

# Pipeline Performance Summary

2022 Annual Report

**BCER**

BRITISH COLUMBIA ENERGY REGULATOR



## Vision, Mission and Values

### Vision

A resilient energy future where B.C.'s energy resource activities are safe, environmentally leading and socially responsible.

### Mission

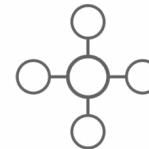
We regulate the life cycle of energy resource activities in B.C., from site planning to restoration, ensuring activities are undertaken in a manner that:



Protects public safety and the environment



Supports reconciliation with Indigenous peoples and the transition to low-carbon energy



Conserves energy resources



Fosters a sound economy and social well-being

### Values

**Respect** is our commitment to listen, accept and value diverse perspectives.

**Integrity** is our commitment to the principles of fairness, trust and accountability.

**Transparency** is our commitment to be open and provide clear information on decisions, operations and actions.

**Innovation** is our commitment to learn, adapt, act and grow.

**Responsiveness** is our commitment to listening and timely and meaningful action.



# Role of the BC Energy Regulator (BCER)

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As a provincial Crown agency, we protect public safety and safeguard the environment through the sound regulation of oil, gas and aspects of geothermal activities in B.C. while balancing a broad range of environmental, economic and social considerations.

We regulate resource activity through the [Oil and Gas Activities Act \(OGAA\)](#), the [Petroleum and Natural Gas \(PNG\) Act](#), and other associated laws related to heritage conservation, roads, land and water use, forestry, and other natural resources.

Through combined authority and working with partner agencies, we regulate activities on Crown land, private land, and the Agricultural Land Reserve. When oil, gas, or geothermal permits are granted, we are responsible for ensuring industry compliance with provincial legislation from initial exploration to final reclamation.

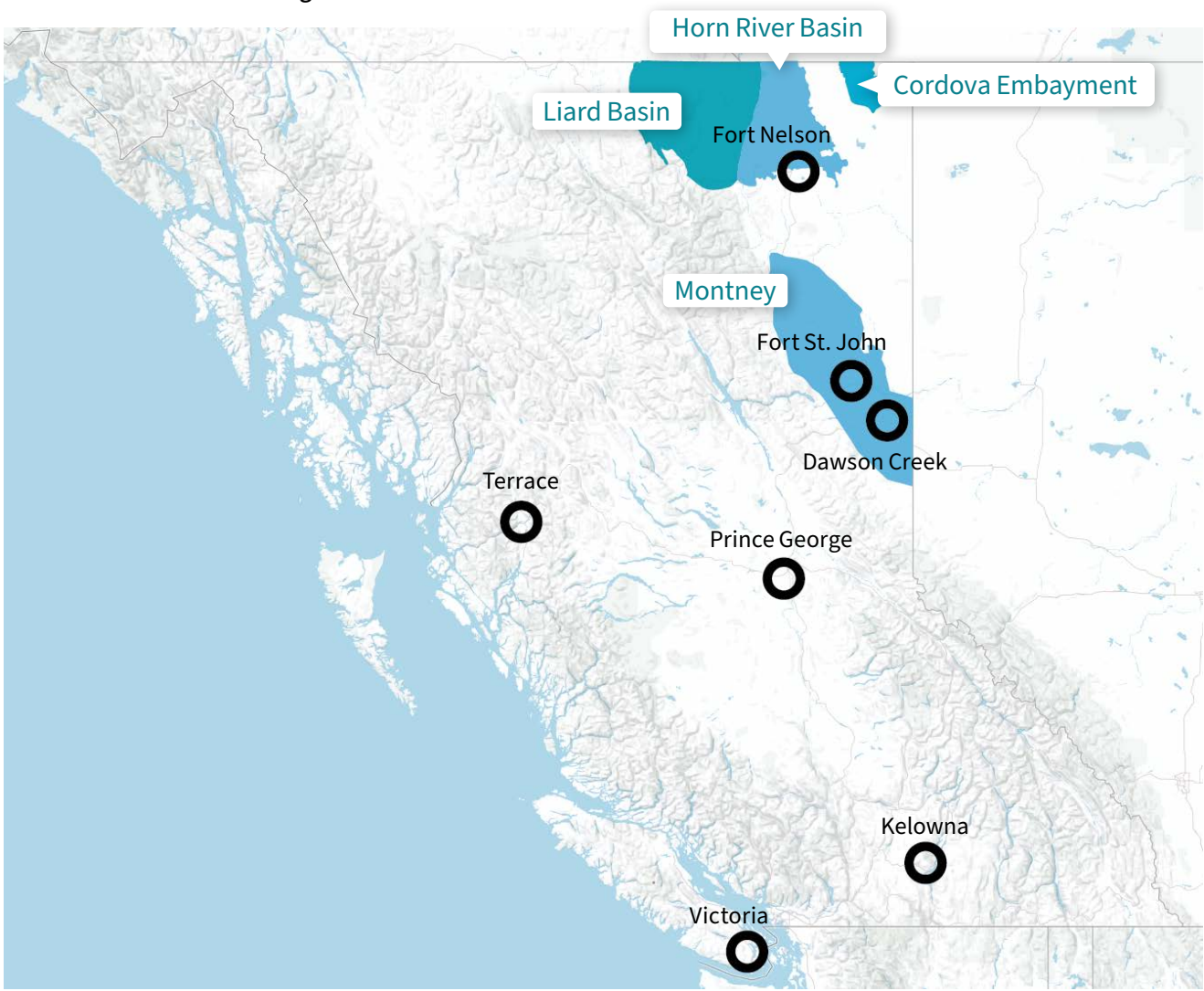
As more resources have been discovered, techniques for accessing them have advanced, environmental awareness has increased, and stakeholders have let us know they are interested in providing more input.

