



Canada Energy
Regulator

Régie de l'énergie
du Canada

Suite 210
517 Tenth Avenue SW
Calgary, Alberta
T2R 0A8

517, Dixième Avenue S.-O.
bureau 210
Calgary (Alberta)
T2R 0A8

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To: All Companies under the Canada Energy Regulator (CER) Jurisdiction and Interested Parties

90-day Comment Period for Draft 2024 Revised CER Event Reporting Guidelines

The CER [Event Reporting Guidelines](#) (Guidelines) provide regulated companies with information and instructions that clarify the CER's expectations in relation to event reporting. The Guidelines explain what needs to be reported, when and how to notify the CER, and the information that companies are required to submit via the CER's Online Event Reporting System.

The CER periodically updates the Guidelines as part of our commitment to continuous regulatory improvement and oversight. We are looking for your feedback on the Draft 2024 Revised Guidelines. A 90-day comment period will be open from **January 29, 2024, to April 27, 2024**. The Draft 2024 Revised Guidelines are based on an internal review of reported events, user feedback and data analysis.

Draft 2024 Revised Guidelines and Table of Concordance

To facilitate review of the Draft 2024 Revised Guidelines, areas of improvement have been summarized within a Table of Concordance. The Draft 2024 Revised Guidelines and its Table of Concordance are attached to this letter as Attachments 1 and 2 respectively. These documents will be available online via the CER's [online engagement platform](#) starting January 29, 2024 at <https://www.cerdialogue.ca/event-reporting-guidelines>.

How to Submit Comments

Comments can be submitted via email to erg-dre@cer-rec.gc.ca, or by regular mail.

The CER will carefully review and consider all comments received. The final 2024 Revised CER Event Reporting Guidelines are anticipated to be released in the summer of 2024.

Yours sincerely,

Signed by

Paula Futoransky
Acting Executive Vice President, Regulatory

Attachments

Canada Energy Regulator

Draft 2024 Revised Event Reporting Guidelines

Canadian Energy Regulator Act:

Canadian Energy Regulator Onshore Pipeline Regulations

Canadian Energy Regulator Processing Plant Regulations

Canadian Energy Regulator Pipeline Damage Prevention Regulations – Authorizations

Canadian Energy Regulator Pipeline Damage Prevention Regulations – Obligations of Pipeline Companies

International and Interprovincial Power Line Damage Prevention Regulations – Authorizations

International and Interprovincial Power Line Damage Prevention Regulations – Obligations of Holders of Permits and Certificates

Canada Oil and Gas Operations Act:

Canada Oil and Gas Drilling and Production Regulations

Canada Oil and Gas Installations Regulations

Canada Oil and Gas Geophysical Operations Regulations

Canada Oil and Gas Diving Regulations

Oil and Gas Operations Act:

Oil and Gas Drilling and Production Regulations

Oil and Gas Installations Regulations

Oil and Gas Geophysical Operations Regulations

Oil and Gas Diving Regulations

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1.0 Purpose

This document provides Canada Energy Regulator (CER) regulated companies with information and instructions to clearly understand the CER’s expectations in relation to event reporting (e.g., incidents, damage prevention contraventions, and similar regulatory reporting requirements) under regulations administered by the CER.

In the event of a discrepancy between this document and any relevant legislative or regulatory requirement, the relevant legislative or regulatory requirement takes precedence.

2.0 Scope

All companies regulated by the CER under the *Canadian Energy Regulator Act* (CER Act), the *Canada Oil and Gas Operations Act* (COGOA, as it applies to the Norman Wells Proven Area, and the offshore) and the Northwest Territories' *Oil and Gas Operations Act* (OGO A, as it applies to the Inuvialuit Settlement Region) are responsible for following the reporting requirements set out in this document.

3.0 CER Oversight of Event Reporting

The CER reviews all event reporting submissions to ensure companies have provided the information necessary for the CER to conduct appropriate regulatory oversight and follow up, and to ensure, when appropriate, that companies have identified causes and contributing factors, appropriate corrective actions to address the identified causes, and preventive actions to eliminate or minimize the risk of recurrence. The CER analyzes event data to identify trends, inform its compliance verification planning, and will apply compliance and enforcement actions when required.

3.1 CER & Transportation Safety Board of Canada (TSB) Single Window Reporting

The CER and the TSB are independent federal agencies that have adopted a single window approach for event reporting by regulated companies. This means that CER events and TSB pipeline occurrences share a single point of contact:

CER & TSB Telephone Notifications: TSB Reporting Hotline 1-819-997-7887
CER & TSB Online Reporting: [CER Online Event Reporting System](#) (OERS)

For information about TSB pipeline occurrence reporting requirements, companies must refer to the [TSB Regulations](#), the [TSB website](#), or call the TSB (toll-free) at 1-800-387-3557.

3.2 Precautionary Approach

The CER expects companies to take a precautionary approach to event reporting. This means that even if there is some doubt as to whether an event needs to be reported, the CER expects the company to notify the CER. In other words, companies should adopt a “when in doubt, notify” approach. There is a selection option in OERS that allows a company to indicate when it is reporting an event on a precautionary basis. Additionally, companies are required to submit a precautionary notification if directed to do so by the CER.

3.3 Data and Resources

Event reporting data and resources are available on the Government of Canada's [Open Government Portal](#) to facilitate analysis and research by any interested party. This data informs the [CER Interactive Pipeline Map](#) and [CER Pipeline Profiles](#) which are tools that promote access to information on safety, environmental, and use for CER-regulated pipelines.

4.0 Immediately Reportable Events

4.1 Verbal and written notification within 3 hours

Where regulations require companies to “**immediately**”¹ notify or report, companies must consider whether the event meets any of the following definitions:

¹ Or other equivalent term (e.g., as soon as the circumstances permit)

- **An Incident that Harms People or the Environment:**
 - a death;
 - [a serious injury](#) (as defined in the OPR or TSB regulations);
 - an unintended or uncontained release of low-vapour pressure (LVP) hydrocarbons in excess of 1.5 m³ that leaves company property or occurs on or off the right of way;
 - an unintended or uncontrolled release of sweet natural gas or high-vapour pressure (HVP) hydrocarbons >30,000 m³;
 - any unintended or uncontrolled release of sour natural gas or hydrogen sulfide;
 - [a significant adverse effect on the environment](#); and/or
 - [significant pollution](#) (under COGOA or OGOA Drilling and Production Regulations).
- **A Rupture:**
 - an instantaneous release that immediately impacts the operation of a pipeline segment such that the pressure of the segment cannot be maintained.
- **A Toxic Plume:**
 - a band of service fluid or other contaminant (e.g., hydrogen sulfide or smoke) resulting from an incident that causes people, including employees, to take protective measures (e.g., muster, shelter-in-place or evacuation).

Where an event meets any of the above definitions, companies must immediately:

1. Verbally notify the TSB Reporting Hotline at 819-997-7887; and then
2. Input the written details required by both the TSB and CER into [OERS](#).

The verbal notification and written input into OERS must be completed as soon **as possible and no later than three hours after the event was discovered**².

4.2 Written notification within 24 hours

For all other events that require companies to “**immediately**” notify or report, but which do not meet any of the definitions in section 4.1, companies must submit a written notification via OERS **as soon as possible and no later than 24 hours after the event was discovered**³.

5.0 CER Onshore Pipeline Regulations (OPR)

5.1 OPR Glossary

Term / Acronym	OPR Definition
environment	means elements of the Earth and includes (a) land, water and air, including all layers of the atmosphere; (b) all organic and inorganic matter and living organisms; and (c) the interacting natural systems that include elements referred to in paragraphs (a) and (b)
HVP	means high vapour pressure as defined in CSA Z662

² Includes precautionary notifications.

³ Includes precautionary notifications.

Term / Acronym	OPR Definition
incident	means an occurrence that results in (a) the death of or serious injury to a person; (b) a significant adverse effect on the environment; (c) an unintended fire or explosion; (d) an unintended or uncontained release of LVP hydrocarbons in excess of 1.5 m ³ ; (e) an unintended or uncontrolled release of gas or HVP hydrocarbons; (f) the operation of a pipeline beyond its design limits as determined under CSA Z662 or CSA Z276 or any operating limits imposed by the Regulator.
inspection officer	means an inspection officer designated by the Chief Executive Officer under section 102 of the <i>Canadian Energy Regulator Act</i> .
LVP	means low vapour pressure as defined in CSA Z662
release	Includes discharge, spray, spill, leak, seep, pour, emit, dump and exhaust.
serious injury	includes an injury that results in (a) the fracture of a major bone; (b) the amputation of a body part; (c) the loss of sight in one or both eyes; (d) internal hemorrhage; (e) third degree burns; (f) unconsciousness; or (g) the loss of a body part or function of a body part.
toxic substance	means a substance that enters the environment in a quantity or concentration that may (a) have an immediate or long-term adverse effect on the environment; (b) constitute a danger to the environment on which human life depends; or (c) constitute a danger to human life or health.

