

Title:  
**First Break**

## 1.0 INTRODUCTION

The initial opening (“First Break”) of a process system presents a high-risk activity due to the potential for unexpected or uncontrolled releases of hazardous energy, pressure, or substances. Such loss-of-containment events have the potential to result in serious injury or fatality (SIF). This standard establishes the methodology for planning, authorizing, and safely executing First Break activities by defining the required authority, preconditions, and control measures that must be verified and implemented before any first physical opening of a system occurs.

## 2.0 SCOPE

This standard defines the regulatory and safety requirements, including applicable Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE), for First Break activities involving the initial opening of process systems.

This standard applies to all employees and contractors engaged in first line breaks or system breaks on process piping, vessels, equipment, flanges, vents, drains, or similar systems that contain, or may have contained, hazardous or unknown materials, or stored or high-energy sources (e.g., steam, compressed air, pressure).

Electrical hazards, including work on or near energized electrical equipment, are not within the scope of this standard and shall be managed in accordance with applicable electrical safety standards, permits, and procedures.

Due to the wide variety of substances, energy sources, and operating conditions present across company facilities, this standard does not provide an exhaustive list of process commodities or prescribed PPE or RPE. Hazard identification and the selection of appropriate controls shall be based on the specific process commodity, system condition, and work environment at the job location, and shall be confirmed through consultation with site operations, maintenance, and applicable Safety Data Sheets (SDS).

## 3.0 REFERENCES

|                              |                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------|
| NB General Regulation 91-191 | New Brunswick General Regulation 91-191 sections 58 to 64, 239, 240 and 253         |
| OHS Act                      | Subsection 9(2) of the <i>OHS Act</i>                                               |
| HSEE-03-01                   | <a href="#">HSEE-03-01 Hazard Identification, Assessment &amp; Mitigation.pdf -</a> |
| HSEE-03-02                   | <a href="#">HSEE-03-02 Lock Out Standard.doc</a>                                    |
| HSEE-03-34                   | <a href="#">HSEE-03-34 Barrier Tape Final.doc</a>                                   |
| HSEE-03-51                   | <a href="#">HSEE-03-51 Line of Fire.pdf</a>                                         |
| HSEE-03-11                   | <a href="#">HSEE-03-11 Personal Protective Equipment.pdf</a>                        |
| HSEE-03-17                   | <a href="#">HSEE-03-17 Confined Space</a>                                           |
| HSEE-03-18                   | <a href="#">HSEE-03-18 Respiratory Protection.pdf</a>                               |
| HSEE-03-32                   | <a href="#">HSEE-03-32 Emergency Eye Wash and Showers.pdf</a>                       |
| HSEE-03-38                   | <a href="#">HSEE-03-38 WHMIS .pdf</a>                                               |
| WorkSafeNB                   | <a href="#">WorkSafeNB First Break Hazard Alert</a>                                 |

#### 4.0 **TERMS AND DEFINITIONS**

The following definitions are provided to support the safe planning, authorization, and execution of First Break activities. Where a term is defined in a referenced standard, the definition below is intended to provide task-level clarity and does not replace the requirements of the applicable standard.

