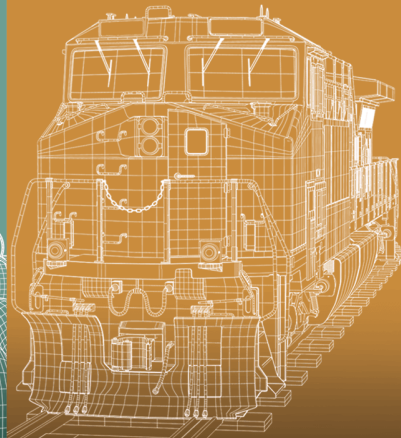
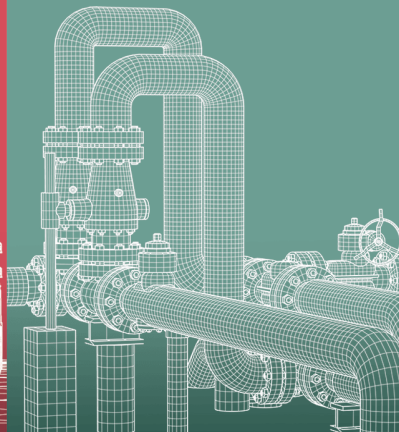




Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



STATISTICAL SUMMARY

Pipeline transportation occurrences in 2023

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Statistical summary: pipeline transportation occurrences in 2023

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Le présent rapport est également disponible en français.

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Executive summary

The TSB received 68 reports of pipeline transportation occurrences in 2023, which is unchanged from 2022 and 33% below the average of 101 for the previous 10 years. All the occurrences were incidents, and none were accidents. While there were no pipeline accidents in 2023, the average number of accidents in the prior 10 years was 2 per year. There were no fatalities arising directly from the operation of any federally regulated pipeline, as has been the case since the TSB's inception in 1990.

Statistical summary

Pipeline transportation occurrences in 2023

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 2023 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) as of 20 February 2024. 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.

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.

The pipeline system

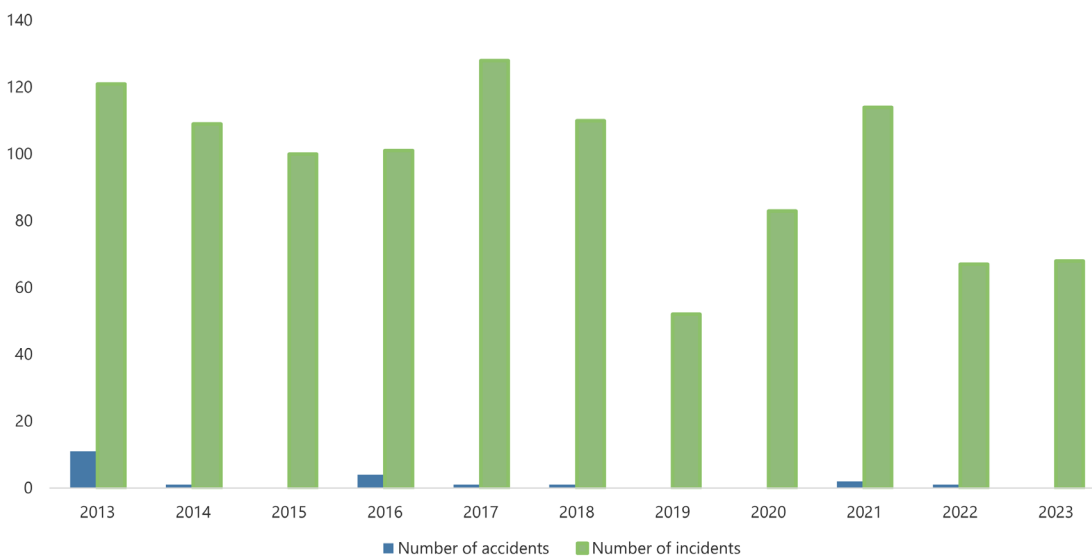
In the federally regulated pipeline system in 2023, 100 companies transported either oil or gas, or both, through approximately 19 950 km of oil pipelines and approximately 48 150 km of gas pipelines. A further 100 km of pipelines carried other commodities and substances. Altogether, the pipeline system transported approximately 18.8 exajoules (EJ) of energy content.³

