

BC Safety Authority

RCS State of Safety Report

Incident Summaries

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2016 Electrical Incidents

Incidents that are UNDER INVESTIGATION are excluded from these listings. Tables are sorted by Incident Rating and Date except where noted.

BC Safety Authority (BCSA) receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to BC Safety Authority and the long term effects of a resultant injury may not be recorded as part of the BCSA investigation.

TABLE 1: ELECTRICAL INCIDENTS

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
3-Jan-2016	Golden	Severe	0	N/A	None	Components (switch, insulating plates) damaged	Moderate	A high voltage switch failed. The fault was contained within the high voltage enclosure.
14-Jan-2016	Central Saanich	Severe	1	Injuries from fire	Fatal	Fire/thermal, water damage	Major	A fire occurred at a residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
10-Apr-2016	Kamloops	Severe	0	N/A	None	Fire, smoke damage	Severe	A fire occurred at a residence. A malfunctioned internal component (capacitor) located in a motor circuit was believed to be the cause.
16-Apr-2016	Mill Bay	Severe	1	Smoke inhalation	Fatal	Fire damage	Major	A fire occurred inside a workbench at a single-family residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
9-Jun-2016	Nanaimo	Severe	1	Fatal	Fatal	Fire, smoke damage	Major	A fire occurred at a residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
22-Jan-2016	Metchosin	Major	0	N/A	None	Fire damage	Major	A fire occurred at a residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
11-Feb-2016	Squamish	Major	0	N/A	None	Dust extraction bag and ventilation piping destroyed	Major	A fire occurred at an industrial premise. Ignited embers were evacuated into the dust extraction system into at the wood dust bag house.
19-Mar-2016	Langford	Major	0	N/A	None	Fire damage	Major	A fire occurred at a residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
3-Oct-2016	Campbell River	Major	0	N/A	N/A	Voltage transformer (VT), insulating barriers, VT drawer assembly and enclosure door, male and female stab connectors, steel electrical room doors damaged	Major	High voltage switch gear located in a building was involved in an arc blast.
1-Jan-2016	Kelowna	Moderate	0	N/A	None	Damaged consumer service cable	Minor	A consumer service cable from the meter base to the main panel was accidentally damaged by a reciprocating saw.
19-Jan-2016	Prince George	Moderate	0	N/A	None	Fire damage	Moderate	A fire occurred at a residence. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
21-Feb-2016	Duncan	Moderate	0	N/A	None	Fire damage	Moderate	A coaxial cable was observed to be glowing red hot. Stray current flowing through a coaxial cable caused both ends to melt and one end to ignite.

TABLE 1: ELECTRICAL INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
30-Mar-2016	Nanaimo	Moderate	0	N/A	None	Fire, smoke, water damage	Moderate	A fire occurred at a commercial property. Although the cause of the fire was undetermined, electrical equipment was suspected to be involved.
5-May-2016	Kamloops	Moderate	0	N/A	None	Fire damage	Moderate	A game console caught fire at a residence.
13-May-2016	Savona	Moderate	1	Contact with high voltage equipment	Moderate	Primary customer metering fuses blew and opened cut-outs		An employee climbed up a transformer pole, onto a pad and came in contact with high voltage lines.
26-May-2016	Abbotsford	Moderate	0	N/A	None	Fire, smoke damage	Moderate	A fire occurred where a power bar was plugged into a receptacle. The power bar was used to provide power to a portable heater and other portable electrical equipment located in a bedroom. The full incident report is available via BCSA's website [click here].
6-Sep-2016	Abbotsford	Moderate	0	N/A	None	Fire and arcing damage	Moderate	A fire occurred at a residence. A child woke to find their bed on fire. The fire occurred near an electrical outlet that a portable fan was plugged into and a cable vision outlet that was located on the wall adjacent to the bed. It is very likely that the cause of this incident is the conductive metal frame of a child's play tent contacting the energized attachment cord blade from the plugged-in fan and the grounded cablevision outlet. A short circuit between the attachment cord blade and the cable vision outlet caused an electrical arc and the resulting heat ignited the tent material and the bed. The full incident report is available via BCSA's website [click here].
29-Oct-2016	Cherninus	Moderate	0	N/A	None	Fire damage	Moderate	A fire occurred at the wax booth of a packaging unit at an industrial facility.
24-Nov-2016	Ladysmith	Moderate	0	N/A	N/A	Size 2 motor starter destroyed	Minor	A 480-volt, 25 horsepower motor starter energized under a shorted condition. The subsequent arc flash destroyed the motor starter.
18-Jan-2016	Kelowna	Minor	0	N/A	None	Fire damage	Minor	A fire occurred in the sauna room of a multi-family residence. The electric sauna heater wiring was found to have failed. The overheated wiring shorted out to ground and the heating effect ignited combustible material around the wiring.
18-Jan-2016	Peachland	Minor	0	N/A	None	Fire damage	Minor	A fire occurred at a residence. A lamp cord end pinched against the wall by a bed mattress caused cord damage over an extended period of time, resulting in overheating that eventually started a mattress fire.
30-Jan-2016	Prince George	Minor	0	N/A	None	Heater control box, hot tub and skirting damaged	Minor	A fire occurred at a residence when a hot tub heater caught fire.
18-Feb-2016	Lake Cowichan	Minor	0	N/A	None	Electrical appliances and components damaged	Minor	A tenant reported electrical devices were failing at a multi-family residence.
18-Feb-2016	Campbell River	Minor	0	N/A	None	Component damaged	Minor	A neutral connection failed behind the meter.