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First Break                                     | The initial planned loss of containment of a process system where trapped pressure, hazardous substances, or unknown residual materials may be present.                                                                                                                                                                                                                                        |
| First Break Type 1                              | Type 1 – A First Break on a process system that has been isolated and verified to be in a zero-energy state in accordance with the applicable Lockout/Tagout standard.                                                                                                                                                                                                                         |
| First Break Type 2                              | Type 2 – A controlled or live First Break performed where isolation and or a verified zero-energy state is not reasonably practicable or achievable, and where a controlled release of pressure or process commodity is anticipated. For Type 2 a Code of Practice is required.                                                                                                                |
| Cleared Process Confirmation (CPC)              | A preplanned method to confirm that hazardous material or pressure has been removed from the system before First Break controls like PPE or RPE are downgraded. (gas testing, visual, physical or other means)                                                                                                                                                                                 |
| Competent Person                                | A person who is qualified, based on knowledge, training and experience, to do the work assigned in a manner that will ensure the health and safety of persons                                                                                                                                                                                                                                  |
| Code Of Practice (COP)                          | A documented safe work procedure developed and approved where isolation is not reasonably practicable, identifying hazards, controls, authorization, and monitoring requirements for a Type 2 First Break.                                                                                                                                                                                     |
| Hazardous Substance                             | Means a substance that may, because of its harmful nature, cause injury or damage to the health and safety of a person exposed to it. Any product regulated by WHMIS and on an SDS is a hazardous substance. In the case of first break, workers need to understand what process commodity is present, and what if any additional PPE or controls are necessary to protect themselves from it. |
| Immediately Dangerous to Life and Health (IDLH) | An atmosphere that poses an immediate threat to life or that will cause irreversible adverse health effects or impair an individual's ability to escape                                                                                                                                                                                                                                        |
| Line of Fire                                    | The path that stored energy, pressure, or material would travel if released during a First Break, placing a worker at risk of being struck, sprayed, or exposed.                                                                                                                                                                                                                               |
| Lock out (LOTO)                                 | The use of locks and tags to isolate and secure energy-isolating devices to prevent the unexpected release of hazardous energy during First Break activities                                                                                                                                                                                                                                   |
| Personal Protective Equipment (PPE)             | Protective clothing or equipment worn to reduce exposure to hazards associated with First Break activities.                                                                                                                                                                                                                                                                                    |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process Commodity                      | Any substance, mixture, atmosphere, liquid, gas, vapour, slurry, solid, steam, compressed gas, or other energy-bearing medium intentionally contained within a process system that shall be treated as hazardous for First Break if released and any of the following apply: <ol style="list-style-type: none"><li>1. It is hazardous or unknown by WHMIS / SDS / IDLH / flammability / corrosivity / reactivity / asphyxiation / toxicity characteristics.</li><li>2. The commodity temperature is <math>\geq 65^{\circ}\text{C}</math> (150F) as per EEI model or <math>\leq 0^{\circ}\text{C}</math> (32°F).</li><li>3. The commodity pressure or residual pressure and volume shall be captured with applicable controls in the hazard assessment.</li></ol> |
| Process system                         | A system designed to contain, convey, store, control, or process a process commodity or hazardous energy, where opening or disturbing the system could result in an uncontrolled release. Process systems include piping, vessels, tanks, equipment, and associated components that form part of the containment boundary. Structural, building, and electrical systems are excluded unless specifically designed to contain or convey a process commodity or hazardous energy.                                                                                                                                                                                                                                                                                  |
| Respiratory Protective Equipment (RPE) | Respiratory equipment used to protect workers from inhalation hazards that may be present during a First Break.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Zero Energy State                      | A verified condition in which all hazardous energy sources have been isolated, released where possible, and proven incapable of causing unintended movement or release during a First Break. Residual or trapped pressure or material may be present during the initial opening of an isolated system and is reasonably anticipated during a Type 1 First Break.                                                                                                                                                                                                                                                                                                                                                                                                 |

## 5.0 **ROLES AND RESPONSIBILITIES**

### 5.1 **Employer (Director, Plant Manager or equivalent)**

Each NB Power division is responsible for complying with this standard by establishing an effective First Break program for protecting individuals from hazardous energy while performing First Break activities. Including:

- Governance, oversight, and resources necessary to support effective First Break planning, authorization, and execution.

### 5.2 **Asset Owner**

The Asset Owner is accountable for the condition, preparation, and operational control of the process system prior to and during First Break activities. The Asset Owner shall ensure that:

- The process system is correctly identified, prepared, and made available for First Break.
- Isolation points, system boundaries, and energy sources are identified and communicated to the Supervisor and work team.

- Isolation and preparation activities are completed in accordance with applicable Lockout / Tagout and operating procedures.
- Verify if zero-energy is achieved
- Permit issuance will determine if First Break activities are Type 1 or Type 2 First Break activities
- System contents, residual hazards, and any abnormal or historical conditions are disclosed to the work team via permit.
- Required operational support (e.g., purging, draining, venting, monitoring) is provided prior to and during the First Break.
- They are available for consultation and escalation during the initial breaking of containment where system uncertainty exists.

### **5.3 Supervisor**

The supervisor shall verify that process commodity hazards and required mitigations have been reviewed with the work team prior to executing the First Break, and that assumptions regarding system contents have been challenged and resolved. The supervisor shall ensure that:

- First Break roles are assigned to competent personnel
  - Workers review and understand the requirements of this standard
  - Appropriate PPE and RPE for First Break activities are available and used
  - First Break hazards are evaluated and eliminated or minimized
  - A Job Hazard Analysis (JHA) is completed for high-risk work, with involvement from personnel who understand the process and associated hazards
  - Required work authorizations and permits are in place
  - Workers understand the process commodity hazards and have access to applicable Safety Data Sheets (SDS) or manufacturer information
  - Workers required to wear respiratory protection are fit-tested and competent
  - Required barricading, containment, and specialty PPE/RPE training are in place
  - A tailboard / pre-job brief is conducted prior to the First Break and reassessed when conditions change
  - Emergency and monitoring equipment required for the First Break is available and functional
  - Work is stopped and the First Break suspended if unsafe or unplanned conditions are identified
  - Cleared Process Confirmation (CPC) needs to be followed before PPE and RPE are downgraded.
  - A Code of Practice is developed, reviewed, and approved where required prior to authorizing a Type 2 First Break on live equipment
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#### 5.4 Employee