Pipeline transportation occurrences

In 2023, 68 pipeline transportation occurrences were reported to the TSB (Table 1 and Figure 1); none of these were accidents – all 68 were categorized as incidents.⁴ This total is unchanged from the number of occurrences recorded in 2022; it is well below the average number of occurrences for the previous 10 years (101). Fluctuations to the reported numbers over this period may have resulted from various factors, including changes to regulations and definitions. While no accidents were reported in 2023, this is not unprecedented: no accidents were reported in 2016, 2019, or 2020.

In 2023, there were no serious injuries or fatalities arising directly from the operation of a federally regulated pipeline, as has been the case each year since 2017. 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), 2013 to 2023



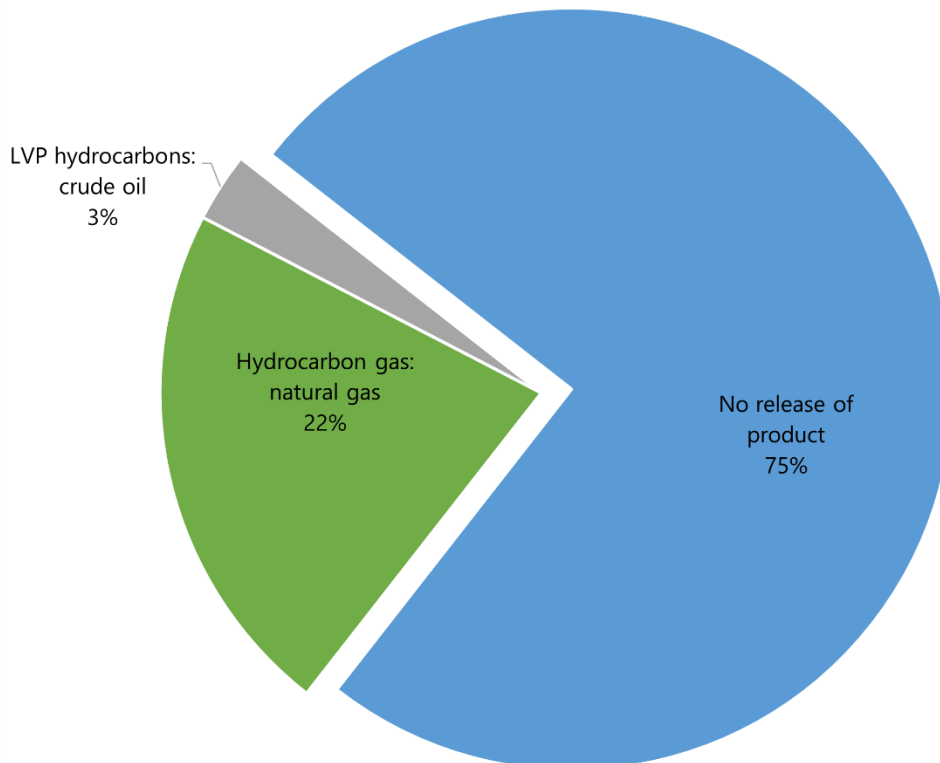
³ The size of the federally regulated pipeline system, the number of companies, and the volumes of product transported were provided by the Canada Energy Regulator (CER). Until 2019, the CER was known as the “National Energy Board,” and the TSB Regulations still refer to the agency by its former name.

⁴ See the Definitions section.

Release of product

Of the 68 occurrences in 2023, 17 involved a release of product (Table 5). This was the lowest number of such occurrences reported to the TSB in the last 11 years, slightly below the previous low of 19 occurrences reported in 2020. Figure 2 shows the products released in these occurrences. In 15 occurrences, hydrocarbon gas was released: natural gas (rather than sour gas) in each case. The other 2 occurrences resulted in the release of low vapour pressure (LVP) hydrocarbons, and both of these involved crude oil. For the first time since 2019, there were no occurrences that resulted in the release of pulp process water in 2023. There were 51 occurrences that did *not* involve a release of product, slightly above the average number of occurrences without release over the previous 10 years (50).

