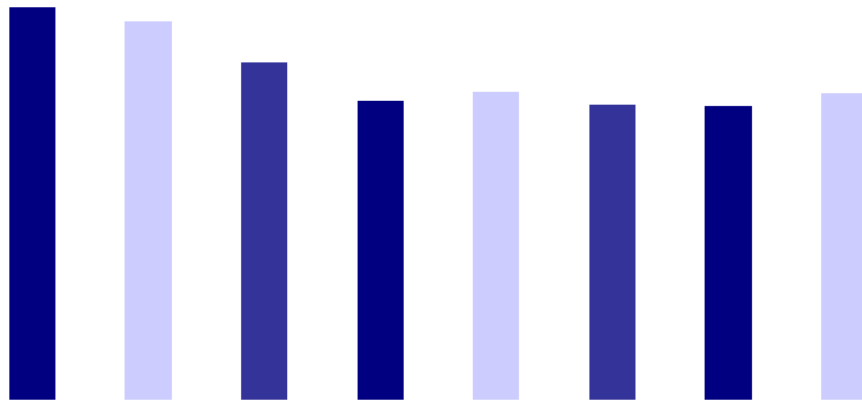




# Statistical Summary Railway Occurrences 2013



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## FOREWORD

This document provides Canadians with an annual summary of selected railway safety data. It covers federally regulated railways only. Non-federally regulated data reported to the TSB are not included in this report. The TSB gathers and uses this data during the course of our investigations to analyse safety deficiencies and identify risks in the Canadian transportation system.

The 2013 data were collected according to the reporting requirements described in the TSB Regulations in force during that calendar year. On March 12, 2014, the TSB issued new regulations that change the reporting requirements effective July 1, 2014. These changes will be reflected only in the 2014 Statistical Summary.

Information in this summary is also posted on the Transportation Safety Board of Canada (TSB) Internet site at [www.tsb.gc.ca](http://www.tsb.gc.ca).

Users of these statistics are advised that, in a live database, the occurrence data are constantly being updated. Consequently, the statistics may change slightly over time. Further, as many occurrences are not formally investigated, information recorded on some occurrences may not have been verified. Therefore, caution should be used when utilizing these statistics. The 2013 statistics presented here reflect the TSB database updated as of February 17, 2014.

To enhance awareness and increase the safety value of the material presented in the TSB Statistical Summary, *Railway Occurrences 2013*, readers are encouraged to copy or reprint in whole, or in part, for further distribution of the data presented (with acknowledgement of the source).

The TSB is an independent agency operating under its own Act of Parliament. Its sole aim is the advancement of transportation safety.

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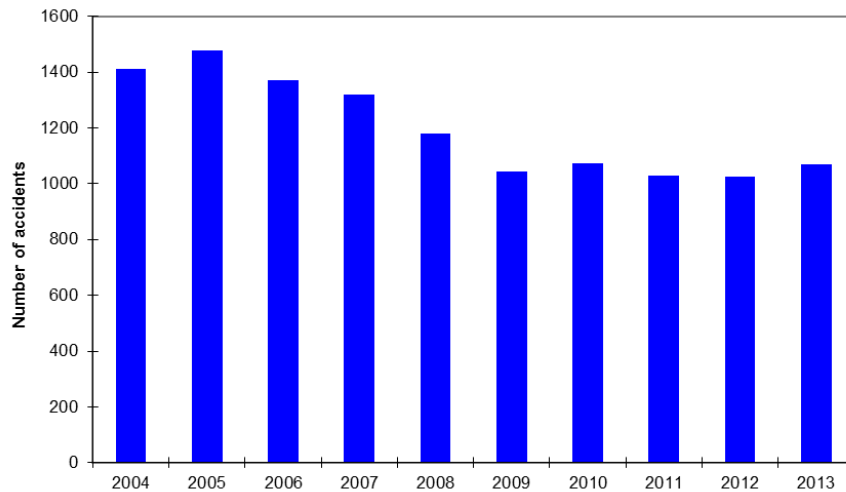
# RAILWAY OCCURRENCES IN 2013

## ACCIDENTS

### Overview of accidents and casualties (Tables 1 to 3 - Appendix A)

In 2013, 1,067 rail accidents<sup>1</sup> were reported to the TSB (Figure 1), a 4% increase from the 2012 total of 1,027 but comparable to the five-year average (2008-2012) of 1,070.

Figure 1. Number of rail accidents, 2004-2013



Freight trains accounted for 70% of all trains involved in rail accidents in 2013. Four percent (49 in total) were passenger trains with the remainder comprising mainly single cars/cuts of cars, locomotives and track units.

The largest proportion of reported rail accidents comprised non-main-track derailments and collisions (57%). In 2013, excluding crossing and trespasser accidents, non-main-track accidents accounted for more than three quarters of the total (78%) (Figure 2). Typically, most non-main-track accidents are minor, occurring during switching operations at speeds of less than 10 mph.

Main-track derailments and collisions accounted for 8% of all accidents in 2013, compared to 7% in the previous year.

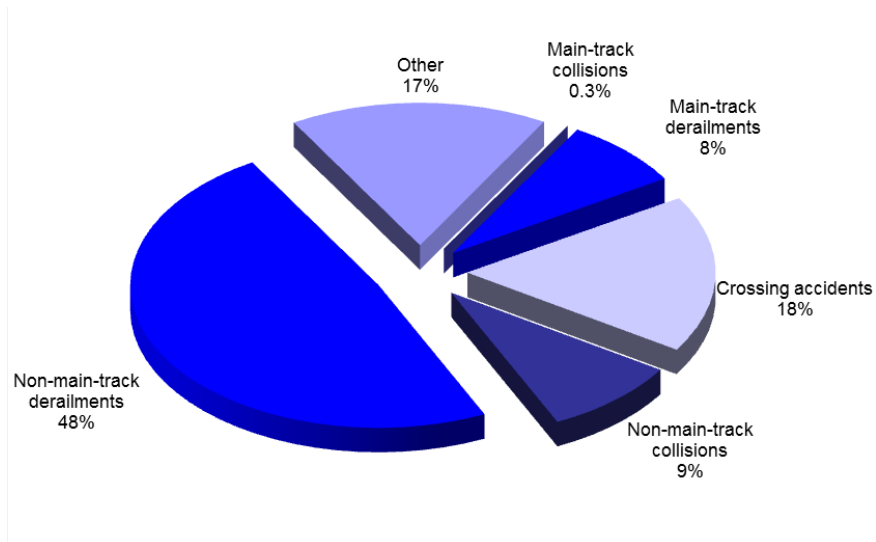
In 2013, 18% of rail accidents involved vehicles or pedestrians at rail crossings, unchanged from the previous five years.

The proportion of remaining accident types<sup>2</sup> (17%) in 2013 is similar to the previous five-year average (16%).

<sup>1</sup> Refer to Appendix B for a definition of a reportable railway accident.

<sup>2</sup> Other accident types are, but not limited to, trespasser, collisions/derailments involving track units, rolling stock collision with object, or employee/passenger accidents.

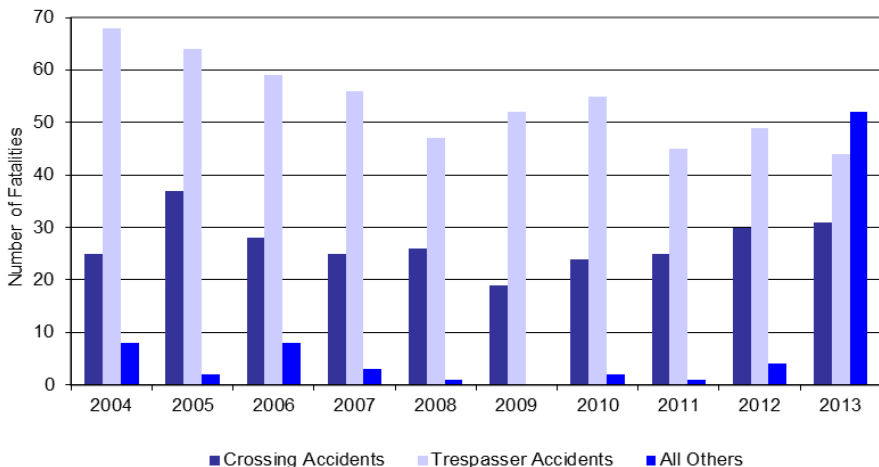
**Figure 2. Percentage of rail accidents by type, 2013**



In 2013, 144 accidents involved dangerous goods<sup>3</sup>, up from 119 in 2012 and up from the five-year average of 133. Seven accidents resulted in a dangerous goods release in 2013, compared to 2 in 2012, and the five-year average of 3. Five of the 7 accidents involved petroleum crude oil. This increase is concurrent with an increase in shipments of crude oil by rail from 500 car loads in 2009 to 160,000 car loads in 2013<sup>4</sup>.

Rail fatalities totalled 127 in 2013, up from the 83 recorded last year and up from the five-year average of 76. Crossing fatalities totalled 31 in 2013, compared to 30 in 2012 and the five-year average of 25 (Figure 3). Trespasser<sup>5</sup> fatalities totalled 44 in 2013, compared to 49 last year and 50 for the five-year average. In 2013, “other fatalities” was the largest fatality category with 52, including 47 lives lost from the Lac-Mégantic accident (R13D0054). Five rail employees were fatally injured compared to 1 for the five-year average.