5.2 OPR Incident Reporting

Paragraphs (a), (b), (c), (e), and (f) within the OPR definition of *incident* have been identified as requiring additional guidance and are clarified below.

5.2.1 The death of or serious injury to a person

The OPR does not differentiate between different types of persons. Therefore, companies must report a death or serious injury to any person relating to the construction, operation, or abandonment of its pipeline regardless of whether the death or serious injury was to a pipeline company employee, a contractor working for the pipeline company, or a member of the public.

The OPR definition of serious injury includes the fracture of a major bone. The CER considers each of the following to be a major bone: skull, mandible, spine, scapula, sternum, rib, pelvis, femur, humerus, fibula, tibia, radius, and ulna.

If the extent of an injury or its relation to pipeline construction, operation, or abandonment is suspected but cannot be confirmed within the reporting timeframe (e.g., medical aid is being rendered or a person is being transported to a hospital), companies are expected to apply the [precautionary approach](#). This means events that require notification to the CER include but are not limited to:

- Death or serious injury to a company employee or company contractor that occurred during or was discovered within 72 hours of completing work related to pipeline construction, operation, or abandonment;
- Death or serious injury to a person that occurred or was discovered on company owned or leased property; and
- Death or serious injury to a person involving a vehicle or mobile equipment being operated in relation to pipeline construction, operation, or abandonment.

5.2.2 Significant Adverse Effect on the Environment

For the purposes of notification under section 52 of the OPR, “significant adverse effect on the environment” means an irreversible, long-term, or continuous change to the ambient environment in a manner that causes harm to human life, wildlife, or vegetation.

In cases where the company has a reasonable expectation that a significant adverse effect on the environment may occur if conditions continue or escalate, or the significance of an adverse effect is not known at the time of incident reporting, companies are expected to apply the [precautionary approach](#).

This means events that require notification to the CER include but are not limited to:

- release of a toxic substance as defined in the OPR;
- release of drilling fluid or sediment into a sensitive location or ecosystem (e.g., watercourse, wetland, or critical habitat⁴);
- unintended physical alteration of a fish-bearing watercourse (e.g., subsidence/collapse of the bed or banks, unplanned instream work, or a failed isolation);
- destruction of critical habitat⁴, including unplanned or unpermitted movement of a physical substance such as movement of earth, vegetation, clearing, brushing or instream disturbance;
- mortality of an individual special status wildlife or fish⁵ species (including species at risk, provincially or territorially listed species of concern); and
- mortality of enough individuals (including eggs) of a non-special status wildlife or fish species where the mortalities might cause a negative effect to that species’ local or regional population (can vary depending on the species and location of the impacts e.g., certain salmonids in certain watersheds).

A significant adverse effect on the environment that is caused by residual contamination from a historical event or accumulation of contaminants over time should be reported through OERS as a Notice of Contamination. This process is further described in the [CER Remediation Process Guide](#).

5.2.3 Unintended fire or explosion

For the purposes of notification under section 52 of the OPR, “an unintended fire or explosion” means any unintended fire or explosion that is caused by or impacts the construction, operation or abandonment of a pipeline.

Events that require notification to the CER include but are not limited to:

- flash fires;
- battery explosion;

⁴ *Critical habitat* as defined in [Species at Risk Act](#)

⁵ *Fish* means fish, shellfish, crustaceans, marine animals in all life stages (i.e., eggs, sperm, spawn, larvae, spat, juvenile, adult) and their parts, as defined in the [Fisheries Act](#), and includes aquatic species at risk as defined in [Species at Risk Act](#).

- arc flash/blast;
- fire caused by an arc, or a cable fault or a breakdown of any component of the uninterruptible power system or the back-up generator;
- wildland or forest fires that damage pipeline infrastructure or impact the construction, operation or abandonment of a pipeline (e.g., pipeline shut-in); and
- welding or housekeeping related fires.

5.2.4 Unintended or uncontrolled release of gas or HVP hydrocarbons

The CER expects companies to minimize their operational emissions of natural gas or HVP hydrocarbons across the systems that they operate. For the purposes of notification under section 52 of the OPR, the CER employs the following definition for “unintended or uncontrolled” in the context of a release of gas or HVP hydrocarbons:

An event that is not part of planned pipeline maintenance or operation and occurs during the construction, operation or abandonment of a pipeline and results in:

1. a release of gas or HVP hydrocarbons occurring at a rate greater than 0.1 kg/second from any malfunctioning or faulty part of a pipeline, facility or appurtenance including but not limited to seals, packing, gaskets, o-rings, plugs, valves; or
2. a release of any size that occurs through the body of the pipeline or a welded connection.

Events that **do not** fall under this definition include but are not limited to:

- intended and controlled flaring or venting of natural gas or hydrocarbons, including venting through properly functioning pressure relief valves or pressure safety valves.

Companies will be required to supply an estimation of rate of release and total volume released when they report incidents to OERS. For the purposes of estimating release rate, companies can use the following formula⁶:

$$\dot{m} = \frac{D^2 P}{160} \sqrt{\frac{M}{T}}$$

Where:

\dot{m} = Gas discharge rate (kg/s).

D = Release hole diameter (m).

P = Pressure inside the pipeline (Pa (gauge) or N/m² (gauge)).

M = Molecular weight of the gas (g/mol).

T = Gas temperature inside the pipeline (K)

This formula provides conservative estimates assuming a discharge coefficient of 0.85.

For the purposes of calculating a total mass released for use in estimating volume companies should use:

$$\text{Total Mass (kg)} = \text{Rate (kg/s)} \times \text{duration of release (s)}$$

When calculating the duration of release, companies should follow these guidelines in order:

- If the start and end times of the release are known: the actual duration of the release.

⁶ Aloqaily, A. (2018). *Cross country pipeline risk assessments and mitigation strategies*. Gulf Professional Publishing.

- If the start of the release is not known: the time of the last inspection/surveillance/site-visit of that part of the facility/pipeline to the time the release was discovered.
- If the last inspection/surveillance/site-visit date is not known: assume the leak was present for a minimum 30 days or the date the facility/pipeline was commissioned whichever is less.

For the purposes of estimating volume companies should use the following formula⁷

$$Volume \text{ (standard m}^3\text{)} = \frac{n * R * 288}{1000}$$

Where:

V = volume in cubic metres
n = the number of moles of product
R = 0.08205 L atm/mol K

NOTE: Pressure is standard at 1 atm and temperature is standard at 288 K. Therefore, these parameters are not shown.

5.2.5 Operation of a pipeline beyond its design limits

For the purposes of notification under section 52 of the OPR, the CER employs the following definitions for “operation beyond design limits”:

The operation, for any amount of time, of a pipeline beyond the criteria for which the pipeline was designed and/or the operation of the pipeline beyond criteria imposed by the CER to mitigate a condition on the pipeline. This includes any condition that triggered an engineering assessment to be conducted to determine continued fitness for service of the pipeline.

The CER is of the view that a pipeline that is operated within its design limits demonstrates that proper operational controls are in place for that pipeline as per CSA Z662-23. Therefore, if a company is unable to operate its pipeline system within its design limits, the CER must be notified and will provide oversight on the cause and corrective and preventive actions implemented by the company.

In the paragraphs below, the following terms are defined as:

- 1) **Approved Maximum Operating Pressure (Approved MOP):** The maximum pressure for a pipeline system, or designated portion thereof, as approved by the Commission of the CER (Commission) in the Leave to Open (LTO) Order or any other Order.
 - a. The approved MOP is not an operational integrity or safety criterion.
 - b. In the case of a CER Order, including an LTO amendment, the revised or new MOP becomes the approved MOP.
- 2) **Qualified Maximum Operating Pressure (Qualified MOP):** The maximum pressure at which piping is qualified to be operated, not to exceed the design pressure or the approved maximum operating pressure or the amended maximum operating pressure.
 - a. A qualified MOP is considered to comply with the design, construction, operation, and abandonment requirements of the OPR and CSA Z662.

⁷ Ideal Gas Law

- b. When the type of MOP is not indicated, the default is the qualified MOP as per the CSA Z662 MOP definition.
 - c. Any operating pressure below the qualified MOP is a qualified operating pressure.
 - d. Qualified operating pressures consider the integrity and safety of the pipeline system as per CSA requirements.
- 3) **Amended Maximum Operating Pressure (Amended MOP):** The maximum pressure for a pipeline system, or designated portion thereof, as established by revised design criteria, not to exceed the approved maximum operating pressure.
- a. In case of design changes, including a class location change or a switch to Safety Class design, the amended MOP is the maximum pressure for a pipeline system based on the new design criteria. Where this exceeds the approved MOP, an application is required according to OPR s. 43.
 - b. The amended MOP is not an operational integrity or safety criterion.
- 4) **Restricted Operating Pressure (ROP):** The maximum pressure for a pipeline system, or designated portion thereof, imposed by the Commission or an inspection officer as a temporary measure to address integrity and safety concerns, including but not limited to those in Safety Orders, Miscellaneous Orders, Inspection Officer Orders, or Letters of Direction.
- a. A ROP is generally imposed by the Commission as a temporary measure to address immediate deleterious effects of integrity-related or other operational issues.
 - b. The 10% overpressure protection referred to in CSA Z662 does not apply to the ROP, and overpressure protection must be set accordingly.
- 5) **Self-imposed Pressure Restriction (SIPR):** The maximum pressure for a pipeline system, or designated portion thereof, imposed by the Company as a temporary measure to address integrity and safety concerns, or operational issues.
- a. Since the provisions of CSA Z662 are applied in determining the SIPR, the 10% overpressure protection referred to in the standard does apply to the SIPR, and overpressure protection must be set accordingly.

