



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



STATISTICAL SUMMARY PIPELINE TRANSPORTATION OCCURRENCES IN 2018

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Statistical summary: mode transportation occurrences in 2018

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Statistical Summary

Pipeline Transportation Occurrences in 2018

This document is a summary of selected 2018 pipeline transportation safety data. It 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 this data during the course of its investigations to analyze safety deficiencies and identify risks in the Canadian transportation system.

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. 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 2018 data were collected according to the reporting requirements described in the TSB Regulations in force during that calendar year.¹

The statistics presented here reflect the TSB PODS database at 13 March 2019. 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 On 12 December 2018, amendments to the Transportation Safety Board of Canada (TSB) Regulations were published in Part II of the *Canada Gazette*. 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 2018, in the federally-regulated pipeline system, 40 companies transported 220 million cubic metres² of oil through approximately 17 500 km of oil pipelines (including 19 companies that transported both oil and gas). Also in 2018, 83 companies transported over 185 billion cubic metres of gas through approximately 51 900 km of gas pipelines (including 19 companies that transported both oil and gas). A further 1110 km of pipelines carried other commodities and substances. Altogether, this represents approximately 17.4 exajoules (EJ) of energy content transported.³

² One cubic metre (m³) is equivalent to 1000 litres.

³ The size of the federally regulated pipeline system, the number of companies, and the volumes of product transported were provided by the National Energy Board (NEB).

Pipeline transportation occurrences

In 2018, there were 111 pipeline transportation occurrences reported to the TSB, including 1 accident, which is below the average number of occurrences for the previous 10 years. Between 2008 and 2017, there were, on average, 133 occurrences reported each year, or 126 incidents and 7 accidents per year. Furthermore, there were no serious injuries or fatalities arising directly from the operation of any federally-regulated pipeline in 2018. In fact, 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.

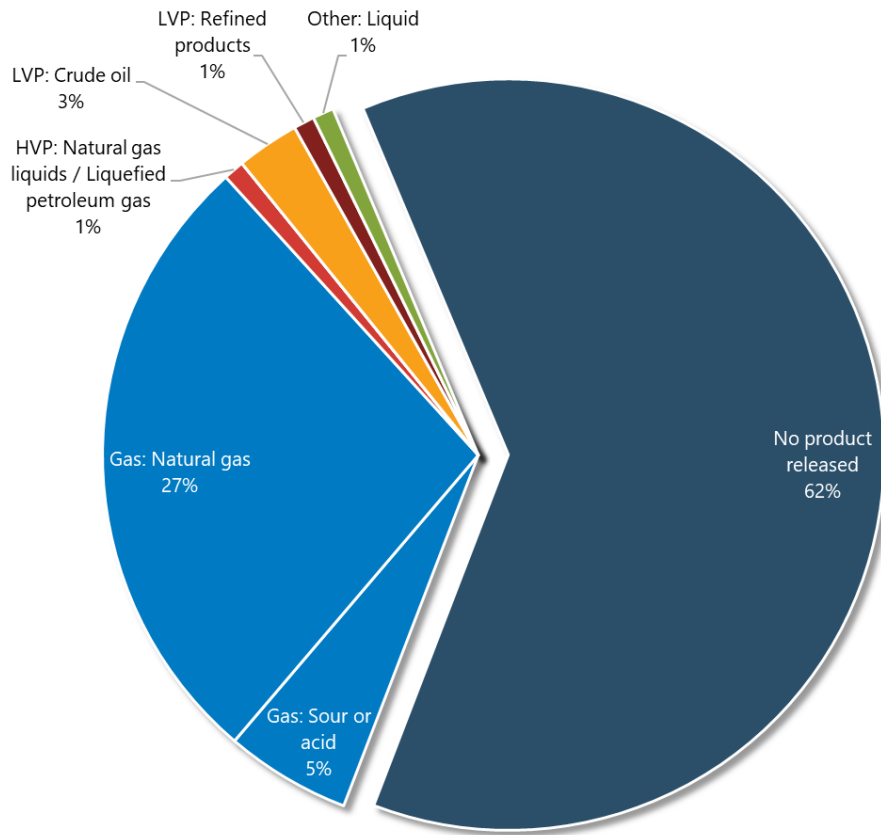
Figure 1. Number of TSB reportable accidents and incidents (per reporting requirements in effect at the time), 2008 to 2018



