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# Standard

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## Projects – Event Analysis Management

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## DOCUMENT VERSION REGISTER

Version Number	Version/Approval Date <yyyy-mm-dd>	Approved By	Summary of Changes
1.0	2024-04-19	Ian Ross	<ul style="list-style-type: none"> <li>• New document (will supersede Projects Incident Investigation Standard (STND-001)</li> <li>• Incorporate Framework Standard Event Analysis updates.</li> <li>- Terminology changes (“incident to event”, “investigation to analysis”, “witness to observer”) alignment with CSA Z1005:21</li> <li>- Alignment with 10 step process</li> <li>- Add Operations as Stakeholders section.</li> <li>- Inclusion of management for events with an actual severity of level 3 or higher</li> <li>- Event analysis requirements in the case of regulatory reporting / intervention</li> </ul>

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## 1. Purpose

The purpose of this standard is to ensure that Enbridge employees and Contractors use accepted methods to report, analyze and learn from events to prevent recurrence and/or mitigate risk.

## 2. Scope

This standard applies to all employees, contractors, and subcontractors supporting Enbridge Project activities. This standard was developed in accordance with the guidance of the *Enbridge Framework Standard – Event Analysis*. This standard applies to all events of all Actual and Potential severity as described in the *Event Severity Matrix*. If an event has potential Life Saving Rule (LSR) implications, then refer to the *Life Saving Rules Guidance* document. If the event is related to Quality Management contact Quality Management Group.

Contractors and subcontractors shall comply with Enbridge Event Analysis Management requirements set out in this standard. If a contractor or subcontractor has an Event Analysis process or policy materially different from Enbridge's, the contractor/subcontractor shall follow the most stringent requirement. Contractors and subcontractors are still obligated to meet the requirements of all applicable laws related to this standard.

**NOTE:** In the event a contractor's or subcontractor's process exceeds the requirements of this standard, Enbridge may, at its sole discretion, choose to adopt the contractor's or subcontractor's process for any given contract or work order.

## 3. Terms and Definitions

Term / Acronym	Definition
CAPA	Corrective and Preventive Actions.
Contractor	A legal entity with whom Enbridge may enter into an agreement for the provision of labor, materials and/or equipment by the Contractor in the delivery of a specified scope. This may include Contractors as part of a Joint Venture (JV), either Under Operational Control (UOC) or Non-Operational Control (NUOC) which depends on circumstances, contracts, terms and conditions.
Contractor Event Owner	Individual identified by the Contractor who is accountable for the event analysis deliverables.
Contributing Factors	The condition(s), omission(s), deficiency(ies) or action(s) that contributed indirectly to the event.  Note: Contributing factors are those factors, if eliminated, that would not necessarily prevent the event, but could help prevent future events.
Corrective Action	Actions taken to remove or control the cause(s) (most often the immediate cause) in order to eliminate the hazard or minimize the associated risk.
Direct Cause	Circumstance that directly lead to the occurrence of the event.
Event	An unplanned occurrence that results or could result in a significant adverse effect on property, the environment, or the safety of person(s).  NOTE: Near-misses without loss are captured under this definition.
Event Analysis Lead	Company / Company Representative who organizes, conducts and controls the event analysis when the Company determines that there is a need to conduct an independent analysis of an event.
Event Analysis Team	The person (i.e., Event Analysis Lead, within this document) or people assigned by Enbridge to perform event analyses.
Event Close Out Review	Review inclusive of the Event Owner to ensure that all event analysis information has been collected and documented and all action items have been actioned, verified and closed out.
Hazard	Source with potential to cause undesirable outcome(s), particularly injury and ill health to people or damage to property or the environment.

Term / Acronym	Definition
Independent Analysis	An analysis that is conducted by or on behalf of the Company independent of any and all contractors or subcontractors involved in a given event.
Project Event Owner	Company /Company Representative identified by the project who is accountable for the event analysis deliverables after initial notification. The identification of the event owner may be dependent on the severity or complexity of the event. Although each project event ultimately belongs to the contractor, the Company shall establish an owner as outlined in this standard to fulfill the requirements for the Company or delegate responsibilities for individuals to complete those requirements.
Root Cause	Underlying reasons behind the direct cause that explain why the circumstances existed.
Spoliation	Spoliation in a legal context refers to the intentional destruction, mutilation, alteration, or concealment of information use for analysis.
Subject Matter Expert (SME)	A subject matter expert (SME) is an individual with specialized knowledge in a specific area on standards, requirements, and practices. Supports the event analysis (e.g., assess event severity, CAPA advisement) and participants in an event close-out review process.

