

# Railway Occurrences (Incidents and Accidents) in Northern BC

2003 - 2013



## Photo Credits:

Top Left: 2009 - Train derailment on edge of Skeena River at Terrace, BC: photo from Terrace Daily News.

Top Right: 2012 – Engine 8847 and containers off the rails at Pyramid, BC: photo from Prince Rupert Rail Images.

Bottom: 2007 – Tanker collision and fire, Fraser River, Prince George, BC: photos from 250News and CBC News.

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## **Introduction**

Railways connect us to the world and move our goods. Railways run alongside and through the naturally occurring watersheds and transportation corridors of the Peace, Pine, Fraser, Stuart, Nechako and Skeena River systems and through the many communities that we call home.

In 2011, more than half a million carloads / intermodal units moved through the northern BC transportation corridor, alongside rivers and through northern communities. By 2015, this volume is expected to double. As evidence of the anticipated growth in rail systems volume and to accommodate more efficient trains of 12,000 ft length, CN Rail has extended or constructed 21 sidings between Edmonton and the Port of Prince Rupert since 2004.<sup>1, 2</sup>

This preliminary enumeration of railway occurrences (incidents and accidents) is an effort to broaden and deepen our understanding of the impacts and benefits that industrial development in general, and railways in particular, are having in northern BC.

## **Acknowledgements**

Over the years, several public media sources, including 250News, the CBC and Terrace Daily News have reported on the rail incidents and accidents occurring in northern BC. We relied heavily upon these public sources especially at the outset of this work. We are very grateful and we have done our best to reference the work of these agencies.

It was upon discovering <http://railroaded.wordpress.com/> that we became acutely aware of our lack of understanding with respect to the size, frequency, and nature of rail events occurring in northern BC and indeed across Canada. This new found awareness prompted further enquiry and then a series of conversations with the Transportation Safety Board (TSB).

The TSB then provided us with much of the data that we needed to create and validate this summary. The TSB also helped us to better understand the transportation industries and their regulatory environments. The TSB's attention to our needs came at a time when many of their key staff were dealing with the recent railway tragedy in Lac Megantic, Quebec.

The service we received from the TSB was exceptional. We are very grateful to the TSB for their expertise and assistance. They are the industry experts with respect to this data.

Very early in our work and towards gaining some additional perspectives, we contacted the CN Rail communications department and provided them with a much smaller and very preliminary version of this document. We had hoped to receive some feedback.

This draft is intended as a discussion document. The contents of this document are solely my responsibility and do not reflect any official position or policy of Northern Health. Any errors or omissions are truly unintentional and will be corrected as soon as I am notified.

Document last updated on December 4, 2013.

James Haggerstone.

## Definitions and Terms

**Canadian Emergency Transport Centre – CANUTEC**

**Canadian National Dangerous Goods Official - CNDGO**

**Collision** - means an impact, other than an impact associated with normal operating circumstances, between ships, rolling stock or aircraft, or between a ship, rolling stock or aircraft and another object; <sup>3</sup>

**Dangerous Goods** - means any product, substance or organism included by its nature or by the *Transportation of Dangerous Goods Regulations* in any of the classes listed in the schedule to the *Transportation of Dangerous Goods Act*, and includes the dangerous materials listed in Schedule I to the *Dangerous Bulk Materials Regulations* and dangerous goods referred to in subsection 3(1) of the *Dangerous Goods Shipping Regulations*, that are transported in bulk by ship; <sup>4</sup> ( please also refer to UN Numbers on next page)

**Derailment** - means an accident whereby one or more wheels of rolling stock leave the rails, other than by reason of an explosion or a collision; <sup>5</sup>

**Frog** – this is an X shaped piece of rail found at rail way switches. The frog is designed to present an unbroken running surface to wheel flanges on trains proceeding through a switch.

**Reportable Railway Accident** - means 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 on or 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
- (v) 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;

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- (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 any person, property or the environment, or
- (h) any dangerous goods are released on board or from the rolling stock;

**Standard Reflectorized Crossing Sign** - SRCS

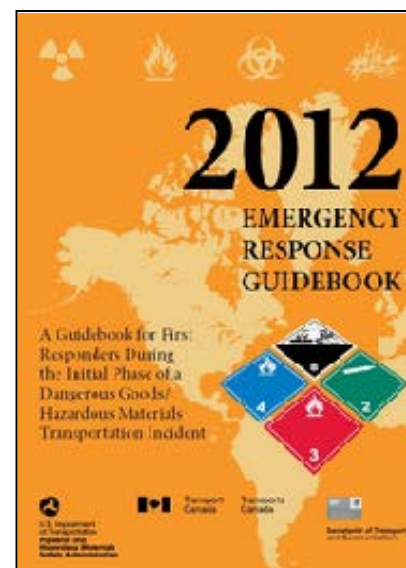
**Transportation Safety Board of Canada** - TSB

**UN Numbers** or **UN IDs** are four-digit numbers that identify Dangerous Goods, and articles in the framework of international transport. Some Dangerous Goods have their own UN numbers while groups of chemicals or products with similar properties may receive a common UN number. A chemical in its solid state may receive a different UN number than the liquid phase if their hazardous properties differ significantly.<sup>6</sup>

**UN Numbers** can be searched using the online [Emergency Response Guide Book ERG2012](#).

The ERG2012 was developed jointly by Transport Canada (TC), the U.S. Department of Transportation (DOT), the Secretariat of Transport and Communications of Mexico (SCT) and with the collaboration of CIQUIME (Centro de Información Química para Emergencias) of Argentina, for use by fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods.<sup>7</sup>

Access the ERG at the Transport Canada Website:  
<http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/ergmenu.aspx>



## Preliminary Findings

### 1. Disclosure of Railway Occurrences in northern BC

- The detailed information contained in this draft report is not the kind of information that is published by the rail industry in Canada or United States. One must read the financial reports of the rail industry closely to find any acknowledgement of historical occurrences (accidents and incidents) and recognition of potential future liabilities.<sup>8,9</sup>
- These events are recognized in the financial reports with the following language:
  - CN Rail: "...In railroad and related transportation operations, it is possible that derailments or other accidents, including spills and releases of hazardous materials, may occur that could cause harm to human health or to the environment. As a result, the Company may incur costs in the future, which may be material...."<sup>10</sup>
  - CP Rail: "...A train accident involving hazardous materials, including toxic inhalation hazard commodities such as chlorine and anhydrous ammonia could result in catastrophic losses from personal injury and property damage, which could have a material adverse effect on CP's operations, financial condition and liquidity...."<sup>11</sup>
- Neither CN Rail nor CP Rail publishes specific information with respect to the number, frequency, nature, location and scope of the railway occurrences that have occurred within their respective areas of operations. This of course, includes the events occurring within the natural transportation corridors of northern British Columbia.<sup>12, 13</sup>
- In absence of any specific information flowing from the rail industry, public disclosure and awareness of rail events has been almost entirely dependent upon the efforts of public media sources and websites such as <http://railroaded.wordpress.com>.
- Recently with the addition of high quality and complementary data from the TSB, we have been able to create this preliminary enumeration of rail events in northern BC.

### 2. Responsibility for the Reporting of Railway Events

- Reportable Incidents and Accidents" are defined in TSB Regulations 2(1).<sup>14 15 16 17</sup>
- The determination of whether an event is reportable and the responsibility for reporting the incident, remain principally with the rail carriers.<sup>18 19 20 21</sup>
- In British Columbia, the BC Environmental Management Act, Spill Reporting Regulation applies to derailments where spillage of certain cargos exceeds a threshold quantity.<sup>22</sup>

### 3. Transportation Safety Board Investigations in Northern BC

The TSB investigates an occurrence when there is a high probability that it can advance transportation safety and reduce risks to persons, property or the environment.<sup>23</sup>

The TSB also monitors occurrence statistics to identify trends and emerging safety issues. It reviews developments in transportation safety and identifies safety risks that it believes government and the transportation industry should address to reduce injury and loss of life.

Of the more than 3200 marine, air, pipeline and railway incidents that are reported each year in Canada, only a handful are chosen to be fully investigated by the TSB.<sup>24 25</sup>

Four railway occurrences in northern BC have been the subject of full TSB investigations and have resulted in the publication of reports that are visible to the public at large.<sup>26</sup>

Year	TSB Occurrence No.	Brief Description of Events
2011	R11V0039 <sup>27</sup>	Train was travelling westward at approximately 45 mph when it derailed 36 of 104 loaded coal cars near Fort Fraser, BC. No reported injuries.
2011	R11V0254 <sup>28</sup>	Train was travelling westward at approximately 29mph when it derailed 19 of 103 loaded coal cars near Caribou BC (West of Vanderhoof, BC). No reported injuries.
2007	R07V0213 <sup>29</sup>	A runaway yard assignment in Prince George rail yards struck the 13 <sup>th</sup> car of a train which was entering the north end of the yard. The 13 <sup>th</sup> car was a load of gasoline. Other cars, locomotives and fuel tankers became involved. An unknown amount of fuel entered Fraser River.
2003	R03V0083 <sup>30</sup>	Two CN rail crew members were deceased when the bridge they were travelling over near McBride BC, collapsed. The locomotives toppled into the gulley below followed by the lumber cars which were destroyed in the fire that followed.

The detailed investigations undertaken by the TSB are exhaustive and enlightening. For example in both R11V0039 and R11 V054 it was found that wheel impact loading, metal fatigue, shelling, wheel wear and fractures were causal factors to the wheel fractures and ultimately the derailments. The rail industry (notably CN Rail) was credited for its major investments in detection equipment and there were also recommendations made regarding the decision criteria for when to remove certain wheel components from service.<sup>31 32</sup>

The published investigative reports can be accessed through the TSB.