Figure 2. Percentages of occurrences with and without release of product, by type of product released, 2023



Events other than product release

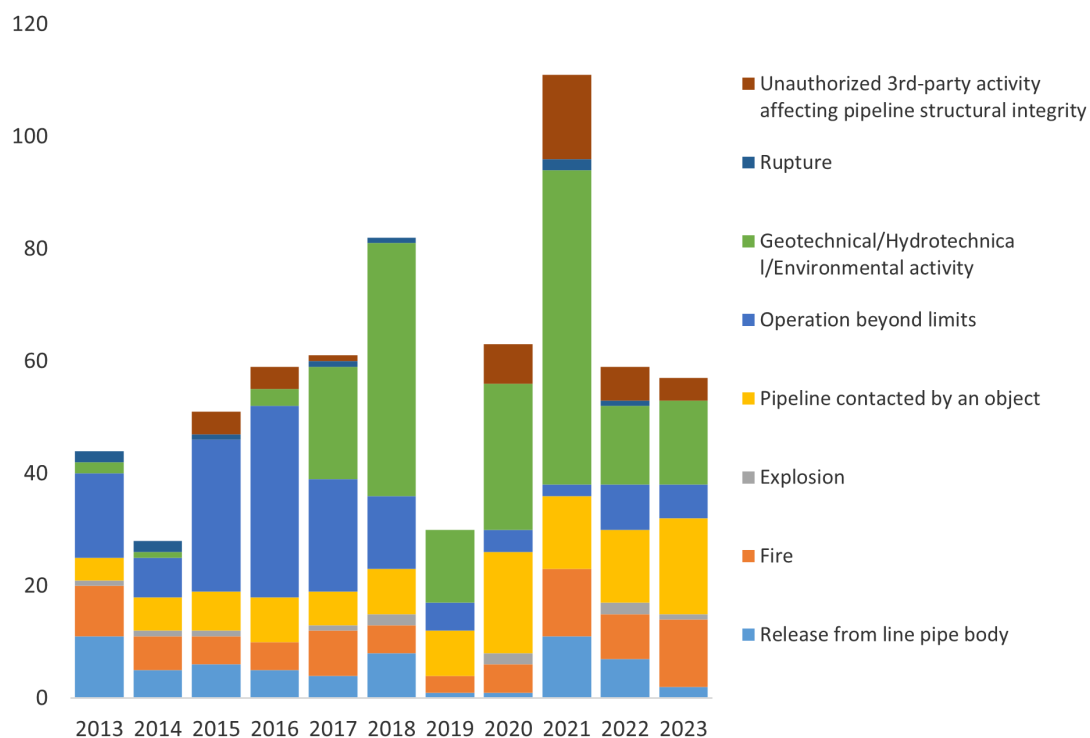
As shown in Figure 3, there were 17 incidents of pipelines being contacted by an object in 2023, slightly below the number reported in 2020 (18), which was the peak for this incident type. These 17 incidents exceed the average of 9 per year over the previous 10 years. Meanwhile, the number of incidents where

“unauthorized third-party activity affects pipeline structural integrity” decreased to 4, equal to the average over the previous 10 years.

In 2023, 15 occurrences (all of them incidents) involved geotechnical, hydrotechnical or environmental activity. This type of incident can involve natural phenomena, for example, slope movements or river erosion that exposed a length of pipe (Table 1 and Figure 3). This was above the 14 such incidents reported in 2022, but below the average of 18 incidents reported per year between 2013 and 2022.

In 2023, 12 occurrences involved fire, all of them incidents; this was equal to the number reported in 2021, which was the highest number of such occurrences reported in a one-year period, and well above the average of 5 per year for the previous 10 years. Six incidents involved the operation of the pipeline beyond limits, well below the average of 14 occurrences of this type per year between 2013 and 2022.