#### 4. Roles and Responsibilities

Roles / Titles	Responsibilities
Company Project Manager shall:	<ul style="list-style-type: none"> <li>Assume the role of Project Event Owner or transfer ownership of event. <ul style="list-style-type: none"> <li>Accountability for ensuring the application of this standard remains with Project Management—however, responsibilities for site management, event analysis execution, and any other Company Project Event Owner duties may be delegated to the project's Construction Management team and personnel as appropriate.</li> </ul> </li> </ul>
Company Project Event Owner shall	<ul style="list-style-type: none"> <li>Accept or transfer ownership of the event;</li> <li>Verify the severity or potential severity;</li> <li>Select an Event Analysis Lead and provide them sufficient resources;</li> <li>Verify that events are entered into EnCompass within 24 hours</li> <li>Determine whether to conduct an independent event analysis</li> <li>As applicable, make an initial determination if an event has the potential with LSR violation implications</li> <li>Updates management on Event Analysis progress within 10 days of the event that meet a Severity Rating of 3 or higher (actual or potential);</li> <li>Verify that information is updated in EnCompass;</li> <li>Review and accept the event analysis report;</li> <li>Verify Implementation of Company CAPA;</li> <li>Verify completion of Company CAPA;</li> <li>Present Event Analysis Report to Company Leadership; and</li> <li>Communicate results (findings, lessons learned. and/or CAPA to applicable parties within the Company).</li> </ul>
Contractors shall:	<ul style="list-style-type: none"> <li>Be accountable for an events that occurs in the course of their work activities and has an actual or potential impact on their personnel, equipment, or operation.</li> <li>Ensure the scene is secure after an event occurs;</li> <li>If required, shall escort a worker for post event Alcohol and Drug testing;</li> <li>Ensure all events are reported to the Company;</li> <li>Identify Contractor Event Owner</li> <li>Conduct an Event Analysis;</li> <li>Preserve all event evidence;</li> <li>Provide appropriate resources to ensure Corrective and Preventive Actions (CAPA) are identified and resolved in a timely manner; and</li> </ul>

Roles / Titles	Responsibilities
	<ul style="list-style-type: none"><li>• Participate in an event close out review process as required by the Company.</li></ul>
Contractor Event Owners shall:	<ul style="list-style-type: none"><li>• Verify that all notifications are made to the Company;</li><li>• Verify that the Event Analysis is in accordance to the Contractor's Event Analysis Process/Policy/Procedure;</li><li>• Verify that external communications and notifications are made as required;</li><li>• Verify that 24-hour initial event analysis reports and 7-day final reports are completed and provided to the Company as required and within the applicable deadlines;</li><li>• Verify that event evidence, event analysis related documents, event analysis reports related to any events are controlled and documented according to the Contractor's Event Analysis Process/Policy/Procedure, and Company requirements;</li><li>• Review and accept the Contractor's Event Analysis reports;</li><li>• Review and approve Contractor CAPA;</li><li>• Verify completion of and documentation of Contractor CAPA;</li><li>• Communicate results (findings, lessons learned, and/or CAPA to the Contractor Workers and the Company.</li></ul>

## 5. Event Analysis Management Requirements

### 5.1. Event Analysis Timelines

#### 5.1.1. Contractor Event Analysis Timelines:

- An initial written report shall be completed and provided to Company by the Contractor within 24 hours of an event.
- A detailed final report shall be submitted within 7 calendar days of the event unless additional time is necessary. If so, a written request for more time shall be made to the specified Company Representative.

#### 5.1.2. Company Event Analysis Timelines:

- Company Event Analysis shall be completed within 30 days of the event occurring.
- In the event the Company Event Analysis cannot be completed within the 30 days, the Event Owner can request an extension from the Event Owner's Director.

### 5.2. Report an Event and Initial Notifications

#### 5.2.1. Contractor Notifications

Events that occur when a Contractor is working for the Company shall be reported verbally immediately to the specified Company Representative.

#### 5.2.2. Company Notifications

Prior to the start of construction, the project team will develop an Event Analysis Communication Plan to guarantee appropriate communication to those individuals with accountability for safety and reporting on the project.

Company projects shall follow the [Preliminary Notification for Events Analysis Guideline](#) which sets out the flow of preliminary notifications and the form to utilize. Following this guideline ensures that both Project management and any local operations are informed of the event typically within hours of the event.

### 5.3. Identify Event Owner, Event Analysis Lead and Team, and Operations as Stakeholder

#### 5.3.1. Contractor Event Owner

The Contractor is accountable for an event that occurs in the course of their work activities and has an actual or potential impact on their personnel, equipment, or operation and is responsible to conduct an event analysis.