<http://www.bst-tsb.gc.ca/eng/rappports-reports/rail/index.asp>

#### 4. Summary of Reported Occurrences (Incidents and Accidents)

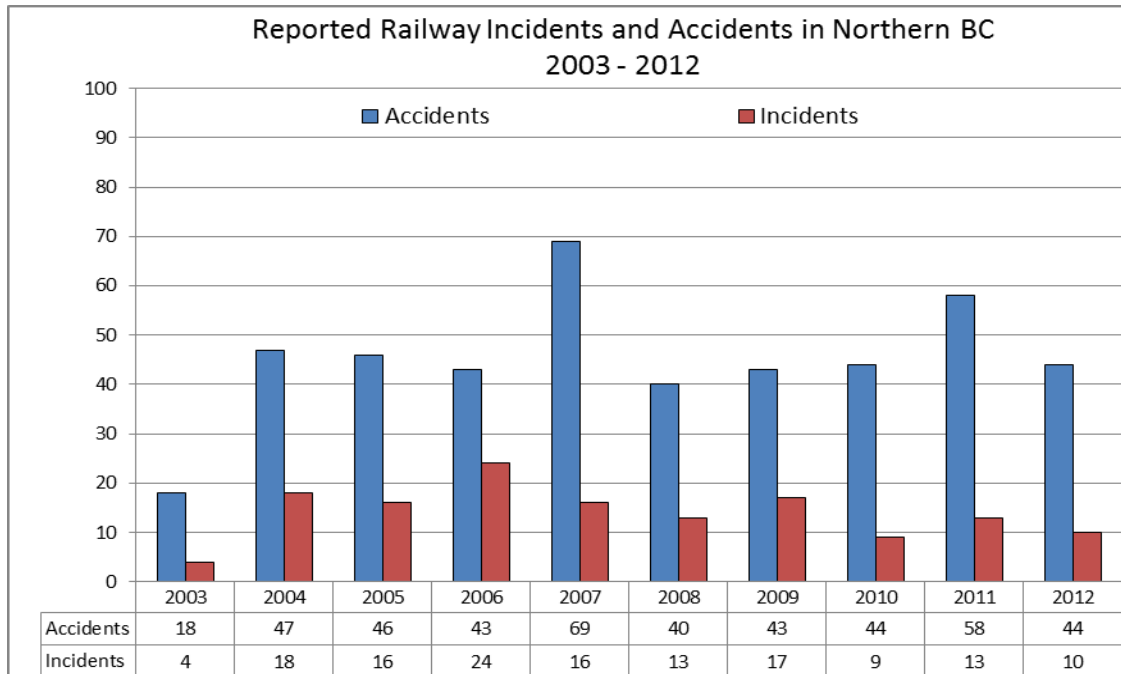


Figure1: Data Source; Transportation Safety Board: Selected Northern BC Subdivisions. July 15, 2013.

Table 1: Summary of Reported Incidents and Accidents in Northern BC: 2003 - 2012		
Occurrence Type	Description of the Occurrence	Total
Accident	Collision involving Track Unit	18
Accident	Crossing Accident	38
Accident	Derailment involving Track Unit	3
Accident	Employee	10
Accident	Fire	6
Accident	Main Track Train Collision	4
Accident	Main Track Derailment	83
Accident	Non-Main Track Collision	35
Accident	Non-Main Track Derailment	226
Accident	Rolling Stock Collision with abandoned Vehicle	1
Accident	Rolling Stock Collision with Object	8
Accident	Rolling Stock Damage without derailment / Collision	8
Accident	Trespasser	12
Incident	Crew member Incapacitated	1
Incident	Dangerous Goods Leaker	64
Incident	Main Track switch in Abnormal Position	3
Incident	Movement exceeds Limits off Authority	62
Incident	Runaway Rolling Stock (please see page 13 for explanation)	3 (14)
Incident	Signal Less Restrictive than Required	1
Incident	Unprotected Overlap of Authorities	5

Table 1: Data Source: Transportation Safety Board: Selected Northern BC Subdivisions. July 15, 2013.



## 5. Summary of Reported Incidents (Details by Incident Type)

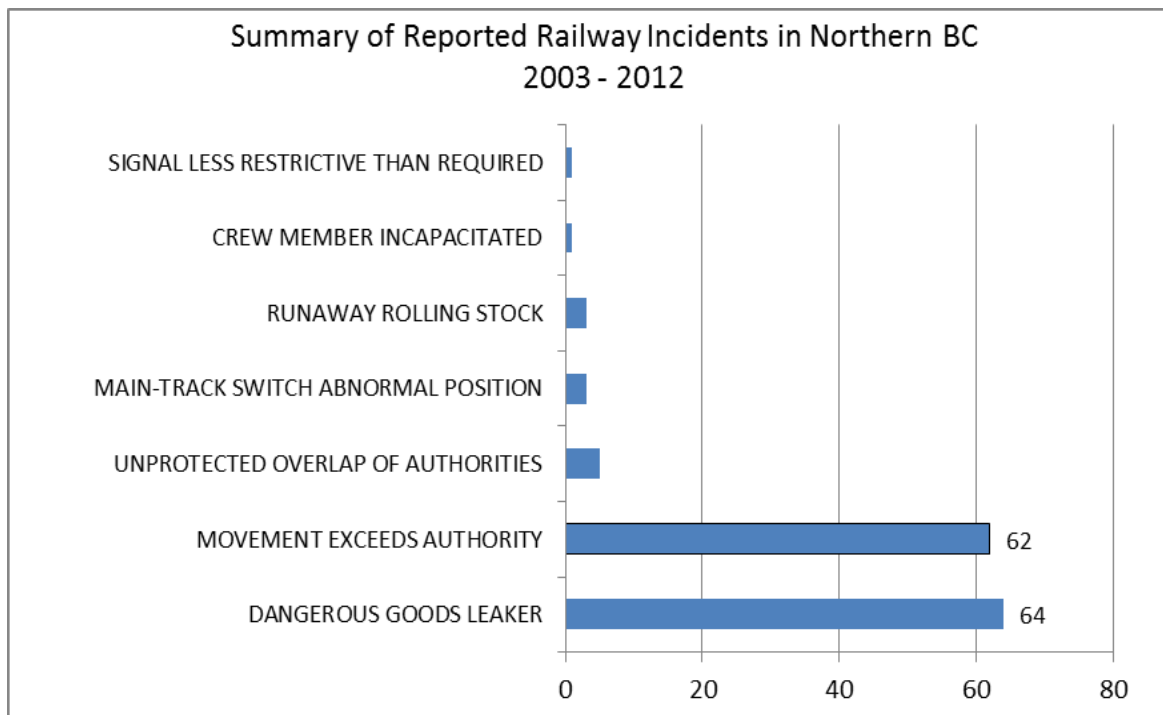


Figure 2: Data Source; Transportation Safety Board: Selected Northern BC Subdivisions. July 15, 2013.

**Reportable Railway Incident** - means 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 any person, property or the environment, or
- (h) any dangerous goods are released on board or from the rolling stock;

\* Note: the above graph does not show the number of events "Involving Dangerous Goods." During the 2003 – 2013 period there were approximately 149 such occurrences. These events are explored later in this report (please see page 17). In addition, the number of "Runaway Rolling-Stock" occurrences, are significantly understated in the data. We discuss this understatement on page 13 of this report.

## 6. Summary of Reported Accidents (Details by Accident Type)

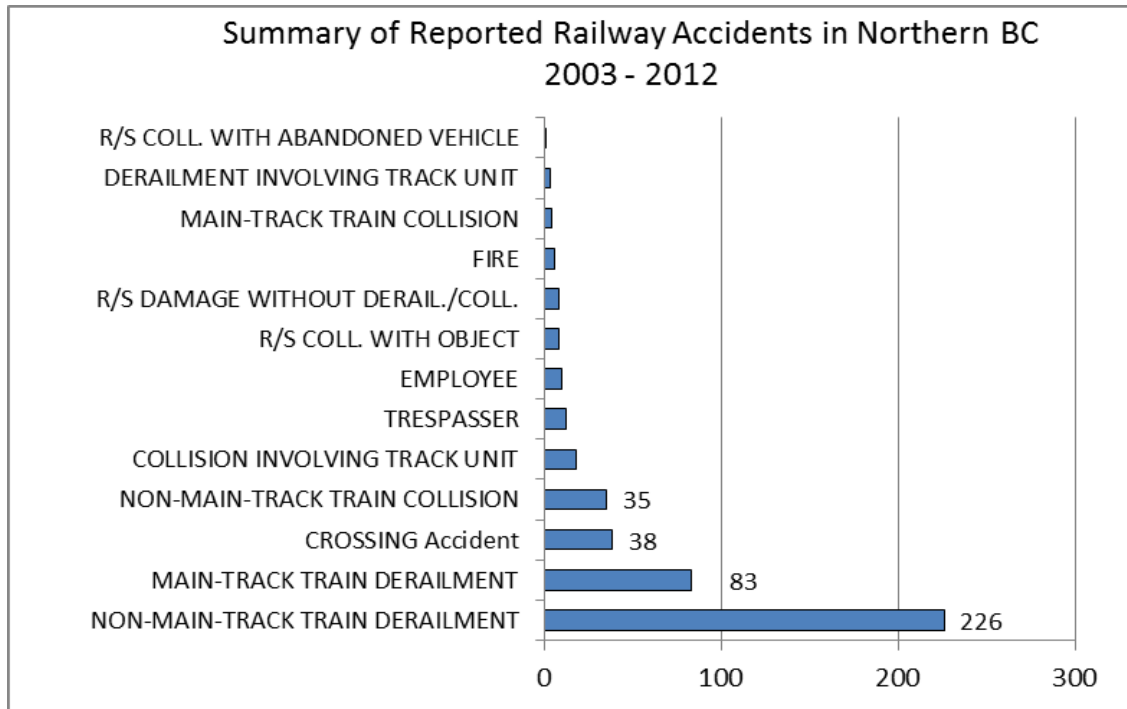


Figure 3: Data Source; Transportation Safety Board: Selected Northern BC Subdivisions. July 15, 2013.

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  - (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
  - (v) 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;

## 7. Occurrences by Closest Community

Railways run alongside and through the naturally occurring watersheds and transportation corridors of the Peace, Pine, Fraser, Stuart, Nechako and Skeena River systems and through the many communities that we call home. In this table we have summarized the occurrences (accidents and incidents) according to the closest community.