During our review and decision-making processes, we work closely with [land owners](#), [rights holders](#), and [Indigenous communities](#).

The BCER currently has over 280 employees operating out of seven locations: Fort Nelson, Fort St. John, Dawson Creek, Terrace, Prince George, Kelowna and Victoria. The largest number of employees are in the Fort St. John office.



BCER Office Locations Throughout B.C.



**Territorial  
Acknowledgement**

We acknowledge and respect the many Indigenous Territories and Treaty areas, each with unique cultures, languages, legal traditions and relationships to the land and water, which the BCER’s work spans. We also respectfully acknowledge the Métis and Inuit people living across B.C.

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# Introduction

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## Purpose of Report

British Columbia's oil and gas industry depends on [pipelines](#) for the distribution of products such as natural gas, water and oil. Pipelines are recognized as a safe and efficient mode of transportation, and secure operation is essential to protecting public safety and the environment.

This report provides a statistical overview of pipelines regulated by the BC Energy Regulator (BCER) in the 2022 calendar year. It includes data on types of pipelines, lengths, uses and overall pipeline incident rates. The multi-stage life cycle of a pipeline is explained, and incident response protocols are outlined. It also summarizes the Integrity Management Program, a documented framework outlining the practices by which permit holders test and maintain pipelines to mitigate potential integrity issues.

Previous annual pipeline performance summaries can be found on the BCER's website at [bc-er.ca/data-reports/reports/](https://bc-er.ca/data-reports/reports/).

## Pipeline Regulation

The BC Energy Regulator's jurisdiction extends to the majority of pipelines in British Columbia, as defined in legislation by the [Oil and Gas Activities Act](#) (OGAA). Activities regulated by the BCER extend throughout the life cycle of a pipeline, and include pre-activity consultation and notification, permitting, construction, operation, maintenance and abandonment.

Pipelines outside the BCER's jurisdiction include those crossing provincial and/or national borders and low pressure pipelines owned by a utility company and downstream of a city gate. City gates are facilities where high pressure natural gas from transmission lines is metered and reduced to a lower pressure for consumers and distributed through city pipelines owned by a utility company. Pipelines not under the BCER's jurisdiction are not addressed in this report.

Pipelines are regulated under the [Pipeline Regulation](#), which states they must be operated and maintained in accordance with [CSA Z662](#) – Oil and Gas Pipeline Systems.

CSA Z662 is a national standard developed and maintained by the Canadian Standards Association (CSA) and covers the design, construction, operation and maintenance of oil and gas industry pipeline systems.

Permit holders are required to comply with other applicable regulations including the [Environmental Protection and Management Regulation](#), [Requirements for Consultation and Notification Regulation](#), [Pipeline Crossings Regulation](#), and [Emergency Management Regulation](#).

The BC Energy Regulator is also responsible for provincial authorizations involving the Land Act, Water Sustainability Act, and the Forest Act for pipeline rights-of-way, roads, land clearing and other minor works.

The [Legislation](#) page of the BCER's website provides the full list of acts and regulations governing oil and gas activities in the province.