TABLE 1: ELECTRICAL INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
21-Feb-2016	Kelowna	Minor	0	N/A	None	Fire damage	Moderate	Homeowners reported having problems with the electrical within their home. They discovered half of their receptacles were not working and one phase of their electrical panel was not energized.
28-Apr-2016	Trail	Minor	0	N/A	None	Fire damage	Minor	A 100-amp, 600-volt-rated fused disconnect experienced an internal component failure resulting in a fire inside the equipment. The fire spread to the conductors, cables and the structure's combustible materials.
29-Apr-2016	Dawson Creek	Minor	0	N/A	None	Component damaged	Minor	A control cable feeding a flare panel was cut into, causing the plant to shut down.
25-Jul-2016	Trail	Minor	0	N/A	None	Electrical equipment damaged; structural material damaged	Minor	A 100-amp, 600-volt-rated fused disconnect experienced an internal component failure resulting in an electric fire inside the equipment that spread to the terminated conductors and cables and adjacent combustible materials of the structure.
8-Aug-2016	Port Alberni	Minor	0	N/A	None	Switch damaged	Minor	The stab on a 100-amp isolating switch failed to close properly. When the operator restarted the equipment, the switch 'single phased,' arced and blew the disconnect door off.
10-Aug-2016	Kelowna	Minor	0	N/A	None	Appliance damaged	Minor	A fire occurred at a commercial property. A component failure within an appliance was suspected to have caused the fire.
23-Aug-2016	Chilliwack	Minor	0	N/A	None	Fire and water damage	Minor	The owner was conducting a renovation which included electrical work. A vent was being installed for a bathroom exhaust fan in the attic. A hole was drilled from inside the attic through the exterior wall with a hole saw and inadvertently into the service entrance cable on the outside wall causing a fire.
26-Sep-2016	Campbell River	Minor	0	N/A	None	Fire damage to area behind range. Appliance damaged. Range receptacle, 120V 15A receptacle and wiring behind range destroyed.	Minor	A fire occurred at a residence. While cleaning the control panel of a dual fuel gas/electric range, the user immediately saw flashes of yellow light through the window of the warming tray. The user then saw flames coming up from behind the range.
23-Oct-2016	Kelowna	Minor	0	N/A	None	Receptacle destroyed	Minor	Within a commercial kitchen, a 20-amp, 120-volt receptacle had a food warming plate and a panini grill plugged in. The amperage of the two pieces of equipment exceeded the allowed amperage of the receptacle. The wall receptacle melted, shorting out the branch circuit wiring and tripping the overcurrent device.
21-Jan-2016	Trail	Insignificant	1	Electrical shock	Insignificant	Not recorded	N/A	While a worker was pushing a 'stop' button, the button was loose and pushed into a receptacle, allowing the worker's finger to contact an electrical source.
27-Jan-2016	Prince George	Insignificant	0	N/A	None	Thermal, smoke damage	Minor	A portable electric fireplace heater overheated and started to smoke. The thermal cut out may have failed, causing the heater assembly to overheat.
19-Apr-2016	Dawson Creek	Insignificant	0	N/A	None	Fire damage	Insignificant	A fire occurred at an industrial property.
24-Oct-2016	Saanich	Insignificant	0	N/A	None	Not recorded	N/A	A fire occurred at a residence.
6-Nov-2016	Langford	Insignificant	0	N/A	None	Not recorded	N/A	A fire occurred at a residence.
8-Nov-2016	Anmore	Insignificant	0	N/A	None	Not recorded	N/A	A fire occurred at a residence.

2016 Boiler, Pressure Vessel and Refrigeration Incidents

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BC Safety Authority (BCSA) receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to BC Safety Authority and the long term effects of a resultant injury may not be recorded as part of the BCSA investigation.

TABLE 2: BOILER, PRESSURE VESSEL AND REFRIGERATION INCIDENTS

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
28-Jan-2016	Trail	Major	2	Undetermined respiratory injuries	Minor		Major	A piping rupture released an acid slurry solution at an industrial site. The rupture occurred on a discharge line that connects a pressure vessel to a let-down station.
2-Feb-2016	Prince George	Major	0	N/A	None	Two boiler tube sections damaged	Insignificant	A leak was identified in the lower furnace of a recovery boiler. The tube leak discharged directly into the smelt bed.
14-Feb-2016	Pink Mountain	Major	0	N/A	None	Boiler doors, control panel, piping damaged	Major	An explosion occurred in the combustion chamber of a high-pressure diesel-fired steam boiler. The burner management system may have failed, resulting in an explosive mixture of diesel and combustion air upon ignition.
29-May-2016	Prince George	Major	0	N/A	None	Two boiler tube sections damaged	Insignificant	A leak was identified in the lower furnace of a recovery boiler. The tube leak discharged directly into the smelt bed.
19-Jul-2016	Abbotsford	Major	0	N/A	None	Back tube sheet, boiler tubes, combustion chamber damaged	Major	The chief engineer reported a low water boiler incident at a food-processing facility. The high-pressure steam boiler was not making steam, and water was found leaking from the back cover.
28-Jul-2016	Aldergrove	Major	0	N/A	None	Chiller barrel corroded and compromised	Major	Ammonia vapour leaked into the brine circulation loop from a damaged chiller, saturating the liquid with ammonia.
24-Feb-2016	Fort St. John	Moderate	0	N/A	None	Sight glass damaged	Moderate	The gauge glass cracked and filled the compressor building with natural gas.
31-Mar-2016	Vancouver	Moderate	0	N/A	None	Component damaged	Moderate	A refrigerant (R-134A) leak occurred and activated an alarm.
1-Apr-2016	Fort St. John	Moderate	0	N/A	None	Crack in nozzle neck weld	Moderate	A nozzle weld failed on a third-stage suction bottle, resulting in natural gas leaking through the weld.
26-May-2016	Courtenay	Moderate	0	N/A	None	Leaking gasket on the cream tank silo solenoid valve on an ammonia refrigerant system. Approximately 1 litre of liquid ammonia released onto the production floor.	Moderate	Ammonia was released from a refrigeration system and a commercial facility. The plant was evacuated when the ammonia alarm was activated.