<b>Table 2: Summary of Reported Occurrences by Nearest Community.</b>											
<b>Nearest Community</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
ALEZA LAKE				1							1
BEAR LAKE				1							1
BEND				2	1						3
BLUE RIVER					2				1	1	4
BURNS LAKE		1	1		1	1	2	1	2		9
CANOE RIVER										1	1
CARIBOO									1	1	2
CARNABY							1				1
CEDARVALE						1					1
CHETWYND		2	1	7	1	6	2	4	7	5	35
COLEBANK									1	1	2
COTWOOD									1		1
CROYDON									1		1
DAWSON CREEK		1	1	1		1		2		2	8
DRIFTWOOD CREEK							1				1
ENDAKO		1	1		2			1	1		6
ENGEN					1						1
EXSTEW										1	1
FORT FRASER									1		1
FORT NELSON		1		1			1	2	1	1	7
FORT ST. JAMES			3	1				1			5
FORT ST. JOHN		4	5	1	7	3	4	1	4	2	31
FOSTER					1		1				2
GISCOME						1					1
GRAND TRUNK					1						1
GRANT BROOK					1	1					2
GREENING				1							1
GUTAH										1	1
HARVEY		1									1
HIXON			1				1		1	1	4
HODDA				1							1
HOUSTON			1						1		2
HUNTINGTON										1	1
HUTTON				1							1
JASPER, ALBERTA	1	1									2
KILLY						1					1
KITIMAT					1	1		1			3
KITWANGA										1	1
LEJAC									1		1
LEMPRIERE					1		1		1		3
LONGWORTH					1						1

<b>Table 2: Summary of Reported Occurrences by Nearest Community.</b>											
<b>Nearest Community</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
MACKENZIE			1		1			1	1	2	6
MCBRIDE	3	6	1	1	1	1	1		1	1	16
MCCABE				1						2	3
MIWORTH									1		1
MOREY							1				1
MORICETOWN					1		1				2
MURDALE							1		1		2
NICHOL					1				1		2
NICHOLS										1	1
NITEAL									1		1
O'DELL									1		1
PACIFIC				1							1
PALLING					1						1
POSER				1						1	2
PRINCE GEORGE	7	10	15	22	29	16	26	26	20	17	188
PRINCE RUPERT		3	1	3	1	3	4	2	1	1	19
PYRAMID				1						1	2
QUESNEL			1	3	4	5	3	2	2		20
RED PASS							1	1			2
RIDLEY					1						1
SAVORY									1		1
SENTINEL HILL										1	1
SHELLEY				2							2
SMITHERS		1			3		4	2	4	2	16
SNYDER					1						1
SODA CREEK					1						1
SPICER										1	1
SWIFTWATER							1				1
TAMARACK									1		1
TAYLOR			1	3		2		1		1	8
TERRACE	2	9	2	5	8	2	4	3	2	1	38
THUNDER RIVER				1							1
TOPLEY									2		2
TUMBLER RIDGE					2	1			2		5
URLING						1					1
VALEMOUNT	3		1					1			5
VANDERHOOF		1			1	2		1	2		7
WATSON ISLAND						1					1
WILLIAMS LAKE			2		1	2			2	2	9
WOLVERINE					2						2
YELLOWHEAD										1	1
* Location Not Specified	6	23	23	5	5						62
<b>Total</b>	<b>22</b>	<b>65</b>	<b>62</b>	<b>67</b>	<b>85</b>	<b>53</b>	<b>60</b>	<b>53</b>	<b>71</b>	<b>54</b>	<b>592</b>

Table 2: Data Source: Transportation Safety Board: Selected Northern BC Subdivisions. July 15, 2013.

Note: There are a few locations such as Jasper, Alberta and Williams Lake, BC that are not strictly within what we most often consider northern BC. They do however lie within the railway subdivisions that we needed to include to ensure adequate data coverage for this report.

## 8. Occurrences - Involving Uncontrolled Movements and / or Runaway Rolling Stock

We wanted to ensure that we captured all of the events where there was an uncontrolled movement of the rolling stock. To do this we looked at the TSB data from several angles;

First, by considering if the (ACC\_INC\_TYPE) was “Runaway Rolling Stock” we were able to identify 3 runaway occurrences. Second, we considered the activities that were happening at the time of the occurrence (Activity\_Type). By doing this we were able to identify 5 events of “runaway.” We also looked at the TSB event summary (Occurrence\_Summary) to see if there was any textual description of uncontrolled movement. Lastly, we looked at the investigation reports published as result of the four TSB investigations conducted in northern BC.

Using this combined approach to analyzing the data, we found 14 occurrences of runaway rolling stock and / or uncontrolled movements. Here is a summary of these events:

### 2013 CN Rail yards - Prince George, BC.

- February 15 - Collision in yard - Dangerous Goods Involved
- CN South Lead yard Assignment
- Mile 460.44 Prince George Subdivision.
- Tank car NATX 400473, L/C LPG, UN 1075 is set off into track PC05.
- NATX 400473 rolls back and collides with UFTX, load of steel.
- Both cars sustain damage to safety appliances
- No injuries or spillage reported.
- TSB Occurrence No. R13V0031

### 2012 Near Mackenzie BC – Maintrack of Mackenzie Subdivision

- July 14<sup>th</sup> - Runaway Rolling Stock on Main Track
- Mile 24.33 Mackenzie Subdivision
- While patrolling track, an employee reported that two cars had run uncontrolled from the customer siding and thru the switch.
- No reason for this occurrence was reported.
- TSB Occurrence No. R12V0113

### 2011 Prince George Rail-yards

- June 6<sup>th</sup> – Runaway – Collision - Dangerous Goods Involved
- Mile 460.66 Prince George Subdivision
- CN FREIGHT M-355-51-09
- While setting up remote locomotive BCOL 4651, the locomotive moved and collided with cars being shoved by the CN 2200 yard assignment. 6 cars on the 2200 yard, including tank car CGTX 30733, diesel fuel, UN 1202, tank car PROX 15124, load of sulphuric acid UN 1830 and SHPX 433116, load of Sodium Chlorate, UN1495 were damaged.
- Locomotive BCOL 4651 derailed.
- No injuries or leakage of product reported.
- TSB Occurrence No. R11V0135

#### 2010 Prince George Rail-yards

- July 28th Runaway Rolling Stock - Derailment
- Mile 145.22 Fraser Subdivision
- Flat car AOK 28270 ran uncontrolled and collided with freight g-874-51-28 pulling into track aa-11. As a result of the collision AOK 28270 derailed upright and two cars from freight g-874 derailed on their side. 70 feet of rail rolled.
- TSB Occurrence No. R10V0153

#### 2009 Colebank, BC, near Hixon, BC.

- December 15 – Runaway Rolling Stock on Main Track - Derailment.
- Mile 424.5 Prince George Subdivision
- CN Freight I-570-51-14
- Two box cars were set off in the siding at Colebank , while switching in customer track.
- When the crew returned to lift the cars they found the cars had ran uncontrolled through the siding and onto the main track derailling on their side at mile 424.50, approximately 11 miles from Colebank.
- TSB Occurrence No.R09V0251

#### 2009 Prince George Rail Yards

- May 12<sup>th</sup> – Runaway Rolling Stock - Derailment
- CN YARD ASSIGNMENT YPB-306-12
- CAR PROX 73895 was set off in track by-07.
- The car then ran uncontrolled and subsequently derailed over the by-07 derail.
- No reason for this occurrence was reported.
- TSB Occurrence No. R09V0108

#### 2008 Near Chetwynd - Dawson Creek Subdivision

- February 9th - Runaway Rolling Stock on Main-track - Derailment
- CN Train L57851 – 08
- Mile 0.1 Dawson Creek Subdivision
- While proceeding eastward descending on two consecutive downgrades, the train became uncontrolled on the second downgrade and accelerated up to 52 mph in a 20 mph zone. The train then began to decelerate and, while travelling at 35 mph, came to a sudden stop when 9 cars derailed.
- No reason for this occurrence was reported.
- TSB Occurrence No. R08V0041

Note: this runaway event occurred just two days after the event TSB No. R08V0045, which occurred in the same subdivision and under what appears to be similar circumstances.

#### 2008 Near Chetwynd - Dawson Creek Subdivision

- February 7<sup>th</sup> - Runaway Rolling Stock on Main Track
- CN Train L57851-07
- Between Mile 5.0 and Mile 0.0 of the Dawson Creek subdivision
- While descending the grade the train became uncontrolled.
- L57851-07 came to a stop in the Chetwynd rail-yard without further incident.
- No reason for this occurrence was reported.
- TSB Occurrence No. R08V0045 (also see TSB No. R08V0041)

#### 2008 Prince George Rail yards

- July 27 – Runaway Rolling Stock - Derailment – Dangerous Goods Involved
- CN 1500 Yard Assignment
- Switched cars destined to "c" yard ran uncontrolled into track 8 and collided with cars on adjacent track. As a result, 6 cars including a loaded car of gasoline derailed
- TSB Occurrence No. R08V0171

#### 2007 Prince George Rail yards

- Oct 29<sup>th</sup> – Runaway Rolling Stock and Derailment
- 2300 Yard Assignment
- Mile 460.44 Prince George Subdivision
- Three loaded cars of lumber derailed after a knuckle broke while they were shoving into track pa02 resulting in a cut of cars running uncontrolled and striking a standing cut of cars in the same track.
- TSB Occurrence No. R07V0294

#### 2007 CN Rail yards in Prince George, BC.

- August 4<sup>th</sup> – Runaway - Collision - Derailment – Fire – Dangerous Goods Involved
- A runaway yard assignment struck the 13<sup>th</sup> car of CN train M35761-30 which was entering the north end of the yard. The 13<sup>th</sup> car of M35761 was a load of gasoline.
- The resulting derailment and fire destroyed the yard locomotive as well as car AOK 21236, a centre beam flat car loaded with lumber, and cars AGCX 10203 and CGTX 40948 (two loaded tank cars of gasoline on train M357).
- Approximately 172 600 litres of fuel (1600 litres of diesel and 171 000 litres of gasoline) were spilled towards the Fraser river. Much of the fuel was consumed in the fire. <sup>33</sup>
- BC Ministry of Environment Pollution Prevention Orders = Yes <sup>34</sup>
- TSB Report No. R07V0213 <sup>35</sup>
- TSB Occurrence No. R07V0213

2005 Kitwanga (Gitwangak), near Terrace, BC.

- February 25<sup>th</sup> – Runaway Rolling Stock and Collision on Main track
- Mile 72.77 Bulkley Subdivision
- CN Train M – 359-51-23
- A cut of cars left on the main track rolled uncontrolled and struck Locomotive CN 2430
- TSB Occurrence No. R05V0045

2004 Terrace Rail-yards, Terrace BC.

- September 25<sup>th</sup> - Runaway Rolling Stock - Dangerous Goods Involved
- Mile 131.9 Bulkley Subdivision
- CN TRAIN M-359-51-23
- Crew had placed cars into track 2 and continued switching in the yard. The cut of cars in track 2 ran uncontrolled out of the track. Car PROX 77086, residue Sodium Hydroxide, UN1824 struck car PROX 40804, residue L/C Methanol, UN1230 from train M-359.
- TSB Occurrence No. R04V0156

2004 Prince George Rail-yards

- April 23 – Runaway Rolling Stock – Dangerous Goods Involved
- Mile 146.1 Fraser Subdivision
- CN 0900 Tramp Assignment
- While CN 0900 was shoving cars into track aa-06, car GATX 6728, residue L/C Sulphuric Acid, UN1830 from the assignment was struck by car CN 881508 which had rolled uncontrolled out of track aa-03.
- TSB Occurrence No. R04V0063



## 9.0 Occurrences (Incidents and Accidents) - Involving Dangerous Goods

It is the professionalism, vigilance and commitment to safety expressed by the yard and train crews during their day to day operations that underlies the discovery of the many Dangerous Goods Involved events described in the TSB data.