## Pipeline Inventory

### 51,628 Kilometres

Although 174 km of pipeline length was added to B.C.'s inventory in 2022, there was a decrease in the number of actively operating pipelines as a result of permit holders' continued efforts to appropriately deactivate and abandon older pipelines.

Pipelines transport refined and unrefined products including natural gas, sour natural gas, liquid hydrocarbons (such as crude oil), water and other gases or liquids. Over 78 per cent of the total pipeline kilometres regulated by the BCER transport natural gas,

while approximately 11 per cent carry liquid hydrocarbons. The remainder carry water or other gases or liquids. Pipeline definitions and product classifications are available in the Glossary on page 17.

TYPE	TOTAL	ACTIVE	DEACTIVATED	ABANDONED
<b>SOUR NATURAL GAS</b>	<b>17,893</b>	11,888	3,558	2,447
<b>NATURAL GAS</b>	<b>22,341</b>	18,077	1,854	2,410
<b>LIQUID</b>				
<b>HYDROCARBONS</b>	<b>5,825</b>	4,162	953	710
<b>WATER</b>	<b>4,530</b>	3,562	493	475
<b>OTHER</b>	<b>865</b>	532	204	129
<b>2021 GRAND TOTAL</b>	<b>51,454</b>	38,221	7,062	6,171
<b>SOUR NATURAL GAS</b>	<b>18,019</b>	11,627	3,423	2,969
<b>NATURAL GAS</b>	<b>22,270</b>	17,822	1,854	2,594
<b>LIQUID</b>				
<b>HYDROCARBONS</b>	<b>5,848</b>	4,065	1,019	764
<b>WATER</b>	<b>4,612</b>	3,611	508	493
<b>OTHER</b>	<b>879</b>	527	212	140
<b>2022 GRAND TOTAL</b>	<b>51,628</b>	37,652	7,016	6,960

Table 1: Total Lengths (Kilometres) of Pipelines by Type and Status, 2021 and 2022.

#### Table 1 comparison of 2022 to 2021:

The total length of pipelines in 2022 was 51,628 km. This is a net addition of 174 km of total registered pipelines over the previous year.

#### Active pipelines decreased by 569 km.

This indicates more deactivations than permitting, construction and activation of new lines.

#### Deactivated pipelines decreased by 46 km.

This indicates more deactivated pipelines were abandoned than active pipelines were deactivated.

#### Abandoned pipelines increased by 789 km.

As pipelines reach the end of their service life and are fully decommissioned, the total length of abandoned pipelines will increase over time.



# Pipeline Life Cycle

## Multi-Stage Planning


From the development of surface maps and creation of a preliminary pipeline plan, through construction and inspections, to deactivation and final site restoration, the steps described here depict the multiple stages of a typical pipeline life cycle.

At the outset, the BC Energy Regulator's staff conduct a comprehensive review of each pipeline application for engineering standards, legal requirements and for environmental and public safety considerations. The BCER ensures proponents have conducted consultations with land owners and other rights holders on pipeline projects that will directly affect them. Previously, the BCER was responsible for undertaking consultation with Indigenous communities, consistent with the Crown's legal duty to consult and avoid, mitigate and accommodate any impacts to Indigenous rights. The BCER now requires permit holders to engage affected First Nations on all permit applications prior to submitting an application for review.

The BCER is committed to respecting Indigenous knowledge and advancing reconciliation. If a pipeline application is approved, the BCER's staff may set permit conditions, as necessary, to protect Indigenous rights and key environmental assets, such as water, wildlife and forest values.

The BCER verifies pipelines are constructed and operated in accordance with applicable regulations and monitors the project throughout its life cycle. Should any deficiencies be identified at a site, the BCER may order the permit holder to cease activities, as necessary, until appropriate actions are performed to safely resume operations.

As detailed in the BC Energy Regulator's mandate and considering the many stages of a pipeline's life cycle, the protection of public safety and the environment is top priority. Permit holders are required to report to the BCER before, during and upon completion of their oil and gas activities.




Pipelines are operated under a framework designed to help prevent spills. The pipeline Integrity Management Program (IMP) is a required part of this framework, described on page 10.