Events that require notification to the CER include but are not limited to:

- operation of a pipeline at a pressure above the design pressure or Approved MOP, Qualified MOP, or Amended MOP by more than 10% or 35 kPa, whichever is greater;
- operation of a pipeline at a pressure greater than 100% of any ROP;
- operation of a pipeline at a pressure greater than 110% of any company's SIPR implemented for safety and/or integrity reasons;
- operation of a pipeline at a temperature greater than the design temperature;
- slope movements that exceed what was predicted at the design stage or were not predicted in the design stage;
- unintended exposures of pipelines including in waterbodies (e.g., rivers, wetlands) and on land; and
- the introduction of an inappropriate product into the pipeline (e.g., sour product in a line or facility designed for sweet product; any exceedance of product's chemical properties as defined in the tariff limits).

5.3 OPR Incident Reporting Timelines

Section 52 of the OPR requires companies to **immediately notify the CER** of any incident relating to the construction, operation, or abandonment of its pipeline⁸. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

Section 52 of the OPR also requires the submission of a Preliminary Incident Report (PIR) and a Detailed Incident Report (DIR) “as soon as is practicable”. Generally, companies’ initial notification of an incident will satisfy the PIR requirements. The information required for a DIR must be submitted via OERS within 12 weeks (84 days) of the company’s notification to the CER. Refer to [section 13](#) of this document for PIR and DIR information requirements. For complex incidents, companies may request an extension for submission of a DIR.

After notifying the CER of an OPR incident (whether precautionary or not), an inspection officer may partially or completely relieve a company from any further reporting requirements. If relief is granted, the company will be advised via email and any information already submitted by the company will be retained in OERS. Companies are expected to fulfill all OPR reporting requirements unless an inspection officer has relieved the company from further reporting. Reasons for granting relief may include but are not limited to:

- the inspection officer is satisfied that the company has determined pipeline construction, operation, or abandonment was not a cause or contributing factor in the death or serious injury and the company has attested that the same determination has been made independently (e.g., by coroner, physician, provincial occupational health and safety);
- the inspection officer is satisfied that the company has provided the CER with sufficient information to demonstrate the event did not result in irreversible, long-term, or continuous change to the ambient environment in a manner that caused harm to human life, wildlife, or vegetation; and
- the inspection officer is satisfied that the company has provided the CER with sufficient information to demonstrate an unintended fire or explosion did not affect the safe operation of the pipeline and did not pose a threat to the safety of any person, property, or the environment.

5.4 OPR Annual Report Notifications

Companies are required to complete an annual report on the performance of their management system. The completion of the report must be confirmed, by April 30 of each year, with a signed statement from the Accountable Officer. The reporting company will use the [template](#) on the CER website and must upload a signed copy of the statement to OERS.

6.0 CER Processing Plant Regulations (PPR)

6.1 PPR Glossary

Term / Acronym	PPR Definition
environment	means the components of the Earth and includes (a) air, land and water; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; and (d) the interacting natural systems that include components referred to in paragraphs (a) to (c).

⁸ As the term “pipeline” is defined in the CER Act.

Term / Acronym	PPR Definition
incident	means an occurrence that results or could result in a significant adverse effect on property, the environment or the safety of persons.

There are several relevant reporting sections in the PPR including reporting of incidents, emergency flaring, hazards, and emergency shutdowns. The following sections describe the CER's expectations for each of the reporting requirements.

6.2 PPR Incident Reporting

Incident reporting requirements are in section 46 of the PPR. For the purposes of PPR incident notification, events that fall under the PPR definition of "incident" include but are not limited to:

- a) the death of or serious injury to a person (see section 5.2.1);
- b) a significant adverse effect on the environment (see section 5.2.2);
- c) an unintended fire or explosion that results in or has the potential to result in damage to company, public/crown or personal property (see sections 6.2.1 and 6.4);
- d) Unintended or uncontrolled releases of processing or hydrocarbon fluids (see section 6.2.3);
- e) an unintended or uncontrolled release of gas, HVP hydrocarbons, hydrogen sulfide or other poisonous gas (see section 6.2.2); or
- f) the operation of a plant beyond its design limits or any limits imposed by the CER (see section 6.2.4).

Paragraphs (c), (d), (e), and (f) have been identified as requiring additional guidance and are clarified below.

6.2.1 An unintended fire or explosion

For the purposes of notification under section 46 of the PPR, the CER employs the following definition for an "unintended fire or explosion":

Any unintended fire or explosion that is caused by the construction, operation or abandonment of a processing plant and/or its equipment.

Events that fall under this definition include, but are not limited to:

- any incorrect operation of fired equipment causing damage to the associated equipment; and
- any flaring activity that results in an excursion of heat outside of the periphery of the flare pit causing any vegetation to catch fire or causing damage to property.

6.2.2 An unintended or uncontrolled release of gas, HVP⁹ hydrocarbons, hydrogen sulfide or other poisonous gas

The CER expects companies to minimize their operational emissions of natural gas or HVP hydrocarbons across the systems that they operate. For the purposes of notification under section 46 of the PPR, the CER employs the following definition for "unintended or uncontrolled" in the context of a release of gas or HVP hydrocarbons:

An event that is not part of planned plant maintenance or operation and occurs during the construction, operation or abandonment of a plant and results in:

⁹ For the purposes of reporting under the PPR companies should use the following definition of *HVP hydrocarbons*: hydrocarbons or hydrocarbon mixtures in the liquid or quasi-liquid state with a vapour pressure greater than 110 kPa absolute at 38 °C.

1. a release of gas or HVP hydrocarbons occurring at a rate greater than 0.1 kg/second from any part of a facility;
2. a release of gas containing hydrogen sulphide or other dangerous gas(es) (e.g., carbon dioxide) that activates a personal monitoring device or a facility/station alarm; or
3. a release of gas containing hydrogen sulphide that is likely to have produced a concentration of hydrogen sulphide > 10 ppm within a 1 meter radius of the release point.

Events that do not fall under this definition include but are not limited to:

- Flaring of natural gas or hydrocarbons (for unintended burning or flaring reporting requirements under section 48 of the PPR see section 6.3 of this document).

Companies will be required to supply an estimation of rate of release and total volume released when they report incidents to OERS. For the purposes of **estimating release rate**, companies can use the following formula¹⁰:

$$\dot{m} = \frac{D^2 P}{160} \sqrt{\frac{M}{T}}$$

Where:

\dot{m} = Gas discharge rate (kg/s).

D = Release hole diameter (m).

P = Pressure inside the pipeline (Pa (gauge) or N/m² (gauge)).

M = Molecular weight of the gas (g/mol).

T = Gas temperature inside the pipeline (K)

This formula provides conservative estimates assuming a discharge coefficient of 0.85. Detailed modeling can be found in the literature.

For the purposes of calculating a **total mass released for use in estimating volume** companies should use:

$$\text{Total Mass (kg)} = \text{Rate (kg/s)} \times \text{duration of release (s)}$$

When calculating the **duration of release**, companies should follow these guidelines in order:

- If the start and end times of the release are known: the actual duration of the release.
- If the start of the release is not known: the time of the last inspection/surveillance/site-visit of that part of the facility/pipeline to the time the release was discovered.
- If the last inspection/surveillance/site-visit date is not known: assume the leak was present for a minimum 30 days or the date the facility/pipeline was commissioned whichever is less.

For the purposes of estimating volume companies should use the following formula¹¹

$$\text{Volume (standard m3)} = \underline{n * R * 288}$$

¹⁰ Aloqaily, A. (2018). *Cross country pipeline risk assessments and mitigation strategies*. Gulf Professional Publishing.

¹¹ Ideal Gas Law

1000

Where:

V = volume in cubic metres
n = the number of moles of product
R = 0.08205 L atm/mol K

NOTE: Pressure is standard at 1 atm and temperature is standard at 288 K. Therefore, these parameters are not shown.

6.2.3 Unintended or uncontrolled releases of processing or hydrocarbon fluids

The CER refers to the Globally Harmonized System (GHS)¹² as a benchmark standard for hazard assessment and categorization of processing and hydrocarbon fluids. As such the CER has implemented the following reporting volume thresholds for liquid releases at its processing plants:

Any release >0.1 cubic meter (100 L) applies to:

- GHS class Flammable liquids: hazard categories 1, 2 or 3 (e.g., condensate, methanol); or
- Any GHS hazard class that applies to liquids (excluding the aspiration hazard class): hazard category 1 or Signal-Word “Danger”.

