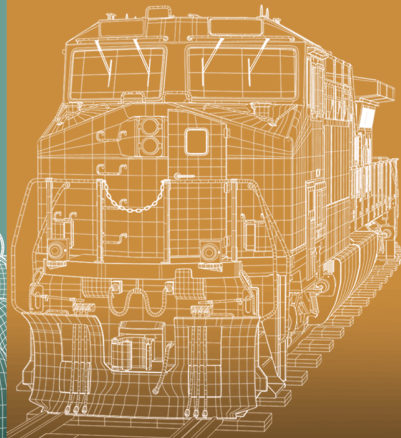
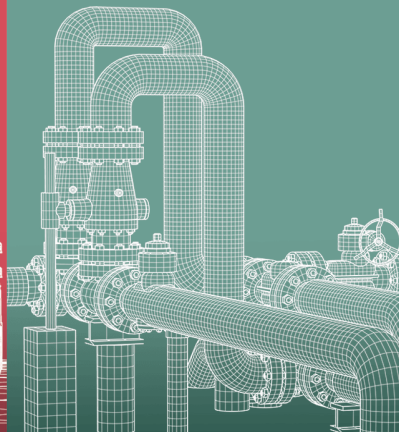




Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



STATISTICAL SUMMARY

Pipeline transportation occurrences in 2022

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Statistical summary: pipeline transportation occurrences in 2022

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Le présent rapport est également disponible en français.

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Statistical summary

Pipeline transportation occurrences in 2022

This document covers federally regulated pipelines only. Any non-federally regulated pipeline data reported to the Transportation Safety Board of Canada (TSB) are not included in this report.

The TSB gathers and uses transportation occurrence data (for both accidents and incidents)¹ during the course of its investigations to analyze safety deficiencies and identify risks in the Canadian pipeline transportation system.

This statistical summary serves to describe the accident, incident, and injury counts that are presented in the included tables. It provides limited discussion and some context but is not intended to be an in-depth analysis of the data. It should be noted that certain characteristics of the data constrain statistical analysis and identification of emerging trends. These include the small totals of accidents and incidents, the large variability in the data from year to year, and changes to regulations and definitions over time. The reader is cautioned to keep these limitations in mind when viewing this summary to avoid drawing conclusions that cannot be supported by statistical analysis.

The 2022 data were collected according to the reporting requirements described in the *Transportation Safety Board Regulations* in force during that calendar year.²

The statistics presented here reflect the TSB Pipeline Occurrence Database System (PODS) on February 27, 2023. Since the occurrence data are constantly being updated in the live database as additional information becomes available, the statistics may change slightly over time.

Also, as many occurrences are not formally investigated, information regarding some of the reported occurrences recorded in the database may not have been verified by the TSB.

The pipeline system

In the federally regulated pipeline system in 2022, 100 companies transported either oil or gas, or both, through approximately 19 950 km of oil pipelines and approximately 48 700 km of gas pipelines. A further

¹ See Definitions section.

² On 12 December 2018, amendments to the *Transportation Safety Board Regulations* were published in the *Canada Gazette*, Part II. The amendments were made to reorganize and update some of the pipeline occurrence reporting provisions to ensure consistency and clarity. In addition, minor discrepancies between the English and French texts were addressed.

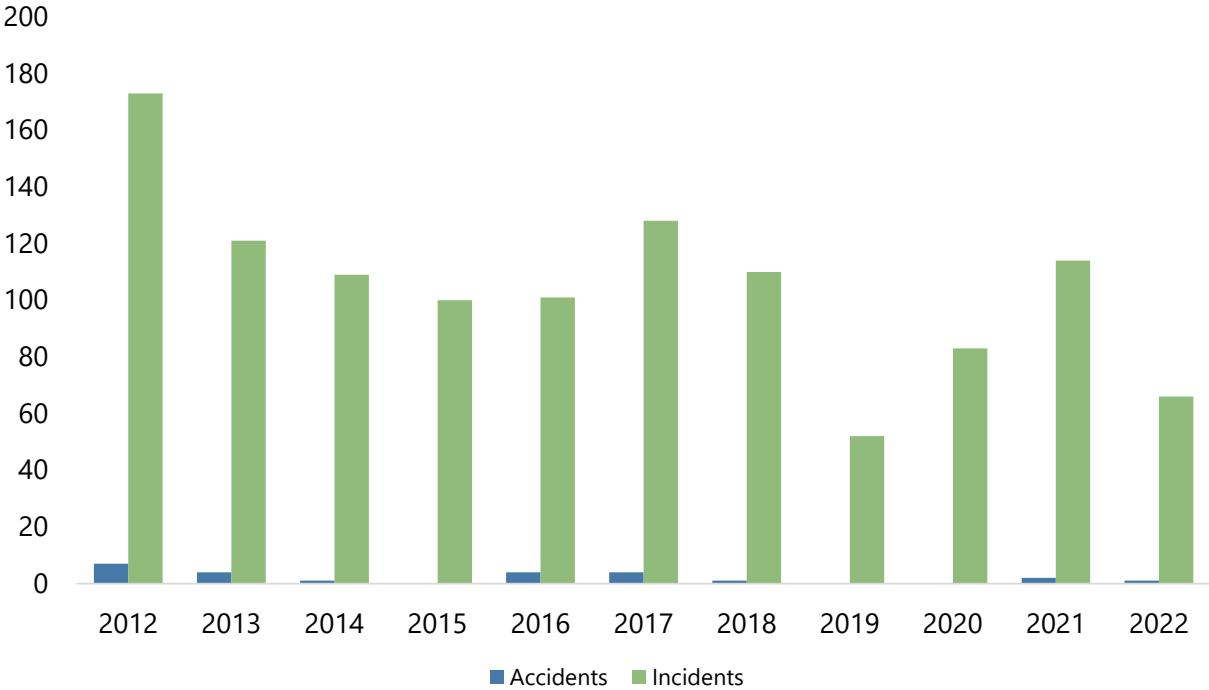
100 km of pipelines carried other commodities and substances. Altogether, this represents approximately 18.3 exajoules (EJ) of energy content transported.³