Release of product

Of 111 occurrences in 2018, 42 involved a release of product. This is considerably fewer than the average of 99 per year over the previous 10 years. The single accident in 2018 involved a rupture and fire on a sweet natural gas pipeline in the vicinity of Prince George, BC. The products released in the remaining 41 incidents were as follows: 35 hydrocarbon gas (29 were sweet natural gas and 6 were sour or acid gas), 4 low vapour pressure (LVP) hydrocarbons (3 were crude oil and 1 was diesel fuel), 1 high vapour pressure (HVP) hydrocarbons (propane), and 1 released a non-hydrocarbon (brine). It is worth noting that 69 occurrences in 2018 did not involve a release of product whereas the average number of occurrences without release has been 31 per year over the past 10 years.

Figure 2. Occurrences with and without release of product, by type of product released, 2018



Event type

In 2018, 44 incidents (40% of 110 total incidents) involved “geotechnical, hydrotechnical or other environmental activity”, for example, slope movements or river erosion that exposed a length of pipe. This is a significant increase from 16 reports of this type in 2017 and well above the average of 3 such events per year over the previous 10 years. These may be related to increased company enforcement, combined with increased company inspections and reporting, as well as changes to weather patterns. Thirteen of the 110 incidents involved “operation of the pipeline beyond specified limits”, which is on par with the average of 14 incidents of this type over the previous 10 years. There were 9 reports of pipelines being “contacted by other objects” in 2018, an increase over 4 such reports in 2017 and above the average of 5 reports per year during the previous 10 years. “Fire” was an event in 5 occurrences (4 incidents and 1 accident) during 2018, compared to 8 occurrences in 2017, and the average of 9 such occurrences during the previous 10 years.