Any release >1 cubic meter applies to:

- GHS class Flammable liquids: hazard category 4 (e.g., lean oil); or
- Liquid sulphur (notwithstanding its GHS classification).

Any release >10 cubic meters applies to:

- All other GHS classified liquids that do not fall into 1 or 2 above.

6.2.4 Operation of a plant beyond its design limits or any limits imposed by the CER

For the purposes of notification under section 46 of the PPR, the CER employs the following definition for “operation beyond design limits”¹³

The operation, for any amount of time, of any equipment beyond the criteria for which the equipment was designed and/or the operation of the equipment beyond criteria imposed by the CER to mitigate a condition on the plant equipment. This includes any condition that triggered an engineering assessment to be conducted to determine continued fitness for service of the equipment.

Examples of events that fall under this definition include, but are not limited to:

- For process equipment protected against over-pressure under a single pressure-relief device, an exceedance beyond 110 % of the equipment’s maximum allowable working pressure (MAWP)¹⁴.
- For equipment protected by multiple pressure-relief devices, an exceedance beyond 116% of the equipment’s MAWP¹⁴.

¹² <http://www.ccohs.ca/oshanswers/chemicals/ghs.html>

¹³ Refer to : ASME *Boiler and Pressure Vessel Code (BPVC)*, Section VIII.1, ASME B31.3 for Process Piping, and other relevant standards, as applicable

¹⁴ ASME BPVC.VIII.1, UG-153 *Overpressure Limits*

6.2.5 PPR Incident Reporting Timelines

Section 46 of the PPR requires companies to **immediately notify the CER** of any incident. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

Section 46 of the PPR also requires the submission of a Preliminary Incident Report (PIR) and a Detailed Incident Report (DIR) “as soon as practicable”. Generally, companies’ initial notification of an incident will satisfy the PIR requirements. The information required for a DIR must be submitted via OERS within 12 weeks (84 days) of the company’s notification to the CER. Refer to [section 13](#) of this document for PIR and DIR information requirements. For complex incidents, companies may request an extension for submission of a DIR.

6.3 Hazard that Renders the Plant Unsafe to Operate

Section 47 of the PPR requires companies to **immediately notify the CER** of any hazard that renders or may render its processing plant unsafe to operate.

For the purposes of reporting under this section, events that fall under this definition include, but are not limited to, natural hazards such as earthquakes, landslides, or floods, as well as protests or other types of civil unrest that may affect operations in this way.

Refer to [section 13](#) of this document for event reporting information requirements.

6.3.1 Hazard Reporting Timelines

Paragraph 47(a) of the PPR requires companies to **immediately notify the CER** of any hazard that renders the plant unsafe to operate. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

In addition to immediate notification, paragraph 47(b) of the PPR requires companies to provide a report to the CER “as soon as practicable”. The information required to be contained in the report is qualitatively similar to that required for a DIR required under the PPR (see [section 13](#)) and, therefore, the CER expects this report to be submitted within 12 weeks (84 days) of the notification.

6.4 Emergency Burning or Flaring

Section 48 of the PPR requires companies to report to the CER any burning of either:

- hydrocarbon gas; or
- a by-product of the processing of hydrocarbon gas that occurs as a result of an emergency condition.

Any flaring that is a result of an emergency condition, including full or partial shutdown, must be reported. Companies are not required to report routine flaring, such as that resulting from pigging or regular/required maintenance.

For the purposes of reporting under this section an “emergency condition” is defined as any situation where emergency or contingency procedures were enacted. This includes situations where flaring occurs due to process upsets resulting in an automated or manual emergency shutdown.

If a flaring event also has or may have a significant adverse effect on property, the environment, or the safety of persons, that event is **also** reportable under section 46 of the PPR as an incident (see section 6.2).

Refer to [section 13](#) of this document for event reporting information requirements.

6.4.1 Emergency Burning or Flaring Reporting Timelines

The PPR do not contain explicit timing requirements for reporting of emergency burning or flaring under section 48. The CER expects that a company will report such events within one week of occurrence.

6.5 Suspension of Operations

Section 49 of the PPR sets out the notification and reporting requirements for the suspension of operations at processing plants.

Refer to [section 13](#) of this document for event reporting information requirements.

6.5.1 Suspension of Operations Reporting Timelines

Subsection 49(1.1) of the PPR requires that companies notify the CER of suspensions under section 49 “as soon as practicable”. The CER expects that companies will provide such notification to the CER within 24 hours of:

- the suspension of an entire plant for a period exceeding 24 hours; or
- the suspension of part of a plant for a period exceeding seven days.

For the purposes of the detailed report required under subsection 49(2), the CER expects that companies will provide this information within one week of notification.

7.0 CER Pipeline Damage Prevention Regulations (CER DPR)

7.1 CER DPR Glossary

Term / Acronym	CER DPR Definition
authorization	means the authorization referred to in subsection 335(1) or paragraph 335(2)(a) of the <i>Canadian Energy Regulator Act</i> .
facility	means any structure, highway, private road, railway, irrigation ditch, drain, drainage system, sewer, dike, telephone line, telegraph line, telecommunication line, line for the transmission of electricity or pipe for the transmission of hydrocarbons or any other substance.
pipe	means a pipe that is part of a pipeline and that is used or is to be used for the transmission of hydrocarbons or any other commodity
prescribed area	has the meaning assigned by section 2 of the <i>Canadian Energy Regulator Pipeline Damage Prevention Regulations – Authorizations</i> .

7.2 CER DPR Event Reporting

Subsection 11(1) of the *Canadian Energy Regulator Pipeline Damage Prevention Regulations – Obligations of Pipeline Companies (DPR–O)* states that the pipeline company must **immediately report to the CER**:

- (a) every contravention of the *Canadian Energy Regulator Pipeline Damage Prevention Regulations – Authorizations* (DPR–A);
- (b) all damage to its pipe caused or identified during the construction of a facility across, on, along or under a pipeline, the operation, maintenance or removal of a facility, an activity that caused a ground disturbance within the prescribed area¹⁵ or the operation of vehicles or mobile equipment across the pipeline; and
- (c) any activity related to the construction of a facility across, on, along or under a pipeline, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across a pipeline that the pipeline company considers could impair the safety or security of the pipe.

7.2.1 Contraventions of DPR–A

Contraventions of the DPR–A are commonly referred to as unauthorized activities. The following activities qualify as Contraventions of DPR–A under section 335 of the CER Act and the DPR–A:

- **Ground Disturbance:** Contraventions of sections 10-11 of the DPR–A in relation to ground disturbance activities in the prescribed area, which extends 30 metres from each side of the centreline of the pipe. A “ground disturbance” is any activity that involves:
 - any activity to a depth of 30 cm or more;
 - any reduction of the earth cover over the pipeline; or
 - cultivation to depths of 45 cm or more.
- **Construction of a Facility:** Contraventions of sections 7-9 of the DPR–A in relation to the construction of a facility across, on, along, or under a pipeline (including the right-of-way). This category includes activities such as construction of structures/facilities (e.g., fences, decks, swimming pools) on a right-of-way, placement of structures/facilities (e.g., sheds, sea can storage containers) on a right-of-way, as well as storage / stockpiling of materials (e.g., woodpile, soil/berm) on a right-of-way; and
- **Vehicle Crossings:** Operation of a vehicle or mobile equipment across a right-of-way, outside the travelled portion of a highway or public road without written consent from the pipeline company, pursuant to sections 12-13 of the DPR–A.

7.2.2 Damage to Pipe

Paragraph 11(1)(b) of the DPR–O requires companies to **immediately report**

“all damage to its pipe caused or identified during the construction of a facility across, on, along or under a pipeline, the operation, maintenance or removal of a facility, an activity that caused a ground disturbance within the prescribed area or the operation of vehicles or mobile equipment across the pipeline.”

The CER considers “damage” to mean impacts caused by any person to an operational (including deactivated) pipe coating or body, or pipeline system components such as valves or risers, where those impacts were:

- unintended (e.g., a backhoe contacting the pipe during an integrity dig; a 3rd party staking a fence post into a pipe; surface load stress from the operation of a vehicle or mobile equipment across the pipeline); or

¹⁵ Prescribed area may be larger than the right of way.

- discovered during the course of operations and maintenance activities and are indicative of contact with the regulated pipe (e.g., historical damage).

Damage to pipe “caused or identified during the operation, maintenance or removal of a facility” means companies must report damage to their pipe that was caused or identified during the operation, maintenance or removal of any other facility constructed across, on, along, or under its pipeline.

Events that do not fall under this definition include activities with pipe contact that are planned, anticipated, controlled, and approved (e.g., replace/repair of pipe during an integrity dig; anticipated and mitigated contact with pipe during slope stability work).

