors when floor openings are near the job site.

6.3.3 Safety showers and eyewashes near the job site must be checked for proper operation prior to starting work. If no shower or eyewash is available, hoses connected to a source of cool, clean water must be provided.

All employees working at the job site must know the location of and have access to safety shower, eyewash, or hose stations and fire fighting equipment where applicable.

6.3.4 Wash down hoses should be set up where appropriate to wash away and dilute any spills that might occur. Care must be taken if acids and caustics are likely to be mixed. Neutralizing materials should be available at the job site if the material being handled deserves it.

6.3.5 Portions of dangerous systems to be opened must be drained as completely as possible, thoroughly washed, flushed, purged, and vented to help equalize pressure and reduce the risk of an air lock forming.

In some cases, washing or flushing the system is not possible or not required to completely purge the system of its hazards or may create additional hazards. Approval from the Mill Manager, or designee, Loss Prevention Manager, or designee, and site Industrial Hygienist, or designee, must be obtained and documented prior to opening a dangerous system which has not been washed or flushed.

6.3.6 The International Paper – Franklin Mill's ZES - Lock/Tag/Try Procedure must be followed to lock out any equipment isolating the portion of the system to be worked on. This can be accomplished by blocking, shutting valves, securing pumps, or similar means consistent with the ZES -lock/tag/try procedure.

6.3.7 While each specific job may necessitate different ways to open dangerous systems, the following standard steps must be followed:

6.3.7.1 Shield flanges whenever possible, including the partial use of flange covers where appropriate, and stand to the side to avoid any sprays or spillages.

6.3.7.2 When loosening the bolts of flanges or covers, loosen those bolts which are farthest from the worker first.

6.3.7.3 Whenever possible, and in any case where flange or cover bolts must be cut or burned off, the old bolts must be removed one at a time and replaced with new bolts which can be gradually backed off. This will help prevent sudden opening of the joint particularly when the joint may be under stress. Removal and replacement of bolts is only allowed once the system has been secured using the ZES-“Lock, Tag, & Try” procedure.

6.3.7.4 Once the system is opened, any lines, fittings, and nearby valves must be flushed with water to wash away and dilute any dangerous materials. All dismantled lines, fittings, valves, and other equipment or material should be free of dangerous materials before leaving the job site. This step includes those items going to scrap metal pickup points or the salvage yard.

6.3.7.5 The equipment locked out and tagged to isolate the system must remain secured and isolated until the system is closed or placed in service again.

6.3.7.6 All openings in the system made during the job must be checked for closure before completion of the job and reactivation of the system.

6.3.8 Additional Concerns for Clearing Blockages

6.3.8.1 Working on a line that may not be completely drained requires extra caution to ensure that the obstruction is removed in a controlled fashion so that the dangerous material does not splash or spray out rapidly.

6.3.8.2 Tight spaces or hard to reach locations may reduce a worker's ability to escape a dangerous situation rapidly. Special equipment or special work platforms with clear escape paths may be needed to provide adequate protection.

6.3.8.3 When clearing blockages, haste is a frequent cause of accidents. The clearing operation should proceed cautiously with frequent stops to check on progress and the condition of the blockage.

6.3.8.4 Ensure all non-essential people are clear of the area before attempting to clear a blockage. No one should be exposed to an opening on a pipeline or vessel when pressure is applied by steam, gas, or fluid to unplug an obstruction. This is to reduce the risk of injury should a sudden surge of material come out of the pipeline during the blockage clearing.

6.3.8.5 Anyone approaching an opening should first make sure that all pressure has been relieved on the pipeline, vessel, or tank; then proceed with caution.

6.3.8.6 The use of protective barriers or shields (including doors or adjacent equipment) must be considered as a means to reduce hazards of clearing blockages.

6.3.8.7 No one should be on top of or below a tank, tank car, or tank truck when steam, gas or fluid pressure is being applied to remove an obstruction from piping entering the container if sudden removal of the obstruction could cause a surge of material into the container.

6.3.9 Once the activities – line breaking, blockage clearing, or tank opening - associated with opening the dangerous system have been completed, the checklist for opening dangerous systems should be turned in to the supervisor of the employees performing the activities.

7.0 Documentation

Checklist for Opening Dangerous Systems