TABLE 2: BOILER, PRESSURE VESSEL AND REFRIGERATION INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
15-Aug-2016	Vancouver	Moderate	0	N/A	None	Boiler fuel valve and air damper actuators damaged by steam and water	Moderate	A boiler handhole gasket failure resulted in a large volume of high-pressure steam and water being released and coming into contact with the fuel valve and air damper electric actuators.
10-Jan-2016	Fort Nelson	Minor	0	N/A	None	Valve, regulators and controllers damaged	Minor	The pressure safety valve lifted and released oil pressure to discharge on the oil field separator.
26-Feb-2016	Prince George	Minor	0	N/A	None	Pipe collapsed under a vacuum	Minor	A fire occurred at the base of a vacuum tower located at a light oil refinery. A loss of containment on one of the process piping systems associated with the vacuum tower released a hydrocarbon which self-ignited.
22-May-2016	Sikanni Chief	Minor	0	N/A	None	Fire on thermal oil pump skid	Minor	The seal on the hot oil pump failed, causing a leak. It was reported that the bearing appeared to fail on the electric motor. The fire melted cladding, wiring and instrumentation devices.
19-Sep-2016	Vancouver	Minor	0	N/A	None	Leaking water/glycol mixture from a pressure relief valve made its way into an electrical power receptacle, causing arcing and subsequent fire at the power cord supplying one of four wall-hung boilers.	Minor	The pressure relief valve leaked fluid through the valve stem that made its way into a duplex receptacle installed below the boiler, causing a small self-extinguishing fire in the power receptacle.
25-Oct-2016	Trail	Minor	0	N/A	None	Broken locking ring tab on quick acting closure mechanism	Minor	An incident occurred inside a building at an industrial site. The pressure release occurred on the mating surface of the head-to-shell. The quick-acting closure locking ring tabs (tapered wedge) broke free of the locking ring and exposed a gap for the pressure to release.
26-Jan-2016	Vancouver	Insignificant	0	N/A	None		Insignificant	The oil suction line was cracked at the brazed joint elbow connecting it to the evaporator shell. This allowed lubricating oil with entrained refrigerant R-134a to leak into the machinery room. The chiller subsequently 'tripped off' due to low oil pressure.
1-Jul-2016	Golden	Insignificant	0	N/A	None	Tube leak	Insignificant	Boiler tube leak confined to the inside of the boiler.
27-Jul-2016	Trail	Insignificant	0	N/A	None	One tube leak suspected	Insignificant	A leak occurred on a boiler's radiant section.

2016 Gas Incidents

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TABLE 3: GAS INCIDENTS

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
11-Mar-2016	Surrey	Severe	1	Suspected carbon monoxide exposure	Fatal	Heat scorch/thermal damage	Moderate	Emergency services responded to a 911 call. As the first responders entered the home, they were alerted to the presence of carbon monoxide by their gas monitors. The natural gas forced-air furnace was examined and found to be the source of the carbon monoxide spilling into the home. Incorrectly adjusted burners likely caused residue (soot) to build up on the inside of the heat exchanger. Restriction in the flow from the combustion chamber to the venting system led to a condition where the burner flame and combustion products found another pathway to exit the combustion chamber. This resulted in what is termed "flame roll out," causing heat damage to the controls, wiring and furnace panels and carbon monoxide being produced that subsequently migrated throughout the home.
6-Jul-2016	Surrey	Severe	0	N/A	None	Total loss of pool boiler, regulator, venting and gas piping	Severe	A pool boiler was operating to heat the swimming pool. After approximately 30 minutes of operation, a fire broke out in the pool boiler shed. The gas supply regulator to the boiler was damaged during the fire, which resulted in a gas release that fueled the fire. The fire destroyed the pool boiler, regulator, venting, gas lines and pool shed before spreading to the main house. The boiler is designed to contain the heat and flames from the burners inside the boiler's metal housing. It is probable that the fire erupted from a failure in one of the pipe system components exterior to the boiler.
26-Jul-2016	West Vancouver	Severe	1	Carbon monoxide exposure	Fatal	N/A	None	The fire department responded to a 911 call. Four individuals experienced various degrees of carbon monoxide poisoning. Carbon monoxide detectors were not installed within the home. There was a large unrestricted opening in the return air duct work serving an air handling unit in the mechanical room. This opening likely created a reduced ambient pressure condition in the mechanical room. Other contributing factors include a blocked/inadequate combustion air supply into the mechanical room, an elongated boiler run-time, lack of carbon monoxide detectors in the home (which would have alerted the residents to the presence of carbon monoxide). The full incident report is available via BCSA's website [click here] .
24-Jan-2016	Pemberton	Major	0	N/A	None		Major	A half-inch black iron gas line serving a bank of dorm trailers was bent, causing the gas line to become partially separated from an elbow in the piping system. This separation in the line allowed the propane gas to escape from the piping system at a pressure of 10 psi to atmosphere. Due to the snow build up around the trailers, piping and propane tank, the leak went unnoticed for some time and gas was unable to dissipate. This caused the propane gas to build up underneath the trailers until it began to enter one of the trailers through ventilation openings in the floor. The smell of gas was noticed by the cleaning staff who notified the site safety personnel. The site safety personnel were able to isolate the leak and ventilate the trailer.