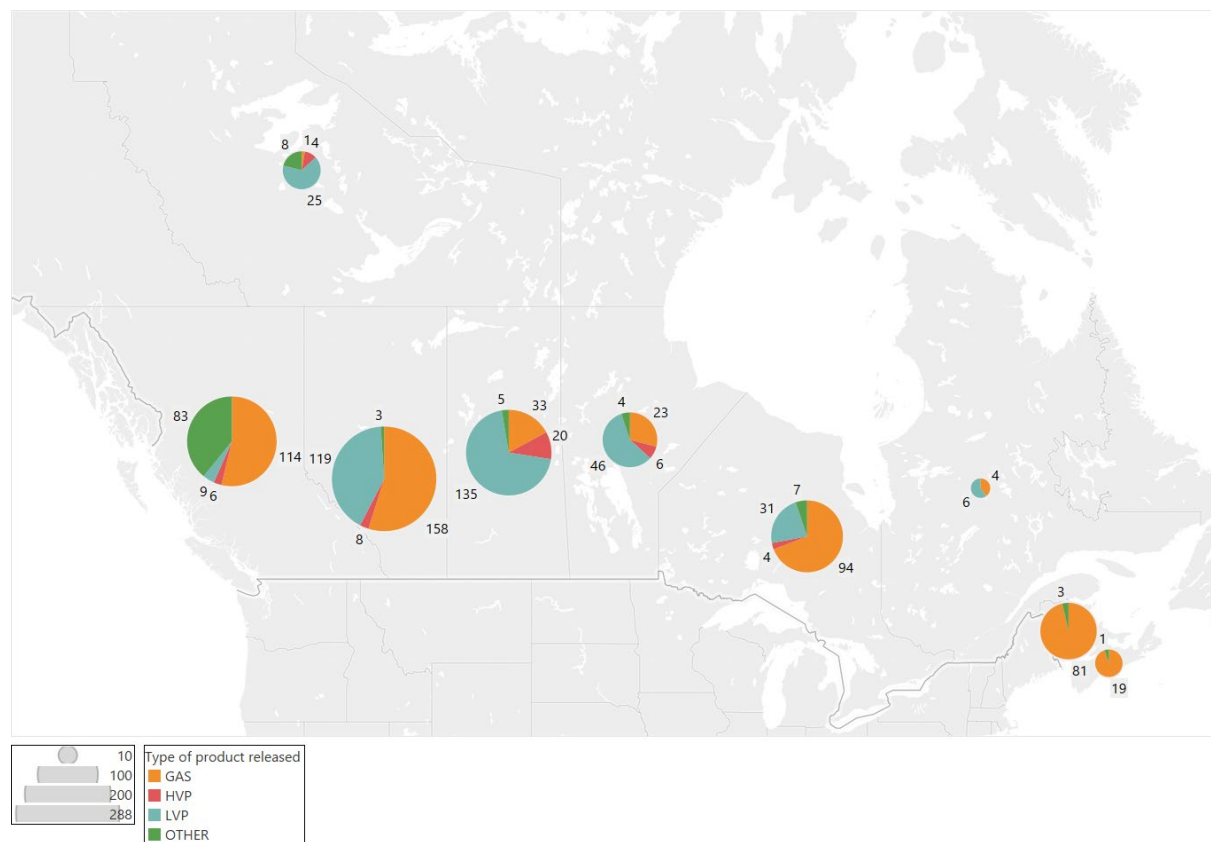
Geography

The largest number of occurrences in 2018 (48 of 111) took place in British Columbia. Alberta had 31 occurrences and Ontario had 20. The remaining 12 occurrences were distributed across five provinces:

Nova Scotia (2), New Brunswick (2), Quebec (1), Manitoba (3), and Saskatchewan (4). Looking closely at occurrences where product was released, the mix of products released varied geographically in Canada.

During the 11 years from 2008 to 2018, there have been 1060 occurrences across the country with releases of product. Half of those releases (527) were of hydrocarbon gas. Almost all product releases in New Brunswick (96%) and Nova Scotia (95%) involved hydrocarbon gases. Ontario (69%), Alberta (55%), and British Columbia (54%) had a broader mix of products released, but still a majority of releases were of gas. LVP hydrocarbons such as crude oil, condensate, or refined products were the next most commonly released substances, accounting for 35% of the 1060 total occurrences. LVP products accounted for 70% of occurrences with release in Saskatchewan, 66% in the Northwest Territories, 60% in Quebec, and 58% in Manitoba. HVP hydrocarbons accounted for less than 5% of all product releases over the 11-year period, and other (non-hydrocarbon) products such as sulphur or other products were involved in about 10% of all occurrences with releases during the period.

Figure 3. Occurrences with release of product, by province and type of product released, 2008 to 2018



Facilities

During the 10-year period from 2008 to 2017, there were 937 occurrences (71%) at facilities and 389 (29%) at locations along pipeline. However, in 2018 more than half (62%) of the occurrences (69 of 110) occurred at locations along pipeline. This is due in part to the high number of reports of geotechnical, hydrotechnical or other environmental activity that affected sections of pipeline during the year. Of the 41

incidents at facilities in 2018, 18 occurred at compressor stations, 7 were at gas processing plants, 6 at meter stations, 4 at pump stations, and 6 at terminals.