Pipeline transportation occurrences

In 2022, 67 pipeline transportation occurrences (including accidents and incidents)⁴ were reported to the TSB (Table 1 and Figure 1). This number is well below the average number of occurrences for the previous 10 years (112 occurrences) and is the lowest number of occurrences since 2019 (when only 52 occurrences were recorded). Fluctuations to the reported numbers over this period may have resulted from various factors, including changes to regulations and definitions. One accident was reported in 2022, down from two accidents in 2021 and below the average of three accidents per year reported from 2012 to 2021.

As in previous years since 2017, in 2022, there were no serious injuries or fatalities arising directly from the operation of a federally regulated pipeline. Indeed, there have been no fatal accidents on a federally regulated pipeline system directly resulting from the operation of a pipeline since the inception of the TSB in 1990.

Figure 1. Pipeline accidents and incidents reported to the TSB (according to reporting requirements in effect at the time), 2012 to 2022



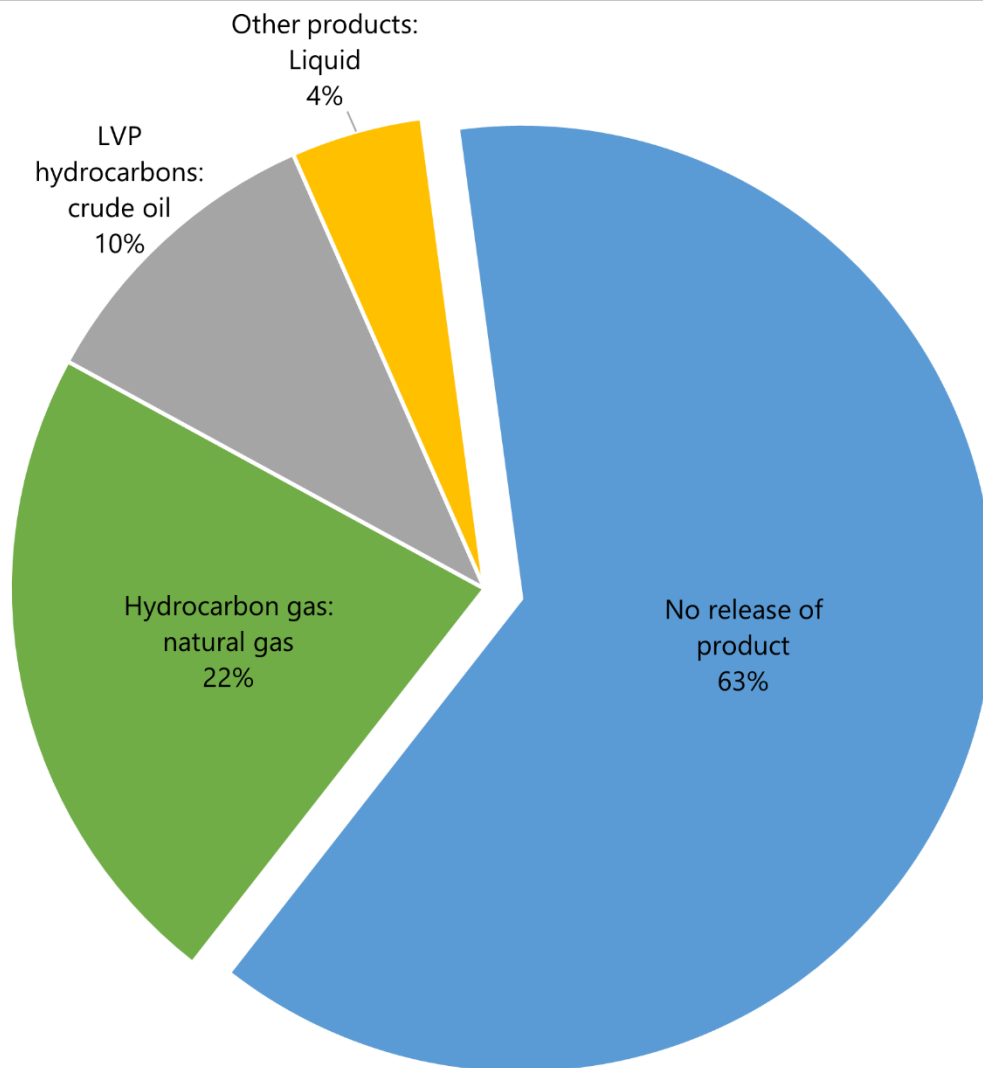
³ The size of the federally regulated pipeline system, the number of companies, and the volumes of product transported were provided by the Canada Energy Regulator (CER). Until 2019, the CER was known as the “National Energy Board,” and the TSB Regulations still refer to the agency by its former name.