**Figure 3. Number of fatalities by type of occurrence, 2004-2013**



A total of 39 serious injuries resulted from rail occurrences in 2013 (Figure 4), down from 72 in 2012 and from the five-year average of 60. Trespasser injuries totalled 10 in 2013, down from 21

<sup>3</sup> On occasion, accidents involving dangerous goods can include road vehicles carrying or having recently carried dangerous goods. One such accident in 2013 involved a tanker truck at a crossing, resulting in a release of petroleum crude oil.

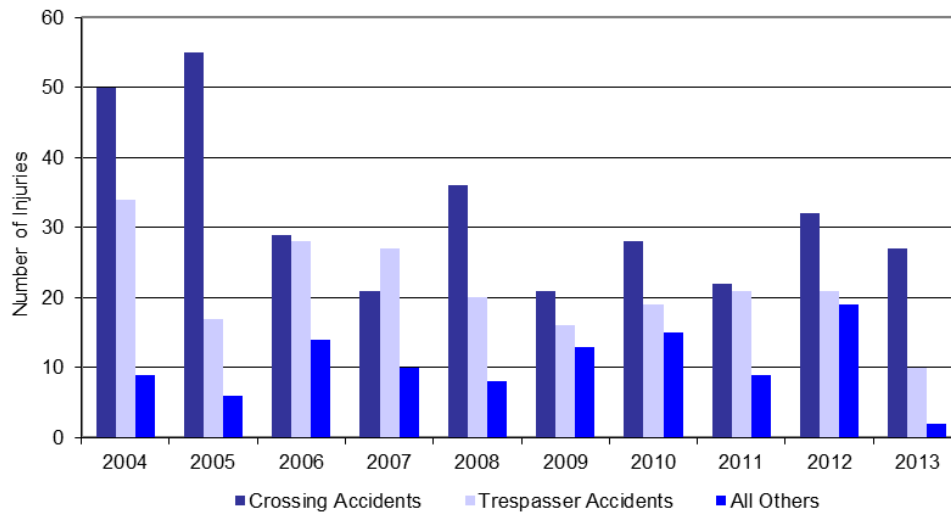
<sup>4</sup> Source: Railway Association of Canada

<sup>5</sup> Trespasser accidents involve persons, primarily pedestrians, not authorized to be on railway rights-of-way and who are struck by rolling stock other than at railway crossings.



last year and from the five-year average of 19. Crossing accidents<sup>6</sup> resulted in 27 injuries, down from 32 in 2012 but comparable to the five-year average of 28. Two rail employees were seriously injured in 2013 compared to 10 for the five-year average.

**Figure 4. Number of serious injuries by type of occurrence, 2004–2013**



The number of main-track accidents<sup>7</sup> totaled 180 in 2013 (Figure 5), up 33% from 135 recorded in 2012 and up 4% from the five-year average of 173. Rail activity on main track decreased by 2% from the previous year<sup>8</sup>. The main-track accident rate in 2013 was 2.3 accidents per million main-track train-miles, up 35% from 1.7 in 2012, but similar to the five-year average of 2.2. Statistical analysis using linear regression indicates a downward trend in accident rates (statistically significant at the  $p < .05$  level)<sup>9</sup> over the past 10 years.

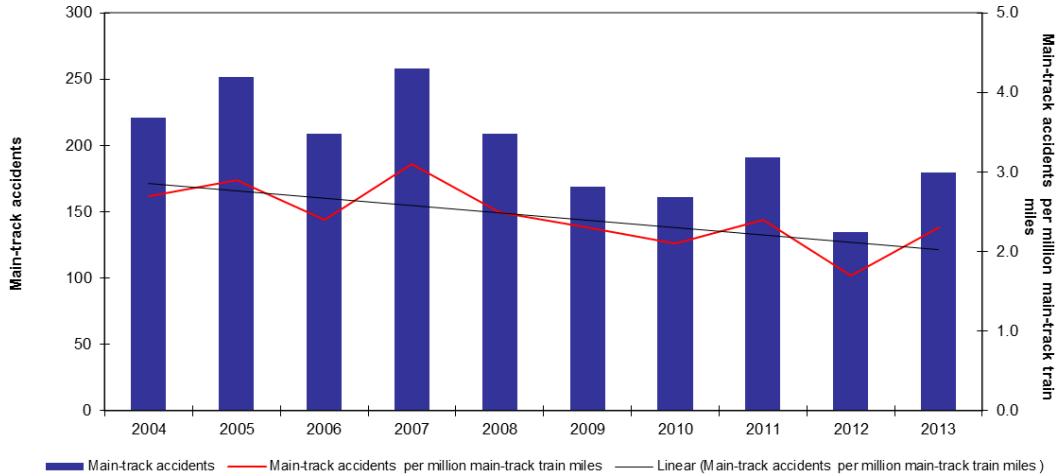
<sup>6</sup> A crossing accident is when a railway rolling stock is involved in a grade-crossing collision with a motor vehicle or pedestrian, resulting in death, serious injury or property damage.

<sup>7</sup> Accidents which occur on main-track or spurs (not including crossing and trespasser accidents) are combined in order to match the figures used in the activity data, which is based on combined main track and spur million track miles.

<sup>8</sup> As provided to TSB by the Strategic Information Branch of Transport Canada.

<sup>9</sup> It is agreed by convention that, for a result to be considered statistically significant, its probability must be lower than 1 in 20 (that is,  $p < .05$ ).

Figure 5. Number of main-track accidents and accident rates, 2004–2013

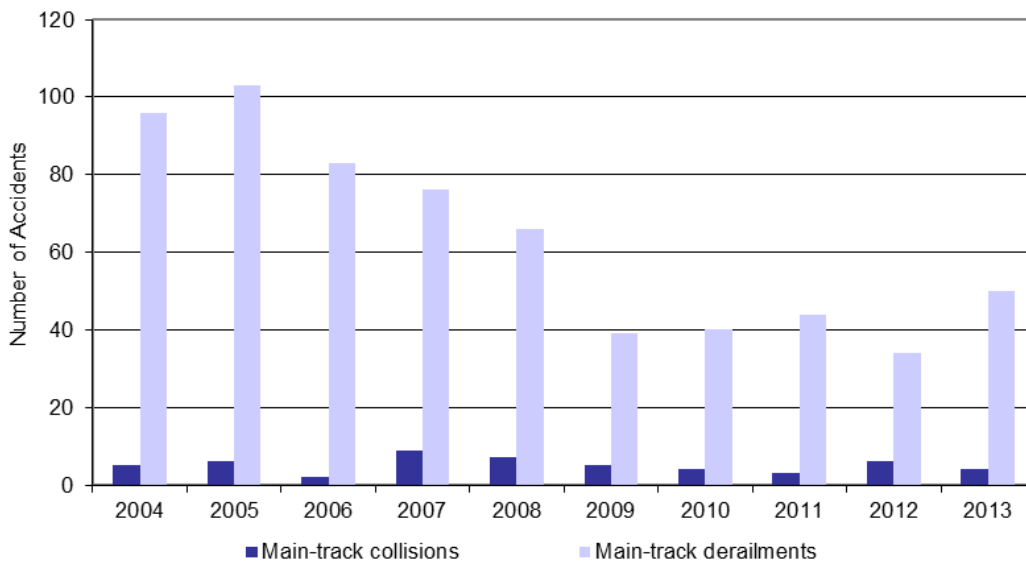


### Accidents by type

Main-track collisions and derailments are the most serious categories of rail accidents in terms of potential risk to the public and financial loss (e.g., when passenger trains are involved or dangerous goods are released from trains that derail while travelling at high speeds in populated areas).

There were four **main-track collisions** (Figure 6) in 2013, down two from the 2012 total and down one from the five-year average of five. No fatalities or serious injuries resulted from main-track collisions in 2013. There was no release of dangerous goods as a result of main-track collisions.

Figure 6. Number of main-track collisions and derailments, 2004–2013



A total of 83 **main-track derailments** (Table 4a & 4b) were reported in 2013, a 26% increase from the 2012 total of 66, but a 6% decrease from the five-year average of 89 (Figure 6). The number of main-track derailments per million main-track train-miles increased to 1.06 in 2013 from 0.82 the previous year, but decreased from the five-year average of 1.13. Statistical analysis using linear regression indicates a downward trend in main-track derailment rates (statistically significant at the  $p < .01$  level) over the past 10 years.

Forty-seven fatalities resulted from main-track derailments in 2013, all associated with the Lac-Mégantic accident (R13D0054). No serious injuries resulted from main-track derailments in 2013.

In 2013, there were 12 main-track derailments involving dangerous goods, up from 6 in 2012, but down from the five-year average of 15. Four of these resulted in a release of product, in all cases petroleum crude oil.

In 2013, 34% of assigned factors<sup>10</sup> for main-track derailments were Track-related compared to the five-year average of 38%. Equipment-related factors accounted for 30% of all assigned factors compared to 31% for the five-year average. Actions-related factors<sup>11</sup> were reported in 28% of main-track accidents compared to the five-year average of 17%.

**Non-main-track collisions** (Tables 5a & 5b) totalled 92 in 2013, down from 101 in 2012 (Figure 7), but comparable to the five-year average of 94. Derailments occurred in 32% of non-main-track collisions, and 83% of these non-main-track collisions involved the derailment of one or two cars.