Figure 4. Location of occurrences, 2018



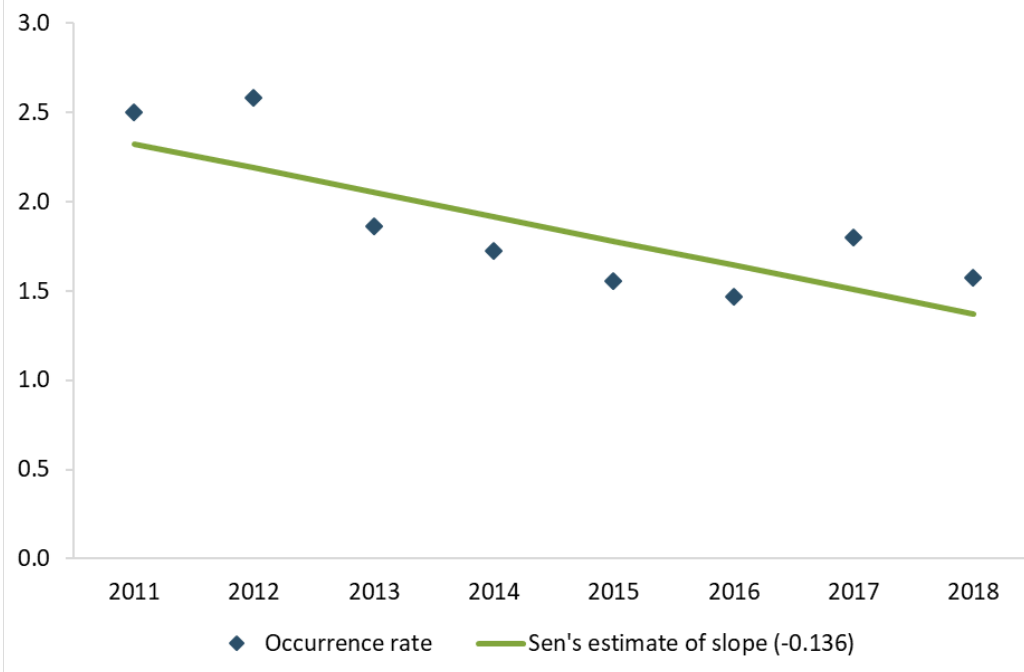
Pipeline occurrence rate

An occurrence rate of 1.6 per 1000 km of operating pipeline was calculated for 2018 based on the 111 occurrences reported and the 70 686 km of federally regulated pipelines that were operational in Canada according to the NEB during the same year. This statistic is down from 1.8 occurrences per 1000 km in 2017, and below the average of 1.9 occurrences per 1000 km since 2011.

Kendall's tau-b (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 8-year series of occurrence rate values by year from 2011 to 2018.⁴ There was a strong, negative correlation that indicates a downward trend in occurrence rate per 1000 km over the period ($\tau_b = -0.5714$, $p = 0.0478$). Sen's estimate of slope, the amount of downward rate change per year, was -0.136 occurrences per 1000 km per year.

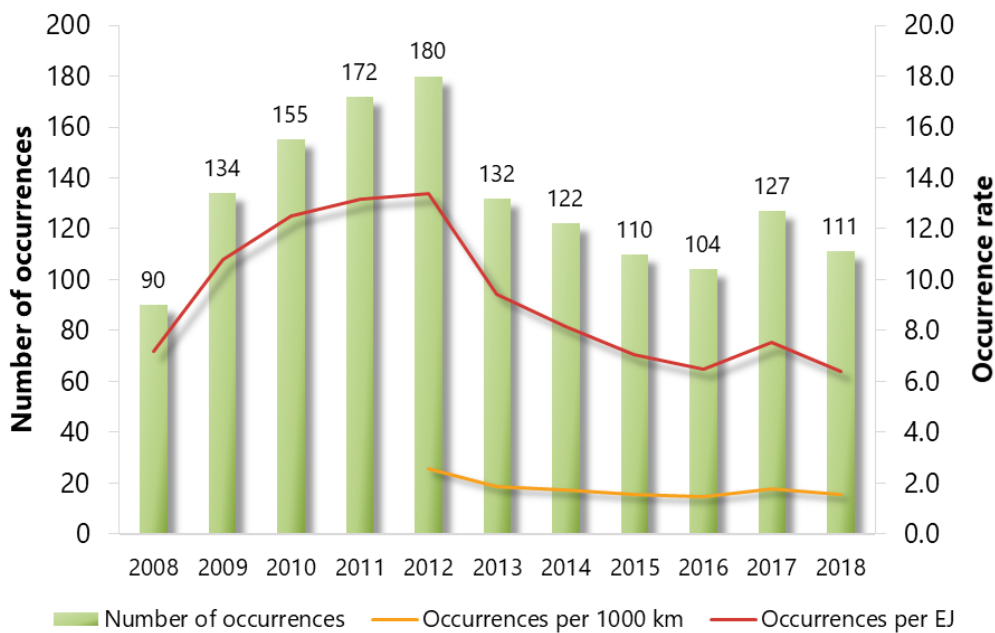
⁴ NEB provided operating pipeline length data for the years 2011 to 2018.