During the period 2003 – 2013:

- Dangerous Goods Involvement was noted in 149 occurrences.
- 64 of these occurrences were classified as “incidents.”
- 85 of these occurrences were classified as “accidents.”

### 9.1 Incidents - Involving Dangerous Goods

- There were 64 “incidents” involving Dangerous Goods.
- All 64 of these incidents were classified as “Dangerous Goods Leakers” (DG Leakers). “DG Leakers” are rail-cars that are leaking their Dangerous Goods contents.
- 46 DG Leakers were discovered by yard and train crews during regular, planned and routine inspection activities.
- Another 9 DG Leakers were discovered by yard and train crews during typical yard operations such switching and spotting.
- An additional 9 DG Leakers were discovered by yard and train crews whilst the trains and their cars were standing in the yards.
- The DG Leakers included the following Dangerous Goods:
  - ALUMINUM SMELTING BY PRODUCTS - UN3170
  - BLACK LIQUOR SOAP - UN1760
  - CAUSTIC SODA - UN1824
  - DIESEL FUEL - UN1202
  - DIESEL FUEL - CLASS 3 - UN1202
  - FLAMMABLE LIQUID NOS – UN1993
  - GASOLINE – UN1203
  - HYDROGEN PEROXIDE – UN2014
  - HYDROGEN PEROXIDE – UN2015
  - SULPHURIC ACID - UN1830
  - METHANOL – UN1230
  - LPG - UN1075
  - PETROLEUM DISTALLATES – UN1268
  - SODIUM CHLORATE - UN1495
  - SODIUM HYDROXIDE - UN1824
  - SODIUM SULPHIDE - UN1759
  - XYLENE - UN1307



For an explanation of UN numbers, railcar placards and industry terminology please refer to the 2012 [Emergency Response Guide](#)

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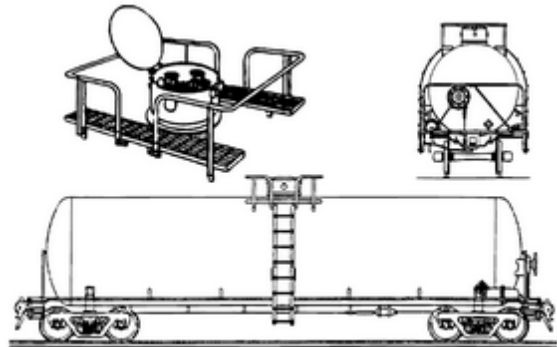
## 9.2 Accidents - Involving Dangerous Goods

- There were 85 “accidents” involving Dangerous Goods.
- 49 accidents were “Non-Main-track Derailments”
- 20 were “Non-Main-track Collisions”
- 12 were “Main Track Derailments”
- 1 event involved an employee who was injured at work.
- 1 event was classified as a “Rolling Stock Collision with Object”
- 1 event was classified as a “Rolling Stock Damage without Collision”.
- 1 event was a MVA involving a train with dangerous goods. This incident occurred at a crossing equipped with bells and lights. In this accident, a motor vehicle crashed into the side of the train at the crossing. Both occupants of the vehicle died of their injuries.

### What activities were taking place when these accidents occurred?

- 64 accidents occurred during switching activities: coupling, pulling, shoving and spotting.
- 16 accidents occurred while the train was underway or “proceeding.”
- 5 accidents occurred during a runaway or an uncontrolled movement event as identified in the TSB Occurrences: R11V0135; R08V0171; R07V0213; R04V0156; R04V0063.
- Approximately 135 dangerous goods rail cars were involved in these 85 accidents;
- The following Dangerous Goods were involved:

- BUTANE - UN1075
- CAUSTIC SODA - UN1824
- CORROSIVE SOLIDS - UN1759
- DIESEL FUEL OIL - UN1202
- DIESEL FUEL - CLASS 3 - UN1202
- ETHANOL - UN3475
- FLAMMABLE LIQUIDS - UN1993
- GASOLINE - UN1203
- HYDROGEN PEROXIDE - UN2014
- HYDROGEN PEROXIDE - UN2015
- LPG - UN1075
- METHANOL - UN1230
- PENTENE - UN1993
- PETROLEUM DISTILLATES - UN1268
- SODIUM CHLORATE - UN1495
- SODIUM CHLORATE SOLUTION - UN2428
- SODIUM HYDROXIDE - UN1824
- SODIUM HYDROXIDE - UN1760
- SULPHURIC ACID - UN1830
- SULPHUR DIOXIDE - UN1079



For an explanation of UN numbers, railcar placards and industry terminology please refer to the 2012 [Emergency Response Guide](#)

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## 10. Emergency Preparedness in Northern BC

This report did not intend to assess the degree to which northern municipalities and regional entities were prepared for a major catastrophic event such as a railway derailment involving dangerous-goods however it was a matter of natural interest.

- During our research we could find no mention of catastrophic railway events or rail incident management protocols in national or provincial emergency planning documents. <sup>36 37 38</sup>
- We were also unable to locate any published emergency response plans that had been authored individually or jointly by the railway industry and northern BC municipalities.
- Northern BC communities have expressed their concerns with regards to rail safety.

2013 – Northern Health Chief MHO speaks to the CBC program “DayBreak- North”  
<http://www.cbc.ca/daybreaknorth/interviews/2013/10/31/northern-health-inspects-rail-safety/>

2013 – Telkwa Village Councilor speaks to the CBC program “DayBreak-North”  
<http://www.cbc.ca/daybreaknorth/interviews/2013/10/22/telkwa-councillor-reacts-to-gainford-derailment/>

2010 - Peace River Regional District Request to Improve Rail Bed  
<http://prrd.bc.ca/board/agendas/2011/2011-01-2312136548/pages/documents/14-a-MA-1InterprovMeetMarch312010.pdf>

2007 - Derailment Concerns Prince George City Council  
<http://www.250news.com/blog/view/1477>

## Summary of Railway Occurrences: 2013 - 2011

In this section of the document we have provided a brief synopsis of some of the many incidents and accidents that have occurred in recent years. The intent is to provide a “feel” for the nature and circumstances of the events. There are many more occurrences residing in the data than is shown here. We simply have not had the time to create a synopsis of each incident or accident. The summaries below are listed in reverse chronological order. The data we had was current to June 2013 and so that is where the summaries begin. In all cases it is worth remembering that the Transportation Safety Board remains the industry experts with respect to this data.

### 2013 CN Rail yards - Prince George, BC.

- June 21<sup>st</sup> – derailment in yard
- CN Freight No. M-303-51-20
- Mile 146.1 Fraser Subdivision
- 7 gondola cars are derailed while being pulled from track AA-07
- No injuries or dangerous goods reported
- TSB Occurrence No. R13V0088

### 2013 CN Rail yards - Quesnel, BC.

- June 18 – derailment in yard
- CN 2300 yard assignment
- 3 bulkhead flat cars derail while being shoved into customer track
- No injuries or Dangerous goods reported
- TSB Occurrence No. R13V0086

### 2013 near Willowvale, BC.

- June 17 – Collision with Motor vehicle
- CN Freight No.L-561-51-17
- Mile 93.46 Nechako Subdivision
- Train struck abandoned vehicle at Telegraph Road public crossing
- Crossing is equipped with flashing lights and bell
- No injuries reported
- TSB Occurrence No. R 13V0085

### 2013 CN Rail yards Chetwynd, BC

- May 24 – derailment in yard
- CN Freight No. A-473-51-23
- Mile 658.5 Chetwynd Subdivision
- Bulkhead Flat car WC 37281 is derailed
- No injuries or Dangerous goods reported
- TSB Occurrence No. R13V0081

2013 CN Rail yards Quesnel, BC

- May 24 – derailment in yard
- CN Freight No. L-593-51-23
- Mile 383.84 Prince George Subdivision
- Locomotive CN 8802 is derailed in track Q-008
- No injuries reported
- TSB Occurrence No. R 13V007

2013 CN Rail yards - Prince George, BC.

- May 16<sup>th</sup> – Derailment in yard
- CN Freight No. A-461-51-16
- Mile 0.8 Nechako Subdivision
- Four cars of a loaded coal train derail in the west end of the yard.
- 3cars remain upright – a third car spills its load.
- Incident reported by 250 News.<sup>39</sup>
- TSB Occurrence No. R13V0075

2013 South of Chetwynd, BC.

- May 15<sup>th</sup> – Derailment
- CN Freight No. A-472-51-15
- Twelve loaded Sulfur cars derail at public crossing
- Eight cars ended up on their side while four stayed upright.<sup>40</sup>
- Incident reported by Energeticcity.ca<sup>41</sup>
- TSB Occurrence No. R13V0074

2013 CN Rail yards - Prince George, BC.

- April 28 – derailment in yard
- CN South end assignment
- Mile 461 Prince George Subdivision
- Intermodal car DTTX 743542 is derailed
- 850 feet of rolled rail
- No injuries or Dangerous goods reported
- TSB Occurrence No R13V0071

2013 East of Terrace near Cedarvale, BC.

- April 19<sup>th</sup> – Derailment
- CN Freight No. Q-198-51-18
- Mile 73.09 Bulkley Subdivision
- Five intermodal cars derail while train is leaving the siding.
- Photo from News 250 shows railcars on their sides at edge of Skeena River.
- Incident reported by CFTK - TV News, News 250 and others.<sup>42 43</sup>
- TSB Occurrence No. R13V0069

2013 Poser, BC

- April 13 – Train struck by Mudslide
- CN Freight No. M-354-51-12
- Trailing locomotive CN 2621 is struck by mudslide
- Locomotive stuck in landslide measuring 30 ft long X 10 ft deep.
- No injuries or derailment reported
- TSB Occurrence No. R13V0067

2013 CN Rail yards - Prince George, BC.

- April 7 – Collision in yard
- CN Train No. not specified
- Mile 460 Prince George Subdivision
- A cut of cars kicked into track PC -22 collides with cars standing in track
- 2 cars sustain damages from collision
- No injuries or derailment reported
- TSB Occurrence No. R13V0059

2013 Ridley Terminals at Prince Rupert, BC.

- April 3 – derailment in yard
- CN Freight No. 751-51-02
- Mile 87.3 Skeena Subdivision
- Lead Locomotive CN 2827 derails over a switch
- No injuries reported
- TSB Occurrence No. R13V0058

2013 CN Rail yards - Prince George, BC.

- March 31 – Car discovered leaking (dangerous goods involved)
- CN Yard Crew discovers leaking tanker
- Mile 460.5 Prince George Subdivision
- Tank car TAEX 487, load of diesel fuel, UN 1202 leaking from manway cover
- CN DGO responded
- TSB Occurrence No. R13V0056