TABLE 3: GAS INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
29-Jan-2016	Surrey	Moderate	1	Carbon monoxide exposure	Moderate	N/A	None	Emergency services responded to a carbon monoxide alarm at a residence.
17-Feb-2016	Invermere	Moderate	5	Carbon monoxide exposure	Moderate	N/A	None	Emergency services responded to a carbon monoxide call at a residence. The combustion air into the mechanical room was disconnected. The water heater in the same mechanical room had the incorrect draft hood attached. The building air duct into the return air plenum was plugged.
26-Mar-2016	Chilliwack	Moderate	4	Carbon monoxide exposure	Moderate	N/A	None	A plugged heat exchanger on a residential boiler resulted in the production of moderate levels of carbon monoxide inside a multi-family home. The hard-wired smoke/carbon monoxide detector had been removed. It is likely that the lack of maintenance of the boiler allowed the heat exchanger to plug up, producing carbon monoxide and allowing it to spill into the home. The removal of the carbon monoxide detector likely allowed the carbon monoxide to go unnoticed until symptoms became present. The full incident report is available via BCSA's website [click here] .
2-Apr-2016	Surrey	Moderate	0	N/A	None	Fireplace damaged beyond repair	Moderate	A condition occurred in the operation of the direct vent fireplace which overheated the rear of the fireplace, damaging the fireplace and igniting the building materials. The full incident report is available via BCSA's website [click here] .
19-Feb-2016	Mill Bay	Minor	0	N/A	None	Fire damage	Minor	After approximately two hours of a fireplace's continued use, smoke was observed coming from the wall above it. A photo of the exterior vent terminal prior to the fire suggests the outer perimeter of the vent terminal was shrouded with comb face trim that may have obstructed air flow, resulting in higher than designed temperatures.
1-Mar-2016	Victoria	Minor	0	N/A	None	Fire damage	Minor	A fire occurred at a residence. Although the cause of the fire was undetermined, gas equipment was suspected to be involved.
14-Mar-2016	Abbotsford	Minor	1	Carbon monoxide exposure	Minor	N/A	None	During the replacement of the roof on a mobile home, the furnace roof jack assembly was removed. Once the new roof was installed, the roof jack assembly was not reinstalled on the furnace. When the furnace operated, the products of combustion entered the space above the furnace, instead of outdoors through the venting system. The air required for combustion was taken from the same area. The lack of clean combustion air caused incomplete combustion and allowed carbon monoxide to be produced.
21-Mar-2016	Comox	Minor	1	Suspected carbon monoxide exposure	Minor	Door gasket damaged/leak	Minor	An appliance was spilling combustion products into the home.
10-Apr-2016	Duncan	Minor	1	Carbon monoxide exposure	Minor	N/A	None	The owner's carbon monoxide detector sounded an alarm. The utility responded and observed elevated levels of carbon monoxide in the dwelling. The owner was sent to hospital for treatment for carbon monoxide exposure.
22-Aug-2016	Manning Park	Minor	3	Second- and third-degree burns	Moderate	N/A	None	A leaking gas fitting on a commercial oven caused 'flare ups.' Three people received injuries on three separate occasions.

TABLE 3: GAS INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
6-Sep-2016	Clearwater	Minor	1	Burns	Minor	N/A	None	A person was trying to light the boiler for the winter season. When the boiler would not light, the person thought there was a problem with the propane gas supply. They opened the union at the appliance manifold and started to bleed the gas line when the escaping gas found a spark and ignited.
22-Sep-2016	Chilliwack	Minor	0	N/A	None	Fire damage, appliance destroyed	Minor	A propane-fired on-demand water heater was installed in an old refrigerator on the outside of a fifth-wheel trailer. During the operation of the heater, a fire started at its installed location. The fire destroyed the water heater, the refrigerator it was installed in, and damaged the exterior of the trailer. The full incident report is available via BCSA's website [click here] .
17-Nov-2016	Surrey	Minor	0	N/A	None	Burnt control wiring, melted controls	Minor	A fire occurred at a residence. After repairs were made on a furnace, a fire started in the furnace cabinet.
4-Dec-2016	Duncan	Minor	0	N/A	None	Smoke damage to interior firebox and glass on a fireplace	Minor	A fire occurred at a residence. Smoke was observed coming out of a side wall vent terminal on the fireplace.
20-Jan-2016	Bowen Island	Insignificant	0	N/A	None	Fire/heat, smoke damage	Insignificant	During the night, a propane fire started underneath a commercial range located within a commercial kitchen. The fire stayed isolated to the range but burned through the night, creating large amounts of smoke. When the fire was discovered the next morning, the staff isolated the propane supply to the kitchen and extinguished the fire.
3-May-2016	Vancouver	Insignificant	0	N/A	None	Not recorded	N/A	A gas valve on a heating boiler was stuck open.
5-Sep-2016	Cranbrook	Insignificant	0	N/A	None	Not recorded	N/A	An explosion occurred on a food truck as it was being transported (but not in operation). Although the cause was undetermined, gas equipment/system was suspected to be involved.