No fatalities or serious injuries resulted from main-track collisions in 2013.

Dangerous goods were involved in 28% of non-main-track collisions, one of which resulted in a release of sodium chlorate.

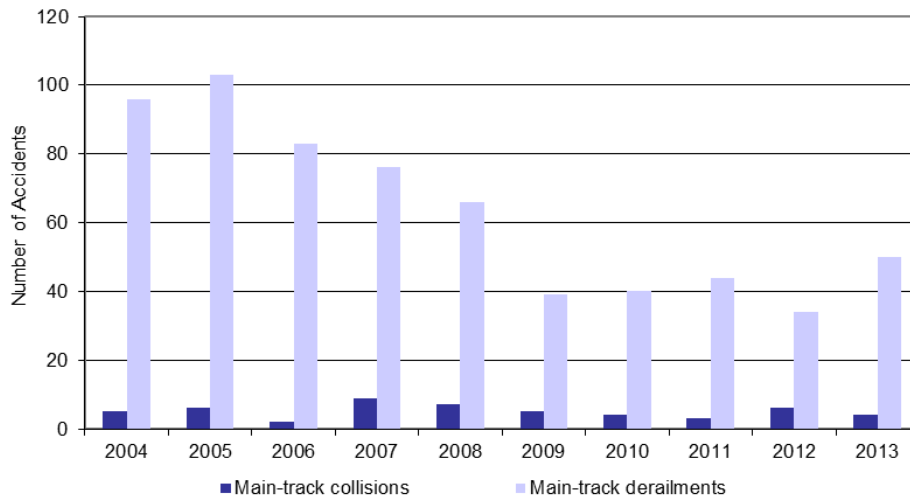
Factors assigned to non-main-track collisions were mostly Actions-related (84%), compared to 83% for the last five-year average. Failure to protect, such as improper positioning of movements and handling of switches, was assigned most often as a factor.

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<sup>10</sup> Occurrences are normally only reported to TSB with one assigned factor. Since multiple factors can contribute to an occurrence, the TSB may assign additional factors to an occurrence. Note that when multiple factors are assigned to an accident they are considered to have acted in combination to contribute to the occurrence.

<sup>11</sup> Actions-related factors are, but not limited to, non-compliance with prescribed procedures such as failure to protect or failure to secure. Note that in previous publications, Actions-related factors were referred to as Rules-related factors.

**Figure 7. Number of non-main-track collisions and derailments, 2004-2013**



There were 520 **non-main-track derailments** (Tables 6a & 6b) in 2013, up 2% from last year, but comparable to the five-year average of 521 (Figure 7). In 22% of these accidents, three or more cars derailed.

No fatalities or serious injuries resulted from non-main-track derailments in 2013.

Dangerous goods cars were involved in 18% of non-main-track derailments, one of which resulted in a release of liquefied petroleum gas.

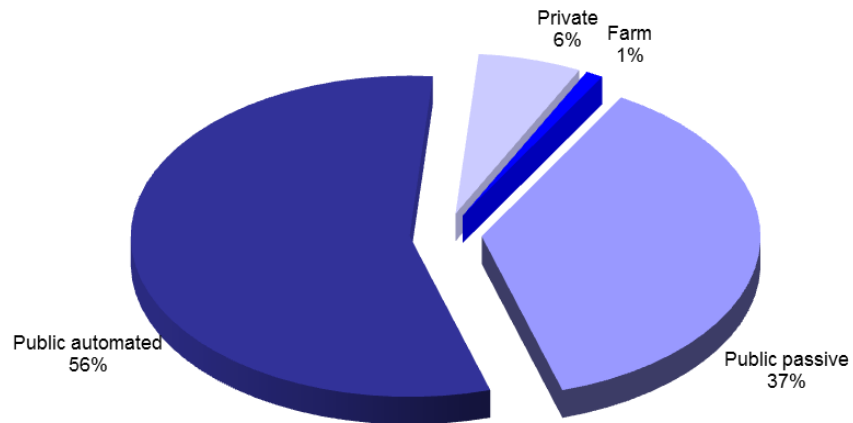
In 2013, Actions-related factors represented 44% of all assigned factors, which is equal to the five-year average. Track-related factors assigned to non-main-track derailments represented 35% of all assigned factors, comparable to the five-year average of 36%. Environmental-related factors represented 11% of all assigned factors in 2013, compared to 6% for the five-year average.

**Crossing accidents** (Tables 7 and 8) represent one of the most serious types of rail accidents in 2013, with 20% of these accidents resulting in either serious or fatal injuries.

There were 188 crossing accidents in 2013, comparable to the 190 recorded in 2012 and to the five-year average of 190. Accidents at public automated crossings (106) increased 12% from the 2012 total of 95 and increased 9% from the five-year average of 97. Accidents at public passive crossings (69) were slightly up compared to the five year average of 64. Accidents at private crossings (11) decreased 56% from the five-year average of 25.

The proportion of crossing accidents that occurred at public automated crossings increased from 50% in 2012 to 56% in 2013 (Figure 8). Despite the presence of additional protection at public automated crossings, and that there are twice as many public passive crossings as public automated crossings, more accidents take place at automated crossings due to the higher vehicle and train traffic volumes at these crossings.

**Figure 8. Percentage of crossing accidents by type of crossing, 2013**



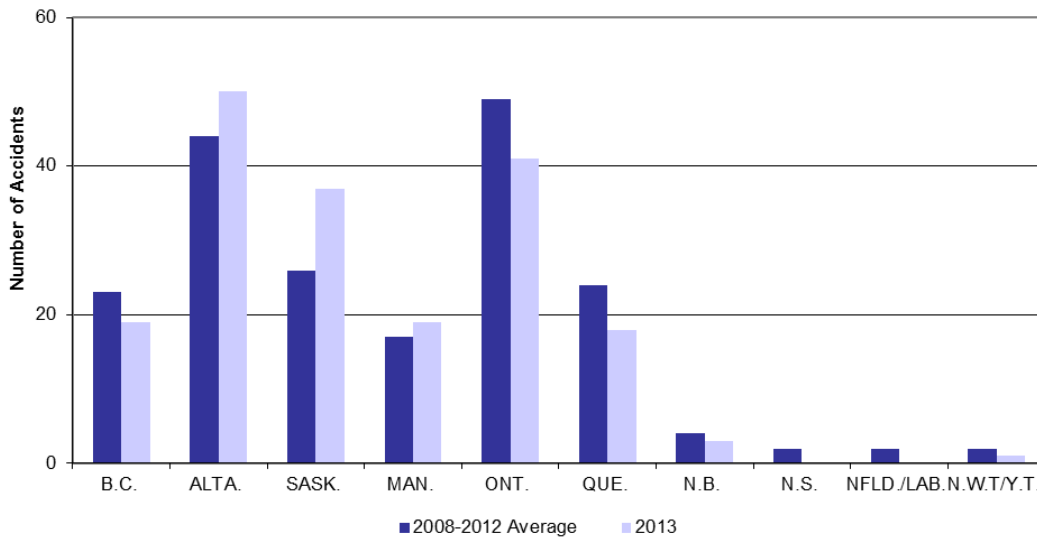
There were 23 fatal crossing accidents in 2013, down from the 26 recorded in 2012, but similar to the five-year average of 22. Although crossing accidents involving pedestrians accounted for 9% (16) of all crossing accidents in 2013, they accounted for 52% (12) of fatal crossing accidents.

Crossing-related fatalities totaled 31 in 2013 compared to 30 in 2012 and to the five-year average of 25. Pedestrians comprised 42% of crossing-related fatalities.

In 2013, 6 crossing accidents resulted in derailments, up from the 2012 total of 3 and also up from the five-year average of 4. In addition, 1 tanker truck was involved in a crossing accident, resulting in a release of petroleum crude oil.

For a third consecutive year, Alberta was the province where the most crossing accidents occurred comprising 27% of all crossing accidents, compared to 23% for the five-year average (Figure 9). Ontario had the second highest total, with 22% of crossings accidents compared to 26% for the 5 five-year average. These two provinces were followed by Saskatchewan with 20%. Manitoba and British Columbia each accounted for 10% of crossing accidents in Canada.

**Figure 9. Number of crossing accidents by province**

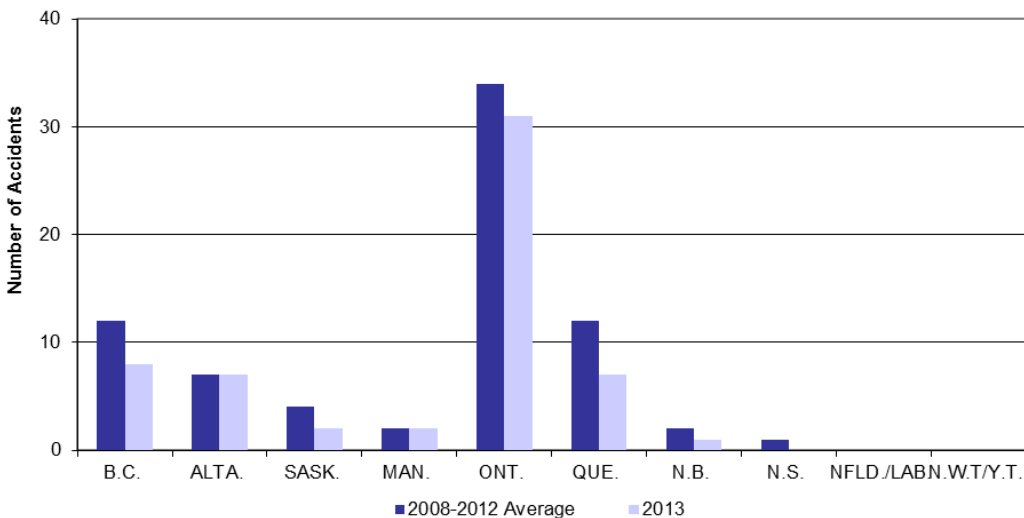


**Trespasser accidents** (Table 9) involve persons, primarily pedestrians, not authorized to be on railway rights-of-way and who are struck by rolling stock other than at railway crossings. These accidents totaled 58 in 2013, down from the 2012 total of 74 and down from the five-year average of 73. Statistical analysis using linear regression indicates a downward trend in trespasser accidents over the past 10 years.