⁴ See the Definitions section.

Release of product

Of the 67 occurrences in 2022, 25 involved a release of product (Table 5). While far lower than the average of 64 per year over the previous 10 years, this was an increase from the 23 incidents with product release in 2021, and was the highest number of such occurrences since 2018 (41). The products released in these occurrences were as follows (Figure 2): 15 occurrences (1 accident and 14 incidents) released hydrocarbon gas: natural gas (rather than sour gas) in each case. Also, low vapour pressure (LVP) hydrocarbons were released in 7 incidents, all involving crude oil; this was the highest number of such releases since 2014. Three incidents resulted in the release of a liquid other than hydrocarbons, namely pulp process water (in all cases). In 2022, 42 occurrences did *not* involve a release of product, 12.5% below the average number of occurrences without release over the previous 10 years (48).

Figure 2. Percentages of occurrences with and without release of product, by type of product released, 2022



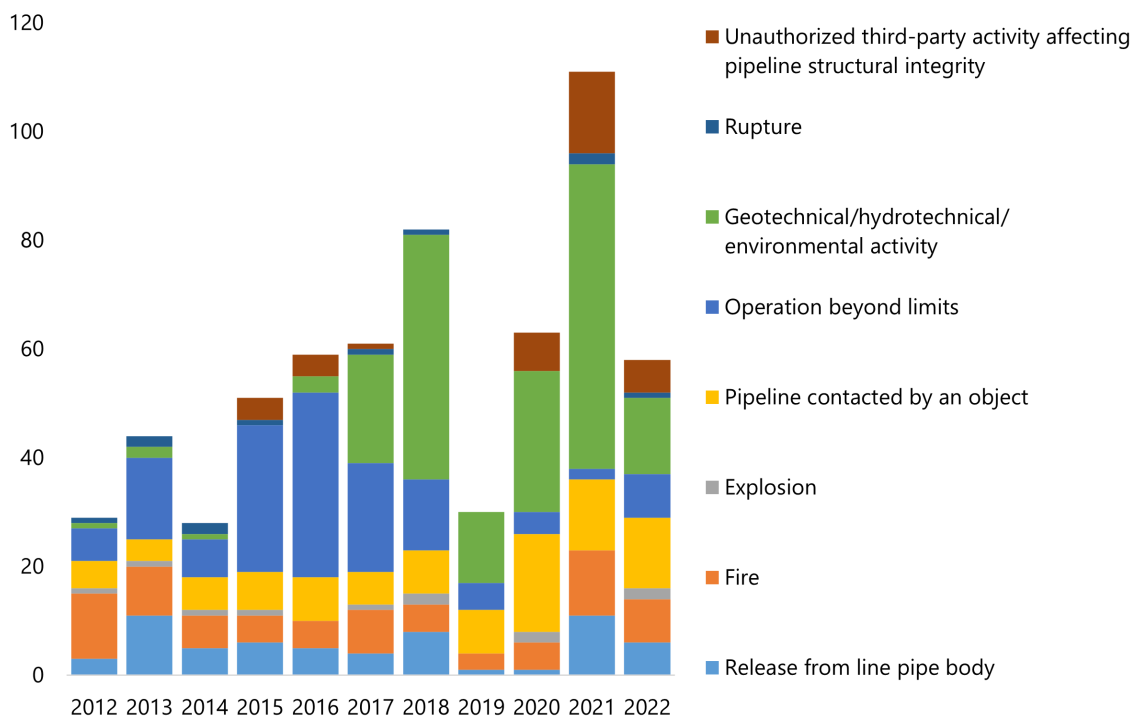
Events other than product release

In 2022, 14 occurrences (all of them incidents) involved “geotechnical, hydrotechnical or environmental activity,” for example, slope movements or river erosion that exposed a length of pipe (Table 1 and Figure 3). This was the lowest level reported since 2019 (13 incidents) and was below the average of 17 incidents reported each year between 2012 and 2021.

There were 13 incidents of pipelines being contacted by an object in 2022 compared with the average of 8 such reports per year during the previous 10 years; there were also 6 incidents where “unauthorized third-party activity affects pipeline structural integrity,” compared with an average of 3 incidents per year

over the previous 10 years. Eight incidents involved “operation of the pipeline beyond limits”, well below the average of 13 occurrences of this type between 2012 and 2021. In 2022, 8 fires were reported (1 accident and 7 incidents), slightly above the average of 7 per year for the previous 10 years. Of these, 1 accident and 1 incident in 2022 were reported as involving both fire and explosion.