2016 Elevating Devices Incidents

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TABLE 4: ELEVATING DEVICES INCIDENTS

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
19-Jul-2016	Coquitlam	Moderate	1	Broken nose, sprained wrist	Moderate	N/A	None	When the elevator car stopped, it was not level with the floor and a passenger fell forward.
9-Aug-2016	Burnaby	Moderate	1	Broken finger	Moderate	N/A	None	A passenger tried to ride an escalator with a cart. The cart became stuck in the hand rail inlet, causing the passenger to fall.
2-Nov-2016	North Vancouver	Moderate	1	Separated shoulder	Moderate	Not recorded	N/A	As a passenger was entering the elevator, they slipped and fell.
12-Nov-2016	Vancouver	Moderate	1	Cuts, hematoma, dizziness	Moderate	Not recorded	N/A	A passenger was struck by the elevator doors as the doors were closing.
27-Jan-2016	Saanich	Minor	1	Bruises	Minor	N/A	None	A passenger tried to re-open the elevator doors by breaking the nudge beam while in nudging operation. The passenger's hand was injured.
8-Feb-2016	Vancouver	Minor	1	Lacerations	Minor	N/A	None	A passenger fell at the bottom of an escalator.
11-Feb-2016	Vancouver	Minor	0	N/A	None	Broken steps and components (comb plates, landing plate)	Minor	The escalator's step-fastening means became loose. Once loose, the step was able to move and hit the landing plate, causing it to lift. The carriage switch tripped and stopped the escalator.
11-Feb-2016	Vancouver	Minor	0	N/A	None	Steps and landing plates damaged	Minor	The escalator's landing plate popped up, followed by several steps popping up. The escalator stopped automatically.
3-Mar-2016	Vancouver	Minor	1	Pain in hip, shoulder; sprained wrist	Minor	N/A	None	A passenger tripped while exiting the elevator and fell. It was reported that the elevator was not level with the floor.
17-Mar-2016	Pitt Meadows	Minor	1	Bruises	Minor	N/A	None	An elevator's doors closed on a passenger's stroller.
10-May-2016	Coquitlam	Minor	1	Cuts	Minor	N/A	None	A passenger's footwear was caught in an escalator.
18-May-2016	Victoria	Minor	1	Cuts	Minor	N/A	None	A passenger fell near the escalator.
18-May-2016	Victoria	Minor	1	Pain, lacerations	Minor	N/A	None	A passenger fell near the top of an escalator.
31-May-2016	North Vancouver	Minor	1	Pain, headache	Minor	N/A	None	A passenger reported that the elevator had stopped suddenly and repeatedly.
1-Jun-2016	Vancouver	Minor	1	Twisted ankle	Minor	N/A	None	A passenger tripped while exiting the elevator and fell. It was reported that the elevator was approximately 4-6 inches out of level with the floor landing.
3-Jun-2016	Victoria	Minor	1	Cuts	Minor	N/A	None	A passenger was walking up the descending escalator and fell.
7-Jun-2016	Vancouver	Minor	1	Sprains, pain	Minor	N/A	None	A passenger tripped while exiting the elevator and fell. It was reported that the elevator was approximately 1.5 inches below the floor landing.
11-Jun-2016	Vancouver	Minor	1	Cuts	Minor	N/A	None	An escalator was not in service. A passenger walking down the stationary escalator fell.

TABLE 4: ELEVATING DEVICES INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
18-Jun-2016	Coquitlam	Minor	1	Cuts	Minor	N/A	None	A passenger tripped and fell on an escalator.
25-Jun-2016	Burnaby	Minor	1	Suspected head injury	Minor	N/A	None	A passenger tripped and fell on an escalator.
25-Jun-2016	Burnaby	Minor	1	Suspected head injury	Minor	N/A	None	A passenger tripped and fell on an escalator.
26-Jun-2016	Coquitlam	Minor	1	Cuts	Minor	N/A	None	A passenger's foot was cut while the passenger was walking up the escalator.
4-Jul-2016	Surrey	Minor	1	Cuts	Minor	N/A	None	A passenger slipped on an escalator.
15-Jul-2016	Vancouver	Minor	1	Lacerations	Minor	N/A	None	A passenger's foot was cut while the passenger was on an escalator.
26-Jul-2016	Victoria	Minor	1	Bruise	Minor	N/A	None	A passenger tripped on an escalator.
17-Aug-2016	Burnaby	Minor	1	Lacerations	Minor	N/A	None	A passenger tripped and fell on an escalator.
29-Aug-2016	Burnaby	Minor	2	Head injuries, abrasions	Minor	N/A	None	Two passengers were riding down the escalator. One passenger stumbled into the other, causing both to fall on the escalator.
30-Aug-2016	North Vancouver	Minor	1	Lacerations	Minor	N/A	None	A passenger fell on an escalator.
31-Aug-2016	Burnaby	Minor	1	Cuts	Minor	N/A	None	A passenger fell on an escalator.
31-Aug-2016	Richmond	Minor	1	Lacerations	Minor	N/A	None	A passenger ran up a stationary escalator, tripped and fell.
10-Sep-2016	Surrey	Minor	1	Lacerations	Minor	N/A	None	A passenger fell on an escalator.
27-Oct-2016	Burnaby	Minor	1	Pain	Minor	N/A	None	The elevator stopped abruptly.
28-Oct-2016	Burnaby	Minor	1	Cut on finger	Minor	N/A	None	The elevator doors contacted a passenger's hand.
3-Nov-2016	Victoria	Minor	1	Ccut	Minor	Not recorded	N/A	A passenger tripped while entering an elevator.
4-Nov-2016	Vancouver	Minor	1	Bruise	Minor	Not recorded	N/A	A passenger's footwear was caught in the escalator.
5-Nov-2016	Richmond	Minor	1	Lacerations on hand	Minor	Not recorded	N/A	An escalator was not in service. A passenger walking down the stationary escalator tripped and fell.
27-Nov-2016	Burnaby	Minor	1	Cuts, pain	Minor	N/A	None	A passenger fell on an escalator.
1-Oct-2014	Burnaby	Insignificant	0	N/A	None	N/A	None	A passenger reported issues with the elevator. The passenger reported that the elevator was not level with the floor level, was "opening and closing without going anywhere," and that its brakes squeal.
5-Jan-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger slipped and fell on an escalator.
8-Jan-2016	Victoria	Insignificant	0	N/A	None	N/A	None	A passenger was pushing a cart out of an elevator. The cart's wheels were caught in the sill gap.
26-Jan-2016	Vancouver	Insignificant	0	N/A	None	N/A	None	A passenger's footwear was caught in the escalator.
29-Jan-2016	New Westminster	Insignificant	1	Pain	Insignificant	N/A	None	A passenger tripped and fell when exiting an elevator. The elevator was approximately 1/2-inch out of level with the floor landing.
1-Feb-2016	Burnaby	Insignificant	1	Scraped knee	Insignificant	N/A	None	A passenger fell on an escalator.
9-Feb-2016	Victoria	Insignificant	1	Pain	Insignificant	N/A	None	A cart was stuck in the cartveyor. The cart became uncoupled and descended rapidly to the bottom. A passenger fell trying to avoid the cart.
18-Feb-2016	New Westminster	Insignificant	0	N/A	None	N/A	None	An elevator car drifted while a mechanic was working on the unit.
27-Feb-2016	Richmond	Insignificant	1	Pain, swelling	Insignificant	N/A	None	A passenger experienced pain when on and after being on an elevating device.