2013 CN Rail yards - Prince George, BC.

- March 30 – derailment in yard
- CN Prince George yard assignment
- Mile 462.4 Prince George Subdivision
- CN locomotive No 5549 derailed
- 1000 feet of rolled rail.
- No injuries reported
- TSB Occurrence No. R13V0053

2013 Mackenzie, BC

- March 26 – Collision with motor vehicle
- CN yard assignment YMK-306-26 under LCS control
- Mile 23.66 Mackenzie Subdivision
- Train is struck by tractor trailer at sawmill Road public crossing
- Public crossing is equipped with SRCS
- TSB Occurrence No. R13V0013

2013 Fort St John BC

- March 26 – derailment in yard (dangerous goods involved)
- CN 2100 extra yard assignment
- Mile 726.8 Fort St John Subdivision
- Tank car is derailed while switching at customer facility
- Tank car TCGTX 310020 residue L/C diesel fuel, UN 1202
- No injuries or spillage reported.
- TSB Occurrence No. R13V0049

2013 CN Rail yards - Prince George, BC.

- March 21 – Car discovered leaking (dangerous goods involved)
- CN Freight No L570-51-20
- Mile 460.44 Prince George Subdivision
- During pull by inspection, tank car is discovered leaking
- Tank car CGTX 30694, load of diesel fuel, UN 1202 leaking from manway cover
- CN DGO responded
- TSB Occurrence No. R13V0263

2013 CN Rail yards - Prince George, BC.

- March 21 – derailment in yard
- CN 1555 yard assignment
- Mile 145 Fraser Subdivision
- Trailing locomotive CN 234 is derailed over switch
- No injuries reported
- TSB occurrence No. R 13V0045

2013 CN Rail yards – Fort St James, BC.

- March 15 – derailment in yard
- CN Freight No. L585-51-14
- Mile 71.93 Stuart Subdivision
- Box car BCOL 90545 strikes end block during shoving.
- BCOL 90545 is damaged
- TSB Occurrence No. R13V0043

2013 CN Rail yards – Fort Nelson, BC.

- March 15 – derailment in yard (dangerous goods involved)
- CN yard assignment YSNS-01-15
- Mile 978.8 Fort Nelson Subdivision
- Tank car is derailed while pulling out of customer track
- Tank car PROX 41255 residue L/C diesel fuel, UN 1202
- No injuries or spillage reported
- TSB Occurrence No. R13V0043

2013 CN Rail yards - Prince George, BC.

- March 4 – derailment in yard
- CN 1800 yard assignment
- Mile 458 Prince George Subdivision
- 2 covered hopper cars derail – 1 box car damaged.
- No injuries or dangerous goods reported.
- TSB Occurrence No. R13 V0035

2013 CN Rail yards - Prince George, BC.

- February 15 - Collision in yard (dangerous goods involved)
- CN South Lead yard Assignment
- Mile 460.44 Prince George Subdivision.
- Tank car NATX 400473, L/C LPG, UN 1075 is set off into track PC05
- NATX 400473 rolls back and collides with UFTX, load of steel
- Both cars sustain damage to safety appliances
- No injuries or spillage reported.
- TSB Occurrence No. R13V0031

2013 siding switch at Nichol, BC.

- February 6 – Fire on locomotive
- CN Freight No. L-561-51-06
- Mile 27.17 Nechako Subdivision
- Train crew reports fire under the cab of Locomotive CN5544
- Crew extinguished fire successfully
- 1 crew member transported to hospital with smoke inhalation
- TSB Occurrence No. R13V0028

2013 Ridley Terminals at Prince Rupert, BC.

- January 31 – derailment in yard
- CN FreightNo. C-741-1-29
- Mile 87.3 Skeena Subdivision
- While shoving into yard track, 2 cars are derailed over the derail.
- No injuries or dangerous goods reported
- TSB Occurrence No. R13V0023



### 2013 Giscome, BC

- January 31 – Collision with Motor Vehicle
- CN Freight No. M-348-31-30
- Mile 122.52 Fraser Subdivision
- Collision occurred on Upper Fraser Road public crossing
- Crossing equipped with flashing lights and bell
- Vehicle had been involved in previous non-rail crash – the driver stopped and exited the vehicle at the public crossing where it was subsequently struck by train.
- Locomotive CN5644 suffered extensive damage
- No injuries reported
- TSB Occurrence No. R13V0022

### 2013 CN Rail yards - Prince George, BC.

- Jan 30 – derailment in yard with fuel spill
- CN South yard assignment
- Mile 460.44
- CN Locomotive 7223 derailed in track PA -09
- Locomotive 7223 fuel tank ruptures - spills 700 gallons of diesel fuel
- No injuries reported
- TSB Occurrence No. R13V0021

### 2013 Lammings Mill near McBride, BC.

- January 22<sup>rd</sup> – Derailment
- CN Freight No. C741-51-21
- Mile 7.9 Fraser Subdivision
- 21 cars of Metallurgical coal derail
- 16 cars are reported to be on their sides.<sup>44</sup>
- This incident reported by News 250.<sup>45</sup>
- TSB Occurrence No. R13 V0013

### 2013 CN Rail yards - Prince George, BC.

- January 18 – derailment in yard
- CN 1400 yard assignment
- Mile 462 Prince George subdivision
- 2 cars derailed while kicking a loaded flat car
- No injuries or dangerous goods reported
- TSB occurrence No. R13V0012

### 2012 Near Chetwynd

- December 21<sup>st</sup> – Wildlife Collision and Derailment
- CN Freight No. L-581-51-21
- Mile 552.52 Chetwynd Subdivision
- Train strikes moose – 6 cars derailed.
- TSB Occurrence No. R12V0227

2012 CN Rail Yards in Williams Lake, BC.

- December 17<sup>th</sup> - Derailment
- Two locomotives derail as they enter the CN rail yard.
- Both locomotives remained upright.
- Incident was reported by GotNews Network.<sup>46</sup>
- TSB Occurrence No. – to be acquired.

2012 Gutah located North of Fort St. John, BC.

- November 28<sup>th</sup> – Derailment
- CN Freight No. A-479-51-28
- Mile 863.98 Fort Nelson Subdivision
- One man died and four other CN workers were left uninjured when a fuel tanker car derailed from the tracks in a remote rail-yard. The derailed tanker rolled onto the deceased. The remoteness of the rail yard precluded a quick recovery.
- No reports of spillage from the derailed tanker car.
- Incident was reported by the Globe & Mail, Canadian Press and others.<sup>47 48</sup>
- TSB Occurrence No. R12V0206

2012 Near Tete-Jaune Cache, BC.

- October 19<sup>th</sup> - Derailment
- Mile 42.8 Tete-Jaune Subdivision
- A track unit and 2 cars derail while pulling onto the main track.
- No injuries or spills reported.
- TSB Occurrence No. R12V0177

2012 Near Chetwynd, BC.

- October 19<sup>th</sup> - Collision with motor vehicle at public crossing
- CN Freight No. I-579-51-19
- Mile 8.6 Dawson Creek Subdivision
- Train was struck by truck at public crossing
- Public crossing equipped with SRCS
- No injuries reported.
- TSB Occurrence No. R12V0176

2012 CN Rail yards Prince George, BC.

- October 18<sup>th</sup> – Derailment in yard
- CN 0900 yard assignment
- Mile 0.1 Nechako Subdivision
- Locomotive derails while going over switch.
- TSB Occurrence No. R12V0175

2012 CN Rail yards Prince George, BC.

- October 4<sup>th</sup> – Derailment in yard
- CN yard assignment PS-316-04
- Mile 462.4 Prince George Subdivision
- 3 loaded bulkhead flatcars are derailed.
- No injuries or spillage reported.
- TSB Occurrence No. R12V0170

2012 CN Rail yards Dawson Creek, BC.

- September 14<sup>th</sup> - Derailment in yard.
- CN Freight No. L-578-51-14
- Mile 60.25 Dawson Creek Subdivision
- 4 covered hopper cars derailed
- TSB Occurrence No. R12V0159

2012 CN Rail yards Prince George, BC

- September 11<sup>th</sup> – Collision and derailment in Yard (Dangerous Goods Involved)
- CN 2300 Bridge Yard assignment
- Mile 462 Prince George Subdivision
- Light locomotives strike and derail tank car UNVX 70703,
- Tank Car contained residue L/C sodium Hydroxide solution, UN 1824.
- No spillage is reported.
- TSB Occurrence No. R12V0156

2012 Near Taylor, BC.

- September 4<sup>th</sup> - Derailment
- CN Freight No. L-575-51-03
- Mile 720 Fort St John Subdivision
- 3 cars discovered derailed and lying on their side
- TSB Occurrence No. R12V0149

2012 CN Rail yards Prince George, BC.

- August 23<sup>rd</sup> – Car Discovered Leaking (Dangerous Goods Spillage)
- Mile 462.4 Prince George subdivision
- Tank car NATX 36004, found to be leaking by yard crew
- Tank car contains Methanol, UN 1230.
- Incident attended by CN - DGO
- TSB Occurrence No. R12V0136

2012 CN Rail Yards Fort St John, BC.

- August 21<sup>st</sup> - Derailment in yard
- CN Freight No. L-575-51-20
- Mile 723 Fort St John Subdivision
- 7 hopper cars of sand derail
- TSB Occurrence No. R12V0134

2012 CN Rail yards Prince George, BC.

- August 15<sup>th</sup> – Car Discovered Leaking (Dangerous Goods Spillage)
- Mile 462 Prince George Subdivision
- Tank car PROX 50256, found to be leaking during inspection.
- Tank Car contains Fuel Oil UN 1202
- Incident attended by CN - DGO
- TSB Occurrence No. R12V0128

2012 CN Rail yards Prince George, BC.

- August 6<sup>th</sup> – Derailment in yard.
- Mile 462.4 Prince George Subdivision
- While switching, tank car GAMX 5617, rolls over a derail and derails.
- No spillage or injuries reported.
- TSB Occurrence No. R12V0157

2012 Telkwa Mine Road near Telkwa, BC

- August 4<sup>th</sup> – Collision with Motor Vehicle a public crossing
- CN Freight No. A-461-51-03
- Mile 116.07 Telkwa Subdivision
- Public crossing was equipped with flashing lights and bell
- No injuries reported.
- TSB Occurrence No. R12V0124

2012 CN Rail yards Prince George, BC.

- August 2<sup>nd</sup> – Derailment in yard (Dangerous Goods Involved)
- Yard Assignment YPS-016
- Mile 462 Prince George Subdivision
- 7 cars derail including tank car DBUX 303128
- Tank car contains residue L/C Ethanol, UN 3475
- no spillage reported
- TSB Occurrence No. R12V0123

2012 CN Rail yard Prince George, BC

- July 20<sup>th</sup> – Derailment in yard
- 1555 Belt Pack Assignment
- Mile 145.22 Fraser Subdivision
- While shoving cars onto another track, car AOK29456 is derailed
- Derailed car remained upright
- TSB Occurrence No. R12V0116

2012 Customer siding near Mackenzie, BC

- July 14<sup>th</sup> – Runaway Rolling Stock
- Mile 23.5 Mackenzie Subdivision.
- Track patrol personnel discover runaway rolling stock.
- 2 unattended cars rolled away from customer's siding through switch.
- No derailment or dangerous goods spillage.
- TSB Occurrence No. R12V0113

2012 CN Rail yard Prince George, BC

- June 27<sup>th</sup> – Car Discovered Leaking (Dangerous Goods Spillage)
- Mile 462 Prince George Subdivision
- Tank car NATX 76174 is discovered leaking
- Tank Car contains Residue L/C Environmentally Hazardous Substances, UN 3082.
- Estimated that 10 – 15 litres had leaked.
- CN – DGO attended the scene
- TSB Occurrence No. R12V0103

2012 West of McBride, near Poser, BC.

- June 26<sup>th</sup> – Derailment
- CN Freight No. M-303-51-25
- Mile 16.6 Fraser Subdivision
- 8 loaded coke cars (gondola cars) derail.
- Incident was reported by 250 News.<sup>49</sup>
- TSB Occurrence No. R12V0102.