As the ultimate owner for project related events, the contractor has the responsibility to identify the individual who is accountable for the event analysis deliverables for the Contractor. The Contractor shall notify the Company who the Contractor Event Owner is for an event. Within this standard that individual shall be referenced as the Contractor Event Owner.

#### 5.3.2. Non-Contractor Event

If it is determined by the Company that the event did not involve Contractor, Contractor workers, Sub-Contractors (contracted by contractor) or Contractor Equipment, but only involved Company Employees, Company Representatives, Company Owned/Rented equipment or a sub-Contractor hired directly by the Company, then the event is solely owned by the Company Project Event Owner. If it is determined it is a “Company Owned Event” it removes Contractor responsibilities listed in this standard for the applicable event.

#### 5.3.3. Company Event Owner

After an event has been identified and reported, the project event ownership must be established for the Company. The Company has the responsibility to identify the event owner for the Company and within this standard that individual shall be referenced as the Project Event Owner.

By default, the Company Project Event Owner is the Project Manager. The Project Manager or the Project Manager’s senior leadership may elect to transfer ownership to another individual. In that case, it shall be documented within EnCompass and communicated to the other members of the project team to include the Construction Manager, Chief Inspector, Company Project Safety Personnel or each of their equivalent.

Each event shall have a severity assigned to the event following the Enbridge Actual & Potential Event Severity Guidance Document. The Project Event Owner should work with the applicable Company Employees/Representatives as per the following chart to determine the Actual (A) / Potential (P) for the event.

Severity Level (per Severity Matrix)	Lead of Safety Supervisor Safety	Supervisor Safety	Manager Safety Projects	Director Safety
0 - None	X			
1 - Minor	X			
2- Moderate	X	X		
3- Serious		X	X	X
4- Major			X	X
5-Critical			X	X

At the discretion of the Project Event Owner, the Company may accept a combined initial/final, report for events that are assigned A1/P2 or A0/P2 by the Company. Whenever

an Event triggers a regulatory report and/or a regulatory body intervenes on an event, a formal Event Analysis Report must be completed.

When it is determined that the Company will conduct an independent event analysis, the Project Event Owner shall assign individuals to complete the Company event analysis with consultations with the applicable Lead of Safety, Supervisor Safety and authorize the resources necessary to conduct the event analysis and any necessary follow-up.

The size and makeup of the event analysis team depends on the event's complexity and severity.

The Event Analysis Lead considerations should include:

- SME as driven by type of event (i.e., crane, equipment related failure, etc.)
- Applicable S&R Safety Professional
- Level or complexity of event

For Level 4 & 5 event, the Director of Safety works with the Project Event Owner to identify an Event Analysis Lead who may be independent of the business unit and additional resources to complete the event analysis.

If the decision is made to conduct a joint event analysis with the Contractor, these same Project Event Owner duties and considerations apply, however final decisions would be made in consultation with and subject to negotiations with the Contractor Event Owner.

#### 5.3.4. Operations as Event Stakeholder

Where the project worksite is also an Operations managed location (e.g., right-of-way, fenced facility, etc.), operations is always informed of the event through the execution of the Event Analysis Communication Plan. Based on the nature of the event, Operations may continue to play a role in post-event management and decision-making as an event stakeholder. Operations should be included as an event stakeholder when the event:

- Damages or threatens to damage the local Operation's operating assets
- Harms or has/had the potential to harm local Operation's personnel
- Was generated by the Operation's assets or the actions of the Operation's personnel

Operations active involvement if deemed a stakeholder may include input on return-to-work decisions, participation in the analysis, creation and review of corrective actions, etc.

**NOTE:** that this applies where Projects remains the Event Owner. If a senior management decision is made to transfer event ownership to the Operation, the BUs Event Analysis standard shall apply.

#### 5.4. Scene Control, Assess, Secure and Release Scene

The Contractor has the responsibility for scene control for all project related events.

The Company reserves the right to take control of the scene of any Company related events.

The initial response to an event may require steps to ensure that:

- the scene is secured, and all event data is preserved as appropriate, and
- only authorized personnel have access to the scene and are permitted to collect event evidence.



The scene of an event shall only be disturbed to attend to the injured person(s), to prevent further injuries, prevent damage to the environment, or to protect property. Event Analysis Leads shall be knowledgeable regarding scene preservation requirements in accordance with the authority having jurisdiction.

Regulatory requirements could determine that the scene shall be secured until the authority(s) having jurisdiction take control over (and then releases) the scene.

When the scene of the event is at a location not under Enbridge control, the Event Analysis Team shall coordinate the event analysis with the scene authority.