Figure 5. Occurrence rate by year, with Sen's estimate of slope, 2011 to 2018



An alternative occurrence rate can be calculated using exajoules (EJ) of energy as a denominator. In 2018, the equivalent of 17.4 EJ of energy was transported in federally regulated pipelines. This translates to a rate of 6.4 occurrences per EJ in 2018, a figure which is below the 2017 rate of 7.5, and 33% below the prior 10-year average of 9.6 occurrences per EJ.

Figure 6. Number of TSB reportable occurrences (per reporting requirements in effect at the time) and occurrence rates, 2008 to 2018



Data tables

Table 1

Pipeline occurrences by event type
2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total number of occurrences	90	134	155	172	180	132	122	110	104	127	111
Total number of occurrences with product release	72	103	135	149	156	107	94	60	41	75	42
Total number of fatalities	0	0	0	0	0	0	0	0	0	0	0
Total number of serious injuries	0	1	0	0	2	0	0	0	0	1	0
Accidents	6	15	11	5	7	11	5	0	0	5	1
Product released	3	9	8	4	3	7	2	0	0	4	1
Release of hydrocarbon gas	0	6	3	2	3	5	2	0	0	0	1
Release of HVP hydrocarbons ¹	1	0	0	0	0	0	0	0	0	1	0
Release of LVP hydrocarbons ^{2, 3}	1	2	4	2	0	2	0	0	0	2	0
Release of other product	1	1	1	0	0	0	0	0	0	1	0
Release from line pipe body	0	6	0	2	1	2	2	0	0	1	1
Fire	4	11	6	3	6	8	4	0	0	1	1
Explosion	0	2	0	1	1	1	1	0	0	0	1
Rupture	0	4	0	1	1	2	2	0	0	0	1
Pipeline contacted by an object	0	1	1	1	1	1	0	0	0	2	0
Operation beyond limits	0	0	0	0	0	0	0	0	0	0	0
Geotechnical/Hyrotechnical/Environmental activity	0	0	0	0	0	0	0	0	0	0	0
Incidents	84	119	144	167	173	121	117	110	104	122	110
Product released	69	94	127	145	153	100	92	60	41	71	41
Release of hydrocarbon gas	28	42	56	59	67	47	31	31	35	47	35
Release of HVP hydrocarbons ¹	1	1	2	5	2	5	7	8	4	10	1
Release of LVP hydrocarbons ^{2, 3}	30	35	60	72	78	35	36	4	1	3	4
Release of other product	10	16	9	9	6	13	18	17	1	11	1
Release from line pipe body	3	3	5	8	2	8	3	6	5	2	8
Fire	5	0	2	10	6	1	2	6	5	7	4
Explosion	0	1	1	0	0	0	0	1	0	1	1
Pipeline contacted by an object	6	10	2	1	4	3	6	7	7	4	9
Operation beyond limits	4	5	13	5	6	15	7	27	34	20	13
Geotechnical/Hyrotechnical/Environmental activity	0	2	0	0	1	2	1	0	3	16	44
Unauthorized third-party activity affects pipeline structural integrity	1	2	0	0	0	0	0	4	4	0	0

Data extracted 13 March 2019

Notes:

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

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

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

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Table 2

Pipeline occurrences by province or territory

2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Accidents	6	15	11	5	7	11	5	0	0	5	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	0	0
Quebec	0	0	0	0	0	0	0	0	0	0	0
Ontario	1	5	2	2	2	2	0	0	0	1	0
Manitoba	1	0	1	0	0	0	1	0	0	0	0
Saskatchewan	0	2	1	1	1	1	0	0	0	1	0
Alberta	0	4	4	1	2	6	2	0	0	2	0
British Columbia	4	4	3	0	2	2	1	0	0	1	1
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	0	0	0	1	0	0	1	0	0	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0
Incidents	84	119	144	167	173	121	117	110	104	122	110
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	1	0	1	5	2	3	2	3	3	0	2
New Brunswick	0	5	6	14	19	16	9	3	6	4	2
Quebec	2	4	2	2	1	3	1	8	7	4	1
Ontario	17	21	19	22	22	11	18	19	18	14	20
Manitoba	10	9	14	11	10	12	8	9	2	3	3
Saskatchewan	17	13	38	35	45	18	17	6	6	11	4
Alberta	16	36	50	55	45	35	35	30	37	36	31
British Columbia	19	26	13	11	18	17	27	30	24	50	47
Yukon	0	0	0	0	0	0	0	0	0	0	0
Northwest Territories	2	5	1	12	11	6	0	2	1	0	0
Nunavut	0	0	0	0	0	0	0	0	0	0	0
Total Occurrences	90	134	155	172	180	132	122	110	104	127	111

Data extracted 13 March 2019

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Table 3

Pipeline occurrences by facility type or pipeline type

2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Accidents	6	15	11	5	7	11	5	0	0	5	1
Facilities	6	8	9	3	6	8	2	0	0	3	0
Compressor station	2	3	5	0	3	4	2	0	0	0	0
Gas processing plant	2	3	0	0	0	2	0	0	0	1	0
Meter station	1	1	1	2	1	0	0	0	0	0	0
Pump station	0	1	1	0	2	1	0	0	0	0	0
Storage facility	0	0	0	0	0	0	0	0	0	1	0
Terminal	1	0	2	1	0	1	0	0	0	1	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	0	7	2	2	1	3	3	0	0	2	1
Gathering line	0	1	1	0	1	0	0	0	0	0	0
Transmission line	0	6	1	2	0	3	3	0	0	2	1
Incidents	84	119	144	167	173	121	117	110	104	122	110
Facilities	62	93	105	129	132	86	94	75	50	66	41
Compressor station	20	32	26	22	31	15	18	16	12	23	18
Gas processing plant	8	8	5	3	6	11	21	21	3	20	7
Meter station	2	14	20	20	17	19	11	9	17	7	6
Pump station	20	26	30	48	37	19	22	17	9	10	4
Storage facility	1	0	0	1	1	0	0	0	0	0	0
Terminal	10	13	21	27	35	19	18	11	5	6	6
Receipt / Delivery facility	0	0	1	1	0	1	1	0	0	0	0
Other	1	0	2	7	5	2	3	1	4	0	0
Pipeline	22	26	39	38	41	35	23	35	54	56	69
Gathering line	5	9	7	7	8	2	2	5	3	8	11
Transmission line	17	17	32	31	33	33	21	30	51	48	58
Total Occurrences	90	134	155	172	180	132	122	110	104	127	111

Data extracted 13 March 2019

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Table 4**Pipeline occurrence rates**

2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Accidents	6	15	11	5	7	11	5	0	0	5	1
Incidents	84	119	144	167	173	121	117	110	104	122	110
Total number of occurrences	90	134	155	172	180	132	122	110	104	127	111
Total length of operating pipelines ¹ (x1000 km)				68.7	69.7	70.8	70.7	70.8	71.0	70.7	70.6
Accidents per 1000 km of operating pipelines				0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0
Incidents per 1000 km of operating pipelines				2.4	2.5	1.7	1.7	1.6	1.5	1.7	1.6
Occurrences per 1000 km of operating pipelines				2.5	2.6	1.9	1.7	1.6	1.5	1.8	1.6
Total exajoules of energy transported ¹ (EJ)	12.5	12.4	12.4	13.1	13.4	14.0	15.0	15.6	16.1	16.8	17.4
Accidents per EJ	0.5	1.2	0.9	0.4	0.5	0.8	0.3	0.0	0.0	0.3	0.1
Incidents per EJ	6.7	9.6	11.6	12.8	12.9	8.6	7.8	7.0	6.5	7.2	6.3
Occurrences per EJ	7.2	10.8	12.5	13.2	13.4	9.4	8.1	7.0	6.5	7.5	6.4