TABLE 4: ELEVATING DEVICES INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
13-Mar-2016	Surrey	Insignificant	0	N/A	None	N/A	None	The elevator's doors closed and would not open. One passenger was in the elevator.
14-Mar-2016	Langley	Insignificant	0	N/A	None	N/A	None	A person was trapped in an elevator for approximately one hour.
17-Mar-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger tripped and fell when exiting an elevator. The elevator was reported not to be level with the floor when it stopped.
29-Mar-2016	North Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger tripped as they exited the elevator. The elevator was reported to be 1 to 1.5 inches below floor level.
23-Apr-2016	Coquitlam	Insignificant	0	N/A	None	N/A	None	Five people were trapped in an elevator.
25-Apr-2016	Burnaby	Insignificant	1	Pain	Insignificant	N/A	None	A cart was stuck in the elevator's sill gap.
26-Apr-2016	Coquitlam	Insignificant	0	N/A	None	N/A	None	A passenger was trapped in an elevator for a few minutes.
3-May-2016	Abbotsford	Insignificant	0	N/A	None	N/A	None	An elevator was reported to have opened approximately five inches below the floor landing. It was also reported that after the doors open, the elevator moves or drifts 3 to 4 inches.
3-May-2016	Vancouver	Insignificant	1	Pain	Insignificant	N/A	None	A passenger reported that after stopping suddenly, the elevator "just dropped a couple of floors."
5-May-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger was struck by the elevator doors.
6-May-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell on an escalator.
12-May-2016	Victoria	Insignificant	1	Minor injury to shoulder	Insignificant	N/A	None	A passenger was struck by the elevator doors.
12-May-2016	Vancouver	Insignificant	1	Pain in neck and hands	Insignificant	N/A	None	A passenger tripped while entering an elevator. The elevator was reported to be approximately 1 inch above the floor landing when the doors opened.
19-May-2016	Burnaby	Insignificant	0	N/A	None	N/A	None	When a passenger was on an escalator step, the step dropped.
28-May-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	Passengers reported that the elevator dropped approximately six inches when it reached the second floor. The passengers also reported hearing a grinding noise when the elevator was ascending.
28-May-2016	Vancouver	Insignificant	1	Sprained ankle	Insignificant	N/A	None	A passenger reported the elevator dropping approximately 6 inches.
3-Jun-2016	Vancouver	Insignificant	1	Pinched fingers	Insignificant	N/A	None	A passenger held their hand on the elevator car doors while the doors were opening. The doors pinched the passenger's fingers.
8-Jun-2016	Nanaimo	Insignificant	0	N/A	None	N/A	None	A passenger tripped and fell as they entered the elevator. The elevator was "too high."
16-Jun-2016	Coquitlam	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger was struck by an elevator's doors.
20-Jun-2016	Nanaimo	Insignificant	1	Pain	Insignificant	N/A	None	A passenger fell on an escalator.
24-Jun-2016	Richmond	Insignificant	1	Abrasion	Insignificant	N/A	None	A passenger put their hand on the elevator door as it was moving.
19-Jul-2016	Abbotsford	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell on an escalator.
25-Jul-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger's hand was stuck in an elevator's doors.
26-Jul-2016	North Vancouver	Insignificant	1	Pain, tenderness	Insignificant	N/A	None	A passenger reported that the elevator had stopped suddenly and unexpectedly.
28-Jul-2016	Coquitlam	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell on an escalator.
28-Jul-2016	Vancouver	Insignificant	0	N/A	None	N/A	None	A passenger's footwear became stuck in the escalator comb plate.