## Oil and Gas Activity Stages

- 1 Land Survey:** Land is measured to establish property boundaries, topography, and land features, and to develop surface maps.
- 2 Pipeline Plan:** A preliminary pipeline plan is prepared, utilizing survey data to propose a safe, informed and responsible route.
- 3 [Consultation and Notification:](#)** Stakeholder engagement begins; the BCER engages the appropriate stakeholders and ensures consultation is appropriate and adequate. Consultation with Indigenous communities is also undertaken at this stage.
- 4 Site Assessment:** The pipeline route is determined, taking into account such matters as soil handling and conservation, aquifer protection, archaeological sites and eventual site restoration considerations.
- 5 Permit Application Submission:** [Applications](#) undergo a thorough technical screening to ensure the plans are safe and designs are compliant with regulations prior to being considered for decision.
- 6 Emergency Planning Zones (EPZs):** EPZs are established around facilities, pipelines, and wells and pre-determined [Emergency Response](#) Plans are created.
- 7 Site Preparation, Construction and Inspection:** At any point during construction, the BCER reserves the right to inspect the construction process, watching for compliance with legislation of any permit approval conditions.
- 8 Going Live:** The BCER receives notice the pipeline has been properly tested and the transporting of petroleum, natural gas, solids, water, or other substances to destinations such as refineries, processing plants or shipping points begins.
- 9 Safe Pipeline Operation:** Safety considerations begin at the initial design stage and are expected to be maintained through abandonment and final restoration.
- 10 Integrity Management Program (IMP) Overview:** During the full life cycle of the pipeline, the BCER will review a company's [IMP](#) and any incidents and repairs that may occur.
- 11 Deactivation:** The BCER evaluates deactivation requests for appropriate maintenance and monitoring measures, to prevent or minimize adverse effects while the pipeline remains idle.
- 12 Decommissioning:** The BCER reviews abandonment (removal from service) requests to ensure safety considerations and habitat and land restoration plans are fully incorporated.
- 13 [Assessment, Remediation, and Restoration:](#)** Assess the presence or absence of potential contaminants, remediate if contaminated, and pursuant to [Section 19](#) (1) of the Environmental Protection and Management Regulation, ensure the site surface conditions are restored to equivalent conditions as predevelopment.



For more details regarding oil and gas activity stages, a [Land Owner's Information Guide](#) is available on the BCER website.

# Integrity Management Program

## Compliance Assurance

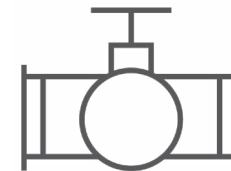
To ensure public safety, environmental protection, and operational reliability, the [Pipeline Regulation](#) requires all pipeline permit holders in the province to implement an Integrity Management Program (IMP). A pipeline IMP is a preventative and documented framework, specifying the processes and practices used by pipeline permit holders to anticipate hazards and analyze and manage risks throughout the entire life cycle of pipelines. The IMP incorporates a management system approach.

Section 7 of the Pipeline Regulation states every pipeline permit holder planning, designing, constructing, operating, maintaining and abandoning pipeline infrastructure, must have an implemented IMP program. A compliance assurance protocol is available to permit holders, outlining the BCER's Compliance Assurance Integrity Management Program expectations and operating requirements expected of permit holders, and provides guidance for developing, implementing and maintaining effective IMPs.

Details of the compliance assurance process and scope of the protocol can be viewed on the BCER's website. The [2022 Pipelines and Facilities Integrity Management Program Audit Summary](#) is also available online.

The BC Energy Regulator has been evaluating the compliance of permit holders' IMP programs to regulations and expectations since 2011, through auditing. The auditing process occurs using a standardized IMP compliance assurance process. Compliance Assurance Protocol documentation for both pipelines and facilities is available on the BCER [IMP webpage](#). Permit holders are selected for the audit based on the BCER's criteria, are notified, and requested to submit IMP workbooks and records for the audit. The next phase consists of audits involving systematic review of permit holders' IMP processes, records, and documents to verify compliance and generate audit findings. The final phase allows for corrective action plans and follow-ups to address any non-compliance findings determined through the audits.

Where non-compliances have been identified, permit holders are required to develop and implement corrective actions to rectify the deficiencies within a timeframe specified and agreed to by the BCER. Each corrective action is monitored and assessed to ensure all findings of non-compliance are fully resolved through a structured oversight process.