Figure 3. Pipeline occurrences other than those solely categorized as “product released,” by type of event, 2013 to 2023⁵



Geography

The largest number of occurrences in 2023 (36 out of 68) took place in Alberta (Table 2); this is an increase from 24 occurrences in 2022 and was the largest number reported in Alberta since 2017 (38 occurrences).

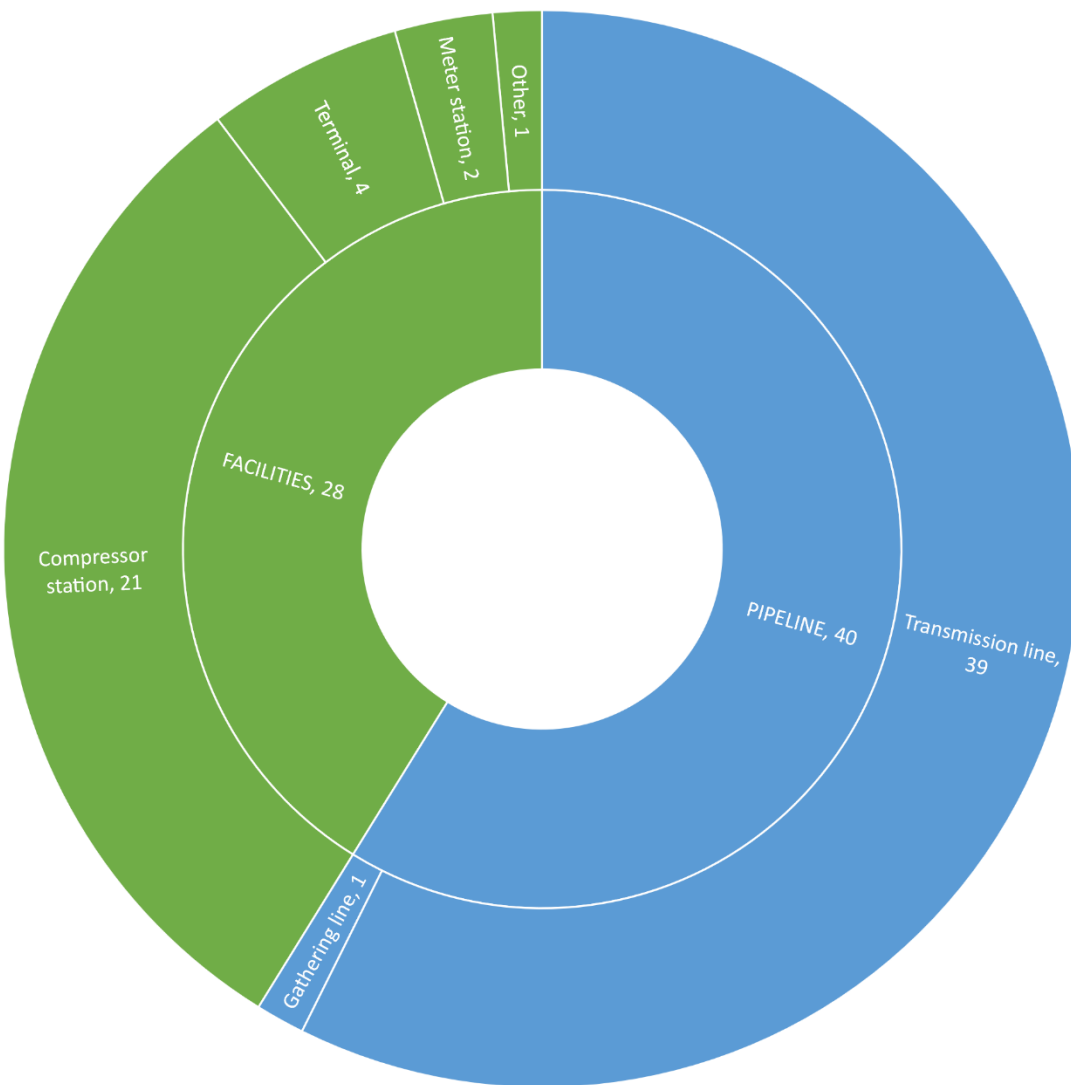
⁵ The figure includes all types of events for pipeline transportation occurrences reported to the TSB under the *Transportation Safety Board Regulations*, aside from those solely categorized as “product released.” Product release is defined as an occurrence “resulting directly from the operation of a 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.