7.3 Suspension of Consent

Subsection 10(2) of the DPR–O requires companies to **immediately notify the CER** should it suspend the consent it has given to a party to do work in accordance with the DPR–A. The grounds for suspension are outlined in section 10(1) of the DPR–O. If at any time a company suspends consent it has previously given, the company must submit a notification to the CER via OERS.

7.4 CER DPR Reporting Timelines

A report of Contravention of DPR–A or Damage to Pipe or Suspension of Consent is required to be submitted to the CER **immediately**. Refer to [section 4](#) of this document for guidance regarding the timing of immediate reporting.

All of the required information may not be available within the reporting timeframe of “**immediately**”. Where this is the case, companies must still report immediately and provide as much information as possible within 24 hours via OERS, and must provide the remainder of the information within 12 weeks (84 days) of the initial report via OERS. Refer to [section 13](#) of this document for event reporting information requirements.

8.0 Canada Oil and Gas Drilling and Production Regulations under COGOA (COG–DPR) and Oil and Gas Drilling and Production Regulations under OGOA (OG–DPR)

8.1 COG–DPR and OG–DPR Glossary

Term / Acronym	Definition
authorization	COG–DPR: means an authorization issued by the Board under paragraph 5(1)(b) of the Act OG–DPR: means an authorization issued by the Regulator under section 10 of the Act
incident	means (a) any event that causes (i) a lost or restricted workday injury, (ii) death, (iii) fire or explosion, (iv) a loss of containment of any fluid from a well, (v) an imminent threat to the safety of a person, installation or support craft, or (vi) pollution;

	(b) any event that results in a missing person; or (c) any event that causes (i) the impairment of any structure, facility, equipment or system critical to the safety of persons, an installation or support craft, or (ii) the impairment of any structure, facility, equipment or system critical to environmental protection.
lost or restricted workday injury	means an injury that prevents an employee from reporting for work or from effectively performing all the duties connected with the employee's regular work on any day subsequent to the day on which the injury occurred whether or not that subsequent day is a working day for that employee
minor injury	means an employment injury for which medical treatment or first aid is provided and excludes a lost or restricted workday injury
natural environment	means the physical and biological environment
near-miss	means an event that would likely cause an event set out in paragraph (a) of the definition <i>incident</i> but does not due to particular circumstances
operator	COG–DPR: means a person that holds an operating licence under paragraph 5(1)(a) of the Act and an authorization
	OG–DPR: means a person that holds an operating licence under section 10 of the Act and an authorization
pollution	means the introduction into the natural environment of a substance or form of energy outside the limits applicable to an activity that is subject to an authorization, including spills.

8.2 COG–DPR and OG–DPR Incident and Near-Miss Reporting

The reporting requirements in section 75 of the COG–DPR and OG–DPR apply to both “incidents” and “near-misses”. The following sections provide guidance that is applicable to both “incidents” and “near-misses”.

Within the definition of “incident”, subparagraphs (a)(iv), (a)(v), and (a)(vi) have been identified as requiring additional guidance and are clarified below.

8.2.1 A loss of containment from any fluid from a well

A “loss of containment” is an event that allows any fluid in the well bore to bypass well barriers and reach the surface or potentially adversely impact a downhole hydrocarbon-bearing reservoir. This includes a formation kick or a blow-out, or lost circulation into a hydrocarbon bearing reservoir. It does not include lost circulation into a non-hydrocarbon bearing zone below the surface casing depth.

Lost circulation of any fluid in the well above the surface casing depth may qualify as an incident under this definition if it has potential to result in any adverse impact to the environment (e.g., contamination of soil or surface or groundwater).

8.2.2 Imminent threat to the safety of a person, installation or support craft

An imminent threat to safety means that a person, installation, or support craft will be harmed in the near future unless the threat can be avoided, additional control measures are put in place to prevent the threat, or emergency response procedures are implemented.¹⁶

Imminent threats include events such as:

- overdue contact with a vehicle, vessel or aircraft transporting operations personnel;
- person overboard at an offshore installation or a support craft;
- unauthorized vessel entering the safety zone of an installation or a vessel that is unable to be reached by radio or for which a support craft is sent to intercept;
- precautionary evacuation in whole or in part (for example, removal of non-essential personnel);
- securing the well or depressurization of flow lines;
- emergency landings of helicopters;
- alert to search and rescue resources; and
- deployment of search and rescue helicopter or requesting emergency response standby for landing in response to in-flight issues with a helicopter.

8.2.3 Pollution and significant pollution

Companies are expected to report an introduction of substance or form of energy as pollution if it exceeds a limit of discharge outlined in an environmental protection plan prepared in relation to an authorization (sections 6 and 9 of the COG–DPR and OG–DPR). In the absence of such a limit, companies must report any release of that substance or form of energy into the natural environment.

The CER considers a **significant pollution event** (as referenced in section 75(2)(b)(vi) of the COG–DPR and OG–DPR) to mean the introduction into the natural environment of any substance or form of energy outside the limits applicable to the activity that is subject to an authorization, including spills, that:

- a) have an immediate or long-term adverse effect on the natural environment;
- b) constitute a danger to the natural environment on which human life depends; or
- c) constitute a danger to human life or health.

In cases where the company has a reasonable expectation that a pollution or significant pollution event may occur if conditions continue or escalate, or in cases where the significance of a pollution event is not known at the time of incident reporting, companies are expected to apply the [precautionary approach](#).

Examples of events that constitute **significant pollution** include but are not limited to:

- a release of substance:
 - into a sensitive location or ecosystem (e.g., watercourse, wetland, or critical habitat);
 - where there is a pathway to a sensitive receptor; or
 - where the release leads to mortality or harm of an individual special status wildlife or fish³ species (including species at risk, provincially or territorially listed species of concern).

¹⁶ “*Support craft*” is defined in subsection 1(1) of the DPR and OGOA DPR. “*Installation*” is defined in subsection 2(1) of the IR and OGOA IR.

Sections 75 of the COG–DPR and OG–DPR do not differentiate between the information requirements for near-misses and incidents. As such, companies must provide equivalent reporting for both types of events to the CER.

8.3 Reporting Timelines

Paragraphs 75(1) of the COG–DPR and OG–DPR require companies to notify the CER of any incident or near miss “as soon as the circumstances permit”. In this context, the CER considers “as soon as the circumstances permit” to mean “**immediately**”. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

8.3.1 Press release or press conference

Paragraphs 75(1)(b) of the COG–DPR and OG–DPR require that the CER be notified at least 24 hours in advance of any press release or press conference held by the operator concerning any incident or near-miss, except in an emergency situation, in which case the CER shall be notified without delay before the press release or press conference.

In these cases, companies must call the CER Incident Phone line at 403-299-2773 and provide the subject of the press release or conference, the date and time of occurrence, and the relevant company personnel’s contact information.

8.3.2 Investigation report

Paragraphs 75(2)(b) of the COG–DPR and OG–DPR require companies to submit an investigation report identifying the root cause, causal factors, and corrective action taken to the CER via OERS no later than 21 days after the day on which the incident or near-miss occurred for the following incidents or near-misses:

- a lost or restricted workday injury;
- death;
- fire or explosion;
- a loss of containment of any fluid from a well;
- an imminent threat to the safety of a person, installation or support craft; and
- a significant pollution event.

Refer to [section 13.1.2](#) of this document for investigation report information requirements.

9.0 Canada Oil and Gas Geophysical Operations Regulations under COGOA (COG–GOR) and Oil and Gas Geophysical Operations Regulations under OGOA (OG–GOR)

9.1 Serious accident or incident reporting

Section 40 of the COG–GOR and Section 39 of the OG–GOR require the notification of any serious accident or incident that occurs during a geophysical operation and that:

- causes injury to or loss of life of any person;
- causes damage to property; or
- that constitutes a threat to the environment.

“Damage to property” and “threat to the environment” have been identified as requiring additional guidance and are clarified below:

9.1.1 Damage to property

Property includes, but is not limited to:

- land;
- buildings;
- vehicles;
- equipment owned by the operator; or
- equipment such as hunting/trapping/fishing gear owned by a third party.

9.1.2 Threat to the environment

Threats to the environment include, but are not limited to:

- fuel spills outside of lined containment;
- blocking of game trails with windrows;
- explosive charges that misfire;
- cratered holes that are susceptible to erosion; or
- natural gas or water flowing from a shot hole.

9.2 Reporting timelines

Section 40 of COG–GOR and Section 39 of the OG–GOR require every operator to inform the Chief Conservation Officer and the Chief Safety Officer **immediately**, by the most rapid and practical means, of any serious accident or incident. In this context, the CER considers “by the most rapid and practical means” to mean “**immediately**”. Refer to [section 4](#) of this document for guidance regarding the timing of this immediate notification.

Notification via OERS or through the TSB Reporting Hotline meets the requirements of informing the Chief Conservation Officer and Chief Safety Officer.