TABLE 4: ELEVATING DEVICES INCIDENTS (CONTINUED)

INCIDENT DATE	CITY	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
			QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
28-Jul-2016	Vancouver	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger was struck by an elevator's doors.
8-Aug-2016	Saanich	Insignificant	1	Pain	Insignificant	N/A	None	A passenger was struck by the cartveyor doors.
13-Aug-2016	Burnaby	Insignificant	1	Cuts	Insignificant	N/A	None	A passenger tripped and fell on an escalator.
19-Aug-2016	Victoria	Insignificant	0	N/A	None	N/A	None	A passenger's clothing became stuck in the escalator.
26-Aug-2016	Abbotsford	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell while exiting an elevator. The elevator car was reported to be approximately 2 to 2.5 inches below the floor landing.
27-Aug-2016	Mackenzie	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger was struck by an elevator's gate.
27-Aug-2016	North Vancouver	Insignificant	0	N/A	None	N/A	None	A person was trapped in an elevator. The spirator on the hall door failed and caused the doors to jam.
29-Aug-2016	Delta	Insignificant	1	Scrapes, abrasions	Insignificant	N/A	None	A passenger fell on an escalator.
31-Aug-2016	New Westminster	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell on an escalator.
1-Sep-2016	Burnaby	Insignificant	1	Crushed/ pinched arm	Insignificant	N/A	None	A passenger put their arm in a closing manual freight elevator door. On a manually operated freight elevator door, there are no door reopening devices installed or required that would cause the doors to reopen when there is an obstruction in the doors.
4-Sep-2016	Richmond	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell after an elevator stopped suddenly and unexpectedly.
19-Sep-2016	Burnaby	Insignificant	1	Pain	Insignificant	N/A	None	An elevator's doors closed on a passenger. A passenger was vacuuming the elevator sill while holding the door open. The door 'dwell time' timed out and the elevator car went into nudging mode.
14-Oct-2016	Surrey	Insignificant	0	N/A	None	Not recorded	N/A	During a wind storm, a construction elevator personnel hoist blew into the building.
17-Oct-2016	Burnaby	Insignificant	0	N/A	None	Not recorded	N/A	An escalator stopped suddenly and unexpectedly.
23-Oct-2016	Richmond	Insignificant	1	Pain	Insignificant	Not recorded	N/A	A passenger was pushing a cart into an elevator when it became stuck on the elevator sill. The elevator was reported to be out of level with the floor landing.
25-Oct-2016	Burnaby	Insignificant	1	Not recorded	Insignificant	N/A	None	A passenger fell on an escalator.
31-Oct-2016	Coquitlam	Insignificant	1	Pain	Insignificant	Not recorded	N/A	A passenger's shoelace became caught in the escalator.
5-Dec-2016	Vancouver	Insignificant	1	Bruise, pain	Insignificant	N/A	None	A passenger fell on an escalator.
	-	Insignificant	1	Abrasion	Insignificant	N/A	None	A passenger fell on an escalator.

2016 Railway Accidents and Incidents

Incidents that are UNDER INVESTIGATION are excluded from these listings. Tables are sorted by Incident Rating and Date except where noted.

BC Safety Authority (BCSA) receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to BC Safety Authority and the long term effects of a resultant injury may not be recorded as part of the BCSA investigation.