2012 Albreda Subdivision

- June 24<sup>th</sup> – Washout conditions resulting in derailment
- CN Freight No. C-776-51-22
- Mile 69.0 Albreda Subdivision
- 5 cars derailed
- No Injuries - No Dangerous Goods
- TSB Occurrence No. R12V0101

2012 CN Rail yard Prince George, BC

- June 22 – Derailment in yard ( Dangerous Goods Involved)
- CN Belt Pak Assignment YPB-016-22 operating under LCS control
- Mile 466.8 Prince George Subdivision
- Tank car PROX 43591 is derailed
- Tank car contains Fuel Oil, UN 1202
- No injuries or reported leakage
- TSB Occurrence No. R12V0100

2012 CN Rail yards Fort St John, BC.

- June 17 – Derailment in yard
- Ft St John Yard Assignment
- Mile 728 Fort St John Subdivision
- Gondola car DJTX 79004 is derailed during switching operations
- TSB Occurrence No. R12V0108

2012 Near Fort Nelson, BC.

- June 9<sup>th</sup> – Derailment
- CN Freight No. A-479-51-08
- Mile 696 Fort Nelson Subdivision
- Hopper car CN 382166 carrying a load of sand, derailed.
- No injuries – no Dangerous Goods
- TSB Occurrence No. R12V0095

2012 Near Hixon, BC.

- May 26<sup>th</sup> - Derailment
- CN Freight No. L-570-51-25
- Mile 423.27 Prince George Subdivision
- 6 covered hopper cars derail and topple over.
- Incident was reported by 250 News.<sup>50</sup>
- TSB Occurrence No. R12V0091.

2012 CN Rail yards Mackenzie, BC.

- May 24<sup>th</sup> - Derailment in yard
- CN 1700 Yard Assignment
- Mile 22.2 Mackenzie Subdivision
- During switching operations 2 bulkhead cars are derailed.
- No injuries – No Dangerous Goods
- 75 feet of rail are rolled
- TSB Occurrence No. R12V0090

2012 Albreda Rail Subdivision – 7 miles west of Jasper AB.

- May 11 – Rockslide and Derailment
- Mile unknown - Albreda Subdivision.
- Incident involves CN Locomotive No. 2306
- Large rocks break free from cliff face and derail lead engines.
- Incident was reported by Prince Rupert Rail Images.<sup>51</sup>
- TSB Occurrence No. – to be acquired.

2012 CN Rail yards Prince George, BC.

- May 1<sup>st</sup> – Derailment in yard
- CN 2300 Belt Pack assignment
- Mile 462.4 Prince George Subdivision
- 4 bulkhead Flat cars are derailed while shoving onto another track.
- Also, broken knuckle, crossed drawbars and 230 ft. of rolled rail.
- TSB Occurrence No. R12V0084

2012 CN Rail yards Prince George, BC.

- April 26<sup>th</sup> – Derailment in yard
- CN 2300 Yard Assignment
- Mile 146 Fraser Subdivision
- 4 cars derail on track PA 09
- 200 feet of rail are rolled over.
- No dangerous goods reported.
- TSB Occurrence No. R12V0080

2012 Near Pyramid Creek Falls Provincial Park – north of Blue River BC<sup>52</sup>

- April 25<sup>th</sup> - Washout / Sinkholes and Derailment
- CN Freight No. Q-112-51-24
- Mile 114.2 Albreda Subdivision
- Two sinkholes undermine and washout the rail-bed.
- Two locomotives and 5 intermodal rail cars were involved in the incident.
- Photos show containers off the rails and resting in North Thompson River.<sup>53</sup>
- A contamination containment boom was set up to contain what was described by media sources as a chemical slick on the surface of the water.
- Incident was reported by Castanet News and CFJC TV.<sup>54</sup>
- TSB Occurrence No. R12V0081

2012 Frizzie Road in Prince George, BC.

- April 21<sup>st</sup> – Collision with Motor Vehicle at public crossing
- CN Freight No. L-570-51-20
- Mile 315.48 Prince George Subdivision
- Vehicle struck at public crossing equipped with flashing lights and bell
- No injuries reported
- TSB Occurrence No. R12V0076

2012 Near Chetwynd, BC

- April 2<sup>nd</sup> – Fire onboard sulfur gondola car
- CN Freight No. L-574-51-01
- Mile 660.64 Fort St John Subdivision
- Crew discovers that Gondola car SULX 1941 is burning
- Train proceeds to Chetwynd and is met by local fire department
- Fire Extinguished - No injuries or spillage reported
- TSB Occurrence No. R12V0066

2012 CN Rail yards Prince George, BC.

- March 19<sup>th</sup> – Car Discovered Leaking (Dangerous Goods Spillage)
- Intermodal flat car CP 639220 found with product leaking from container on car
- Leaking material was Aluminum Smelting By Products UN 3170
- CN – DGO responded and resolved problem
- TSB Occurrence No. R12V0053

2012 CN Rail yards Blue River, BC

- March 7<sup>th</sup> – Derailment in yard
- CN Freight No. A-412-51-05
- Mile 131.7 Albreda Subdivision
- Covered Hopper INTX 95136 derailed while shoving into a yard track.
- Employee injured while jumping from derailing hopper car
- No Dangerous Goods or spill reported
- TSB Occurrence No. R12V0042

2012 Approximately 12 km east of Smithers at Telkwa, BC.

- February 21<sup>st</sup> – Derailment
- CN Freight No. C-722-51-19
- Mile 92.4 Telkwa Subdivision
- 46 coal cars derailed, spilling coal, damaging cars and rail.
- Incident was reported by Houston Today.<sup>55</sup>
- TSB Occurrence No. R12V0036.



2012 CN Rail yards Prince George, BC.

- February 10<sup>th</sup> – Derailment in yard
- CN Locomotive 1440 derailed over a switch
- Mile 146 Fraser Subdivision
- No Injuries reported
- TSB Occurrence No. R12V0028

2012 Prince Rupert

- February 8<sup>th</sup> – person on right of way truck by train
- CN Freight No. C-762-51-07
- Mile 77.7 Skeena Subdivision
- The person who was struck was seriously injured
- TSB Occurrence No. R12V0025

2012 Tumbler Subdivision, 50km NE of Prince George, BC.

- Jan 21<sup>st</sup> – Derailment
- CN Freight No. C-763.51.21
- Mile 32.6 Tumbler Subdivision
- 13 CN cars loaded with coal derail.
- Significant track damage occurs as a result of derailment.
- Incident was reported by 250 News.<sup>56</sup>
- TSB Occurrence No. R12V0015.

2012 Near Exstew on the Skeena Subdivision

- January 29<sup>th</sup> – Wildlife collision and derailment
- CN Freight No. G-874-51-29
- Mile 17.4 Skeena Subdivision
- Train strikes moose near mile 17.4
- Hotbox detector at mile 7.0 subsequently indicates dragging equipment
- Inspection revealed that covered hopper CNA 385196 had derailed
- TSB Occurrence No. R12 V0020

2012 Near Northwood Pulp-mill -16 km north of Prince George, BC.

- Jan 18<sup>nd</sup> – Derailment
- CN Freight L-580-51-18
- Mile 471.69 Chetwynd Subdivision
- 11 cars carrying lumber and pulp products derail.
- Incident was reported by 250 News and Prince George Citizen.<sup>57</sup>
- TSB Occurrence No. R12V0011

2012 CN Rail Yards - Prince George, BC.

- January 21<sup>st</sup> – Derailment in Yard (Dangerous Goods Involved)
- CN 2355 Belt Pak Assignment under LCS control
- Mile 146.1 Fraser Subdivision
- Tank Car IC400013 is derailed while coupling in yard.
- Tanker contains fuel oil ,UN 1202
- No spill reported.
- TSB Occurrence No.R12V0113

2012 Kitwanga (Gitwangak), BC.

- January 16 – Collision with Motor Vehicle at Public Crossing
- CN Freight No. C-761-51-15
- Mile 73.66 Bulkley Subdivision
- Train strikes trailer portion of tractor trailer unit
- Public crossing is equipped with flashing lights and bell
- No Injuries - Locomotive No CN 2340 is damaged
- TSB Occurrence No. R12V0010

2012 Smithers, BC.

- January 4 – Collision with Motor Vehicle at Public Crossing
- CN Freight No. C-750-51-03
- Mile 15.63 Bulkley Subdivision
- Public crossing is equipped with SRCS
- 2 adults and 1 child escaped vehicle before impact.
- TSB Occurrence No. R12V0002

2011 Topley, BC.

- December 30<sup>th</sup> - Derailment
- CN Freight No. C-750-51-29
- Mile 73,49 Telkwa Subdivision
- Hotbox detector indicated dragging equipment
- Upon inspection crews find that gondola car CITX 449993 had derailed
- No injuries – No Dangerous Goods
- TSB Occurrence No. R11V0261

2011 CN Rail yards Quesnel, BC

- December 22<sup>nd</sup> – Derailment in yard
- CN Local Yard Assignment
- Mile 384.5 Prince George Subdivision
- Bulkhead flat car DWC 627097 derailed during switching operation
- No reported injuries or spills
- TSB Occurrence No. R11V0259

2011 Lejac Siding near Willowvale, BC.

- December 22<sup>nd</sup> – Derailment in siding
- CN Freight No. L-561-51-22
- Mile 102.71 Nechako Subdivision
- While lifting a cut of cars, 1 car was derailed while passing over the frog
- TSB Occurrence No. R11V0256