Increases in the number of occurrences from 2022 to 2023 were also reported in Saskatchewan (3 to 6) and in the Northwest Territories (1 to 3). Decreases in the number of occurrences from 2022 to 2023 were observed in Ontario (14 to 9), British Columbia (16 to 12), Manitoba (4 to 1), New Brunswick (3 to none), and Nunavut (1 to none).

Facilities

As in 2022, a majority of occurrences in 2023 (59%; 40 of 68) occurred at locations along a pipeline, while 41% (28 of 68) occurred at facilities (Figure 4). This contrasts with the aggregate totals across the 10-year period 2013 to 2022, where there were 500 occurrences (49%) at facilities and 509 (51%) at locations along a pipeline (Table 3). Of the 28 occurrences (all of them incidents) at facilities in 2023, 21 occurred at compressor stations, 4 at terminals, 2 at meter stations, and 1 at an “other facility.”

Figure 4. Location of occurrences in 2023



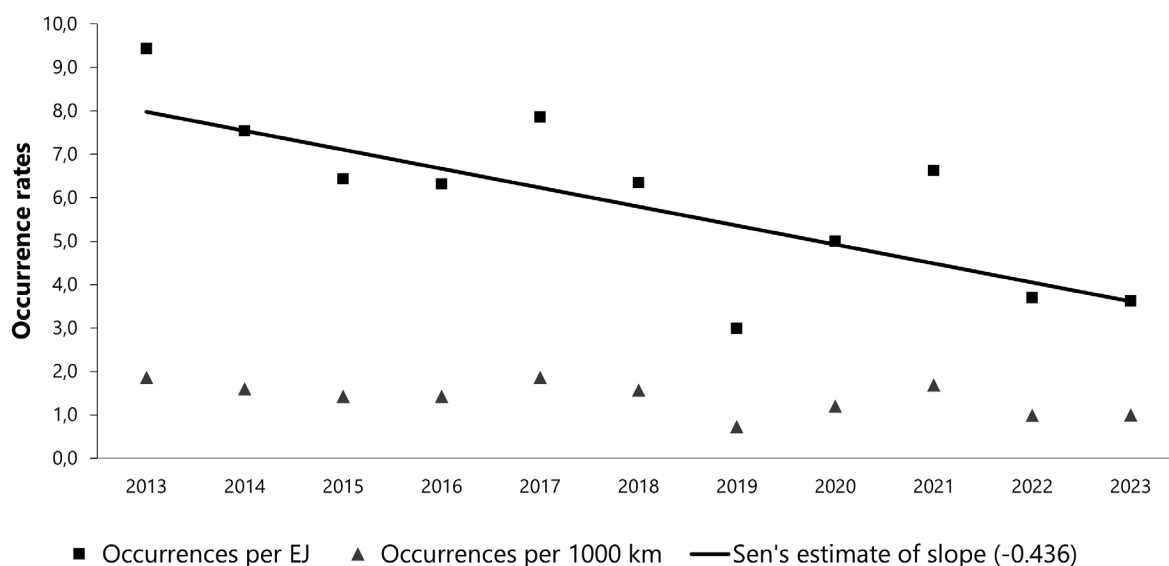
Pipeline occurrence rate

An occurrence rate of 1.0 occurrence per 1000 km of operating pipeline was calculated for 2023 based on the 68 occurrences reported and the 68 200 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 equal to that reported in 2021, and below the average of 1.4 in the 10-year period 2013 to 2022.

The occurrence rate has generally fallen from 1.9 occurrences per 1000 km of operating pipeline in 2013 to 1.0 in 2023. 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 2013 to 2023. The downward change in accident rate by pipeline length was not statistically significant over the period ($\tau_b = -0.1830$, $p = 0.2450$).