10.0 Canada Oil and Gas Installations Regulations under COGOA (COG–IR) and Oil and Gas Installations Regulations under OGOA (OG–IR)

10.1 Emergency or accident reporting

Subsection 71(1) of the COG–IR and OG–IR require every operator to inform the Chief Safety Officer of any situation or event involving any danger or accident to a person or property and lists events that qualify as such.

10.2 Reporting timelines

Subsection 71(1) of the COG–IR and OG–IR requires every operator to inform the Chief Safety Officer of any of the listed situations or events “by the most rapid and practical means”. In this context, the CER considers “by the most rapid and practical” means to mean “**immediately**”. Notification via OERS or to the TSB Reporting Hotline meets the requirements of informing the Chief Safety Officer. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

Subsection 71(2) also requires the submission of a “full written report” to the Chief Safety Officer. These reports described are qualitatively the same as a DIR; therefore, companies must submit such reports within 12 weeks (84 days) of the initial notification. Refer to [section 13](#) of this document for event reporting information requirements.

11.0 Canada Oil and Gas Diving Regulations under COGOA (COG–DR) and Oil and Gas Diving Regulations under OGOA (OG–DR)

11.1 Accident, illness, and incident reporting

Paragraphs 6(1)(i)-(j) of the COG–DR and OG–DR contain the reporting requirements for accidents and serious illnesses involving members of diving crews involved in diving programs, as well incidents in connection with diving programs. Refer to [section 13](#) of this document for event reporting information requirements.

11.2 Reporting timelines

Paragraphs 6(1)(i) and 6(1)(j) of the COG–DR and OG–DR require that accidents, serious illnesses and incidents be reported “by the most rapid and practicable means” and “as soon as possible”, respectively. In this context, these phrases are substantively the same as “**immediately**”; therefore the notification timelines for paragraphs 6(1)(i) and 6(1)(j) of the COG–DR and OG–DR are the same as the notification timelines that are expected where the term “**immediately**” appears. Refer to [section 4](#) of this document for important guidance regarding the timing of this immediate notification.

Paragraphs 6(1)(i) and 6(1)(j) of the COG–DR and OG–DR also require companies to submit prescribed reports pertaining to accidents, serious injuries, and incidents. These reports described are qualitatively the same as a DIR; therefore, companies must submit such reports within 12 weeks (84 days) of the initial notification. Refer to [section 13](#) of this document for event reporting information requirements.

12.0 International and Interprovincial Power Line Damage Prevention Regulations (IPLDPR)

Section 6 of the *IPLDPR – Obligations of Holders of Permits and Certificates* require the holder to report any contraventions of the *IPLDPR – Authorizations* and any damage to its international or interprovincial power lines.

12.1 Reporting timelines

The holder must, no later than January 31 of each calendar year, provide the Regulator a report for the previous calendar year. Refer to [section 13](#) of this document for event reporting information requirements.

13.0 Event Reporting Information Requirements

13.1 Incident Reporting

This section applies to the following events (collectively known as incidents):

- incidents (PPR, OPR, COG–DPR, OG–DPR);
- accidents, serious illnesses, and incidents (COG–DR, OG–DR);
- emergencies or accidents (COG–IR, OG–IR); and
- serious accidents or incidents (COG–GOR, OG–GOR).

13.1.1 Notification and Preliminary Incident Report (PIR)

Companies must provide the following information via OERS (to the extent known at time of preliminary reporting):

- type of incident (e.g. serious injury, operation beyond design limits);
- company contact information;
- whether the PIR is precautionary;
- date and time of occurrence and/or discovery;
- how the incident was discovered (e.g., scheduled patrol, landowner);
- specific details as applicable based on the type of incident (e.g. equipment/components involved; type of serious injury, type of substance and estimate of approximate volume released, pipe exposure details);
- description of any immediate concerns for the safety of persons, the safety of regulated facilities, or the protection of property and the environment;
- narrative of the complete description of the circumstances leading up to and resulting from the event and the extent of any damage, including the consequences on the pipeline, property, and the environment;
- narrative description of all actions taken or planned to address the consequences of the event including any evacuation;
- regulated facility details (pipeline name/facility name);
- event location with GPS coordinates to 8 decimal places;
- affected lands (e.g., affects the pipeline right of way; off company property); and
- nearest populated center, land use, and population density.

For Immediately Reportable incidents (see [section 4](#)), the telephone notification and subsequent submission of event details via OERS fulfills the requirements for both a notification and PIR. For all other incidents, submission of a PIR via OERS fulfills the requirements for both a notification and PIR.

13.1.2 Detailed Incident Report (DIR)

For any of the following:

- DIR under the OPR or PPR;
- investigation report within 21 days under paragraph 75(2)(b) of the COG–DPR or OG–DPR;
- full written reports under subsection 71(1) of the COG–IR or OG–IR; or
- causal investigation reports under paragraphs 6(1)(i) and 6(1)(j) of the COG–DR and OG–DR,

Companies must provide the following information via OERS:

- any relevant updates to the information that was initially submitted to the CER in the notification and/or PIR;
- results of root cause analysis including:
 - at least one immediate cause (e.g., corrosion fatigue); and
 - at least one basic (root) cause (e.g., inadequate evaluation of changes);
- corrective actions completed (or planned) to remove or control the cause(s) to eliminate the hazard or minimize the associated risk (e.g., repair/replacement) (see [Appendix 1](#) for additional guidance);
- preventive actions completed (or planned) to address causes at additional locations where similar/identical situations exist to proactively eliminate the identified risk (e.g., local/regional staff communication) (see [Appendix 1](#) for additional guidance);

- preventive actions completed (or planned) to address systemic causes (e.g.; staff or internal communication made across company/system) (see [Appendix 1](#) for additional guidance);
- specific details based on the type of incident, for example:
 - detailed information on the pipeline/facility component that failed (equipment type, such as gate valve, and the component that failed, such as the valve packing);
 - operating conditions of the pipeline/facility at the time of incident discovery (operating pressure, product type, depth of cover);
 - maintenance history of failed component (date of last inspection/maintenance, type of inspection such as visual or non-destructive examination);
 - environmental impacts; and
- any other information or documentation if requested to do so by the CER (e.g., final investigation report, metallurgical report).

13.1.3 Incident Costs

The CER now expects companies to report on costs, as described below, for any incident that meets the following definition under any of the CER's regulations:

- an unintended or uncontrolled release of low-vapour pressure (LVP) hydrocarbons in excess of 1.5 m³ that extends beyond a company's property;
- significant adverse effect on the environment;
- rupture;
- a toxic plume; and/or
- loss of containment of any fluid from a well.

Companies will be expected to report categorized costs related to the incident as follows:

Category 1 – Actual costs (to be reported separately) related to:

- The emergency response, including containment of the incident;
- The clean-up and remediation of the incident; and
- The repair or replacement of regulated facilities.

Category 2 – Actual or estimated value of losses or damages not included in Category 1.

Companies are expected to provide the above costs annually (calendar) beginning the year the incident was reported and ending either when there are no further costs related to the incident or 5 years after the incident was reported (inclusive of the year that it was reported), whichever occurs first.

Reporting of costs will be integrated into the OERS at a later date and at that time. OERS will automatically determine when companies are required to report costs. However, until the system changes are made, the CER will contact companies on an as-needed basis and will provide instructions and a standard form to report costs.

13.2 Near-Miss Reporting (COG–DPR and OG–DPR)

The information requirements for near-miss reporting are the same as incident reporting (see [section 13.1](#)). Therefore, companies must provide the same level of detail for both incidents and near-misses via OERS.

13.3 Emergency Burning or Flaring (PPR)

Companies must provide the following information via OERS to meet the requirements for emergency burning or flaring pursuant to section 48 of the PPR:

- company name;
- company contact;
- location; and
- a narrative summary of the events leading up to the emergency flaring or burning event.

13.4 Hazard Identification (PPR)

Companies must provide the following information via OERS to meet the requirements for hazard identification pursuant to paragraph 47(b) of the PPR:

- a proposed contingency plan;
- a description of cause, duration, and potential impacts of the hazard;
- repairs to be made; and
- measures to prevent future failures.

13.5 Suspension of Operations (PPR)

Companies must provide the following information via OERS to meet the requirements for suspension of operations pursuant to subsections 49(1.1) and (2) of the PPR:

- details of the operations to be suspended;
- reason for the suspension;
- duration of the suspension; and
- effect of the suspension on the throughput of the plant, on the safety of persons or on the environment.

13.6 Contraventions of DPR–A Reporting and/or Damage to Pipe (DPR–O)

Step-by-step instructions for how to use OERS to report Contraventions of DPR–A and/or Damage to Pipe are available [online](#).