Figure 3. Pipeline occurrences other than those solely categorized as “product released,” by type of event, 2012 to 2022⁵



Geography

The largest number of occurrences in 2022 (25 out of 67) took place in Alberta (Table 2); this is a decrease from 28 occurrences in 2021. British Columbia had the largest decrease in occurrences between 2021 and 2022, from 47 to 15, due to a reduction in reported “Geotechnical/hydrrotechnical/environmental activity.” Other provinces also saw decreases: reported occurrences in Ontario declined from 16 to 14, year over year; Saskatchewan declined from 4 to 3 occurrences, New Brunswick, from 8 to 3, and Quebec, from 10 reported occurrences to just 1. The only increases were reported in Manitoba (from 2 to 4 occurrences, year over year) and Nunavut, with 1 occurrence (none were previously reported). The Northwest Territories had 1 occurrence in 2022, the same as in 2021.

⁵ The figure includes all types of events for pipeline transportation occurrences reported to the TSB under the *Transportation Safety Board Regulations*, aside from those solely categorized as “product released.” Product release is defined as an occurrence “resulting directly from the operation of a pipeline where an unintended or uncontrolled release of commodity resulted in a significant adverse effect on people or the environment.” Some occurrences may be coded to multiple event types.

Facilities

As in 2021, a majority of occurrences in 2022 (63%; 42 of 67) occurred at locations along a pipeline, while 37% (25 of 67) occurred at facilities (Figure 4). This contrasts with the aggregate totals across the 10-year period 2012 to 2021, where there were 613 occurrences (55%) at facilities and 508 (45%) at locations along a pipeline (Table 3). Of the 25 occurrences (all of them incidents) at facilities in 2022, 10 occurred at compressor stations, 5 at pump stations, 3 at meter stations, 3 at terminals, and 4 at other facilities.

Figure 4. Location of occurrences in 2022



Pipeline occurrence rate

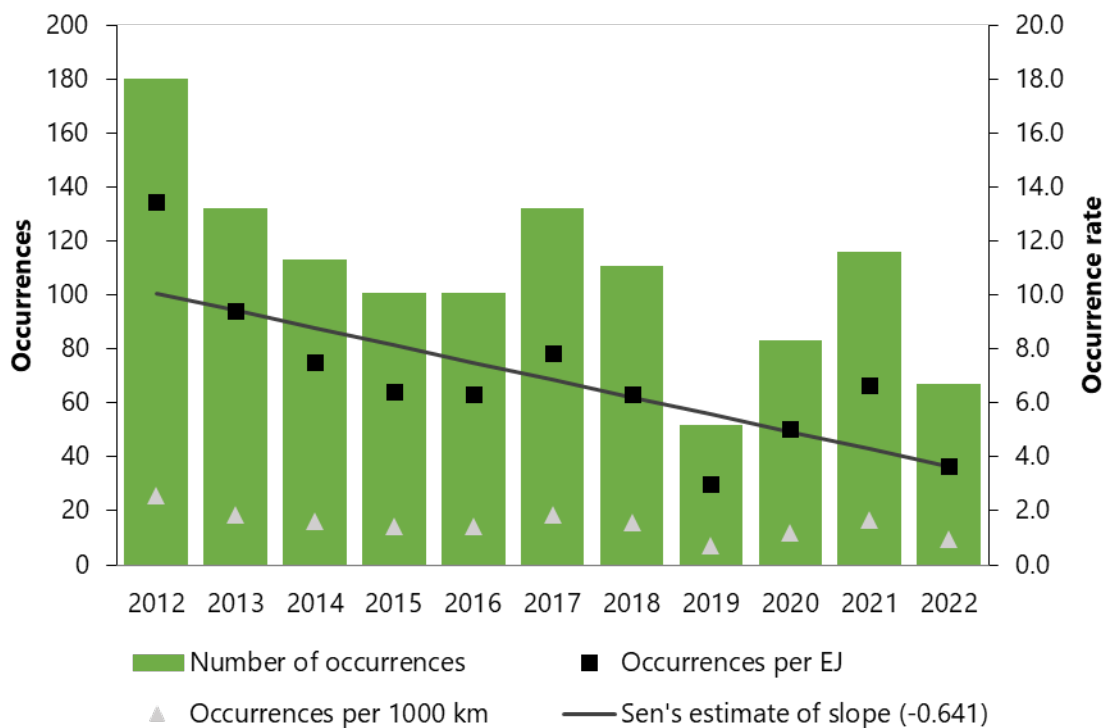
An occurrence rate of 1.0 occurrence per 1000 km of operating pipeline was calculated for 2022 based on the 67 occurrences reported and the 68 700 km of federally regulated pipelines that were operational in

Canada according to the Canada Energy Regulator (CER) during the same year (Table 4 and Figure 5). This occurrence rate is down from 1.7 in 2021, and also below the average of 1.6 in the 10-year period 2012 to 2021.

The occurrence rate has generally fallen from 2.6 occurrences per 1000 km of operating pipeline in 2012 to 1.0 in 2022. To test whether the change in rate was statistically significant, Kendall's tau-b (τ_b) correlation and Sen's estimate of slope were used to quantify the trend in accident rate. Kendall's τ_b correlation coefficient is a nonparametric measure of the strength and direction of association that exists between two variables. Kendall's τ_b was calculated on the 11-year series of accident rate values by year from 2012 to 2022. The downward change in accident rate by pipeline length was not statistically significant over the period ($\tau_b = -0.4546, p = 0.0516$).