In 2013, Ontario accounted for 53% of trespasser accidents with a total of 31, followed by British Columbia with 14%. Quebec and Alberta each accounted for 12% of all trespasser accidents.

In 2013, the proportion of trespasser accidents that were fatal (76%) was up compared to the five-year average of 66%. The proportion of trespasser accidents resulting in serious injuries (17%) was lower than the five-year average of 26%.

**Figure 10. Number of trespasser accidents by province**

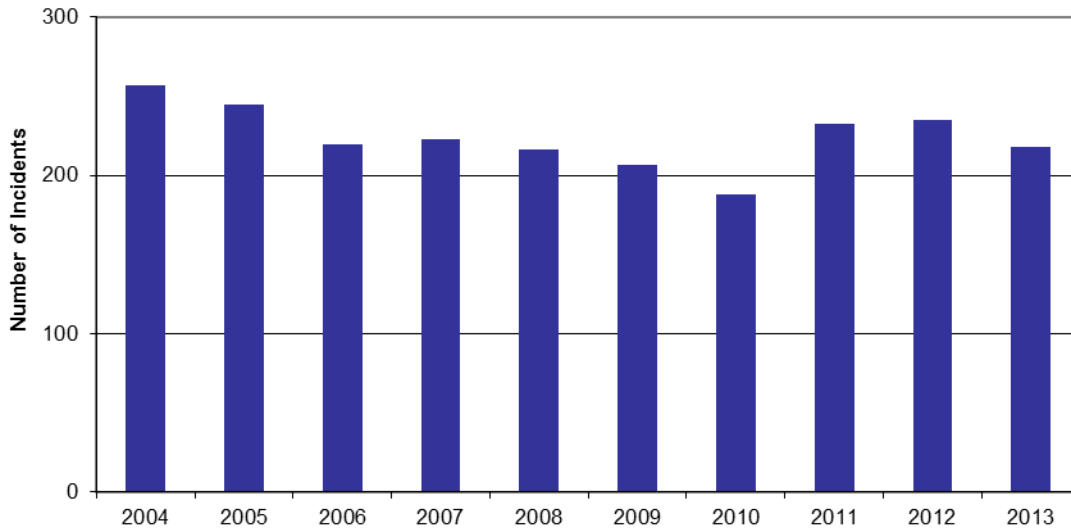


## INCIDENTS

### Overview of incidents (Table 10)

In 2013, there were 218 reported rail incidents, down from the 235 recorded in 2012, but comparable to the five-year average of 216. Movement exceeds the limit of authority (44%) continued to be the main incident type since 2006, followed by dangerous goods leakers (43%) and runaway rolling stock (5%).

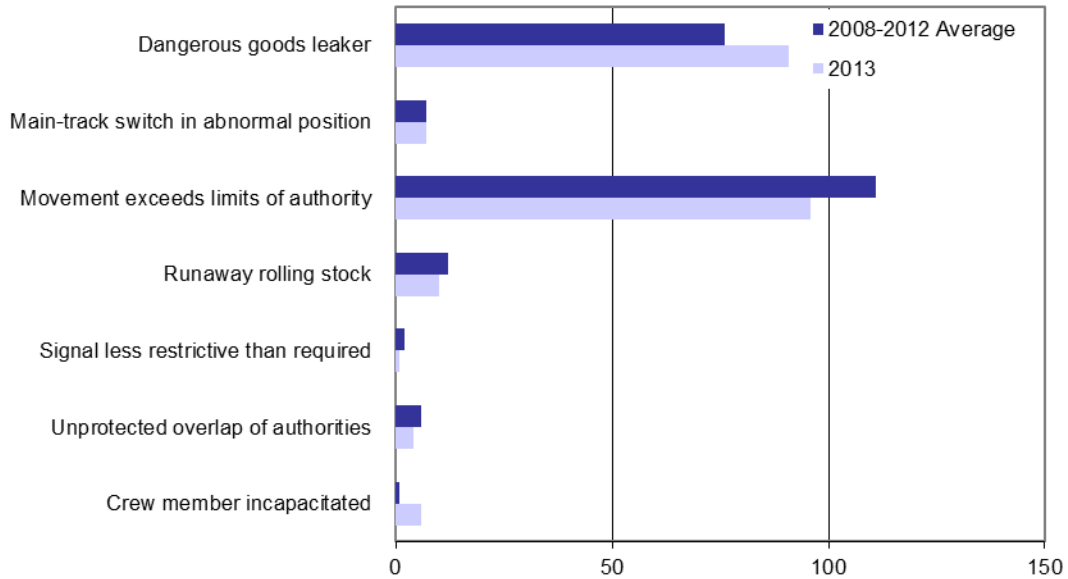
**Figure 11. Number of rail incidents, 2003-2013**



In 2013, there were 96 incidents where the movement exceeded the limit of authority<sup>12</sup>, a 20% decrease from the 120 recorded in 2012 and a 14% decrease from the five-year average of 111 (Figure 12).

<sup>12</sup> Movement exceeds limits of authority is when a train or track unit movement occupies a main track (including signalled sidings, signalled yard tracks and station tracks) or portion thereof without the required authorization.

**Figure 12. Number of rail incidents by type**



A dangerous goods (DG) leaker incident is the unintentional release of a hazardous material while in transit where there is no accident. Thirty-five percent of these incidents involved release of petroleum crude oil. The reported DG leaker incidents totaled 94 in 2013, comparable to the 2012 total of 93, but a 23% increase from the five-year average of 76.



## APPENDICES

### Appendix A – Rail occurrence tables

**Table 1**  
**Railway occurrences and casualties**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Accidents</b>	<b>1413</b>	<b>1476</b>	<b>1371</b>	<b>1320</b>	<b>1179</b>	<b>1043</b>	<b>1074</b>	<b>1028</b>	<b>1027</b>	<b>1067</b>
Main-track collisions	5	6	2	9	7	5	4	3	6	4
Main-track derailments - 1-2 cars	96	103	83	76	66	39	40	44	34	50
Main-track derailments - 3 or more cars	64	95	56	84	62	28	40	58	32	33
Crossing accidents	236	269	243	218	221	188	180	171	190	188
Non-main-track collisions	123	98	110	102	91	95	93	88	101	92
Non-main-track derailments - 1-2 cars (a)	562	587	567	455	427	383	430	372	402	407
Non-main-track derailments - 3 or more cars (a)	151	171	136	175	143	114	110	116	106	113
Collisions/Derailments involving track units	26	19	17	30	27	50	34	33	24	41
Employee/Passenger accidents	12	8	16	18	12	12	9	11	7	8
Trespasser accidents	100	83	91	101	73	72	81	67	74	58
Fires/Explosions	15	17	25	25	12	20	30	23	17	11
Other accident types	23	20	25	27	38	37	23	42	34	62
<b>Reportable incidents</b>	<b>257</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>207</b>	<b>188</b>	<b>233</b>	<b>235</b>	<b>218</b>
Dangerous goods leaker	131	123	82	88	64	78	68	79	93	94
Main-track switch in abnormal position	12	10	7	7	13	4	5	10	5	7
Movement exceeds limits of authority	95	91	101	106	111	106	101	118	120	96
Runaway rolling stock	11	16	12	13	16	11	5	16	10	10
Other reportable incidents	8	5	18	9	12	8	9	10	7	11
<b>Main-track accidents (b)</b>	<b>221</b>	<b>252</b>	<b>209</b>	<b>258</b>	<b>209</b>	<b>169</b>	<b>161</b>	<b>191</b>	<b>135</b>	<b>180</b>
<b>Million main-track train-miles (MMTIM) (c)</b>	<b>82.6</b>	<b>85.8</b>	<b>86.9</b>	<b>84.5</b>	<b>83.1</b>	<b>72.2</b>	<b>77.6</b>	<b>78.4</b>	<b>80.1</b>	<b>78.1</b>
<b>Main-track accidents/MMTIM</b>	<b>2.7</b>	<b>2.9</b>	<b>2.4</b>	<b>3.1</b>	<b>2.5</b>	<b>2.3</b>	<b>2.1</b>	<b>2.4</b>	<b>1.7</b>	<b>2.3</b>
<b>Accidents involving dangerous goods</b>	<b>208</b>	<b>212</b>	<b>185</b>	<b>191</b>	<b>153</b>	<b>133</b>	<b>141</b>	<b>119</b>	<b>119</b>	<b>144</b>
Main-track derailments	37	32	18	35	23	11	13	20	6	12
Crossing accidents	11	15	5	6	4	3	7	1	4	5
Non-main-track collisions	44	44	41	41	33	32	26	20	21	26
Non-main-track derailments	106	112	109	101	84	81	88	72	87	96
Other accident types	10	9	12	8	9	6	7	6	1	5
<b>Accidents with a dangerous goods release</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>7</b>
<b>Fatalities for reportable occurrences</b>	<b>101</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>127</b>
Crossing accidents	25	37	28	25	26	19	24	25	30	31
Trespasser accidents	68	64	59	56	47	52	55	45	49	44
Other occurrence types (d)	8	2	8	3	1	0	2	1	4	52
<b>Serious injuries for reportable occurrences</b>	<b>93</b>	<b>78</b>	<b>71</b>	<b>58</b>	<b>64</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>
Crossing accidents	50	55	29	21	36	21	28	22	32	27
Trespasser accidents	34	17	28	27	20	16	19	21	21	10
Other occurrence types (d)	9	6	14	10	8	13	15	9	19	2

Data extracted February 17, 2014.