13.6.1 Preliminary Event Report (PER)

Companies must provide the following information via OERS (to the extent known at time of preliminary reporting):

- Event type(s) (e.g. ground disturbance, construction of a facility, vehicle crossing, damage to pipe);
- company contact information;
- whether the PER is precautionary;
- details of pipe damage, if applicable;
- date and time of occurrence and/or discovery;
- how the event was discovered (e.g., scheduled patrol, landowner);
- description of any immediate concerns for the safety of persons, the safety of regulated facilities, or the protection of property and the environment;

- narrative of the complete description of the circumstances leading up to and resulting from the event, including the consequences on the pipeline, property, and/or the environment;
- narrative description of all actions taken or planned to address the consequences of the event including any mitigation, repair, replacement, and/or evacuation;
- whether any mechanical excavation occurred within 3 metres of the pipe, if applicable;
- regulated facility details (pipeline name);
- event location with GPS coordinates to 8 decimal places;
- affected lands (e.g., affects property off the pipeline right of way); and
- nearest populated center, land use, and population density.

13.6.2 Detailed Event Report (DER)

Companies must provide the following information via OERS within 84 days of submitting a PER:

- any relevant updates to the information that was initially submitted in the PER;
- event specific details for Vehicle Crossing, Ground Disturbance, and/or Construction of a Facility (as applicable);
- for damage to pipe, a narrative description of the damage including a summary of non-destructive evaluation results, available dimensions, interactions with other features and whether mitigation is completed, to be done, or not required;
- parties involved information (e.g. type of party, company name, repeat occurrence details if applicable);
- results of root cause analysis including:
 - at least one immediate cause (e.g., no notification made to one call centre); and
 - at least one basic (root) cause (e.g., inadequate communication between parties);
- corrective actions completed (or planned) to remove or control the cause(s) in order to eliminate the hazard or minimize the associated risk (e.g., repair/replacement);
- preventive actions completed (or planned) to address causes at additional locations where similar/identical situations exist in order to proactively eliminate the identified risk (e.g., local/regional staff communication);
- preventive actions completed (or planned) to address systemic causes (e.g.; staff or internal communication made across company/system); and
- any other information or documentation if requested to do so by the CER (e.g., crossing agreement).

13.7 Suspension of Consent (DPR–O)

In circumstances where a company suspends consent previously issued under DPR–A, the company must provide the following information via OERS:

- company name;
- company contact;
- date and time when consent was suspended;
- regulated facility details (pipeline name);
- event location with GPS coordinates to 8 decimal places;
- affected lands (e.g., affects the pipeline right of way; off company property);
- nearest populated center, land use, and population density;
- activity details in relation to the suspension of consent;
- a narrative description of the event / reason for revocation, including the circumstances leading up to the event and details of any other agreements or notices that were exchanged, as well as steps that the company took to confirm that the site instructions were understood; and

- the suspended party's details (e.g., type of party, contact information).

13.8 IPLDPR Contravention and/or Damage to Power Lines

Companies must provide the following information via OERS:

- details of any contravention of the *IPLDPR — Authorizations*;
- details of any damage to its international or interprovincial power lines, including the cause and nature of the damage and any related impacts on the reliability of an international or interprovincial power line;
- any concerns that the holder may have regarding the international or interprovincial power line's safety, security or reliability as a result of the construction of the facility, the activity that causes a ground disturbance or the operation of vehicles or mobile equipment across the power line; and
- any action the holder has taken or intends to take or request in relation to the contravention or damage.

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Appendix 1: Causes, Corrective and Preventive Actions

Causes

The CER maintains a systems view of workplaces, meaning adverse events (e.g., incidents, near-misses, regulatory contraventions, etc.) are the result of a complex web of interconnected factors within the workplace system. See CER's [Systems Thinking – The Workplace System](#) fact sheet for more information on this perspective.

This view recognizes that events are almost always the outcome of multiple systemic deficiencies rather than a single individual error or technical malfunction. CER therefore expects regulated companies to exhaust every effort to understand how workplace system deficiencies contributed to the event, in order to (i) best prevent future reoccurrence, (ii) avoid inappropriate individual blame, and in turn (iii) implement an effective management system fostered by a culture of continual learning and

improvement.

The systems view acknowledges that events typically involve multiple levels of causation, including **immediate causes** (the most visible or apparent factors leading directly to the incident) and underlying **basic (root) or systemic causes** that operate at a deeper level, influencing the immediate causes and creating the conditions for events to occur.

Each cause will usually cascade to one or more corrective and/or preventive actions.

The CER expects that for all reported events, companies will work to understand:

- the nature and extent of the causes including those causes related to the management system and various programs;
- the actions required to correct the causes at the specified locations¹⁷ as well as other similar locations to ensure immediate compliance and protection of people and the environment; and
- the actions required to prevent occurrence or reoccurrence of causes at a facility or during an activity or to prevent occurrence of identical causes at similar facilities or similar activities.

Corrective and Preventive Actions

The CER recognizes that variation exists in definitions of corrective and preventive actions. The CER uses the following definitions:

- **Corrective Actions:** actions taken to remove or control the causes (most often the immediate cause) in order to eliminate the hazard, or minimize the associated risk (e.g., fix an existing problem¹⁸).
- **Preventive Actions:** actions taken to remove or reduce the likelihood of the occurrence or reoccurrence of the causes in order to anticipate a hazard or minimize the associated risk that could occur (e.g., take steps to address a potential problem). Typically, actions are preventive if they proactively address analogous/comparable causes or potential causes.

The CER expects that companies will use structured and defensible processes for analyzing events to identify immediate and basic (root) causes as well as corrective and preventive actions. When selecting an event's corrective and preventive actions in OERS, there is a mandatory comment box in which the CER expects companies to articulate:

- the method(s) used to determine causes in order to appropriately develop the corrective and preventive actions; and
- additional contextual information about the nature of **each** corrective and preventive action implemented and/or planned for implementation.

For events involving multiple parties, the CER expects companies to state which corrective and preventive actions apply to which parties involved.

Preventive actions can be further broken down into:

¹⁷ The term "location(s)" refers to different locations across a single worksite or across various worksites.

¹⁸ Adapted from CSA. (2014). Occupational health and safety management (Z1000-14). Toronto, Canada: Canadian Standards Association.

- **Tier I** – actions taken to address causes at additional locations where similar/identical situations exist in order to proactively eliminate the identified risk; and
- **Tier II** – actions taken to address systemic causes; typically associated with changes to a company’s management system that impact the entire company or pipeline system.

Figure 1 helps to illustrate how the CER differentiates between corrective and preventive actions:

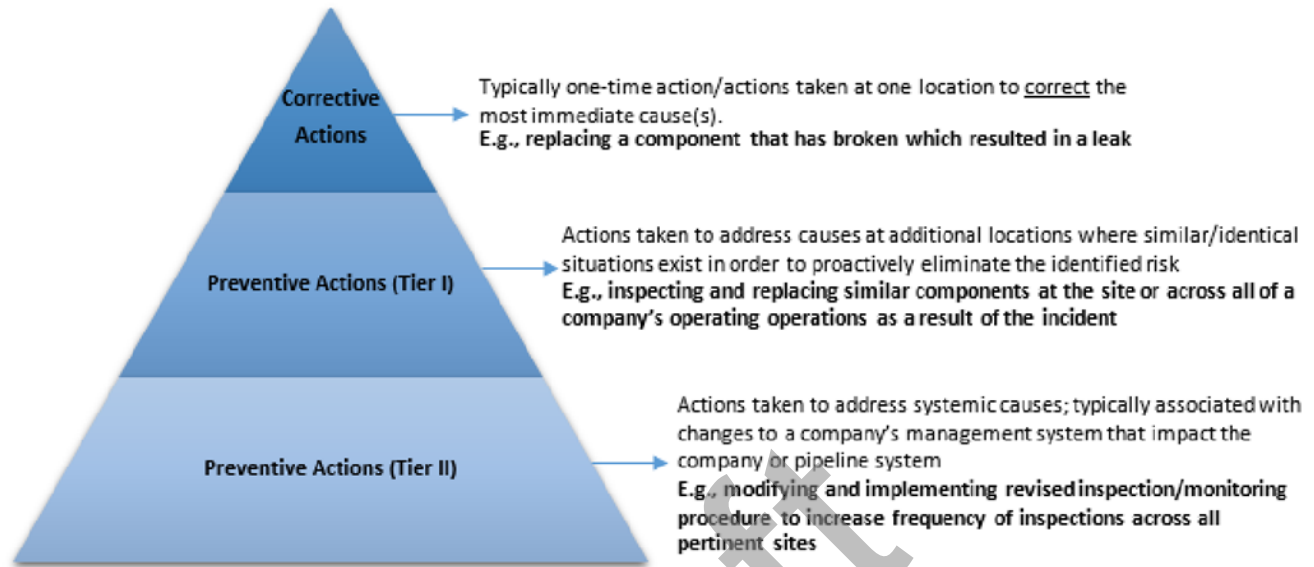


Figure 1. Graphical representation of corrective and preventive actions

The tables below provide definitions and examples for the corrective and preventive action options available in ERS. The corrective and preventive action options, descriptions, and examples are under continuous improvement. If you have input or questions regarding these options please contact DLERSSupport@cer-rec.gc.ca.