An occurrence rate can also be calculated using exajoules (EJ) of energy as a denominator (Table 4 and Figure 5). In 2022, the equivalent of 18.3 EJ of energy were transported in federally regulated pipelines. This translates to a rate of 3.7 occurrences per EJ in 2022, a figure much lower than the 2021 rate of 6.7 and the 2012 to 2021 average of 7.0 occurrences per EJ. In this case, the change in occurrence rate per EJ did show a statistically significant downward trend over the period ($\tau_b = -0.6000, p = 0.0102$). Sen's estimate of slope, the amount of downward rate change per year, was -0.641 occurrences per EJ per year. A graphical illustration is presented in Figure 5.

Figure 5. TSB reportable occurrences (according to reporting requirements in effect at the time) and occurrence rates, 2012 to 2022



Data tables

Table 1. Pipeline transportation occurrences, by accident/incident type and casualties, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Occurrences	180	132	113	101	101	132	111	52	83	116	67
Occurrences with product release	156	107	94	60	41	76	41	23	19	23	25
Persons fatally injured	0	0	0	0	0	0	0	0	0	0	0
Persons seriously injured	2	0	0	0	0	1	0	0	0	0	0
Accidents	7	11	4	1	0	4	1	0	0	2	1
Product released	3	7	2	1	0	4	1	0	0	2	1
Release of hydrocarbon gas	3	5	2	1	0	0	1	0	0	1	1
Release of HVP hydrocarbons ¹	0	0	0	0	0	1	0	0	0	0	0
Release of LVP hydrocarbons ^{2,3}	0	2	0	0	0	2	0	0	0	0	0
Release of other product ⁴	0	0	0	0	0	1	0	0	0	1	0
Release from line pipe body	1	2	2	1	0	1	1	0	0	2	1
Fire	6	8	3	0	0	0	1	0	0	0	1
Explosion	1	1	1	0	0	0	1	0	0	0	1
Rupture	1	2	2	1	0	1	1	0	0	2	1
Pipeline contacted by an object	1	1	0	0	0	2	0	0	0	1	0
Operation beyond limits	0	0	0	0	0	0	0	0	0	0	0
Geotechnical/hydratechnical/environmental activity	0	0	0	0	0	0	0	0	0	0	0
Incidents	173	121	109	100	101	128	110	52	83	114	66
Product released	153	100	92	59	41	72	40	23	19	21	24
Release of hydrocarbon gas	67	47	31	30	35	47	35	18	13	12	14
Release of HVP hydrocarbons ¹	2	5	7	8	4	10	1	0	1	0	0
Release of LVP hydrocarbons ^{2,3}	78	35	36	4	1	3	4	5	4	3	7
Release of other product ⁴	6	13	18	17	1	12	0	0	1	6	3
Release from line pipe body	2	9	3	5	5	3	7	1	1	9	5
Fire	6	1	3	5	5	8	4	3	5	12	7
Explosion	0	0	0	1	0	1	1	0	2	0	1
Pipeline contacted by an object	4	3	6	7	8	4	8	8	18	12	13
Operation beyond limits	6	15	7	27	34	20	13	5	4	2	8
Geotechnical/hydratechnical/environmental activity	1	2	1	0	3	20	45	13	26	56	14
Unauthorized third-party activity affecting pipeline structural integrity	0	0	0	4	4	1	0	0	7	15	6

Data extracted 27 February 2023

¹ HVP: high vapour pressure, as defined in Canadian Standards Association Standard Z662.

² LVP: low vapour pressure, as defined in Canadian Standards Association Standard Z662.

³ In July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

⁴ As of January 2017, "other products" are specified to be either liquid or gas.

Table 2. Pipeline transportation occurrences, by province and territory, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Accidents	7	11	4	1	0	4	1	0	0	2	1
Newfoundland and Labrador	0	0	0	0	0	0	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	0	0	0	0	0	0
New Brunswick	0	0	0	0	0	0	0	0	0	1	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
Ontario	2	2	0	0	0	0	0	0	0	0	0
Manitoba	0	0	1	0	0	0	0	0	0	1	0
Saskatchewan	1	1	0	0	0	1	0	0	0	0	0
Alberta	2	6	1	1	0	2	0	0	0	0	1
British Columbia	2	2	1	0	0	1	1	0	0	0	0
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	0	0	1	0	0	0	0	0	0	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0
Incidents	173	121	109	100	101	128	110	52	83	114	66
Newfoundland and Labrador	0	0	0	0	0	0	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	2	3	1	2	3	0	2	0	1	0	0
New Brunswick	19	16	9	3	5	5	2	0	1	7	3
Quebec	1	3	1	8	7	6	1	5	7	10	1
Ontario	22	11	14	14	18	15	19	6	20	16	14
Manitoba	10	12	8	9	2	3	3	2	4	1	4
Saskatchewan	45	18	17	5	6	11	4	2	5	4	3
Alberta	45	35	32	27	37	36	32	22	29	28	24
British Columbia	18	17	27	30	22	52	47	12	15	47	15
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	11	6	0	2	1	0	0	3	1	1	1
Nunavut	0	0	0	0	0	0	0	0	0	0	1
Occurrences	180	132	113	101	101	132	111	52	83	116	67

