Domtar

Equipment and Line Break Procedure	Date of Issue: May 7, 2025 Effective Date:

Prepared by: Todd Lansi	Supersedes Date:
Approved by: Aron Reid	Approved Date:

1.0 PURPOSE

The purpose of this document is to provide guidelines for safely breaking into or working on any system, pipeline, or equipment for maintenance activities.

2.0 SCOPE

This policy covers the breaking or opening of any pipeline, connected fittings, valve, pump, vessel, process sewer, or other equipment which may present a hazard to employees.

2.1 This policy applies to all HSPP maintenance HSPP employees and contractors involved in opening any closed systems carrying hazardous materials, hot materials (over 60° C), or pressurized systems (over 517 kpa) including, but not limited to, sulfuric acid, green, white, and black liquor, DNCG, CNCG, SOG, chlorine dioxide, sodium hydrosulfite, propane, natural gas, methanol, foul condensates, hydrogen peroxide, hydrogen sulfide, fuel oil, turpentine, kerosene, and specialty chemicals.

2.2 The requirements of this policy are mandatory minimum conditions that must be met prior to equipment or line opening or breaking. Employees and contractors are not relieved of the responsibility for initiating higher standards when necessary for the safety of personnel and property.

2.3 This policy does not apply to hot taps, routine inspections, observations, clearing impulse lines, or equipment adjustments done in accordance with standard operating practices, where safe work practices are part of the procedure.

2.4 This policy does not cover the opening of pipelines or systems containing only process, potable or filtered water at a temperature less than 60° C, or compressed air pipelines or systems at a pressure less than 517 kpa or instrument air piping that is less than 2.54cm in diameter.

2.5 This policy does not include opening man-ways connected to tanks where the level in the tank has been visually confirmed to be below the bottom of the man-way to be opened.

2.6 This policy is intended to augment lockout and confined space procedures, but not replace them.

3.0 DEFINITIONS

3.1 Back-up – The individual(s) outside the barricaded area to assist the entrant with egress if necessary.

3.2 Entrant – The individual(s) performing the equipment or line break inside the barricaded area.

3.3 Hazardous Materials – Caustic solutions, acid solutions, flammable gases and liquids, hot (greater than 60° C.) materials, materials greater than 517 kpa, steam or any other process materials that may pose potential health hazards.

3.4 Hot Materials – All pipe lines, equipment carrying hot materials (over 60° C).

Exception: If the line/equipment/dryer can is no longer hot to the touch at the entire section the material could be released from, then the material in the line/equipment would be the deciding factor.

3.5 Line-Breaking/Opening – Any activity during which normally closed systems (e.g., pipelines, pumping systems, vessels, process sewers, sight/gauge glasses, etc.) which may contain materials that present a hazard to employees, are opened to the atmosphere.

3.6 Lockout – Physically de-energizing, isolating and locking out all potential hazardous energy sources (see "Joint Safety Management System Lockout Program").

3.7 Personal Protective Equipment (PPE) – Any equipment or clothing which gives the wearer added protection from potential hazards.

3.8 Pressurized Systems – Any system operating at over 517 kpa (Hydraulic or Pneumatic).

Exception: If the system is proven depressurized, then the material in the line/equipment would be the deciding factor.

4.0 GENERAL

4.1 The act of opening pipelines or equipment can present a severe potential injury due to the nature, pressure, and/or temperature of materials in the pipelines or equipment. Every effort must be made to eliminate all hazards before permit is issued. This may include activities such as draining and flushing hazardous materials, isolating the work and equipment by locking out, relieving pressures, cooling hot materials, providing special shielding, and thoroughly checking each aspect of the job.

4.2 Contractors will follow the guidelines for line breaking specified here, and will, at a minimum, meet the requirements of this procedure.

5.0 TRAINING AND DOCUMENTATION

5.1 Each individual authorized to perform line breaking shall receive training and demonstrate knowledge of this procedure prior to performing line-breaking tasks. Documentation will be kept as part of the employee's training record.