The Company reserves the right to determine when the event scene can be released.

### **5.5. Pre-Event Analysis**

Contractor shall ensure that external communications and notifications have been carried out to comply with all applicable local, state, provincial and federal laws and regulations.

The Contractor Event Analysis Team shall check ensure:

- the scene is secured
- determine which personnel are authorized to interact with the scene
- observer management and support
- initial data collection and preservation

Contractor shall assess the data reported to determine the scope and resource requirements in the event analysis.

### **5.6. Event Analysis Plan**

#### **5.6.1. Contractor Event Analysis Plan**

Contractor has the responsibility to plan their event analysis.

#### **5.6.2. Company Event Analysis Plan**

When the Project Event Owner has determined that the Company will conduct an independent event analysis, the Event Analysis Lead shall develop an event analysis plan specific to the event being analyzed. The plan can be scaled in accordance with the scope of the analysis (determined by the Project Event Owner and the actual and potential severity of the event) and may include the following:

- what data is required
- where and how the data will be obtained and maintained
- how to preserve data that might be altered or destroyed
- measures that will be taken to ensure the continued health and safety of the event analysis team
- determination of the need for additional analysis resources (internal or external SME's, additional team members, etc.)
- identification of other stakeholders (police, other organizations, the authority having jurisdiction, etc.) and the possibility of joint or concurrent event analysis
- set out a timeline for progress reports to the Event Owner

### 5.7. Observer Management and Support

Management of observers should:

- limit interaction between observers to ensure independent data is gathered
- provide a safe location for observers
- make provisions for confidential interviews
- address logistical factors such as shift change when scheduling witness interviews

The observers should write a statement of what they were doing, saw and heard at the time of the event occurring as soon as possible after the event.

When the Company conducts an independent event analysis, the event analysis team should conduct interviews with Contractor Workers with a Contractor representative (designated by Contractor).

### 5.8. Data Collection

The Contractor event analysis team shall gather data as identified in the contractor's event analysis plan.

The data gathered shall be identified, labeled, documented, and kept secure.

The types of evidence that is to be collected fall into four general areas (Four Ps):

- Position—(evidence: photographs, sketches, valve positions, the volume of product)
- Parts—(evidence: equipment, materials, parts, liquids)
- People—(evidence: witness statements, interviews, etc.)
- Paper—(evidence: records, standards, procedures, etc.)

Contributing factors such as work environment, equipment, work practices, supervision, staff skills, education, and training shall be considered.

At a minimum the data should include the following:

- All applicable Permits for work activities (i.e. Safe Work Permit, Ground Disturbance Permit, Hot Work Permit, Confined Space Permit, etc.)
- All applicable Job Hazard Analysis (i.e. FLHA, JSA, Job Procedure, etc.)
- Applicable job packages and materials (job planning, plot plans, etc.,)
- Observer statements
- Adequate numbers of photographs to provide visual picture of scene, layout of event area, position of equipment, position of people, damage to property, etc.
- All applicable equipment maintenance records, vehicle checklist, equipment checklist, other applicable checklist(s), etc.
- Applicable training records (i.e. equipment operator certifications, confined space associated training, special equipment training, etc.)
- Police report if applicable

When the Company conducts an independent event analysis, it may request and make use of data collected in the course of the Contractor's event analysis, in addition to any other data it collects

The Company event analysis team is not limited to the data collected by the Contractor event analysis team. The expectation is that the Contractor will be forthcoming in providing requested materials for the Company's independent event analysis.

### 5.9. Event Analysis Techniques

Event Analysis Teams should use an appropriate root cause analysis technique (e.g., DNV Systematic Causal Analysis Techniques (SCAT), DNV Barrier Systematic Causal Analysis Techniques (BSCAT), 5 Why's, TapRoot) based on the type and severity of the event.

For injury and property damage specifically, the Company event analysis teams shall use DNV SCAT technique to ensure all of the direct and basic causes and root causes are identified.