An occurrence rate can also be calculated using exajoules (EJ) of energy as a denominator (Table 4 and Figure 5). In 2023, the equivalent of 18.8 EJ of energy were transported in federally regulated pipelines. This translates to a rate of 3.6 occurrences per EJ in 2023, slightly lower than the rate of 3.7 occurrences per EJ in 2022, and well below the 2013 to 2022 average of 6.1 occurrences per EJ. In this case, the change in occurrence rate per EJ did show a statistically significant downward trend over the period ($\tau_b = -0.5636$, $p = 0.0004$). Sen's estimate of slope, the amount of downward rate change per year, was -0.436 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, 2013 to 2023



Data tables

Table 1. Pipeline transportation occurrences, by accident/incident type and casualties, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Occurrences	132	113	101	101	132	111	52	83	116	68	68
Occurrences with product release	107	94	60	41	76	41	23	19	23	26	17
Persons fatally injured	0	0	0	0	0	0	0	0	0	0	0
Persons seriously injured	0	0	0	0	1	0	0	0	0	0	0
Accidents	11	4	1	0	4	1	0	0	2	1	0
Product released	7	2	1	0	4	1	0	0	2	1	0
Release of hydrocarbon gas	5	2	1	0	0	1	0	0	1	1	0
Release of HVP hydrocarbons ¹	0	0	0	0	1	0	0	0	0	0	0
Release of LVP hydrocarbons ^{2,3}	2	0	0	0	2	0	0	0	0	0	0
Release of other product ⁴	0	0	0	0	1	0	0	0	1	0	0
Release from line pipe body	2	2	1	0	1	1	0	0	2	1	0
Fire	8	3	0	0	0	1	0	0	0	1	0
Explosion	1	1	0	0	0	1	0	0	0	1	0
Rupture	2	2	1	0	1	1	0	0	2	1	0
Pipeline contacted by an object	1	0	0	0	2	0	0	0	1	0	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	121	109	100	101	128	110	52	83	114	67	68
Product released	100	92	59	41	72	40	23	19	21	25	17
Release of hydrocarbon gas	47	31	30	35	47	35	18	13	12	15	15
Release of HVP hydrocarbons ¹	5	7	8	4	10	1	0	1	0	0	0
Release of LVP hydrocarbons ^{2,3}	35	36	4	1	3	4	5	4	3	7	2
Release of other product ⁴	13	18	17	1	12	0	0	1	6	3	0
Release from line pipe body	9	3	5	5	3	7	1	1	9	6	2
Fire	1	3	5	5	8	4	3	5	12	7	12
Explosion	0	0	1	0	1	1	0	2	0	1	1
Pipeline contacted by an object	3	6	7	8	4	8	8	18	12	13	17
Operation beyond limits	15	7	27	34	20	13	5	4	2	8	6
Geotechnical/hydratechnical/environmental activity	2	1	0	3	20	45	13	26	56	14	15
Unauthorized third-party activity affecting pipeline structural integrity	0	0	4	4	1	0	0	7	15	6	4

Data extracted 20 February 2024.

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, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Accidents	11	4	1	0	4	1	0	0	2	1	0
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	1	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
Ontario	2	0	0	0	0	0	0	0	0	0	0
Manitoba	0	1	0	0	0	0	0	0	1	0	0
Saskatchewan	1	0	0	0	1	0	0	0	0	0	0
Alberta	6	1	1	0	2	0	0	0	0	1	0
British Columbia	2	1	0	0	1	1	0	0	0	0	0
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	0	1	0	0	0	0	0	0	0	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0
Incidents	121	109	100	101	128	110	52	83	114	67	68
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	3	1	2	3	0	2	0	1	0	0	0
New Brunswick	16	9	3	5	5	2	0	1	7	3	0
Quebec	3	1	8	7	6	1	5	7	10	1	1
Ontario	11	14	14	18	15	19	6	20	16	14	9
Manitoba	12	8	9	2	3	3	2	4	1	4	1
Saskatchewan	18	17	5	6	11	4	2	5	4	3	6
Alberta	35	32	27	37	36	32	22	29	28	24	36
British Columbia	17	27	30	22	52	47	12	15	47	16	12
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	6	0	2	1	0	0	3	1	1	1	3
Nunavut	0	0	0	0	0	0	0	0	0	1	0
Occurrences	132	113	101	101	132	111	52	83	116	68	68

Data extracted 20 February 2024.