Corrective Action Examples	
Action	Description
No Actions Taken	No actions were taken at the site level in response to the incident
Update Procedures/Standards/ Specifications	A gap in procedures/standards/specifications was identified to have contributed to the incident and change were subsequently made to an existing procedure, standard, or specification and appropriately communicated to pertinent staff. Example: procedure was out of date, not representative of operational practice or missing a pertinent step which directly contributed to the incident; procedure is revised accordingly.
Create New Procedure/Standard/ Specifications	A gap in procedure/standards/specification was identified to have contributed to the incident and a new procedure, standard, or specification was subsequently developed and implemented (e.g., communicated to appropriate staff / training is provided if necessary). Example: a missing procedure was identified as directly contributing to the incident; a new procedure is developed to appropriately document the steps necessary for the completion of a new work task.

Worker Specific Action	<p>Performance management is used for one or more individuals in response to the incident. Example:</p> <p>(Informal) - Supervisors are coached on the importance of inspection activities that i) ensure proper implementation of procedures and ii) ensure the necessary competency to conduct specific activities.</p> <p>(Formal) - Company's discipline process was used.</p> <p><i>Please be sure to include the nature of the performance management used in the comment box provided (e.g., if it was field staff, leadership, or both who received the performance management and the type of performance management used).</i></p>
Competency Assessment, Training and/or Retraining for those staff involved in the incident	<p>Assessment of staff competency, training, or re-training are used in response to the incident for those staff directly involved in the incident.</p> <p>Example: staff who were involved in the incident had limitations in competency and receive refresher training as a result.</p> <p><i>Please be sure to include the nature of the competency assessment or type of training that was given in the comment box provided.</i></p>
Repair/Replacement	<p>A repair or replacement of material/materials is completed in response to the incident. Example: an O-ring is replaced with a new one of the same material.</p> <p><i>Please be sure to include the type of repair (e.g., permanent versus temporary repair) in the comment box provided.</i></p>
Upgrade	<p>An upgrade is performed in response to the incident (replacement of material/materials with <u>upgraded</u> material/materials). Example: an O-ring is replaced with an upgraded version that contains longer life expectancy.</p>
Modify Schedule/Plan	<p>A modification is made to a work schedule or work plan.</p> <p>Example: a contributing factor to the incident was identified to be insufficient time for communication between staff during shift handover.</p> <p>Consequently, a modification is made to the staff's work plan to require additional time for necessary communications during shift handover.</p>
Correct Role Responsibilities for those staff involved in the incident	<p>Correction of roles and responsibilities is made or role responsibilities are clarified for staff.</p> <p>Example: written clarity regarding who is the leader/decision-maker in a work group is made to staff; responsibility for who communicates what information (and when) to other work groups is corrected (e.g., defined).</p>
Increase Inspection/Review Frequency for the specific material or practice involved in the incident	<p>A change in the frequency or scope of site-level inspection is made for the specific material or practice involved in the incident. Example: an inspection is made to occur bi-weekly instead of once per month.</p>

*Note: Examples provided are not inclusive of all options that may fall within the respective category.

Preventive Action (Tier I) Examples

Actions taken to address causes at additional locations* where similar/identical situations exist in order to proactively eliminate the identified risk.

***The term "location(s)*" used below can mean different locations across a single worksite or across various worksites.**

- **Example 1 – different locations across a single worksite:** in addition to correcting the material that contributed to the incident, the same material is inspected and replaced as necessary on numerous structures within the worksite.
- **Example 2 – different locations across various worksites:** In addition to addressing a procedural gap identified to contribute to the incident, the procedure is updated and appropriately communicated to staff at all other worksites where the risk exists.

Action	Description
Local/Regional Staff Communication	At a local/regional level staff were made aware of the incident's causes and lessons learned. This includes information on what happened, causal and contributing factors, steps taken to address the causal and contributing factors and prevent future occurrence, and important factors for local/regional sites to check and take action on.

	Example: safety alert issued for all sites in the region where the risk exists.
Incident/Event data is included in holistic analysis to determine if company-wide processes or procedures require modification	The information from the incident/event is utilized in data analysis to examine patterns or trends over time. Findings help identify the need for company-wide changes (e.g., to processes or procedures).
Update Procedures/Standards/Specifications at more than one location*	As a result of an incident, a change is made to an existing procedure, standard, or specification at more than one location* where the risk exists. Example: procedures were revised to more clearly describe the steps necessary for completion of the work task and implemented (communicated appropriately) to staff at all pertinent company locations*.
New Procedure/Standard/Specifications at more than one location*	As a result of an incident, a new procedure, standard, or specification is developed and implemented (communicated / training is provided if necessary) at more than one location* where the risk exists. Example: a new procedure was developed to appropriately document the steps necessary for the completion of a new work task and implemented (communicated appropriately) to staff at all pertinent company locations*.
Competency Assessment, Training and/or Retraining at more than one location*	Assessment of staff competency, training, or re-training are used in response to the incident for pertinent staff at more than one location* where the risk exists. Example: pertinent staff at all locations* where the risk exists receive refresher training. <i>Please be sure to include the nature of the competency assessment or type of training that was given in the comment box provided.</i>
Repair/Replacement made at more than one location*	A repair or replacement of material/materials is completed in response to the incident at more than one location* where the risk exists. Example: after a leak was identified in an above ground storage tank the remaining above ground storage tanks across the site are inspected and, as necessary, repaired. <i>Please be sure to include the type of repair (e.g., permanent versus temporary repair) in the comment box provided.</i>
Upgrade made at more than one location*	An upgrade is performed in response to the incident (replacement of material/materials with <u>upgraded</u> material/materials) at more than one location* where the risk exists. Example: after a leak was identified in an above ground storage tank, the remaining above ground storage tanks across the site are inspected and, as necessary, the tanks were replaced with new (upgraded) storage tanks.
Schedule/Plan Modification for more than one location*	A modification is made to a work schedule or work plan at more than one location* where the risk exists. Example: for all work groups at the worksite, staff arrival and departure times are adjusted on the work schedule in order to facilitate more time for shift handover.
Correct Role Responsibilities at more than one location*	Correction of roles and responsibilities is made or role responsibilities are clarified for pertinent staff at more than one location* where the risk exists. Example: clarity of who is the leader/decision-maker in a work group is made to staff at more than one location* where the risk exists; responsibility for who communicates what information (and when) to other work groups is corrected (e.g., defined) at more than one location* where the risk exists.
Increase Inspection/Review Frequency at more than one location*	A change in the frequency or scope of site-level inspection is made and at more than one location* where the risk exists. Example: an inspection type is made to occur bi-weekly instead of once per month

Preventive Action (Tier II) Examples	
Actions taken to address systemic causes; typically associated with changes to a company's management system that impact the entire company or pipeline system.	
Action	Example*

	No Actions Taken	No actions were taken across the system/company level in response to the incident.
	Communication made across company/system	Example: safety alert issued across the company (or across the company at those sites where the risk exists).
Modify and implement <u>company-wide/system-wide</u> processes or procedures for...	setting/achieving goals, objectives and targets	Example: Company develops specific objectives, short term objectives and/or performance measures for senior management to monitor the inspection of all similar facilities to ensure oversight of suspected hazards and risk.
	hazard identification or risk assessment	Example: Company modifies and implements revised Front Line Hazard Assessment Process to include updated information related to specific hazards or controls (e.g., Common Hazard Information).
	control of identified hazards	Example: Company modifies and implements revised Front Line Hazard Assessment Process to include updated information related to specific hazards and risk. e.g., Changes to standard probability or consequence ratings.
	identifying and inventorying legal requirements	Example: Company modifies and implements revised procedures for monitoring changes to legal requirements in order to include technical standards that may have contributed to or prevented incident causation.
	management of change	Example: modification and implementation of management of change procedures to include specific requirements for management of changes applicable to multiple sites necessitated by incident investigations (e.g., Changes necessitated by identification of root cause analysis activities).
	developing competency requirements, training programs, and verification of competency	Example: New or refresher training requirements were identified and provided across operational areas and/or learning management system updated to manage new or modified competency and training requirements. This includes developing competency requirements, training programs and verification of competency for leadership (e.g., supervisory) positions.
	inspecting and monitoring the company's activities and facilities	Example: revision of inspection criteria, protocols, and schedules is made for inspection of above ground storage tanks at all sites across the company.
	developing contingency plans for abnormal events	Example: procedures related to who must be contacted in the event of an abnormal operation (e.g., operating design limits have been exceeded due to a pressure, flow rate, or temperature change outside the limits of normal conditions) are revised to include additional parties.
	awareness/communication of key information	Example: Company modifies and implements revised procedures for the documentation and communication of lessons learned from incidents.
	control and management of documentation/records including procedures/practices/standards	Example: Modify document control procedures to ensure that all safety critical standard operating procedures and practices such as confined space entry, tank gauging, field level hazard assessment, pipe stringing, etc. are reviewed and approved on a frequency above minimum standards that reflect the risk evaluation or potential consequence of the activities controlled by each.

*Note: Examples provided are not inclusive of all options that may fall within the listed category.