**The BCER will continue to undertake IMP audits for all pipeline permit holders to ensure a systematic IMP is applied throughout the entire pipeline life cycle.**

# Incident Response and Enforcement Actions

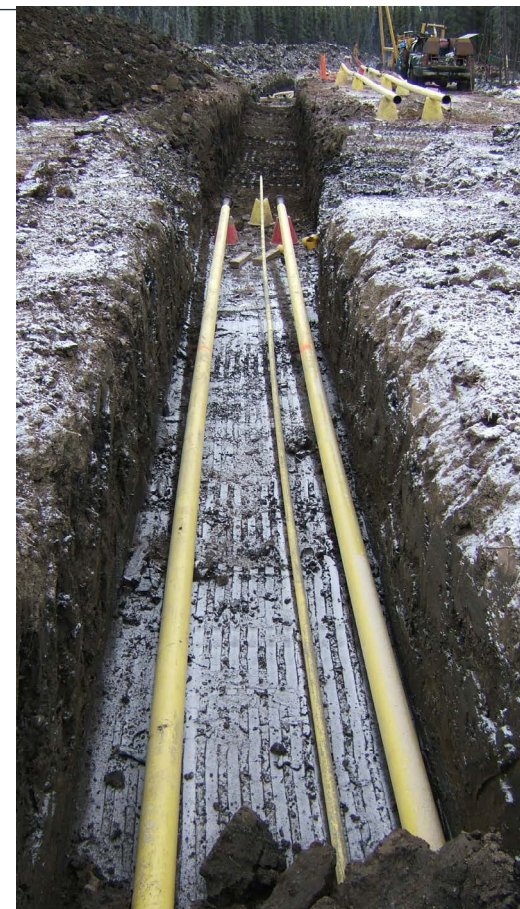
An incident is defined as a present or imminent event or circumstance, resulting from an oil and gas activity that is outside the scope of normal operations and may or may not be an emergency. Permit holders must communicate all reportable incidents to the BC Energy Regulator. Minor incidents must be reported within 24 hours, while incidents with a higher risk assessment must be reported immediately (within one hour). The BCER's [Incident Classification Matrix](#) outlines spill reporting criteria, and how incident levels are assessed, determined and reported.

Any person aware spillage is occurring, or believes there is the potential for spillage, can provide assistance by calling the operating company listed on the on-site signage and identifying the location of the pipeline, or by calling the BCER's 24/7 emergency number at 1-800-663-3456.

The BCER responds to all incidents, establishing communication with the permit holder, confirming the incident level and assessing the permit holder's response. BCER staff further determine what remedial actions must be taken, whether a pipeline can continue to operate safely and whether compliance or enforcement actions are required.

Subsequent incident investigations allow the BCER to confirm the cause and any contributing factors, and whether repairs or solutions should be broadly communicated to all other permit holders to prevent similar incidents from occurring. Inspections may also be triggered by public enquiries and incidents reported to the BCER.

When required, orders, tickets and/or penalties are issued to the permit holder. The BCER posts its enforcement actions in a timely manner on its [Compliance and Enforcement](#) webpage.



**Orders** - issued if a permit holder fails to comply with OGAA, associated regulations, permits or authorizations, a previous order, or to deal with issues of public safety or protection of the environment.

**Tickets** - issued under the authority of provincial acts, including the Water Sustainability Act.

**Administrative Penalties** - levied in the event of a contravention of OGAA.

**Charges** - recommended to Crown counsel for prosecution and possible court conviction.

# Pipeline Incidents and Emergency Response Programs

To coordinate and prepare for incidents in advance, permit holders must develop and maintain Emergency Response Programs (ERPs) and emergency response plans, as directed in the [Emergency Management Regulation](#) (EMR) under OGAA.

ERPs guide the creation, management and implementation of a permit holder's emergency response plan, allowing for quick access to critical information, coordination of multiple-responder activities, and identification of predetermined equipment and services available for deployment in an emergency. They equip incident responders

with hands-on training and emergency response exercises, ensuring personnel understand their incident command structure, communication methods and responsibilities in an emergency event.

The BCER reviews ERPs to ensure consistent compliance with the EMR and oversees and may participate in permit holder emergency response exercises. Should a permit holder's emergency protocols fail to meet requirements, the BCER may utilize compliance and enforcement actions, which can include issuing orders, penalties, or shutting-in a pipeline system.