Table 3. Pipeline transportation occurrences by facility type or pipeline type, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Accidents	11	4	1	0	4	1	0	0	2	1	0
Facilities	8	1	0	0	2	0	0	0	0	0	0
Compressor station	4	1	0	0	0	0	0	0	0	0	0
Gas processing plant	2	0	0	0	1	0	0	0	0	0	0
Meter station	0	0	0	0	0	0	0	0	0	0	0
Pump station	1	0	0	0	0	0	0	0	0	0	0
Storage facility	0	0	0	0	0	0	0	0	0	0	0
Terminal	1	0	0	0	1	0	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	3	3	1	0	2	1	0	0	2	1	0
Gathering line	0	0	0	0	0	0	0	0	0	0	0
Transmission line	3	3	1	0	2	1	0	0	2	1	0
Incidents	121	109	100	101	128	110	52	83	114	67	68
Facilities	86	88	67	48	68	41	20	22	24	25	28
Compressor station	15	14	11	12	23	18	6	8	14	10	21
Gas processing plant	11	21	21	3	20	7	3	0	0	0	0
Meter station	19	9	7	16	7	6	3	2	1	3	2
Pump station	19	22	17	9	10	4	4	8	1	5	0
Storage facility	0	0	0	0	1	0	0	0	0	0	0
Terminal	19	18	10	5	6	6	3	3	3	3	4
Receipt/delivery facility	1	1	0	0	0	0	0	0	0	0	0
Other	2	3	1	3	1	0	1	1	5	4	1
Pipeline	35	21	33	53	60	69	32	61	90	42	40
Gathering line	2	2	5	3	8	11	3	1	0	0	1
Transmission line	33	19	28	50	52	58	29	60	90	42	39
Occurrences	132	113	101	101	132	111	52	83	116	68	68

Data extracted 20 February 2024.

Table 4. Pipeline transportation occurrence rates, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Accidents	11	4	1	0	4	1	0	0	2	1	0
Incidents	121	109	100	101	128	110	52	83	114	67	68
Occurrences	132	113	101	101	132	111	52	83	116	68	68
Total length of operating pipelines ¹ (x1000 km)	70.8	70.7	70.8	71.0	70.7	70.6	71.1	69.1	68.9	68.7	68.2
Accidents per 1000 km of operating pipelines	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Incidents per 1000 km of operating pipelines	1.7	1.5	1.4	1.4	1.8	1.6	0.7	1.2	1.7	1.0	1.0
Occurrences per 1000 km of operating pipelines	1.9	1.6	1.4	1.4	1.9	1.6	0.7	1.2	1.7	1.0	1.0
Total exajoules of energy transported ¹ (EJ)	14.0	15.0	15.7	16.0	16.8	17.5	17.4	16.6	17.5	18.4	18.8
Accidents per EJ	0.8	0.3	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.1	0.0
Incidents per EJ	8.6	7.3	6.4	6.3	7.6	6.3	3.0	5.0	6.5	3.6	3.6
Occurrences per EJ	9.4	7.5	6.4	6.3	7.9	6.3	3.0	5.0	6.6	3.7	3.6

Data extracted 20 February 2024.

¹ Source: Canada Energy Regulator (CER; email communication 27 March 2024).

Table 5. Pipeline transportation occurrences with product release, by type of product, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Hydrocarbon gas	52	33	31	35	47	36	18	13	13	16	15
Gas - sour or acid	3	3	10	2	7	6	1	0	0	0	0
Natural gas	49	30	21	33	40	30	17	13	13	16	15
HVP hydrocarbons¹	5	7	8	4	11	1	0	1	0	0	0
Natural gas liquids / liquefied petroleum gas	5	7	8	4	11	1	0	1	0	0	0
LVP hydrocarbons^{2,3}	37	36	4	1	5	4	5	4	3	7	2
Condensate	3	4	0	0	1	0	0	1	0	0	0
Condensate - sour	0	0	0	0	0	0	0	0	0	0	0
Crude oil	33	32	3	1	4	3	5	3	3	7	2
Crude oil - sour	1	0	1	0	0	0	0	0	0	0	0
Refined products	0	0	0	0	0	1	0	0	0	0	0
Other products⁴	13	18	17	1	13	0	0	1	7	3	0
Other - unspecified	13	18	16	1	0	0	0	0	0	0	0
Other - gas	0	0	1	0	1	0	0	0	0	0	0
Other - liquid	0	0	0	0	12	0	0	1	7	3	0
Occurrences	107	94	60	41	76	41	23	19	23	26	17