Federally regulated railway occurrences.

a. Data from 2004 to 2007 have been adjusted in light of clarifications to industry of TSB's reporting requirements.

b. Accidents which occurred on main-track or spurs, excluding crossing and trespasser accidents.

c. Main-track train-miles are estimated (Source: Transport Canada).

d. See Table 2 for details on occurrences by type.

**Table 2**  
**Fatalities and serious injuries (type of occurrence, person type)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Fatalities for reportable occurrences</b>	<b>101</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>127</b>
Main-track collisions	1	0	0	0	0	0	0	0	0	0
Main-track derailments	2	0	3	1	0	0	1	0	3	47
Crossing accidents	25	37	28	25	26	19	24	25	30	31
Non-main-track collisions	0	0	0	0	0	0	0	0	0	1
Non-main-track derailments	0	0	0	0	0	0	0	0	1	0
Collisions/Derailments involving track units	0	0	0	0	0	0	0	0	0	0
Employee/Passenger accidents	5	2	4	1	1	0	1	1	0	4
Trespasser accidents	68	64	59	56	47	52	55	45	49	44
Other accident types	0	0	0	1	0	0	0	0	0	0
Reportable incidents	0	0	1	0	0	0	0	0	0	0
<b>Serious injuries for reportable occurrences</b>	<b>93</b>	<b>78</b>	<b>71</b>	<b>58</b>	<b>64</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>
Main-track collisions	0	0	0	0	0	0	0	0	1	0
Main-track derailments	0	0	2	2	0	0	8	0	10	0
Crossing accidents	50	55	29	21	36	21	28	22	32	27
Non-main-track collisions	0	0	0	0	0	0	0	0	1	0
Non-main-track derailments	0	1	0	0	0	0	0	0	0	0
Collisions/Derailments involving track units	0	1	0	0	0	2	0	1	0	0
Employee/Passenger accidents	7	4	10	8	7	8	7	7	6	1
Trespasser accidents	34	17	28	27	20	16	19	21	21	10
Other accident types	0	0	0	0	0	3	0	1	0	0
Reportable incidents	2	0	2	0	1	0	0	0	1	1
<b>Fatalities by person type</b>	<b>101</b>	<b>103</b>	<b>95</b>	<b>84</b>	<b>74</b>	<b>71</b>	<b>81</b>	<b>71</b>	<b>83</b>	<b>127</b>
Employees	6	2	6	2	1	0	1	1	4	5
Passengers	0	0	2	0	1	0	1	0	0	0
Pedestrians	4	11	9	11	13	4	8	6	19	15
Vehicle occupants	23	28	16	17	14	17	15	22	17	17
Trespassers	68	62	60	54	43	49	55	42	43	43
Other person types	0	0	2	0	2	1	1	0	0	47
<b>Serious injuries by person type</b>	<b>93</b>	<b>78</b>	<b>71</b>	<b>58</b>	<b>64</b>	<b>50</b>	<b>62</b>	<b>52</b>	<b>72</b>	<b>39</b>
Employees	9	6	14	11	11	13	10	8	9	2
Passengers	0	1	1	0	1	1	7	0	14	1
Pedestrians	2	3	5	6	3	0	4	5	5	3
Vehicle occupants	48	51	25	17	30	22	22	18	23	23
Trespassers	32	17	25	24	19	14	19	21	21	10
Other person types	2	0	1	0	0	0	0	0	0	0

Data extracted February 17, 2014.  
 Federally regulated railway occurrences.

**Table 3**  
**Number of trains (rolling stock) involved in accidents by train type and accident type**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Freight trains</b>	<b>991</b>	<b>1078</b>	<b>1015</b>	<b>1043</b>	<b>991</b>	<b>799</b>	<b>827</b>	<b>811</b>	<b>792</b>	<b>820</b>
Main-track collisions	7	6	2	12	9	8	6	4	8	7
Main-track derailments	149	189	134	155	118	64	74	100	60	78
Non-main-track collisions	119	88	115	96	97	82	93	94	94	86
Non-main-track derailments	413	486	445	476	478	395	410	391	375	408
Crossing accidents	194	220	198	178	186	149	137	133	159	146
Trespasser accidents	73	58	70	69	50	51	54	43	52	39
Other accident types	36	31	51	57	53	50	53	46	44	56
<b>Passenger trains</b>	<b>80</b>	<b>84</b>	<b>72</b>	<b>83</b>	<b>79</b>	<b>68</b>	<b>62</b>	<b>71</b>	<b>49</b>	<b>49</b>
Main-track collisions	1	0	0	0	2	0	0	0	0	0
Main-track derailments	3	5	3	0	3	0	3	2	2	2
Non-main-track collisions	5	4	1	4	3	1	1	5	1	0
Non-main-track derailments	10	10	10	8	17	11	8	5	5	6
Crossing accidents	32	37	34	28	24	25	21	19	14	19
Trespasser accidents	26	24	18	32	21	20	26	24	19	17
Other accident types	3	4	6	11	9	11	3	16	8	5
<b>Track units</b>	<b>55</b>	<b>40</b>	<b>41</b>	<b>50</b>	<b>49</b>	<b>82</b>	<b>63</b>	<b>59</b>	<b>40</b>	<b>76</b>
Main-track collisions	0	0	0	1	0	0	0	0	0	0
Main-track derailments	0	0	0	0	0	0	0	0	0	0
Non-main-track collisions	0	0	0	0	0	0	0	0	0	0
Non-main-track derailments	0	0	0	0	0	0	1	0	0	0
Crossing accidents	8	8	7	3	6	4	9	7	2	7
Trespasser accidents	1	0	1	0	0	0	0	0	0	0
Other accident types	46	32	33	46	43	78	53	52	38	69
<b>Single car/Cut of cars</b>	<b>93</b>	<b>94</b>	<b>144</b>	<b>145</b>	<b>107</b>	<b>141</b>	<b>117</b>	<b>100</b>	<b>123</b>	<b>105</b>
Main-track collisions	0	0	0	0	1	1	0	1	2	0
Main-track derailments	0	0	1	3	1	1	0	0	1	1
Non-main-track collisions	61	49	63	61	52	89	68	52	70	56
Non-main-track derailments	20	37	73	76	49	42	40	36	42	34
Crossing accidents	0	0	1	1	1	2	0	0	1	1
Trespasser accidents	0	0	0	0	0	0	0	0	0	0
Other accident types	12	8	6	4	3	6	9	11	7	13
<b>Other train/rolling stock types (a)</b>	<b>314</b>	<b>271</b>	<b>209</b>	<b>120</b>	<b>64</b>	<b>84</b>	<b>133</b>	<b>98</b>	<b>142</b>	<b>115</b>
Main-track collisions	0	1	0	1	0	0	1	0	1	0
Main-track derailments	8	5	1	5	6	2	3	2	3	2
Non-main-track collisions	18	12	13	10	8	8	20	15	27	13
Non-main-track derailments	283	242	182	84	37	59	93	61	90	74
Crossing accidents	2	4	5	10	8	8	13	12	14	15
Trespasser accidents	0	1	2	0	2	1	2	0	3	2
Other accident types	3	6	6	10	3	6	1	8	4	9

Data extracted February 17, 2014.

Federally regulated railway occurrences.

As some accidents may involve more than one train (rolling stock), the number of trains involved may differ from the total number of accidents.

a. Other train/rolling stock types include mainly locomotive. Note that from 2004 to 2007, the categories also include uncategorized data submitted in June 2007 as a result of clarification to industry of TSB reporting requirements.