Data extracted 27 February 2023

Table 3. Pipeline transportation occurrences by facility type or pipeline type, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Accidents	7	11	4	1	0	4	1	0	0	2	1
Facilities	6	8	1	0	0	2	0	0	0	0	0
Compressor station	3	4	1	0	0	0	0	0	0	0	0
Gas processing plant	0	2	0	0	0	1	0	0	0	0	0
Meter station	1	0	0	0	0	0	0	0	0	0	0
Pump station	2	1	0	0	0	0	0	0	0	0	0
Storage facility	0	0	0	0	0	0	0	0	0	0	0
Terminal	0	1	0	0	0	1	0	0	0	0	0
Receipt/delivery facility	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Pipeline	1	3	3	1	0	2	1	0	0	2	1
Gathering line	1	0	0	0	0	0	0	0	0	0	0
Transmission line	0	3	3	1	0	2	1	0	0	2	1
Incidents	173	121	109	100	101	128	110	52	83	114	66
Facilities	132	86	88	67	48	68	41	20	22	24	25
Compressor station	31	15	14	11	12	23	18	6	8	14	10
Gas processing plant	6	11	21	21	3	20	7	3	0	0	0
Meter station	17	19	9	7	16	7	6	3	2	1	3
Pump station	37	19	22	17	9	10	4	4	8	1	5
Storage facility	1	0	0	0	0	1	0	0	0	0	0
Terminal	35	19	18	10	5	6	6	3	3	3	3
Receipt/delivery facility	0	1	1	0	0	0	0	0	0	0	0
Other	5	2	3	1	3	1	0	1	1	5	4
Pipeline	41	35	21	33	53	60	69	32	61	90	41
Gathering line	8	2	2	5	3	8	11	3	1	0	0
Transmission line	33	33	19	28	50	52	58	29	60	90	41
Occurrences	180	132	113	101	101	132	111	52	83	116	67

Data extracted 27 February 2023

Table 4. Pipeline transportation occurrence rates, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Accidents	7	11	4	1	0	4	1	0	0	2	1
Incidents	173	121	109	100	101	128	110	52	83	114	66
Occurrences	180	132	113	101	101	132	111	52	83	116	67
Total length of operating pipelines ¹ (x1000 km)	69.7	70.8	70.7	70.8	71.0	70.7	70.6	71.1	69.1	68.9	68.7
Accidents per 1000 km of operating pipelines	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Incidents per 1000 km of operating pipelines	2.5	1.7	1.5	1.4	1.4	1.8	1.6	0.7	1.2	1.7	1.0
Occurrences per 1000 km of operating pipelines	2.6	1.9	1.6	1.4	1.4	1.9	1.6	0.7	1.2	1.7	1.0
Total exajoules of energy transported ¹ (EJ)	13.4	14.0	15.0	15.7	16.0	16.8	17.5	17.4	16.5	17.4	18.3
Accidents per EJ	0.5	0.8	0.3	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.1
Incidents per EJ	12.9	8.6	7.3	6.4	6.3	7.6	6.3	3.0	5.0	6.6	3.6
Occurrences per EJ	13.4	9.4	7.5	6.4	6.3	7.9	6.3	3.0	5.0	6.7	3.7

Data extracted 27 February 2023

¹ Source: Canada Energy Regulator (CER; email communications 11 April 2023).

Table 5. Pipeline transportation occurrences with product release, by type of product, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Hydrocarbon gas	70	52	33	31	35	47	36	18	13	13	15
Gas - sour or acid	5	3	3	10	2	7	6	1	0	0	0
Natural gas	65	49	30	21	33	40	30	17	13	13	15
HVP hydrocarbons¹	2	5	7	8	4	11	1	0	1	0	0
Natural gas liquids / Liquefied petroleum gas	2	5	7	8	4	11	1	0	1	0	0
LVP hydrocarbons^{2,3}	78	37	36	4	1	5	4	5	4	3	7
Condensate	0	3	4	0	0	1	0	0	1	0	0
Condensate - sour	0	0	0	0	0	0	0	0	0	0	0
Crude oil	77	33	32	3	1	4	3	5	3	3	7
Crude oil - sour	0	1	0	1	0	0	0	0	0	0	0
Refined products	1	0	0	0	0	0	1	0	0	0	0
Other products⁴	6	13	18	17	1	13	0	0	1	7	3
Other - unspecified	6	13	18	16	1	0	0	0	0	0	0
Other - gas	0	0	0	1	0	1	0	0	0	0	0
Other - liquid	0	0	0	0	0	12	0	0	1	7	3
Occurrences	156	107	94	60	41	76	41	23	19	23	25

Data extracted 27 February 2023

¹ HVP: high vapour pressure, as defined in Canadian Standards Association Standard Z662.

² LVP: low vapour pressure, as defined in Canadian Standards Association Standard Z662.