Employees involved in First Break activities are responsible for performing work in accordance with this standard, following approved work plans and authorizations, and stopping work when unsafe or unplanned conditions are identified. Employees shall:

- Participate in a tailboard / hazard assessment prior to breaking into any hazardous substance pipeline or vessel and consult applicable Safety Data Sheets (SDS) to understand the hazards of the process commodity.
- Establish, maintain, and respect barricades or exclusion zones while the system is open.
- Inspect, use, and maintain appropriate Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) for the identified hazards.
- Inform their supervisor if they are unable to wear required PPE or RPE, if PPE is defective, or if they do not have a valid fit test for required respiratory protection.
- Verify that emergency equipment, including safety showers and eyewash stations, is accessible and functional prior to starting the First Break, and ensure additional running water is available where required.
- Position themselves out of the line of fire and use engineered controls (e.g., spray screens) where required. When breaking flanges or systems, loosen and open components in a controlled manner to direct any release away from the body.
- Remain alert for the sudden release of gases, liquids, or pressure, and be prepared to stop work and reseal or secure the system if conditions differ from those anticipated.
- Plan for the collection, containment, and safe disposal of residual liquids or materials, and clean up spills immediately.
- Stop work and seek clarification from the supervisor if uncertain about hazards, system conditions, or required controls.
- Report incidents, near misses, unsafe conditions, or concerns related to First Break activities to the supervisor.

### 6.0 STANDARD

#### 6.1 General

Only authorized and trained personnel may perform a First Break. All prerequisite controls including isolation, work authorization, hazard assessment, PPE, barricading, monitoring, and emergency preparedness must be in place prior to opening the system.

If unexpected pressure, material, or unsafe conditions are encountered, the first break is immediately suspended, and system must be closed if you can do so safely. Work must stop until reassessed.

#### 6.2 Determination of First Break Type

Prior to authorizing or performing a First Break, the Asset Owner, Supervisor and work team shall determine whether the work constitutes a **Type 1 or Type 2** First Break.

A Type 1 First Break shall be used where the process system can be isolated and verified to a zero-energy state in accordance with the applicable Lockout/Tagout standard.

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Where isolation to a verified zero-energy state cannot be achieved or cannot be confirmed, or where the process system remains capable of generating, sustaining, or re-introducing hazardous pressure or process commodity, the First Break shall be treated as a Type 2 First Break and a Code of Practice shall be developed in accordance with NB General Regulation 91-191 Section 240.

A Type 2 First Break shall not be used to bypass isolation where isolation is practicable.

### 6.3 Residual Pressure vs Live System Clarification

Residual or trapped pressure or material may be present during the initial opening of an isolated system and is reasonably anticipated during a Type 1 First Break.

The presence of residual pressure or material that dissipates during initial opening does not, by itself, constitute a Type 2 First Break, provided the system is not capable of sustaining or re-introducing hazardous energy or material.

Table 1 is provided to assist in distinguishing between anticipated residual conditions on an isolated system (Type 1) and conditions that indicate a system remains live or uncontrolled (Type 2).

*\*Table 1:*

| Pressure Guidelines for Type 1             | Pressure Guidelines that Trigger a Type 2 |
|--------------------------------------------|-------------------------------------------|
| Residual, trapped pressure that dissipates | Pressure being generated or replenished   |
| Static hold-up in dead legs                | Passing valves, leaking isolation         |
| Momentary release during initial cracking  | Continuous or escalating release*         |
| No upstream energy source                  | Connected or uncontrolled energy source   |

\*If conditions observed during initial opening align with Type 2 indicators, the First Break shall be suspended and reclassified as a Type 2 First Break unless additional upstream isolations can be added to meet Type 1 First Break parameters.

### 6.4 Conditions Required Before First Break

Prior to performing any First Break, the Asset Owner shall ensure that the process commodity and associated hazards are positively identified and communicated. Identification shall not rely solely on assumptions, generic labels, or historical conditions.