### 5.10. Event Analysis Report

Event Analysis report shall include the following, at a minimum for all events:

- Date and time of the event
- Date and time of event analysis
- Names and titles of the event analysis team
- Description of the event
- Names and titles of the personnel, directly and indirectly, involved including any observers (if applicable)
- Injured worker information; including nature of injury; body part and location.
- Statements from injured Worker(s), observers, supervisor(s), or others as required
- Photographs and drawings
- Police Report (if applicable)
- Facts determined during the event analysis, including a chronology factor(s) leading up to the event, at the time of the event and immediately following
- Immediate follow-up actions taken by the Contractor
- Type of events as defined in the severity matrix (Health & Safety (People), Environmental, Operational)
- Causal analysis methodology employed and the analysis results: immediate causes and root causes
- Corrective and/or preventative actions taken and/or recommended measures to prevent recurrence (e.g., need for systems/controls, changes to work processes or systems, etc.), including responsibility and timing
- Report to be signed and dated by authorized Contractor Representative

#### 5.10.1. Event Analysis Report Documentation – Company Responsibility

When documenting the event analysis in EnCompass the responsible Company Representative should input above items for each event. Documents that are attached shall be attached as Non-Confidential attachments unless required to do so by Legal, or regulatory requirements.

The event analysis shall determine both immediate and root cause(s) and provide recommendations in the form of CAPA, including their potential for system-wide application as applicable to the Contractor.

When the Company conducts an independent event analysis, the Contractor event analysis team shall provide recommendations in the form of CAPA, including their potential for system-wide application as applicable.

All aspects of the event analysis shall be documented in and retained in the information management system (EnCompass), and in compliance with Records Management expectations. Reports prepared under legal privilege may not be retained in EnCompass if restricted access to the report is required. Legal to determine based on the level of confidentiality and required control of documents.

Event Analysis reports prepared under privilege and/or event analysis reports that must be submitted to a regulator shall be provided to the Regulatory Law & Affairs for review and comment before the final issue.

#### **5.11. Corrective and Preventive Actions (CAPA's)**

CAPA's should address each cause that is identified in the event analysis report.

CAPA's shall be assigned to an individual, be measurable and have a completion date.

The individual that is responsible for the CAPA should be involved in the creation of the CAPA and should agree to the timeline for completion.

CAPA's should prevent recurrence of the events or address significant deficiencies discovered in the event analysis.

Prior to final approval of CAPA's, the Project Event Owner should ensure the applicable level of leadership has been engaged, informed, and approves of the documented CAPA's.

#### **5.12. Company Internal Communications (Lessons Learned)**

Company projects shall follow the Preliminary Notification for Event Analysis Guideline which sets out the flow of preliminary notifications and the form to utilize.

In addition to the Preliminary Notification for Event Analysis Guideline, the Lessons Learned Standard should be used to determine responsibilities related to when, how and where lessons learned are to be communicated.

Learning from events is a critical part of ensuring continuous business and operational improvement. Effective lessons learned point to raising awareness and understanding why and how things went wrong, which decreases the potential for recurrence and results in measurable change.

#### **5.13. Verification and Validation**

Event Analysis shall be completed by qualified reviewer to ensure consistency and quality with respect to the event analysis and event analysis management system of record. Director level (leadership) review and validation is applicable for any event with an actual severity rating of level 3 or higher. Confirm process and legal requirements were met to signify the analysis is completed.

#### **5.14. Event Analysis Closeout Review**

After the event report has been completed, the Contractor shall be prepared to present a review of the report, the findings, and the CAPA's to the Company in a joint review meeting, as determined by the Company.

For Event Level, A3/P3 or higher the Contractor shall prepare and present a review of the report, the findings, and the CAPA's, to the Company at a formal management review meeting. The scope of the review will be determined by the Company.

For any event with an actual severity rating of Level 3 or higher, a formal management review shall be conducted in accordance with the *Framework Standard – Event Analysis* which calls for a formal management review and the membership of this review process. This must include management personnel that are independent of the Event Owner.

Management Leadership review of the report(s), findings, and the CAPA's shall occur after the event report has been completed.

## **5.15. Training Requirements**

### **5.15.1. Contractor**

Contractor workers are to be trained on their accountability to report events to their contractor leaders through onboarding and orientation activities.

Contractor Event Analysis team members are to be trained on the Contractor Event Analysis Program.

Contractor should train those appropriate contractor users on an equivalent root cause analysis technique.

### **5.15.2. Company**

Company Representatives and Employees are to be trained on the event database (EnCompass) and their associated accountabilities.

Company Representatives and Employees who may be part of event analysis teams should be trained in basic event analysis training.

Event Analysis team members should receive at a minimum awareness training in Loss Causation theory and for safety-related events, DNV Systematic Cause Analysis Techniques (SCAT).

Enbridge Event Analysis Lead shall have training to a higher-level using Enbridge Event Analysis Lead and/or other event analysis technics. Training will include how to use the Event Severity Matrix.

## **6. Related Documents**

Enbridge Framework Standard – Event Analysis  
Event Severity Matrix  
Lessons Learned Standard  
Life Saving Rules Guidance Document

## **7. References**

CSA Z1005:21, Workplace Incident Investigation