2011 East of Vanderhoof near Caribou, BC.

- December 21<sup>st</sup> – Wheel failure resulting in derailment
- CN Train No. 76551-20.
- Mile 58.9 Nechako Subdivision
- The derailment occurred when the fractured L4 wheel on car No. CN 196833 experienced a wheel fall-in event on the gauge side of the south rail. In this occurrence, once the fractured and derailed wheel entered the spiked section of track, the track fastening system was overcome by the lateral force of the derailed wheel, resulting in the rail rolling over and the subsequent derailment of the 19 trailing cars.<sup>58 59</sup>
- TSB Report No. R11V0254<sup>60</sup>
- TSB Occurrence No. R11V0254

2011 Vanderhoof, BC.

- December 10<sup>th</sup> – Person injured while walking on CN right of way.
- CN freight No. A-460-51-09
- Mile 69.5 Nechako Subdivision
- Person was seriously injured when they walked into the side of the train
- RCMP and ambulance attended – individual was hospitalized.
- TSB Occurrence No. R11V0246

2011 CN Rail yards Chetwynd, BC

- December 2<sup>nd</sup> – Derailment in yard
- CN 0400 yard assignment
- Mile 658.5 Chetwynd Subdivision
- Bulkhead Flat car DWC 627270 derailed over No. 1 switch
- Operators noted the switch had also previously been run through
- TSB Occurrence No. R11 V0242

2011 Customer Track at Nichol BC

- November 30 – derailment in yard
- CN freight No. L-565-51-30
- Mile 29.57 Nechako Subdivision
- Flat Car AOK 28500 is derailed over the derail during shoving
- No injuries or Dangerous goods reported
- TSB Occurrence No. R11V0241

2011 Albreda Subdivision near LemPierre

- November 27<sup>th</sup> – Derailment
- CN Freight No. M-309-51-26,
- Mile 103 Albreda Subdivision
- Hotbox detector indicated dragging equipment at mile 103
- Upon inspection crew discover tank car PROX 70126 was derailed
- No injuries or reports of spillage
- TSB Occurrence No. R11V0238

2011 CN Rail yards Endako BC.

- October 30<sup>th</sup> – Derailment in yard
- CN Freight No. C-769-51-29
- Mile 115 Nechako Subdivision
- Train crew on CN Freight No. G-874-51-30 performed an inspection on C769
- It was discovered that 10 loaded coal cars on C769 had derailed at the switch.
- Broken rail had also pushed into the side of CN Freight No. G-874-51-30
- No Injuries Reported
- TSB Occurrence No. R11V0232

2011 Near Chetwynd, BC.

- July 31<sup>st</sup> - Derailment
- CN Freight No A-473-51-30
- Mile 648.1 Chetwynd Subdivision
- 5 cars are derailed – 3 of the 5 cars are on their side
- No injuries reported
- TSB Occurrence No. R11V0168

2011 Bulkley Subdivision near Andimaul, BC.

- July 13<sup>th</sup> – Derailment (Dangerous Goods Involved)
- CN Freight No. G-847-51-13
- Mile 70.51 Bulkley Subdivision
- 22 cars found derailed including 2 tank cars
- Tank cars contained residue L/C Flammable Liquids UN 1993.
- No injuries or dangerous goods spillage reported
- TSB Occurrence No. R11V0154

2011 Dawson Creek Subdivision near Foss ,BC.

- July 6<sup>th</sup> – Derailment (Dangerous Goods Spillage)
- CN Freight No. L-571-51-06
- Mile 26.45 Dawson Creek Subdivision
- 5 cars are derailed over a crossing, including 4 tank cars
- 4 Tank cars contain Diesel Fuel, UN 1202
- Reported that 3 of 4 tank cars are on their side
- Reported that tank car PROX 43573 leaked 2 gallons from vent valve
- TSB Occurrence No. R11V0151

2011 Pine Pass, approximately 20 miles south of Chetwynd, BC.

- June 25<sup>th</sup> - Washout and Derailment
- Mile 612.4 Chetwynd Subdivision
- CN Freight No. A-473-51-24.
- 3 locomotives and 6 cars derail due to washouts.
- Crew was briefly stranded in the locomotive but no injuries are reported.
- This incident was reported by Trainorders.com <sup>61</sup>
- TSB Occurrence No. R11V0145

2011 CN Rail yard Prince George, BC.

- June 17<sup>th</sup> – derailment in yard (Dangerous Goods Involved)
- CN 0600 Yard Assignment YPSS-03-17
- Tank car PROX 15120 derailed while shoving cars into yard track
- PROX 15120, contains Residue L/C Sulfuric acid, UN 1830.
- No Injuries or Spillage Reported
- TSB Occurrence No. R11V0140

2011 CN Rail yards Prince George ,BC.

- June 6<sup>th</sup> – Collision in yard with derailment (Dangerous GoodsInvolved)
- CN Freight No. M-355-51-09 and remote locomotive BCOL 4651
- Mile 460.66 Prince George Subdivision
- Crew of M355 was setting up remote locomotive BCOL 4651.
- BCOL 4651 moved and collided with cars being shoved by CN 2200 yard assignment
- 6 cars on 2200 yard assignment were damaged including:
- Tank car CGTX 30733, load of diesel fuel, UN 1202.
- Tank car PROX 15124, load of sulfuric acid, UN 1830.
- Covered Hopper, SHPX 433116, load of Sodium Chlorate, UN 1495.
- Locomotive BCOL 4651 was derailed.
- No Injuries or Spillage reported
- TSB Occurrence No. R11V0135

2011 Topley

- May 18 – Pedestrian Struck at Farm Crossing - Fatality
- CN Freight No. C-761-51-17
- Mile 69.7 Telkwa Subdivision
- Crew reported striking a pedestrian at farm crossing
- Fatality
- TSB Occurrence No.R11V0113

2011 CN Rail yards Fort St John, BC.

- May 10<sup>th</sup> – Car Discovered Leaking (Dangerous Goods Involved)
- CN Yard Crew
- Mile 727.2 Fort St John Subdivision
- Yard crew discovers tank car CGTX 30734 leaking from dome
- CGTX 30734 contains Fuel Oil, UN 1202
- CN DGO responded
- TSB Occurrence No. R11V0107

2011 Fort Nelson Subdivision near Tamarack bC

- May 7<sup>th</sup> – derailment (Dangerous Goods Involved)
- CN Train No. A-478-51-07
- Mile 853 Fort Nelson Subdivision
- Train crew reports derailing 3 tank cars
- Tank cars contain residue Fuel Oil, UN 1202.
- No Injuries or Spillage reported
- TSB Occurrence No. R11V0103

2011 CN Rail yards - Prince George, BC.

- April 24<sup>th</sup> – Collision with another train and derailment
- Mile 146.1 Fraser Subdivision
- Two light engine locomotives strike freight train.
- Locomotives derail - loaded coal cars are damaged.
- Punctured fuel tank on one locomotive but no spillage
- This incident was reported by 250 News.<sup>62</sup>
- TSB Occurrence No. R11V0091

2011 CN Rail yards Prince George

- April 9<sup>th</sup> – Collision in yard (Dangerous Goods Involved)
- CN2200 Yard Assignment
- Mile 458 Prince George Subdivision
- CN2200 collided with locomotive CN 262
- As a result of collision locomotive and tank car sustained damage
- Tank car FMLX 17005, Load of Hydrogen Peroxide, UN 2015
- No Injuries or Spillage Reported
- TSB Occurrence No. R11V0083

2011 CN Rail yards Prince George, BC.

- March 21 – Car Discovered Leaking (Dangerous Goods Spillage)
- CN Freight No. L-570-51-20
- Mile 460.44 Subdivision
- During a pull-by inspection, tank car CGTX 30694 was found leaking
- CGTX 30694 contained Diesel Fuel, UN 1202.
- CN – DGO responded
- TSB Occurrence No. R11V0263

2011 Kennedy siding in Pine Pass, BC.

- February 26<sup>th</sup> - Derailment
- Mile 570 Chetwynd Subdivision
- 9 non-regulated cars and 4 LPG cars derailed.
- Some cars remained upright while others were on their sides;
- LPG cars reported leaning but no spillage reported.
- This incident was reported by 250 News. <sup>63 64</sup>
- TSB Occurrence No. R11V0050

2011 East of Fort Fraser, BC.

- February 12<sup>th</sup> - Derailment
- Mile 93.45 Nechako Subdivision
- 34 loaded rail cars derail.
- There is up to one million kg of coal in each rail-car. Most of the product left the rail cars either during the accident or during clean-up operations. The spilled product (coal) was contained to dry land and collected to be reprocessed. <sup>65</sup>
- TSB Report No. R11V0039 <sup>66</sup>
- BC Ministry of Environment Report = Yes <sup>67</sup>
- TSB Occurrence No. R11V0039

2011 10 Km west of Tete-Jaune Cache, BC.

- January 2<sup>nd</sup> - Derailment
- Mile 4.38 Tete-Jaune Subdivision
- 33 loaded coal cars derail immediately adjacent to the Fraser River. Up to one million kg of coal is contained in each rail-car however no significant amounts of product entered the river. A small marsh that drains into the Fraser River was directly impacted. Crews worked for several days to remove debris. The spilled product (coal) was collected to be reprocessed. <sup>68 69</sup>
- Transportation Safety Board Report = No
- BC Ministry of Environment Report = Yes <sup>70</sup>
- TSB Occurrence No. R11V0002.

## Summary of Railway Occurrences: 2010 – 2003 (Work in Progress)

The summaries presented after this point are substantially incomplete. They reflect the best available information from public media sources published on the Internet. In some cases these summaries have been augmented with data from the Transportation Safety Board (TSB). These summaries remain a work in progress and will increase substantially as the information from the TSB is processed. For example:

- For 2010: at least 50 additional events need to be added to the 2 events listed below;
- For 2009: at least 52 additional events need to be added to the 1 event listed below;
- For 2008: at least 53 additional events need to be added to the 0 events listed below.