Confirmation shall include, as applicable:

- Current system documentation such as (P&IDs, line lists, isolation plans, etc.)
- Applicable Safety Data Sheets (SDS) or manufacturer information
- Maintenance or Engineering personnel familiar with the system

Where uncertainty exists regarding system contents, composition, or condition, the First Break shall be planned conservatively and controls selected based on credible worst-case exposure, consistent with the Job Hazard Analysis.

The First Break shall not proceed until confirmation that:

- The operational need for the break has been approved
- If process commodity has a toxic atmospheric hazard, established safe limits need to be determined, test plan established, and applicable Respiratory Equipment used.
- Required isolation, lockout, and verification steps have been completed where applicable
- Barricading, line-of-fire controls, and emergency equipment are in place

Cleared Process Conditions (CPC)

- A preplanned method to confirm that hazardous material or pressure has been removed from the system before First Break controls like PPE or RPE are downgraded. (gas testing, visual, physical or other means)

## 6.5 Personal Protective Equipment and Respiratory Protection

First Breaks shall be performed using PPE and RPE appropriate to the identified process commodity and conditions.

Where toxic, oxygen-deficient, or unknown atmospheres may exist and Immediately Dangerous to Life and Health (IDLH) conditions cannot be reasonably ruled out, supplied-air respiratory protection (SCBA or SABA) shall be used.

PPE and RPE shall not be downgraded until Cleared Process Confirmation (CPC) is achieved and agreed upon by the work team and Supervisor.

## 6.6 Performing the First Break

Once the First Break type has been determined and all required conditions have been met, the First Break shall be performed in accordance with the requirements for the applicable type below.

### Type 1 – First Break on an Isolated System

A First Break on a process system that has been isolated and validated a verified zero-energy state in accordance with the applicable Lockout/Tagout standard. (refer to Table 1 in Section 6.2 for guidelines).

The following requirements shall apply:

- Lockout / Tagout (or equivalent) requirements applicable to the division (e.g., GS-50, P1, ORR) shall be met.
- Isolation devices shall be locked in the guaranteed state.
- Zero energy shall never be assumed and must be proven by verifying available low- and high-point drains or vents are open, functional, and not plugged.
- If zero energy cannot be confirmed (e.g., a valve is passing process fluid), the activity shall be stopped and reassessed as a Type 2 First Break, and a Code of Practice shall be developed.
- Residual pressure or material shall be anticipated at the initial opening.
- Barricading, line-of-fire controls, and appropriate PPE and RPE shall be in place.
- **The system or flange shall be slowly cracked open in a controlled manner to direct any release away from workers, with the ability to reseal the system if conditions differ from those anticipated.**
- Cleared Process Confirmation (CPC) shall be achieved prior to downgrading controls.

**Type 2 – Controlled / Live First Break**

A controlled or live First Break performed where isolation and or a verified zero-energy state is not reasonably practicable or achievable, and where a controlled release of pressure or process commodity is anticipated. For Type 2 a Code of Practice is required.

The following requirements shall apply:

- A documented and approved Code of Practice (COP) / Work Plan shall be in place.
- The COP shall be developed with involvement from:
  - Supervisor
  - Worker(s) performing the task
  - Controlling Authority
- Asset Owner approval shall be obtained prior to commencing work.
- Local Health and Safety involvement is recommended
- PPE and RPE appropriate to the identified hazards shall be used.
- Exclusion zones and barricades shall be established to prevent worker exposure and avoid the line of fire.
- Monitoring and emergency preparedness measures shall be in place for the duration of the work.
- Cleared Process Confirmation (CPC) shall be achieved prior to downgrading controls if applicable

*A Type 2 First Break shall not be used to bypass isolation where isolation is reasonably practicable.*

**6.7 Suspension of the First Break**

The First Break **shall be immediately suspended and work stopped** if any of the following occur:

- Unexpected pressure, material, or energy is encountered
- Atmospheric monitoring indicates readings exceed established safe limits
- Conditions deviate from the approved plan, hazard assessment, permit, or Code of Practice

Work shall not resume until the conditions are reassessed, controls are verified or revised, and the First Break is re-authorized.

**7.0 TRAINING**

Workers and supervisors involved in First Break activities shall review this standard, understand the hazards related to breaking containment, and applicable PPE and RPE requirements

**8.0 APPENDIX**

N/A

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Director of Total  
Health & Safety

**DOCUMENT APPROVAL/REVISION RECORD**

| Revision # | Date       | Revision Summary | Author        | Reviewed By | Approved By |
|------------|------------|------------------|---------------|-------------|-------------|
| 00         | 2026-06-30 | New              | Chris Granter | THS Team    | Roland Roy  |
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