**Table 4a**  
**Main-track derailments (province, number of derailed cars)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Main-track derailments by province</b>	<b>160</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>128</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>66</b>	<b>83</b>
Newfoundland & Labrador	0	2	1	1	1	0	3	1	1	1
Nova Scotia	2	0	1	2	0	1	0	0	0	1
New Brunswick	3	3	0	6	1	1	0	0	0	1
Quebec	23	26	21	12	16	8	10	10	8	8
Ontario	52	60	41	39	35	21	19	24	7	18
Manitoba	10	10	9	12	13	4	6	11	8	3
Saskatchewan	15	24	12	18	14	9	14	11	4	13
Alberta	23	29	20	31	30	13	14	21	17	20
British Columbia	32	44	34	39	18	10	14	24	21	18
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Derailments per million main-track train-miles (a)</b>	<b>1.94</b>	<b>2.31</b>	<b>1.60</b>	<b>1.89</b>	<b>1.54</b>	<b>0.93</b>	<b>1.03</b>	<b>1.30</b>	<b>0.82</b>	<b>1.06</b>
<b>Derailments per billion gross ton-miles (b)</b>	<b>0.36</b>	<b>0.43</b>	<b>0.30</b>	<b>0.35</b>	<b>0.28</b>	<b>0.17</b>	<b>0.18</b>	<b>0.22</b>	<b>0.13</b>	
<b>Derailments by number of derailed cars</b>	<b>160</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>128</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>66</b>	<b>83</b>
1 car	81	87	66	62	54	29	29	35	28	45
2 cars	15	16	17	14	12	10	11	9	6	5
3 cars	6	9	3	11	6	3	2	6	4	5
4 cars	7	9	0	8	5	3	3	6	2	6
5 to 10 cars	22	40	23	27	24	12	18	26	15	8
11 cars or more	29	37	30	38	27	10	17	20	11	14

Data extracted February 17, 2014.

Federally regulated railway occurrences.

a. The source of the million main-track train-miles is Transport Canada. Data are estimated.

b. The source of the billion gross ton-miles is the Railway Association of Canada.

**Table 4b**  
**Main-track derailments (assigned factors)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Total number of assigned factors</b>	<b>191</b>	<b>229</b>	<b>173</b>	<b>182</b>	<b>152</b>	<b>81</b>	<b>89</b>	<b>118</b>	<b>67</b>	<b>86</b>
Environmental	7	10	8	17	12	6	1	6	4	5
Equipment	72	84	54	61	42	23	26	45	19	26
Axle	14	21	5	14	11	5	7	9	6	7
Brakes	9	13	8	8	3	6	2	7	3	1
Draft system	13	10	5	10	4	4	4	4	4	2
Superstructure	3	7	6	8	5	0	2	3	2	6
Truck	12	8	8	5	5	1	5	6	2	5
Wheel	19	23	21	16	12	7	6	16	2	5
Track	72	87	67	59	61	34	32	40	27	29
Geometry	23	34	24	25	22	12	14	16	14	9
Object on track	0	4	2	1	1	1	2	2	0	2
Other track material	8	2	4	2	6	5	2	4	2	0
Rail	25	35	25	18	27	7	8	11	7	11
Roadbed	7	2	8	3	4	5	2	5	4	4
Switch	3	2	2	0	1	2	2	1	0	1
Turnouts	3	4	0	6	0	0	1	0	0	1
Actions	23	29	21	20	20	10	24	19	14	24
Failure to protect	4	4	3	4	8	3	2	5	4	5
Failure to secure	1	0	0	0	0	1	0	0	1	1
Failure to use equipment properly	6	11	6	6	6	5	10	7	2	9
Improper loading/lifting	1	1	2	3	1	1	3	0	2	1
Improper placement/position for task	6	5	1	2	1	0	4	2	2	6
Inadequate/Inappropriate maintenance of equipment	3	4	4	1	3	0	1	1	0	0
Operating at improper speed	1	2	5	1	1	0	3	3	1	2
Vandalism	0	0	0	2	0	0	0	0	1	0
Other actions	1	2	0	1	0	0	1	1	1	0
Other assigned factors	17	19	23	25	17	8	6	8	3	2
<b>Derailments by number of assigned factors</b>	<b>160</b>	<b>198</b>	<b>139</b>	<b>160</b>	<b>128</b>	<b>67</b>	<b>80</b>	<b>102</b>	<b>66</b>	<b>83</b>
One factor assigned	137	171	119	146	116	58	72	90	65	69
More than one factor assigned	21	24	18	12	12	9	7	12	1	8
No factor assigned	2	3	2	2	0	0	1	0	0	6

Data extracted February 17, 2014.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Equipment or Track), therefore the breakdowns may not sum up to the category total.

**Table 5a**  
**Non-main-track collisions (province, number of derailed cars)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Non-main-track collisions by province</b>	<b>123</b>	<b>98</b>	<b>110</b>	<b>102</b>	<b>91</b>	<b>95</b>	<b>93</b>	<b>88</b>	<b>101</b>	<b>92</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	1	0	0	0	0	0
New Brunswick	1	1	5	1	3	1	1	1	1	2
Quebec	20	17	19	11	5	6	11	12	8	10
Ontario	28	28	25	29	26	24	15	16	10	16
Manitoba	14	11	7	13	9	15	14	15	21	13
Saskatchewan	4	5	8	10	10	5	3	8	12	10
Alberta	33	20	24	23	27	25	29	16	34	28
British Columbia	23	16	21	14	10	19	20	20	15	13
Northwest Territories/Yukon	0	0	1	1	0	0	0	0	0	0
<b>Collisions by number of derailed cars</b>	<b>123</b>	<b>98</b>	<b>110</b>	<b>102</b>	<b>91</b>	<b>95</b>	<b>93</b>	<b>88</b>	<b>101</b>	<b>92</b>
No cars derailed	69	63	56	41	33	49	51	50	63	63
1 car	26	14	28	23	23	26	23	20	14	17
2 cars	14	12	10	15	11	8	7	8	10	7
3 cars	9	5	7	8	9	5	4	3	6	2
4 cars	2	1	4	8	8	3	4	5	5	0
5 to 10 cars	3	3	5	5	5	3	3	2	3	3
11 cars or more	0	0	0	2	2	1	1	0	0	0

Data extracted February 17, 2014.  
 Federally regulated railway occurrences.

**Table 5b**  
**Non-main-track collisions (assigned factors)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Total number of assigned factors</b>	<b>148</b>	<b>118</b>	<b>129</b>	<b>119</b>	<b>98</b>	<b>107</b>	<b>110</b>	<b>104</b>	<b>114</b>	<b>105</b>
Environmental	3	4	1	4	1	4	1	2	4	1
Equipment	1	1	1	4	1	2	1	3	4	4
Track	4	10	2	2	4	6	5	1	3	6
Actions	114	83	109	90	72	83	95	91	100	88
Failure to protect	70	52	64	59	49	55	64	64	63	50
Failure to secure	30	16	26	18	6	12	10	10	16	11
Failure to use equipment properly	8	4	6	5	10	11	9	8	10	13
Improper placement/position for task	1	1	1	0	0	0	2	0	0	2
Inadequate/Inappropriate communications	1	2	2	3	0	1	3	4	2	3
Inadequate/Inappropriate maintenance of equipment	0	0	1	0	0	0	0	0	0	0
Operating at improper speed	3	6	8	5	7	4	6	5	8	8
Vandalism	0	0	1	0	0	0	0	0	0	0
Other actions	1	2	0	0	0	0	1	0	1	1
Other assigned factors	26	20	16	19	20	12	8	7	3	6
<b>Collisions by number of assigned factors</b>	<b>123</b>	<b>98</b>	<b>110</b>	<b>102</b>	<b>91</b>	<b>95</b>	<b>93</b>	<b>88</b>	<b>101</b>	<b>92</b>
One factor assigned	99	78	92	89	86	83	76	72	88	65
More than one factor assigned	23	19	17	13	4	12	17	16	13	20
No factor assigned	1	1	1	0	1	0	0	0	0	7

Data extracted February 17, 2014.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Actions), therefore the breakdowns may not sum up to the category total.

**Table 6a**  
**Non-main-track derailments (province, number of derailed cars)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Non-main-track derailments by province</b>	<b>713</b>	<b>758</b>	<b>703</b>	<b>630</b>	<b>570</b>	<b>497</b>	<b>540</b>	<b>488</b>	<b>508</b>	<b>520</b>
Newfoundland & Labrador	0	1	1	0	0	2	0	0	1	1
Nova Scotia	23	13	14	6	3	4	4	3	4	2
New Brunswick	19	16	24	11	16	8	9	13	6	5
Quebec	150	133	117	68	70	50	59	63	72	53
Ontario	227	233	201	164	135	108	112	106	91	91
Manitoba	58	57	52	47	65	73	65	53	59	56
Saskatchewan	57	70	48	69	50	43	62	75	68	86
Alberta	94	125	143	145	109	127	147	103	141	139
British Columbia	85	109	103	119	122	80	82	71	66	86
Northwest Territories/Yukon	0	1	0	1	0	2	0	1	0	1
<b>Deraillments by number of derailed cars</b>	<b>713</b>	<b>758</b>	<b>703</b>	<b>630</b>	<b>570</b>	<b>497</b>	<b>540</b>	<b>488</b>	<b>508</b>	<b>520</b>
1 car	406	419	397	328	291	278	293	263	279	309
2 cars	156	168	170	127	136	105	137	109	123	98
3 cars	61	60	44	79	56	40	50	46	39	48
4 cars	38	34	40	40	24	32	16	29	22	26
5 to 10 cars	46	69	44	53	54	41	41	36	40	36
11 cars or more	6	8	8	3	9	1	3	5	5	3

Data extracted February 17, 2014.

Federally regulated railway occurrences.