³ In July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

⁴ As of January 2017, "other products" are specified to be either liquid or gas.

Table 6. Pipeline transportation occurrences with product release, by quantity released, 2012 to 2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Hydrocarbon gas	70	52	33	31	35	47	36	18	13	13	15
100 m ³ or less	69	48	26	20	24	20	15	11	8	5	5
101 to 30 000 m ³	0	3	5	7	10	25	17	4	3	3	6
30 001 to 100 000 m ³	0	0	0	3	1	1	1	1	0	2	1
100 001 to 1 000 000 m ³	1	0	1	0	0	1	2	2	1	3	1
1 000 001 to 10 000 000 m ³	0	0	1	1	0	0	1	0	0	0	2
Greater than 10,000,000 m ³	0	1	0	0	0	0	0	0	1	0	0
HVP hydrocarbons¹	2	5	7	8	4	11	1	0	1	0	0
8 m ³ or less	2	5	7	8	4	10	1	0	1	0	0
9 to 25 m ³	0	0	0	0	0	1	0	0	0	0	0
26 to 100 m ³	0	0	0	0	0	0	0	0	0	0	0
101 to 1000 m ³	0	0	0	0	0	0	0	0	0	0	0
1001 to 10 000 m ³	0	0	0	0	0	0	0	0	0	0	0
Greater than 10 000 m ³	0	0	0	0	0	0	0	0	0	0	0
LVP hydrocarbons^{2,3}	78	37	36	4	1	5	4	5	4	3	7
1.5 m ³ or less	76	34	29	0	0	0	2	0	0	1	2
1.6 to 8 m ³	1	2	4	2	1	1	2	4	0	1	3
9 to 25 m ³	0	1	2	1	0	2	0	0	0	0	0
26 to 100 m ³	1	0	0	1	0	1	0	1	3	0	1
101 to 1000 m ³	0	0	1	0	0	0	0	0	1	0	1
1001 to 10 000 m ³	0	0	0	0	0	1	0	0	0	0	0
Greater than 10 000 m ³	0	0	0	0	0	0	0	0	0	1	0
Other products⁴	6	13	18	17	1	13	0	0	1	7	3
8 m ³ or less	6	13	15	14	0	12	0	0	1	3	0
9 to 25 m ³	0	0	2	2	0	0	0	0	0	0	0
26 to 100 m ³	0	0	1	0	0	0	0	0	0	0	3
101 to 1000 m ³	0	0	0	1	1	1	0	0	0	4	0
1001 to 10 000 m ³	0	0	0	0	0	0	0	0	0	0	0
Greater than 10 000 m ³	0	0	0	0	0	0	0	0	0	0	0
Occurrences	156	107	94	60	41	76	41	23	19	23	25

Data extracted 27 February 2023

¹ HVP: high vapour pressure, as defined in Canadian Standards Association Standard Z662.

² LVP: low vapour pressure, as defined in Canadian Standards Association Standard Z662.

³ In July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

⁴ As of January 2017, "other products" are specified to be either liquid or gas.

Table 7. Pipeline transportation occurrences, by province and territory and product released, 2012 to 2022

Province or territory	No release of product		Release of hydrocarbon gas		Release of HVP hydrocarbons ¹		Release of LVP hydrocarbons ^{2,3}		Release of other product ⁴	
	2012-2021 average	2022	2012-2021 average	2022	2012-2021 average	2022	2012-2021 average	2022	2012-2021 average	2022
Newfoundland and Labrador	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Prince Edward Island	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Nova Scotia	0.1	0	1.2	0	0.0	0	0.0	0	0.1	0
New Brunswick	0.0	0	5.7	0	0.0	0	0.0	0	1.1	3
Quebec	4.4	1	0.5	0	0.0	0	0.0	0	0.0	0
Ontario	10.4	8	3.6	5	0.4	0	1.0	1	0.5	0
Manitoba	1.5	0	1.3	0	0.5	0	2.1	4	0.2	0
Saskatchewan	2.2	1	1.1	2	1.6	0	7.0	0	0.1	0
Alberta	15.6	16	11.2	7	0.7	0	5.7	2	0.3	0
British Columbia	13.3	14	10.1	1	0.4	0	0.5	0	5.1	0
Yukon	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Northwest Territories	0.6	1	0.1	0	0.3	0	1.4	0	0.2	0
Nunavut	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0
Occurrences	48.1	42	34.8	15	3.9	0	17.7	7	7.6	3

Data extracted 27 February 2023

¹ HVP: high vapour pressure, as defined in Canadian Standards Association Standard Z662.

² LVP: low vapour pressure, as defined in Canadian Standards Association Standard Z662.

³ In July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

⁴ As of January 2017, "other products" are specified to be either liquid or gas.