5.2 Retraining for all authorized individuals will occur when there is a change in procedure, process, equipment, an inadequacy in the program is observed, or an employee demonstrates a lack of understanding of this policy.

6.0 PROCEDURE

6.1 Qualified employees familiar with the operation of the system are responsible for isolating, draining, flushing, venting, and preparing the system for safe opening, in accordance with procedures, as per lockout program.

6.2 The work area must be adequately barricaded (curtains or splash guards) or have a the area barricaded off 12' from the hazard in all directions to protect others from sprays and splashes or instantaneous toxic gas releases. Consideration should be given to volume/pressure of the suspected material contained in the piping, and the height at which work is being performed.

6.3 Regardless of preparations, it must be assumed during the initial breaking of lines, systems or equipment that a hazardous condition may exist.

6.4 The minimum PPE requirements must be reviewed and implemented (see **ATTACHMENT 1**). The Safety Data Sheet, relevant procedures and/or Maintenance SOPs are additional resources.

6.5 Employees working with the individual(s) assigned to perform a line break and exposed to the same hazard as the member(s) making the line break, must be protected by the same level of personal protective equipment and have a good understanding of the hazards potential.

6.6 In situations where the hazard is confirmed as **not** being present after the "break" is performed, the PPE being worn and requirements for back-ups may be modified to what is required for the confirmed actual conditions.

6.7 After the initial line break is performed and the hazards **cannot** be eliminated (such as when unplugging a pipe) all initial line break requirements must be maintained throughout the task.

6.8 All individuals involved must understand the proper method of collecting, containing, or adequately draining possible spilled materials. They must make preparations for the unexpected.

6.9 When breaking a flange, loosen the bolts & nuts in the lower and opposite side from the individual performing the work, keeping the bolts & nuts on the side nearest the individual under control. This allows the line to separate in a manner that will cause any spillage or gas release to be away from the individual. Do not remove any bolts until the flange has been spread sufficiently to see through the flange. The individual should always be positioned on the upwind side of the flange being broken.

6.10 Unions must be broken by loosening the nut two (2) turns while positioned in front of the union. Establish drainage by pushing the pipe away from the individual to cause misalignment. Completely removing the nut on the union is acceptable when it is determined that no material or pressure is in the system.

6.11 Where a valve bonnet must be removed, the pipeline must be drained, and the valve placed in the open position before the bonnet bolts are loosened.

6.12 These procedures must be followed for lines or manways that are blocked or are suspected to be blocked. Where blockage is suspected, no liquid or gas should be used to clear the blockage above the rated pressure of the pipeline or equipment, assumed to be 1034 kpa unless a higher-pressure rating is confirmed.

6.13 After breaking lines normally containing hazardous materials such as chlorine dioxide (CLO2), hydrogen sulfide (H2S) or flammable gases or liquids, the open line must be tested for the presence of O2, ClO2, H2S and LEL before work begins.

7.0 ATTACHMENTS

7.1 Attachment 1 – Minimum PPE Requirements

7.2 Attachment 2- First Line Break Permit

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ATTACHMENT 1

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Attachment 2

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LINE BREAKING/OPENING PERMIT
Line/Equipment Breaking for
Systems containing Hazardous Substances

A Line Breaking / Line Opening Permit must be completed before starting any work that involves the opening to atmosphere of process **lines or equipment** that could contain a Hazardous Substance. This permit is delivered by Operations and reviewed with Maintenance personnel completing the work. It remains valid from workday to workday as long as initial conditions remain the same as analyzed when Permit was issued. Otherwise, a new permit shall have to be issued.