**Table 6b**  
**Non main-track derailments (assigned factors)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Total number of assigned factors</b>	<b>754</b>	<b>796</b>	<b>741</b>	<b>659</b>	<b>603</b>	<b>534</b>	<b>602</b>	<b>543</b>	<b>540</b>	<b>568</b>
Environmental	38	33	18	40	47	22	27	54	27	65
Equipment	71	74	52	53	41	48	50	54	48	33
Axle	0	1	1	3	1	0	0	0	1	0
Brakes	12	21	13	9	12	18	13	12	6	7
Draft system	15	12	8	11	9	15	16	11	10	3
Superstructure	10	11	9	9	7	4	2	11	8	5
Truck	15	13	11	7	4	3	9	6	14	13
Wheel	17	15	10	10	5	8	9	13	8	5
Track	251	292	282	235	230	205	214	162	196	196
Appurtenances	1	3	2	1	1	1	0	0	3	1
Geometry	91	112	97	99	86	94	94	66	76	71
Object on track	8	8	14	1	6	5	1	2	3	2
Other track material	22	21	25	14	8	11	13	7	6	5
Rail	24	24	32	29	31	24	22	18	30	36
Roadbed	13	13	6	8	8	5	15	24	12	9
Signals	1	0	0	1	1	0	0	0	0	1
Switch	42	51	48	34	55	37	49	30	50	55
Turnouts	41	54	48	32	27	24	16	12	11	11
Actions	336	349	329	282	254	221	286	241	249	248
Failure to protect	176	202	193	181	165	147	173	141	137	134
Failure to secure	26	22	7	8	9	3	7	2	11	5
Failure to use equipment properly	81	84	93	66	48	47	69	70	74	77
Improper loading/lifting	1	8	3	0	7	2	5	7	4	5
Improper placement/position for task	9	14	10	6	4	9	8	8	11	5
Inadequate/Inappropriate communications	5	4	4	1	5	2	3	2	2	3
Inadequate/Inappropriate maintenance of equipment	9	2	5	7	0	0	2	0	0	1
Operating at improper speed	11	4	6	5	9	6	14	4	3	9
Vandalism	12	6	7	5	5	4	5	6	3	4
Other actions	6	3	1	3	2	1	0	1	4	5
Other assigned factors	58	48	60	49	31	38	25	32	20	26
<b>Derailments by number of assigned factors</b>	<b>713</b>	<b>758</b>	<b>703</b>	<b>630</b>	<b>570</b>	<b>497</b>	<b>540</b>	<b>488</b>	<b>508</b>	<b>520</b>
One factor assigned	643	695	630	585	538	465	481	423	476	429
More than one factor assigned	50	49	51	36	31	32	59	60	32	69
No factor assigned	20	14	22	9	1	0	0	5	0	22

Data extracted February 17, 2014.

Federally regulated railway occurrences.

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Some factors are assigned by highest category (e.g. Equipment or Track), therefore the breakdowns may not sum up to the category total.

**Table 7**  
**Crossing accidents by type and protection**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Crossing accidents</b>	<b>236</b>	<b>269</b>	<b>243</b>	<b>218</b>	<b>221</b>	<b>188</b>	<b>180</b>	<b>171</b>	<b>190</b>	<b>188</b>
Public crossings	183	231	197	181	177	157	154	148	168	175
Passive warnings	64	70	77	73	63	56	67	60	73	69
Automated warnings	119	161	120	108	114	101	87	88	95	106
Flashing lights & bells	77	105	76	63	73	55	56	51	47	54
Gates	42	53	36	37	39	44	30	36	48	45
Other automated warnings	0	3	8	8	2	2	1	1	0	7
Private crossings	49	33	44	31	38	30	24	15	18	11
Farm crossings	4	5	2	6	6	1	2	8	4	2
<b>Fatal accidents</b>	<b>21</b>	<b>34</b>	<b>25</b>	<b>22</b>	<b>24</b>	<b>17</b>	<b>19</b>	<b>24</b>	<b>26</b>	<b>23</b>
<b>Fatalities</b>	<b>25</b>	<b>37</b>	<b>28</b>	<b>25</b>	<b>26</b>	<b>19</b>	<b>24</b>	<b>25</b>	<b>30</b>	<b>31</b>
Public crossings	25	32	25	23	25	18	23	21	29	31
Passive warnings	6	7	8	5	5	6	5	5	12	3
Automated warnings	19	25	17	18	20	12	18	16	17	28
Flashing lights & bells	11	13	10	8	9	6	8	9	7	7
Gates	8	12	7	9	11	6	10	7	10	21
Other automated warnings	0	0	0	1	0	0	0	0	0	0
Private crossings	0	4	3	2	0	1	1	1	0	0
Farm crossings	0	1	0	0	1	0	0	3	1	0
<b>Serious injuries</b>	<b>50</b>	<b>55</b>	<b>29</b>	<b>21</b>	<b>36</b>	<b>21</b>	<b>28</b>	<b>22</b>	<b>32</b>	<b>27</b>
Public crossings	47	48	27	21	30	20	25	20	29	26
Passive warnings	15	9	8	13	12	9	14	3	15	7
Automated warnings	32	39	19	8	18	11	11	17	14	19
Flashing lights & bells	21	23	13	5	16	8	5	9	6	4
Gates	11	15	6	3	2	3	6	8	8	13
Other automated warnings	0	1	0	0	0	0	0	0	0	2
Private crossings	3	6	2	0	4	1	3	1	3	0
Farm crossings	0	1	0	0	2	0	0	1	0	1
<b>Number of public crossings (a)</b>	<b>18,678</b>	<b>18,216</b>	<b>18,553</b>	<b>17,450</b>	<b>n/a</b>	<b>17,425</b>	<b>16,718</b>	<b>16,413</b>	<b>16,229</b>	<b>16,113</b>
Passive warnings	12,501	12,060	12,138	11,439	n/a	11,722	11,112	10,826	10,628	10,548
Automated warnings	6,177	6,156	6,415	6,011	n/a	5,703	5,606	5,587	5,601	5,565
Flashing lights & bells	4,147	4,059	4,193	3,827	n/a	3,526	3,365	3,308	3,288	3,235
Gates	2,007	2,073	2,175	2,150	n/a	2,116	2,181	2,220	2,254	2,275
Other automated warnings	23	24	47	34	n/a	61	61	59	59	55

Data extracted February 17, 2014.

Federally regulated railway occurrences.

a. Source: Transport Canada IRIS database. The data for 2013 was provided on February 26, 2014. Figures for previous years are snapshots provided historically by Transport Canada.

**Table 8**  
**Crossing accidents by province**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Crossing accidents</b>	<b>236</b>	<b>269</b>	<b>243</b>	<b>218</b>	<b>221</b>	<b>188</b>	<b>180</b>	<b>171</b>	<b>190</b>	<b>188</b>
Newfoundland & Labrador	0	1	1	0	0	0	0	2	0	0
Nova Scotia	2	5	4	3	0	3	3	0	1	0
New Brunswick	2	3	2	2	2	4	5	6	3	3
Quebec	62	56	39	39	27	28	21	27	18	18
Ontario	69	92	66	52	66	48	52	39	40	41
Manitoba	19	18	20	20	13	18	20	7	26	19
Saskatchewan	16	19	26	23	28	24	24	23	32	37
Alberta	38	56	56	48	54	36	37	47	48	50
British Columbia	26	18	29	31	31	25	18	20	22	19
Northwest Territories/Yukon	2	1	0	0	0	2	0	0	0	1
<b>Crossing accidents on main-track (a)</b>	<b>229</b>	<b>259</b>	<b>233</b>	<b>211</b>	<b>212</b>	<b>180</b>	<b>174</b>	<b>167</b>	<b>180</b>	<b>173</b>
<b>Crossing accidents per million main-track train-miles (b)</b>	2.8	3.0	2.7	2.5	2.6	2.5	2.2	2.1	2.3	2.2
<b>Crossing accidents with derailment</b>	<b>9</b>	<b>12</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>6</b>
<b>Fatalities</b>	<b>25</b>	<b>37</b>	<b>28</b>	<b>25</b>	<b>26</b>	<b>19</b>	<b>24</b>	<b>25</b>	<b>30</b>	<b>31</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	0	0	0	0	0	1	1	0	0	0
New Brunswick	0	1	0	0	0	0	1	2	1	1
Quebec	9	7	7	1	6	1	1	4	1	2
Ontario	12	16	13	12	12	3	6	9	11	14
Manitoba	1	2	2	1	2	3	2	2	3	0
Saskatchewan	1	2	1	2	3	5	5	1	8	3
Alberta	2	6	4	5	2	3	6	5	4	7
British Columbia	0	3	1	4	1	3	2	2	2	4
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Serious injuries</b>	<b>50</b>	<b>55</b>	<b>29</b>	<b>21</b>	<b>36</b>	<b>21</b>	<b>28</b>	<b>22</b>	<b>32</b>	<b>27</b>
Newfoundland & Labrador	0	1	1	0	0	0	0	0	0	0
Nova Scotia	0	2	0	0	0	0	2	0	0	0
New Brunswick	2	0	0	1	1	0	0	0	0	0
Quebec	14	11	4	2	3	3	3	4	1	1
Ontario	11	21	9	7	11	3	5	7	8	15
Manitoba	6	1	4	2	4	3	5	1	7	0
Saskatchewan	3	4	2	4	5	4	2	2	6	5
Alberta	9	12	8	4	7	5	8	4	7	5
British Columbia	5	3	1	1	5	3	3	4	3	1
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Number of public crossings (c)</b>	<b>18,678</b>	<b>18,216</b>	<b>18,553</b>	<b>17,450</b>	<b>n/a</b>	<b>17,425</b>	<b>16,718</b>	<b>16,413</b>	<b>16,229</b>	<b>16,113</b>
Newfoundland & Labrador	7	7	7	5	n/a	5	5	5	5	5
Nova Scotia	119	119	160	119	n/a	180	180	180	180	182
New Brunswick	190	190	308	148	n/a	347	340	340	340	342
Quebec	1,680	1,660	1,767	1,662	n/a	1,958	1,964	1,966	1,968	1,967
Ontario	4,772	4,768	4,947	4,083	n/a	4,312	3,996	3,915	3,884	3,792
Manitoba	2,372	2,360	2,363	2,309	n/a	2,027	2,003	2,002	1,939	1,929
Saskatchewan	5,764	5,462	5,439	4,986	n/a	4,065	3,933	3,710	3,656	3,652
Alberta	2,872	2,791	2,655	2,854	n/a	3,009	2,786	2,783	2,777	2,767
British Columbia	883	840	888	1,265	n/a	1,507	1,485	1,486	1,454	1,451
Northwest Territories/Yukon	19	19	19	19	n/a	15	26	26	26	26

Data extracted February 17, 2014.