Definitions

Before 1 July 2014

Before 1 July 2014 (under the previous *Transportation Safety Board Regulations* [TSB Regulations]), pipeline transportation accidents and incidents were defined as follows:

Pipeline accidents

Reportable commodity pipeline accident means an accident resulting directly from the operation of a commodity pipeline, where

- a) a person sustains a serious injury or is killed as a result of being exposed to
 - i) a fire, ignition or explosion, or
 - ii) a commodity released from the commodity pipeline, or
- b) the commodity pipeline
 - i) sustains damage affecting the safe operation of the commodity pipeline as a result of being contacted by another object or as a result of a disturbance of its supporting environment,
 - ii) causes or sustains an explosion, or a fire or ignition that is not associated with normal operating circumstances, or
 - iii) sustains damage resulting in the release of any commodity.

Pipeline incidents

Reportable commodity pipeline incident means an incident resulting directly from the operation of a commodity pipeline, where

- a) an uncontained and uncontrolled release of a commodity occurs,
- b) the commodity pipeline is operated beyond design limits,
- c) the commodity pipeline causes an obstruction to a ship or to a surface vehicle owing to a disturbance of its supporting environment,
- d) any abnormality reduces the structural integrity of the commodity pipeline below design limits,
- e) any activity in the immediate vicinity of the commodity pipeline poses a threat to the structural integrity of the commodity pipeline, or
- f) the commodity pipeline, or a portion thereof, sustains a precautionary or emergency shut-down for reasons that relate to or create a hazard to the safe transportation of a commodity;

Since 1 July 2014

On 1 July 2014, new reporting provisions of the TSB Regulations came into effect; these were subsequently revised effective 22 November 2018 and appeared in the *Canada Gazette* 12 December 2018. According to section **4(1)** of the TSB Regulations, the operator of a pipeline must report any of the following pipeline occurrences to the Board:

- (a) the pipeline sustains damage that affects the safe operation of the pipeline as a result of another object coming into contact with it;
- (b) an unauthorized third party activity affects the structural integrity of the pipeline;
- (c) a geotechnical, hydrotechnical or environmental activity poses a threat to the safe operation of the pipeline.

Under section **4(1.1)**, the operator must report any of the following pipeline occurrences to the Board if they result directly from the operation of the pipeline:

- (a) a person sustains a *serious injury* as defined in section 1 of the *National Energy Board⁶ Onshore Pipeline Regulations* or is killed;
- (b) there is a fire, ignition or explosion that
 - (i) affects the safe operation of the pipeline, or
 - (ii) poses a threat to the safety of any person, property or the environment;
- (c) there is an occurrence that results in
 - (i) an unintended or uncontrolled release of hydrocarbon gas,
 - (ii) an unintended or uncontrolled release of HVP hydrocarbons,
 - (iii) an unintended or uncontrolled release of LVP hydrocarbons in excess of 1.5 m³, or
 - (iv) an unintended or uncontrolled release of a commodity other than hydrocarbon gas, HVP hydrocarbons or LVP hydrocarbons;
- (d) there is a release of a commodity from the line pipe body;
- (e) the pipeline is operated beyond design limits or any operating restrictions imposed by the National Energy Board⁶;
- (f) the pipeline restricts the safe operation of any mode of transportation.

Since 1 May 2018

Since May 1, 2018, the TSB *Policy on Occurrence Classification* defines Pipeline accidents and Pipeline incidents as follows:

Pipeline accidents

A pipeline accident is an occurrence resulting directly from the operation of a pipeline that results in:

- (a) serious injury or loss of human life;
- (b) a rupture (an instantaneous release that immediately affects the operation of a pipeline segment such that the pressure of the segment cannot be maintained);

⁶ On 28 August 2019, the National Energy Board became the Canada Energy Regulator.

- (c) a fire, ignition or explosion that poses a threat to the safety of any person, property or the environment; or
- (d) an unintended or uncontrolled release of commodity which results in a significant adverse effect on people or the environment (a release of any chemical or physical substance at a concentration or volume sufficient to cause an irreversible, long-term, or continuous change to the ambient environment in a manner that causes harm to human life, wildlife, or vegetation).

Pipeline incidents

A pipeline incident is

- a. an occurrence in which
 - i. the pipeline sustains damage that affects the safe operation of the pipeline as a result of another object coming into contact with it,
 - ii. an unauthorized third party activity affects the structural integrity of the pipeline, or
 - iii. a geotechnical, hydrotechnical or environmental activity poses a threat to the safe operation of the pipeline;
- b. an occurrence resulting directly from the operation of a pipeline in which
 - i. there is a fire, ignition or explosion that affects the safe operation of the pipeline,
 - ii. there is an unintended or uncontrolled release of hydrocarbon gas,
 - iii. there is an unintended or uncontrolled release of HVP (high vapour pressure as defined in CSA Z662. CSA Z662 means Canadian Standards Association Standard Z662, entitled Oil and Gas Pipeline Systems, as amended from time to time) hydrocarbons,
 - iv. there is an unintended or uncontrolled release of LVP (low vapour pressure as defined in CSA Z662) hydrocarbons in excess of 1.5 m³,
 - v. there is an unintended or uncontrolled release of a commodity other than hydrocarbon gas, HVP hydrocarbons or LVP hydrocarbons,
 - vi. there is a release of a commodity from the line pipe body,
 - vii. the pipeline is operated beyond design limits or any operating restrictions imposed by the Canada Energy Regulator, or
 - viii. the pipeline restricts the safe operation of any mode of transportation.