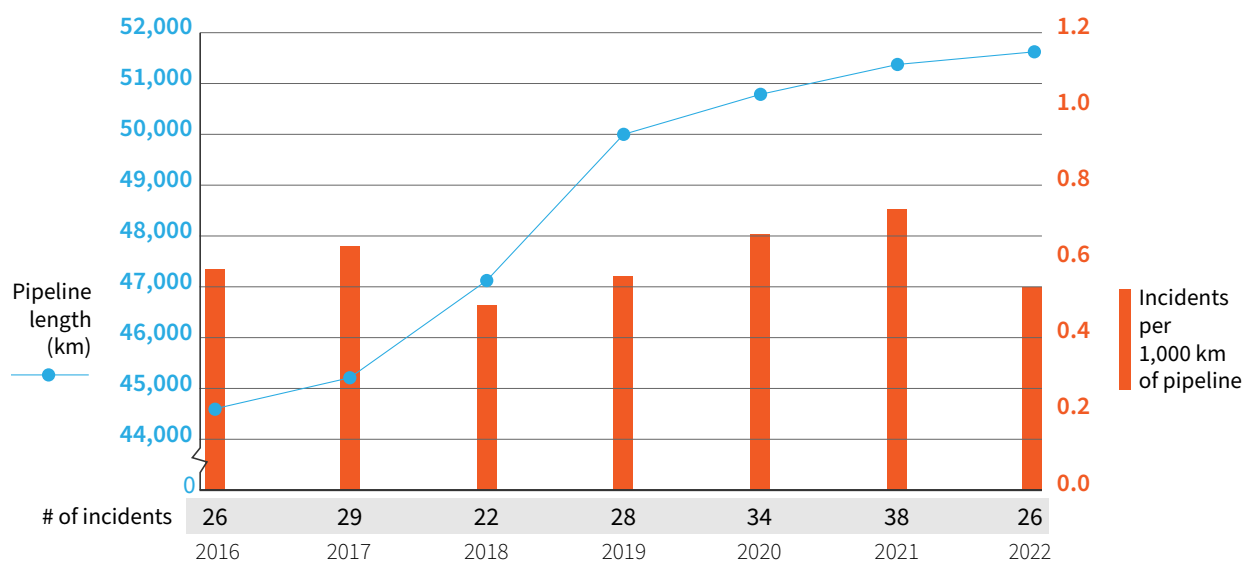
The requirements in the EMR are designed to create a framework for the protection of the public, emergency responders, property and the environment from incidents occurring due to oil and gas activities. Although emergency preparation, equipment and protocols help reduce the rate of incidents, the BCER strives to continually improve emergency management measures.

In 2022, there were 26 incidents on pipelines regulated by the BCER; however, not all led to the release of a product. Figure 1 shows an overall incident frequency of 0.50 for every 1,000 km of pipelines, a decrease from 0.74 in 2021.

As stated, not all incidents result in a spill or release of a product. In 2010, the implementation of OGAA led to broader reporting criteria, meaning all incidents – including those that have the potential to affect the integrity of a pipeline but did not cause spillage – must be reported.

Additional information regarding emergency response and management, including guidelines and forms, is available on the BCER's Emergency Response & Safety [webpage](#).

**Figure 1: Year-to-Year Incident Frequency vs. Pipeline Length**





The BCER conducted **3,559** pipeline inspection activities in 2022, an increase of three per cent compared to 2021.

In 2022, there were **26** incidents on pipelines regulated by the BCER.

The BCER responds to urgent safety complaints within **30 minutes, 24/7, year-round.**

If an incident results in spillage, the following actions must be taken (Sec. 37, OGAA):

- 
- 1. Prevent** spillage.
  - 2. Promptly report** any damage or malfunction that could cause spillage.
  - 3. Remedy** the cause or source of spillage if any occurs.
  - 4. Contain and eliminate** the spillage.
  - 5. Remediate** any affected land or body of water.
  - 6. Report location and severity** of spillage and any contributing damage or malfunction.
  - 7. On-call emergency officer** confirms severity and determines appropriate level of BCER response.
  - 8. BCER inspectors may attend** onsite during the response, depending on the nature of the incident.
  - 9. Damage repair** is conducted.

The number of reported incidents in 2022 was **0.50** for every 1,000 km of pipeline.

**Site Cleanup and Remediation** must be approved by the BCER, and incident causes investigated and resolved prior to pipeline operations resuming.

**Post-Incident Reports** must be submitted by the operator within 60 days identifying the root cause of the failure and any corrective actions required to prevent future incidents.