### 2010 CN Rail Yards - Williams Lake, BC.

- December 2010 – Derailment in yard
- Two locomotives derail - disrupt traffic at a public crossing north of a rail yard.
- Incident was reported by the Williams Lake Tribune.<sup>71</sup>
- TSB Occurrence No. needs to be acquired

### 2010 10 km east of Prince George, BC.

- July 21<sup>st</sup> – Derailment.
- Mile 136.3 Fraser Subdivision
- CN FREIGHT C-767-51-20
- 15 gondola cars loaded with coal derail.
- According to CN spokesperson, no product has spilled.
- This incident was reported by News 250 and Railroaded.com<sup>72 73</sup>
- TSB Occurrence No. R10V0149

2010 At least 50 additional events need to be added to this summary.

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### 2009 Skeena River at Terrace

- April 2<sup>nd</sup> - Derailment
- Mile 0.0 Kitimat Subdivision
- CN Freight No. A-460-51-02
- Several (6) empty chip cars derail on edge of the Skeena River.
- Accident occurs at a bridge crossing upstream of important spawning grounds.
- The locomotives and at least 30 tank cars remain on the rails.
- This incident is very similar to one that occurred in the same location in 2006.<sup>74</sup>
- This 2009 incident was reported by the Terrace Daily.<sup>75</sup>
- TSB Occurrence No. R09V0077.

2009 At least 52 additional events need to be added to this summary.

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2008 No events summarized. At least 53 events need to be added to this summary.

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2007 East of Canfor Pulp Mill at Prince George, BC.

- December 29<sup>th</sup> - Derailment
- A dozen coal cars derail.
- No cause for derailment given.
- This incident was reported by News 250<sup>76</sup>

2007 30 miles East of Terrace alongside the Skeena River

- September 24<sup>th</sup> - Derailment
- 29 grain cars derail alongside Skeena River
- This incident was reported by News 250.<sup>77</sup>

2007 Quesnel River Bridge at CN Rail Yards in Quesnel

- August 21<sup>st</sup> - Derailment
- 10 cars derail on a bridge over the Quesnel River.
- This incident was reported by News 250.<sup>78</sup>

2007 CN Rail yards in Prince George, BC.

- August 4<sup>th</sup> – Collision with another train, derailment and fire.
- A runaway yard assignment struck the 13<sup>th</sup> car of CN train M35761-30 which was entering the north end of the yard. The 13<sup>th</sup> car was a load of gasoline.
- The resulting derailment and fire destroyed the yard locomotive as well as car AOK 21236, a centre beam flat car loaded with lumber, and cars AGCX 10203 and CGTX 40948 (two loaded tank cars of gasoline on train M357).
- Approximately 172 600 litres of fuel (1600 litres of diesel and 171 000 litres of gasoline) were spilled towards the Fraser river. Much of the fuel was consumed in the fire.<sup>79</sup> An unknown amount may not have been consumed. It may have entered the Fraser River.
- BC Ministry of Environment Pollution Prevention Orders = Yes<sup>80</sup>
- TSB Report No. R07V0213<sup>81</sup>
- TSB Occurrence No. R07V0213

2007 East of Prince George

- June 27<sup>th</sup> - Derailment
- 13 cars of an 86 car train derail near Willow River bridge.
- 11 cars were carrying wood products; 2 cars were carrying scrap metal.
- Some of the derailed cars came to rest on the bridge deck.
- This incident was reported by 250 News.<sup>82 83</sup>

2007 Skeena River, 48 km east of Terrace, BC.

- May 10<sup>th</sup> - Derailment.
- 29 of 99 grain cars derail on CN Rail main line.
- This incident was reported by the Business Edge May 10/2007.<sup>84 85</sup>

2007 At least 79 events need to be added to this summary.

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2006 100 Km South of Chetwynd, BC.

- Dec 4<sup>th</sup> - Derailment
- 24 four cars of a 109 car southbound CN train, derail 100 miles south of Chetwynd.
- After the incident, 14 of the cars remained upright, ten rested on their side.
- The train was hauling mostly forestry product and some empty tanker cars.
- This incident was reported by News 250.<sup>86</sup>

2006 South of Prince George near Quesnel, BC

- September 18<sup>th</sup> - Derailment
- 14 empty lumber cars derail at a grading station.
- Incident is reported by News 250 and others.<sup>87 88</sup>

2006 Dawson Creek, BC.

- June 16<sup>th</sup> - Derailment
- 6 cars of a 24-car train derail near Dawson Creek.
- 4 cars were empty and 2 were carrying grain;
- Highway 97 is temporarily closed.
- Incident cited in correspondence – source not known.<sup>89</sup>

2006 Skeena River near Terrace, BC.

- April 21<sup>st</sup> – Derailment
- 10 empty cars of a 40-car train derail on the Skeena River near Terrace.
- This is the third derailment near Terrace in the last two years.<sup>90</sup>
- A similar accident in the same location occurs in 2009.<sup>91</sup>

2006 Canfor Pulp-mill rail yards in Prince George, BC.

- April 12<sup>th</sup> – Derailment ( Dangerous Goods)
- Tanker car of caustic soda derails at pulp-mill.
- CN spokesperson characterizes incident as minor.
- No spill is reported.
- Incident was reported by News 250.<sup>92</sup>

2006 35 km west of Chetwynd, BC.

- March 28<sup>th</sup> - Derailment
- 13 empty sulfur cars derail.
- Ministry of the Environment and the Provincial Emergency Program state that they were only made aware of the derailment when contacted by the CBC.
- Incident cited in correspondence – source not known.<sup>93</sup>

2006 At least 60 additional events need to be added to this summary.

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2005 Nechako River near Prince George, BC.

- December 17<sup>th</sup> – Derailment.
- One locomotive and railcar derail along the Nechako River.
- Incident reported by 250 News and others.<sup>94 95</sup>

2005 20 km east of Fort St James, BC.

- December 15<sup>th</sup> - Derailment
- 13 empty cars of a 48-car train derail 20 km east of Fort St. James.
- Incident cited in correspondence – source not known.<sup>96</sup>

2005 CN Rail yards in Terrace, BC.

- Dec. 8<sup>th</sup> - Spillage of Dangerous Goods
- Highly toxic xylene solvent leaks from a rail car.
- Incident cited in correspondence – source not known.<sup>97</sup>

2005 Chetwynd, BC.

- Nov. 20<sup>th</sup> - Derailment
- 5 cars derail in the Chetwynd rail yard.
- Incident cited in correspondence – source not known.<sup>98</sup>

2005 South of Prince George at Hixon, BC.

- Aug. 19<sup>th</sup> – Derailment ( Dangerous Goods Spillage)
- 4 cars of a 23-car train derail.
- Unknown amount of sodium chlorate is spilled.
- Incident cited in correspondence – source not known. <sup>99</sup>

2005 Takla Lake, north of Fort St. James, BC

- July 25<sup>th</sup> - Derailment
- Train car of logs derails into Takla Lake.
- This incident reported by News 250. <sup>100</sup>

2005 At least 50 additional events need to be added to this summary.

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2004 No events summarized. At least 65 events need to be added to this summary.

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2003 Fraser Subdivision near McBride, BC.

- May 14<sup>th</sup> – Derailment and Fire
- CN Freight train No. 356-51-14.
- Mile 7.9 Fraser Subdivision.
- Two locomotives and five cars loaded with lumber derail on a bridge.
- The bridge, two locomotives, five cars and their contents were destroyed by fire.
- Two crew members were fatally injured. <sup>101</sup>
- TSB Report No. R03V0083 <sup>102</sup>

2003 At least 20 additional events need to be added to this summary.

## **Additional Information**

BC Ministry of the Environment: Environmental Emergency Program

<http://www.env.gov.bc.ca/eemp/>

BC Ministry of Environment: Industry, Emergency Response Plan Guidelines.

<http://www.env.gov.bc.ca/eemp/resources/guidelines/bc.htm>

BC Environmental Management Act, Spill Reporting Regulation

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/46\\_263\\_90](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/46_263_90)

Emergency Management BC

<http://www.embc.gov.bc.ca/index.htm>

Emergency Management BC: All Hazard Plan.

[http://embc.gov.bc.ca/em/hazard\\_plans/All-Hazard\\_Plan.pdf](http://embc.gov.bc.ca/em/hazard_plans/All-Hazard_Plan.pdf)

Emergency Management BC: Weekly Incident Summaries

<http://www.embc.gov.bc.ca/em/incidents/incidents.html>

Public Safety Canada

<http://www.publicsafety.gc.ca>

Public Safety Canada - Disaster Mitigation

<http://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/dsstr-prvntn-mtqtn/index-eng.aspx>

Public Safety Canada - The Canadian Disaster Database

<http://www.publicsafety.gc.ca/cnt/rsrscs/cndn-dsstr-dtbs/index-eng.aspx>

Transport Canada - Rail Car Identification Chart

<http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/railcar.aspx>

Transport Canada - Emergency Response Guidebook

<http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/ergmenu.aspx>

Transport Canada / Canadian Transport Emergency Centre (CANUTEC)

<http://www.tc.gc.ca/eng/canutec/menu.htm>

Transportation Safety Board of Canada

<http://www.bst-tsb.gc.ca>

Transportation Board of Canada – Rail Investigation Reports

<http://www.bst-tsb.gc.ca/eng/rappports-reports/rail/index.asp>

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- 2 Government of Canada: Asia Pacific Gateway and Corridor Investments. Accessed; June 2013.  
<http://www.asiapacificgateway.gc.ca/investments.html>
- 3 Canadian Transportation Accident Investigation and Safety Board Act (S.C. 1989, c. 3) Interpretation:  
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-92-446/page-1.html#s-2>
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<http://laws-lois.justice.gc.ca/eng/regulations/SOR-92-446/page-1.html#s-2>
- 6 What is a UN Number: Adapted from Wikipedia Definition.  
[http://en.wikipedia.org/wiki/UN\\_number](http://en.wikipedia.org/wiki/UN_number)
- 7 Transport Canada Online Emergency Response Guidebook  
<http://www.wapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/ergmenu.aspx>
- 8 CN Investors Information: 2012 Annual Report; Financial Section (U.S. GAAP); pages 81 – 84.  
<http://www.cn.ca/en/investors/financial-information/annual-reports>
- 9 CP Rail Financial Reports: Annual Report 2012; Section 3: Forwards Looking Information, page 29. Section 21: Business Risks; Environmental Laws and Regulations page 72; Transportation of Dangerous Goods, page 73: Section 21; Critical Accounting Estimates, Environmental Liabilities page 75.  
<http://www.cpr.ca/en/invest-in-cp/financial-reports/FinancialReports/Attachments/221/cp-ar-2012.pdf>
- 10 CN Investors Information: 2012 Annual Report; Financial Section: Major Commitments & Contingencies; page 80.  
<http://www.cn.ca/en/investors/financial-information/annual-reports>
- 11 CP Rail Financial Reports: Annual Report 2012; Section 3: Forwards Looking Information, page 29. Section 21: Business Risks; Environmental Laws and Regulations page 72; Transportation of Dangerous Goods, page 73: Section 21; Critical Accounting Estimates, Environmental Liabilities page 75.  
<http://www.cpr.ca/en/invest-in-cp/financial-reports/FinancialReports/Attachments/221/cp-ar-2012.pdf>
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