Data extracted 13 March 2019

Notes:

¹ Source: National Energy Board (NEB)**Transportation Safety Board of Canada**

Table 5

Pipeline occurrences with product release by type of product
2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Hydrocarbon gas	28	48	59	61	70	52	33	31	35	47	36
Gas - sour or acid	2	8	2	3	5	3	3	10	2	7	6
Natural gas	26	40	57	58	65	49	30	21	33	40	30
HVP hydrocarbons	2	1	2	5	2	5	7	8	4	11	1
Natural gas liquids / Liquefied petroleum gas	2	1	2	5	2	5	7	8	4	11	1
LVP hydrocarbons¹	31	37	64	74	78	37	36	4	1	5	4
Condensate	1	1	2	0	0	3	4	0	0	1	0
Condensate - sour	0	0	0	0	0	0	0	0	0	0	0
Crude oil	29	33	58	74	77	33	32	3	1	4	3
Crude oil - sour	0	0	0	0	0	1	0	1	0	0	0
Refined products	1	3	4	0	1	0	0	0	0	0	1
Other products²	11	17	10	9	6	13	18	17	1	12	1
Other - unspecified	11	17	10	9	6	13	18	16	1	0	0
Other - gas	0	0	0	0	0	0	0	1	0	1	0
Other - liquid	0	0	0	0	0	0	0	0	0	11	1
Total Occurrences	72	103	135	149	156	107	94	60	41	75	42

Data extracted 13 March 2019

Notes:

¹ As of July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

² As of January 2017, "other products" are specified to be either liquid or gas.

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Table 6

Pipeline occurrences with product release by quantity released
2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Hydrocarbon gas	28	48	59	61	70	52	33	31	35	47	36
100 m ³ or less	27	45	59	54	69	48	26	20	24	21	20
101 to 30,000 m ³	1	0	0	5	0	3	5	7	10	24	14
30,001 to 100,000 m ³	0	1	0	0	0	0	0	3	1	1	0
100,001 to 1,000,000 m ³	0	0	0	1	1	0	1	0	0	1	2
1,000,001 to 10,000,000 m ³	0	2	0	1	0	0	1	1	0	0	0
Greater than 10,000,000 m ³	0	0	0	0	0	1	0	0	0	0	0
HVP hydrocarbons	2	1	2	5	2	5	7	8	4	11	1
8 m ³ or less	2	1	2	4	2	5	7	8	4	10	1
9 to 25 m ³	0	0	0	0	0	0	0	0	0	1	0
26 to 100 m ³	0	0	0	1	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 hydrocarbons¹	31	37	64	74	78	37	36	4	1	5	4
1.5 m ³ or less	23	30	60	67	76	34	29	0	0	0	2
1.6 to 8 m ³	5	5	0	6	1	2	4	2	1	1	2
9 to 25 m ³	2	0	2	0	0	1	2	1	0	2	0
26 to 100 m ³	1	0	1	0	1	0	0	1	0	1	0
101 to 1000 m ³	0	2	1	1	0	0	1	0	0	0	0
1001 to 10,000 m ³	0	0	0	0	0	0	0	0	0	1	0
Greater than 10,000 m ³	0	0	0	0	0	0	0	0	0	0	0
Other products	11	17	10	9	6	13	18	17	1	12	1
8 m ³ or less	10	17	9	9	6	13	15	14	0	12	0
9 to 25 m ³	1	0	0	0	0	0	2	2	0	0	0
26 to 100 m ³	0	0	1	0	0	0	1	0	0	0	0
101 to 1000 m ³	0	0	0	0	0	0	0	1	1	0	1
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
Total Occurrences	72	103	135	149	156	107	94	60	41	75	42