# Releases and Spills

## 2022 Statistics

In total, there were 20 release incidents in 2022, down from 22 in 2021. For incidents involving a release or spill, Table 2 shows the highest number of releases occurred on pipelines categorized as ‘natural gas’ with seven incidents. Adjusted for total length of pipelines, pipelines classified as ‘other’ had the highest incident frequency per 1,000 km of pipeline, with a frequency rate of 6.82.

The category ‘other’ contains miscellaneous liquids and gases such as oil emulsion and can also include service liquids and gases. Five releases from the ‘other’ category were oil emulsion and one was methanol. There were no releases in 2022 from pipelines classified as ‘sour natural gas’.

In the event of a pipeline gas release or liquid spill, the BCER ensures all corrective actions to ensure safe operation are completed before operations resume.

The largest gas release from a pipeline in 2022 was a 3,454,710 m<sup>3</sup> release of sweet natural gas from a transmission gas pipeline due to geotechnical slope movement. The location of the release was approximately 10 km south of the town of Fernie, B.C. This pipeline was installed in 1962.

The largest liquid release occurred near Dawson Creek while a permit holder was performing required pressure testing of a

newly constructed pipeline. The pipeline failed resulting in a release of 183 m<sup>3</sup> of water and methanol mixture. The failure is attributed to an equipment malfunction during pipeline installation.

## Incident Causes

Table 3 on page 16 summarizes incidents by failure cause. In 2022, metal loss (corrosion) continued to be the leading

TYPE	# of Incidents with Release	Length of Pipeline (km)	Frequency (per 1,000 km)
SOUR NATURAL GAS	0	18,019	0.00
NATURAL GAS	7	22,270	0.31
LIQUID			
HYDROCARBONS	1	5,848	0.17
WATER	6	4,612	1.30
OTHER	*6	879	6.82

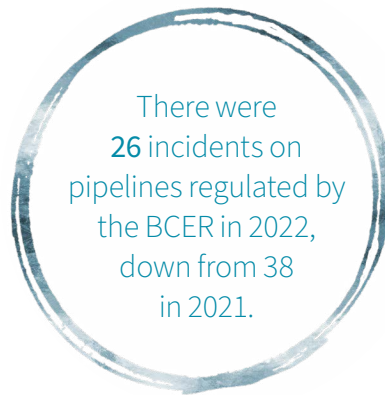
**Table 2:**  
**Total Number of Incidents with Release per 1,000 Kilometres by Type of Pipeline in 2022**

\*Five releases from the ‘Other’ category were oil emulsion and one was methanol.



cause of pipeline incidents, contributing to eight incidents. Corrosion incidents can be reduced by inspection and maintenance programs required as part of a permit holder's IMP. Corrosion related incidents have seen a downward trend over the last three years in B.C.

The interactive web-based [BCER Incident Map](#) provides the location of pipeline incidents dating back to 2009. It includes data on pipeline spills, releases, and damage to active and discontinued pipelines, including the status of incidents.



## Moving Forward

The BC Energy Regulator's priority is continual improvement in safety standards and reduction of incidents to serve the public and the environment, while fostering responsible development.

As tools are developed and operationalized to elevate pipeline performance, spill preparedness, and emergency response capabilities, learnings will continue to be shared across the BCER and with stakeholders and experts throughout industry to successfully meet the demands of a strong safety culture.