Data extracted 20 February 2024.

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, 2013 to 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Hydrocarbon gas	52	33	31	35	47	36	18	13	13	16	15
100 m ³ or less	48	26	20	24	20	15	11	8	5	5	3
101 to 30 000 m ³	3	5	7	10	25	17	4	3	3	7	10
30 001 to 100 000 m ³	0	0	3	1	1	1	1	0	2	1	1
100 001 to 1 000 000 m ³	0	1	0	0	1	2	2	1	3	1	1
1 000 001 to 10 000 000 m ³	0	1	1	0	0	1	0	0	0	2	0
Greater than 10 000 000 m ³	1	0	0	0	0	0	0	1	0	0	0
HVP hydrocarbons¹	5	7	8	4	11	1	0	1	0	0	0
8 m ³ or less	5	7	8	4	10	1	0	1	0	0	0
9 to 25 m ³	0	0	0	0	1	0	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}	37	36	4	1	5	4	5	4	3	7	2
1.5 m ³ or less	34	29	0	0	0	2	0	0	1	2	1
1.6 to 8 m ³	2	4	2	1	1	2	4	0	1	3	1
9 to 25 m ³	1	2	1	0	2	0	0	0	0	0	0
26 to 100 m ³	0	0	1	0	1	0	1	3	0	1	0
101 to 1000 m ³	0	1	0	0	0	0	0	1	0	1	0
1001 to 10 000 m ³	0	0	0	0	1	0	0	0	0	0	0
Greater than 10 000 m ³	0	0	0	0	0	0	0	0	1	0	0
Other products⁴	13	18	17	1	13	0	0	1	7	3	0
8 m ³ or less	13	15	14	0	12	0	0	1	3	0	0
9 to 25 m ³	0	2	2	0	0	0	0	0	0	0	0
26 to 100 m ³	0	1	0	0	0	0	0	0	0	3	0
101 to 1000 m ³	0	0	1	1	1	0	0	0	4	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
Occurrences	107	94	60	41	76	41	23	19	23	26	17

Data extracted 20 February 2024.

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, 2013 to 2023

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	
	2013-2022 average	2023	2013-2022 average	2023	2013-2022 average	2023	2013-2022 average	2023	2013-2022 average	2023
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	1.1	0	0.0	0	0.0	0	0.0	0
New Brunswick	0.0	0	3.8	0	0.0	0	0.0	0	1.4	0
Quebec	4.5	1	0.4	0	0.0	0	0.0	0	0.0	0
Ontario	10.4	5	2.8	4	0.4	0	0.8	0	0.5	0
Manitoba	1.5	0	0.9	1	0.5	0	1.9	0	0.2	0
Saskatchewan	2.1	6	0.8	0	1.5	0	3.2	0	0.1	0
Alberta	16.3	27	10.4	8	0.7	0	3.8	1	0.1	0
British Columbia	14.3	10	9.1	2	0.4	0	0.4	0	4.8	0
Yukon	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Northwest Territories	0.6	2	0.1	0	0.2	0	0.5	1	0.2	0
Nunavut	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0
Occurrences	49.9	51	29.4	15	3.7	0	10.6	2	7.3	0

Data extracted 20 February 2024.

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 01 July 2014

Before 01 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 01 July 2014

On 01 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 01 May 2018

Since 01 May 2018, the TSB *Policy on Occurrence Classification* defines pipeline accident and pipeline incident as follows:

Pipeline accident

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 incident

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.