Data extracted 13 March 2019

Notes:

¹ As of July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

Transportation Safety Board of Canada

Table 7

Pipeline occurrences by province or territory and type of product released

2008-2018

Province or territory	No release of product		Release of hydrocarbon gas		Release of HVP hydrocarbons		Release of LVP hydrocarbons ¹		Release of other product	
	2008-2017 average	2018	2008-2017 average	2018	2008-2017 average	2018	2008-2017 average	2018	2008-2017 average	2018
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	1	1.5	1	0.0	0	0.0	0	0.1	0
New Brunswick	0.0	0	7.6	2	0.0	0	0.0	0	0.3	0
Quebec	2.4	1	0.4	0	0.0	0	0.6	0	0.0	0
Ontario	6.5	14	8.0	5	0.4	0	3.1	0	0.7	1
Manitoba	1.4	1	2.2	1	0.5	1	4.6	0	0.4	0
Saskatchewan	2.2	2	3.2	0	2.0	0	13.3	2	0.5	0
Alberta	12.1	18	13.7	12	0.8	0	11.8	1	0.3	0
British Columbia	5.6	32	9.7	15	0.6	0	0.8	1	8.3	0
Yukon	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Northwest Territories	0.4	0	0.1	0	0.4	0	2.5	0	0.8	0
Nunavut	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Occurrences	30.7	69	46.4	36	4.7	1	36.7	4	11.4	1

Data extracted 13 March 2019

Notes:

¹ As of July 2014, the minimum reporting threshold for releases of low vapour pressure hydrocarbons was established at 1.5 m³.

Transportation Safety Board of Canada

Definitions

Before 1 July 2014

Before 1 July 2014 (under the previous 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

1. 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
2. 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;

As of 1 July 2014

On 1 July 2014, new reporting provisions of the TSB Regulations came into effect. According to section 4(1) of the TSB Regulations, the operator of a pipeline must report the following pipeline occurrences to the Board if they result directly from the operation of the pipeline:

4 (1) The operator of a pipeline must report the following pipeline occurrences to the Board if they result directly from the operation of the pipeline:

- a) a person is killed or sustains a serious injury;
- b) the safe operation of the pipeline is affected by
 - i) damage sustained when another object came into contact with it, or
 - ii) a fire or explosion or an ignition that is not associated with normal pipeline operations;
- c) an event or an operational malfunction results in
 - i) an unintended or uncontrolled release of gas,
 - ii) an unintended or uncontrolled release of HVP hydrocarbons,
 - iii) an unintended or uncontained release of LVP hydrocarbons in excess of 1.5 m³, or
 - iv) an unintended or uncontrolled release of a commodity other than 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 Board;
- f) the pipeline restricts the safe operation of any mode of transportation;
- g) an unauthorized third party activity within the safety zone poses a threat to the safe operation of the pipeline;
- h) a geotechnical, hydraulic or environmental activity poses a threat to the safe operation of the pipeline;
- i) the operation of a portion of the pipeline is interrupted as a result of a situation or condition that poses a threat to any person, property or the environment; or

- j) an unintended fire or explosion has occurred that poses a threat to any person, property or the environment.

Pipeline accidents

As of 1 July 2014, pipeline accidents consist of reportable pipeline occurrences that resulted in

- a) loss of human life;
- b) a serious injury;⁵
- c) a fire or explosion that causes a pipeline or facility to be inoperative;
- d) a low vapour pressure hydrocarbon release in excess of 1.5 m³ that leaves company property or the right-of-way;
- e) a rupture;⁶ or
- f) a toxic plume.⁷

Pipeline incidents

As of 1 July 2014, pipeline incidents consist of all reportable pipeline occurrences other than pipeline accidents.

⁵ As of December 12, 2018, the definition of “serious injury” sustained as a result of a pipeline occurrence is harmonized with the National Energy Board’s Onshore Pipeline Regulations.

⁶ An instantaneous release that immediately impairs the operation of a pipeline such that pressure cannot be maintained.

⁷ As defined in Canadian Standards Association Standard Z662.