Table 3: Classification of Pipeline Failures

INCIDENT CAUSE	DEFINITION	2022	2021	2020	2019	2018
METAL LOSS	WALL THICKNESS REDUCTION DUE TO CORROSION OR OTHER CAUSES	8	11	19	16	10
<b>PIPELINE/EQUIPMENT FAILURE</b>						
CRACKING IN PIPE	MECHANICALLY DRIVEN OR ENVIRONMENTALLY ASSISTED CRACKING OF THE PIPE	2	3	0	2	0
PIPE FITTINGS/JOINT FAILURE	FAILURE IN VALVE, WELD, FLANGE, ETC.	5	4	2	4	3
<b>TOTAL PIPELINE/EQUIPMENT FAILURE</b>		<b>7</b>	<b>7</b>	<b>2</b>	<b>6</b>	<b>3</b>
<b>EXTERNAL INTERFERENCE</b>						
THIRD PARTY INTERFERENCE	INTERFERENCE BY SOMEONE OTHER THAN OPERATING COMPANY OR ITS EMPLOYEES/CONTRACTORS	1	2	1	3	3
COMPANY	INTERFERENCE BY OPERATING COMPANY OR ITS EMPLOYEES/CONTRACTORS	3	4	3	1	0
VANDALISM	INTERFERENCE CAUSED WILLFULLY BY SOMEONE THROUGH ATTEMPTED THEFT OF SERVICE FLUID	0	1	0	0	0
<b>TOTAL EXTERNAL INTERFERENCE</b>		<b>4</b>	<b>7</b>	<b>4</b>	<b>4</b>	<b>3</b>
<b>OTHER CAUSES</b>						
MATERIAL MANUFACTURING OR CONSTRUCTION	DEFECTS IN THE FITTING, CONSTRUCTION, OR COMPONENTS	1	0	1	0	2
GEOTECHNICAL FAILURE	LOSS OF INTEGRITY DUE TO GEOTECHNICAL EFFECT, FOR EXAMPLE, SLOPE MOVEMENT OR WEATHER	1	10	3	1	1
IMPROPER OPERATION	DECISION ERROR MADE BY OPERATING COMPANY DURING SERVICE	4	2	4	1	2
OVERPRESSURE	FAILURE CAUSED DUE TO OVERPRESSURE OF PIPE	1	1	1	0	1
<b>TOTAL OTHER CAUSES</b>		<b>7</b>	<b>13</b>	<b>9</b>	<b>2</b>	<b>6</b>
<b>TOTAL INCIDENTS</b>		<b>26</b>	<b>38</b>	<b>34</b>	<b>28</b>	<b>22</b>



# Glossary

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**Pipeline:** pipelines regulated by the BCER are defined in [OGAA](#) (except in Section 9) as piping through which any of the following is conveyed or transported:

- Petroleum or natural gas.
- Water produced in relation to the production of petroleum or natural gas or conveyed to or from a facility for disposal into a pool or storage reservoir.
- Solids.
- Substances prescribed under Section 133(2)(v) of the [Petroleum and Natural Gas Act](#).
- Other prescribed substances.

The scope of the definition also includes installations and facilities associated with the piping, but does not include:

- Piping used to transmit natural gas at less than 700 kilopascals (kPa) to consumers by a gas utility as defined in the [Gas Utility Act](#).
- A well head.
- Anything else that is prescribed.

**Abandoned Pipeline:** pipelines removed from service and not maintained for a later return to service.

**Active Pipeline:** pipelines actively used for the transport of fluids related to oil and gas operations, and piping that has been suspended from service for less than 18 months but not formally deactivated.

**Deactivated Pipeline:** pipelines removed from service but maintained for a later return to service.

**Crude Oil and Sour Crude Oil:** Crude oil is the raw, unprocessed oil from a well. Crude oil is sent to refineries to be converted (refined) into petroleum products used as fuel.

**m<sup>3</sup>:** a measure of volume - cubic metres: 1m x 1m x 1m: 1,000 litres.

**Natural Gas:** includes natural gas, sweet gas, and fuel gas. Consisting mostly of methane, natural gas is a colourless, odourless, flammable gaseous hydrocarbon. Mercaptans (organic components of hydrocarbons with sulphur) are added to natural gas for consumer use, allowing for detection of natural gas leaks by the ‘rotten egg’ smell.

**Other:** miscellaneous gases and liquids such as oil emulsion and effluent.

**Pipeline Permit:** a permit that includes permission to construct, maintain, and operate a pipeline.

**Reportable Incident:** for the purpose of this report, a present or imminent event or circumstance, resulting from an oil and gas

activity that is outside the scope of normal operations, and may or may not be an emergency.

**Shut-In:** the isolation or closure of a well zone, a pipeline or a facility. For example, the temporary shut-in of a well allows for the analysis of such factors as a well’s productive capacity, pressure, and permeability.

**Sour Natural Gas:** natural gas with a hydrogen sulphide (H<sub>2</sub>S) partial pressure greater than 0.3 kilopascals.

**Spill:** as defined in OGAA; petroleum, natural gas, oil, solids or other substances escaping, leaking, or spilling from a pipeline, well, shot hole, flow line, or facility (or any source apparently associated with any of those substances).

**Water:** fresh water, produced water and sour water. Produced water is water that comes out of an oil and gas well during the production process. Produced water is often reinjected underground for safe disposal, or treated for reuse or discharge.



View from Cable Crane Hill, B.C.

Cover image: pipeline installation near Endako, B.C.

This report was published in August 2023  
and is updated annually.