Federally regulated railway occurrences.

a. Includes crossing accidents on main-track or on spurs.

b. The source for million main-track train-miles is Transport Canada. Data is estimated.

c. Source: Transport Canada IRIS database. The data for 2013 was provided on February 26, 2014. Figures for previous years are snapshots provided historically by Transport Canada.

**Table 9**  
**Trespasser accidents by province**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Trespasser accidents</b>	<b>100</b>	<b>83</b>	<b>91</b>	<b>101</b>	<b>73</b>	<b>72</b>	<b>81</b>	<b>67</b>	<b>74</b>	<b>58</b>
Newfoundland & Labrador	1	0	0	0	0	0	0	0	0	0
Nova Scotia	2	2	0	2	1	0	0	1	0	0
New Brunswick	0	2	1	4	2	3	1	2	1	1
Quebec	16	14	9	12	13	12	13	9	11	7
Ontario	45	43	43	47	37	35	35	32	33	31
Manitoba	3	6	5	7	4	1	3	1	2	2
Saskatchewan	3	0	2	0	3	4	3	2	6	2
Alberta	16	6	17	14	7	4	9	7	10	7
British Columbia	14	10	14	15	6	13	17	13	11	8
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Fatal accidents</b>	<b>67</b>	<b>64</b>	<b>58</b>	<b>56</b>	<b>47</b>	<b>52</b>	<b>53</b>	<b>44</b>	<b>47</b>	<b>44</b>
<b>Fatalities</b>	<b>68</b>	<b>64</b>	<b>59</b>	<b>56</b>	<b>47</b>	<b>52</b>	<b>55</b>	<b>45</b>	<b>49</b>	<b>44</b>
Newfoundland & Labrador	0	0	0	0	0	0	0	0	0	0
Nova Scotia	1	1	0	1	0	0	0	0	0	0
New Brunswick	0	1	0	3	2	3	0	1	1	1
Quebec	10	12	6	7	10	7	10	8	8	4
Ontario	32	33	31	32	24	30	27	26	21	27
Manitoba	3	4	1	2	2	1	2	1	2	2
Saskatchewan	4	0	1	0	2	2	2	1	4	2
Alberta	11	5	11	7	4	3	6	2	8	4
British Columbia	7	8	9	4	3	6	8	6	5	4
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0
<b>Serious injuries</b>	<b>34</b>	<b>17</b>	<b>28</b>	<b>27</b>	<b>20</b>	<b>16</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>10</b>
Newfoundland & Labrador	1	0	0	0	0	0	0	0	0	0
Nova Scotia	1	1	0	0	1	0	0	0	0	0
New Brunswick	0	1	1	1	0	0	0	1	0	0
Quebec	6	2	3	3	0	3	4	2	2	3
Ontario	13	9	13	7	12	5	5	6	12	3
Manitoba	0	1	3	4	2	0	1	0	0	0
Saskatchewan	0	0	1	0	1	1	1	1	0	0
Alberta	5	1	3	4	2	1	3	4	2	1
British Columbia	8	2	4	8	2	6	5	7	5	3
Northwest Territories/Yukon	0	0	0	0	0	0	0	0	0	0

Data extracted February 17, 2014.  
 Federally regulated railway occurrences.

**Table 10**  
**Reportable incidents (incident type, assigned factors)**  
**2004-2013**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Reportable incidents</b>	<b>257</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>207</b>	<b>188</b>	<b>233</b>	<b>235</b>	<b>218</b>
Dangerous goods leaker	131	123	82	88	64	78	68	79	93	94
Main-track switch in abnormal position	12	10	7	7	13	4	5	10	5	7
Movement exceeds limits of authority	95	91	101	106	111	106	101	118	120	96
Runaway rolling stock	11	16	12	13	16	11	5	16	10	10
Signal less restrictive than required	1	1	6	0	3	1	4	3	1	1
Unprotected overlap of authorities	5	3	7	8	7	7	4	7	5	4
Crew member incapacitated	2	1	5	1	2	0	1	0	1	6
<b>Total assigned factors</b>	<b>267</b>	<b>257</b>	<b>217</b>	<b>173</b>	<b>225</b>	<b>212</b>	<b>195</b>	<b>239</b>	<b>240</b>	<b>209</b>
Dangerous goods leaker location/component	131	124	78	73	61	77	68	77	90	88
Equipment	2	1	1	0	5	2	2	1	2	4
Individual/Personal	20	17	13	4	3	0	0	0	1	3
Track	0	2	3	0	2	2	1	5	2	2
<b>Actions</b>	<b>111</b>	<b>112</b>	<b>116</b>	<b>90</b>	<b>148</b>	<b>130</b>	<b>114</b>	<b>144</b>	<b>136</b>	<b>102</b>
Failure to protect	39	35	31	38	55	34	35	55	37	32
Failure to secure	6	11	8	1	10	6	4	11	3	4
Failure to use equipment properly	6	2	5	1	3	4	3	5	1	7
Inadequate/Inappropriate communication	5	7	11	4	6	8	8	11	14	7
Lap of authority	48	50	55	41	65	72	59	59	75	47
Vandalism	4	4	0	3	1	3	1	2	4	1
Other actions	3	3	6	2	8	3	4	1	2	4
Other assigned factors	3	1	6	6	6	1	10	12	9	10
<b>Incidents by number of assigned factors</b>	<b>257</b>	<b>245</b>	<b>220</b>	<b>223</b>	<b>216</b>	<b>207</b>	<b>188</b>	<b>233</b>	<b>235</b>	<b>218</b>
One factor assigned	212	199	164	163	206	202	181	225	225	200
More than one factor assigned	27	28	24	5	9	5	7	7	7	4
No factor assigned	18	18	32	55	1	0	0	1	3	14

Data extracted February 17, 2014.

Federally regulated railway occurrences.

TSB does not investigate all occurrences; therefore, assigned factors may not represent TSB findings. Occurrences are normally only reported to TSB with one assigned factor. The TSB may assign additional factors.

Some factors are assigned by highest category (e.g. Actions), therefore the breakdowns may not sum up to the category total.

## Appendix B - Definitions

The following definitions apply to railway occurrences that are required to be reported pursuant to the Canadian Transportation Accident Investigation and Safety Board Act and the associated regulations.<sup>13</sup>

### Railway occurrence

- a) Any accident or incident associated with the operation of rolling stock on a railway, and
- b) Any situation or condition that the Board has reasonable grounds to believe could, if left unattended, induce an accident or incident described in paragraph (a) above.

### Reportable railway accident

An accident resulting directly from the operation of rolling stock, where:

- a) a person sustains a serious injury or is killed as a result of:
  - i) being on board or getting off the rolling stock, or
  - ii) coming into contact with any part of the rolling stock or its contents, or
- b) the rolling stock:
  - i) is involved in a grade-crossing collision,
  - ii) is involved in a collision or derailment and is carrying passengers,
  - iii) is involved in a collision or derailment and is carrying dangerous goods, or is known to have last contained dangerous goods the residue of which has not been purged from the rolling stock,
  - iv) sustains damage that affects its safe operation, or causes or sustains a fire or explosion, or causes damage to the railway, that poses a threat to the safety of any person, property or the environment.

### Reportable railway incident

An incident resulting directly from the operation of rolling stock, where:

- a) a risk of collision occurs;
- b) an unprotected main track switch is left in an abnormal position;
- c) a railway signal displays a less restrictive indication than that required for the intended movement of rolling stock;
- d) an unprotected overlap of operating authorities occurs;
- e) a movement of rolling stock exceeds the limits of its authority;
- f) there is runaway rolling stock;
- g) any crew member whose duties are directly related to the safe operation of the rolling stock is unable to perform the crew member's duties as a result of a physical incapacitation that poses a threat to the safety of any person, property or the environment; or
- h) any dangerous goods are released on board or from the rolling stock.

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<sup>13</sup> In effect until 12 March, 2014.

**Serious injury**

An injury that is likely to require admission to a hospital.

**Dangerous goods involvement**

An accident is considered to have dangerous goods involvement if any car in the consist carrying (or having last contained) a dangerous good derails, strikes or is struck by any other rolling stock or object. It does not mean that there was any release of any product. Also included are crossing accidents in which the motor vehicle involved (e.g. tanker truck) is carrying a dangerous good.