PERFORMANCE OF WORK

Name of Worker/Contractor:	Department:
Date of Line Breaking:	Name of Permit Issuer:
Location(s) (floor, building, etc.):	Equipment #:

LINE/EQUIPMENT CONTENT

Hazardous Chemical	Hazardous Substance
▫ Yes ▫ No	▫ Condensate ▫ Steam ▫ Hot Stock (>60°C)
If Yes, attach MSDS to Permit	▫ *Hot* Liquid or Solid (>60°C)
Specify: _____	▫ Other: _____

SPECIAL JOB-SPECIFIC PRECAUTIONS

	SECTION TO BE COMPLETED BY ISSUER (OPERATIONS)	Operations Initial
1	Line/equipment drained. Ensure material has discharge from the line/ equipment upon its opening will have no negative impact on safety or the environment.	
2	Line/equipment is isolated, depressurized and/or flushed.	
3	Line/equipment is properly locked out. Lockout Sheet #_____	
4	Could explosive gas/vapour accumulate prior to breaking the line/equipment? If so, perform a measuring test (LEL must be <10%).	
5	Area has been secured (if possible: 12' radius from source - red tape). *Work area must be clearly delimited using physical or visual barriers, and only authorized workers using appropriate PPE may have access.*	
6	Functional eye wash and a safety shower is near jobsite (i.e. reachable within 10 seconds max. (50-100 ft). Test them for flow. If not present or functional, provide a temporary measure (e.g. mobile eye wash, hose connected to a source of potable water, Diphoterine, etc.).	
7	Jobsite been cleaned and decluttered before starting work.	
8	If opening a line that contains flammable material, ensure fire fighting equipment is available.	
9	Operations have identified the process hazards and communicated them to the maintenance personnel.	
	SECTION TO BE COMPLETED BY WORKER (MAINTENANCE)	Maintenance Initial
10	Maintenance personnel understand the process hazards and have put controls in place. i.e. locked out	
11	Workers have the correct PPE to perform this job and is it in good condition. If the use of a SCBA is required contact Supervisor.	
12	Workers know where the Emergency Showers and Eye Wash Stations are, and access to Diphoterine is available.	
13	Ensure equipment to be removed/opened having an impact on the process and/or employee safety elsewhere in the process (e.g. removing a level transmitter that controls automatic valves) has been dealt with prior to work.	
14	Line supports in good condition. If not, provide a temporary measure.	
15	If job involves performing a Hot Tap on a system that is still pressurized, STOP and notify Department Manager or Superintendent immediately.	
16	Lines of Fire and potential projection areas have been identified to ensure workers remain out of this trajectory. Start by loosening bolts that are the furthest away from workers to minimize risks.	

LINE/EQUIPMENT CONTENT

Hazardous Chemicals	Required Level of PPE
Corrosive/acid material having a pH below 2.5 Corrosive/basic material having a pH above 12.5 Material acutely toxic in case of skin/eye exposure Substance classified 3 or above on the HMIS Health Scale in MSDSs Substance with a temperature above 60°C/140°F or below -30°C/-22°F	**Level 1.5** includes: • Chemical resistant hooded jacket and pants, or one-piece suit, with the ability to be cinched to the face, wrists and ankles (rated for moderate to heavy splash and immediate escape) • Cut-resistant (min. A4) and Hot material/Chemical-resistant gloves • Hot material/Chemical-resistant boots (min 8") • Safety hat with powered air purifying respirator OR full-face respirator with appropriate filter cartridges if the substance could create an atmospheric hazard.
Hydraulic oil with a pressure considered hazardous above 180 psi	**Level 0.5** includes: • PVC/polyester, rubber or 100% Nylon jacket coated with Neoprene (at least 0.35 mm thick), knee length minimum • Long (min. 12") cut-resistant (Level A8) and puncture-resistant (Level 3) gloves, lined with Kevlar™ and coated with Neoprene, OR long (min.12") cut-resistant (Level A4) and puncture-resistant (Level 3) PVC gloves, lined with Kevlar and coated with Nitrile, to be worn under the sleeves • Safety hat and face shield with chin guard • Splash goggles • Safety boots (min 8")
Other substances: - Water below 60°C/140°F - Air - Glycol - Etc.	• Standard PPE • Splash goggles • Safety hat and face shield with chin guard

SIGNATURES: *I certify that the line/equipment has been prepared in accordance with the Line Breaking Procedure and is ready to be opened.*

Permit Issuer's Signature (Operations): _____

Requester's Signature (Maintenance/Contractor): _____

Supervisor's Signature (Operations): _____

Feedback

Return this completed Permit to the Gatehouse