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Heritage	8/18/2016	Minor	Minor	No	Passenger was disembarking from a passenger car, slipped on the stairs and missed the platform. The passenger struck their right shin on the platform edge causing a gash that required stitches.	Human Error	Other	No
Heritage	8/8/2016	Minor	None	No	While pushing the passenger train back to the roundhouse, a motor vehicle approached a railway crossing and because the vehicle driver's vision was blocked by a parked motor home, they encroached onto the crossing while the train was approaching. The whistle had been sounded as the train approached the crossing but, upon seeing the car coming out onto the crossing, the conductor (standing on the rear platform) put the train into emergency mode and the train stopped short of impending collision.	Human Error	Other	No
Common Carrier	12/18/2016	Severe	Major	No	Yard crew was pushing back with two loads and 18 empties at the same time there was a crew of two people cleaning switches in the yard. The yard supervisor tried to warn the employees of the movement approaching them but the employees did not react in time and one person was struck by the movement.	Human Error	Collisions	No
Common Carrier	11/24/2016	Minor	None	No	One car derailment; crew did not notice switch was lined for the wrong track and collided with cars in that track.	Human Error	Derailment	No
Common Carrier	10/20/2016	Moderate	None	No	The Rail Traffic Controller (RTC) did not convey a bulletin to a train to reduce speed over a section of track controlled by the RTC.	Human Error	Rules violation	No
Common Carrier	5/10/2016	Major	None	No	A supervisor with overlapping Track Occupancy Permit limits exceeded their operating authority and entered into the other supervisor's limits without permission.	Human Error	Other	No
Common Carrier	2/20/2016	Moderate	None	No	Thirteen car derailment on an empty coal train in yard track.	Track Conditions	Derailment	No
Commuter	12/21/2016	Minor	Major	Yes	A patron jumped in front of a train and was struck, resulting in a fatally injury.	Unknown	Trespass	No
Industrial	9/19/2016	Minor	None	No	One car derailed, pushed over the derail. Conductor gave the wrong information as to the distance to be travelled before hitting the derail.	Human Error	Derailment	No
Industrial	6/4/2016	Minor	None	No	When connecting to five cars, the cars pushed back onto derail. The lead car struck the derailing device and one set of wheels derailed.	Human Error	Derailment	No
Industrial	4/13/2016	Moderate	None	No	Three cars were left at end of track. Several hours later the cars rolled unattended through two switches that were lined for their movement. A third switch was run through, damaging the switch stand mast. The cars travelled approximately 2,300 feet, derailling on a switch point derail switch. They continued on the ground for 170 feet, stopping and occupying a public road crossing.	Human Error	Run through switch	No
Industrial	10/2/2016	Minor	None	No	Five loaded chip cars approximately four car lengths transited through a switch not lined correctly.	Human Error	Run through switch	No
Siding & Spur	3/3/2016	Minor	None	No	When pushing 10 cars, the lead car struck the derailing device and one set of wheels derailed.	Human Error	Derailment	No
Industrial	10/28/2016	Minor	None	No	When coupling onto three empty cars with one other car, operator made a hard joint and pushed the lead car over the derail.	Human Error	Derailment	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Industrial	5/18/2016	Minor	None	No	Crew pushed one car over derailing device, derailing rail car.	Human Error	Derailment	No
Industrial	5/13/2016	Insignificant	None	No	Rail crew was heading towards crossing and crossing protection was activated well in advance of approaching it. As crossing arms were coming down, a pickup with a utility trailer was observed driving through. There was no damage to the crossing and no injuries involved.	Human Error	Other	No
Industrial	3/16/2016	Minor	None	No	Locomotive was stopped ahead of a railway rail crossing, awaiting automated crossing guards to drop into place to block road access from crossing tracks when a transport truck carrying chips failed to stop at the crossing while the flashing red lights were on. The truck made it midway through the crossing when the gates came down on it.	Human Error	Property damage	No
Industrial	7/18/2016	Minor	None	No	Pulling loads through spring switch and changed direction halfway through switch derailing one car.	Human Error	Derailment	No
Industrial	6/17/2016	Minor	None	No	Shoving movement attached to one car derailed on chip dumper.	Procedural Error	Derailment	No
Industrial	6/15/2016	Minor	None	No	Movement with cut of five cars reversed direction. A car was over semi-automatic switch when movement was reversed and a set of cars derailed.	Human Error	Derailment	No
Industrial	2/13/2016	Minor	None	No	Insert or bushing that sits over axle on rail car truck was missing. Insert either came off just prior to entering chip car dumper or car was lifted somehow on dumper, allowing insert to slide out. As car was pushed off, dumper car derailed at exit point. Insert was never located.	Mechanical Failure	Derailment	No
Industrial	10/16/2016	Minor	None	No	An axle set derailed during the loading of pulp due to a stabilizer alignment issue underneath the flat car.	Mechanical Failure	Derailment	No
Industrial	7/11/2016	Minor	None	No	Locomotive was not pulling or pushing any cars. Unit travelled up the tracks into paper warehouse to couple up with loaded flatcars. Operator who loaded the flat cars put down the blue flag, but forgot to flip the derail in the non-derailing position. The locomotive drove over the derail at slow speed and front two wheels came off tracks. There were no injuries, only damage was a brake shoe, which was replaced.	Human Error	Derailment	No
Industrial	2/16/2016	Minor	None	No	When pushing an empty car, the train crew did not check to see how far they could push back. When pushing back, the rail car wheels struck the stop block and derailed the car.	Human Error	Derailment	No
Industrial	2/6/2016	Moderate	None	No	Two cars pushed over the derail by the service provider. Railway not at fault.	Human Error	Derailment	No
Industrial	12/29/2016	Moderate	None	No	Movement eastward with shuttle wagon, four empty and two loads. Operator saw vehicle approaching crossing from the north end. Operator blew whistle and rang bell continuously. When operator saw the vehicle did not stop at stop sign (stop sign located at first of three tracks), operator put shuttle wagon and cars in emergency mode two car lengths from crossing (third crossing). Vehicle ran into shuttle wagon at front left corner, after collision movement continued for approximately 40 feet.	Human Error	Crossing collision	No
Industrial	1/3/2016	Moderate	None	No	Chips built up along right of way fell onto track as railcars moved under chip hood. Five cars derailed due to buildup of debris (chips) on rail.	Track Conditions	Derailment	No
Industrial	5/28/2016	Minor	None	No	Service provider was pulling cars east towards main line. As engine started crossing switch points, the wheels derailed.	Track Conditions	Run through switch	No
Industrial	5/24/2016	Minor	None	No	CP crew was pushing eight empty box cars east into yard. The box cars travelled across the switch; when the engine got to the switch area, the engine wheels derailed on both ends of the engine.	Mechanical Failure	Derailment	No
Industrial	3/26/2016	Minor	None	No	A CP crew stopped their engine at the switch waiting for a clear signal to run east on to the CP main line. Switch was aligned to the CP main line. The crew started moving east and the engine came off the rails at the switch.	Track Conditions	Derailment	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Industrial	9/17/2016	Minor	None	No	Two separate derailments occurred on an industrial spur. The east rail had loaded log cars and the last car got pushed right through a berm at the end of the track. The west rail had empty lumber cars and the last car got pushed on top of the berm.	Procedural Error	Derailment	No
Industrial	9/25/2016	Minor	None	No	When exiting the trackmobile, the operator accidentally bumped a toggle switch for the MAX-TRAN. This switch prevents the trackmobile from lifting a railcar off its trucks when borrowing weight for traction. The operator did not notice the switch was in the "off" position when starting to lift the knuckle. This caused the railcar to be lifted off the trucks. The back two wheels of the front truck were on the ground, front two wheels were still on the rail.	Human Error	Derailment	No
Industrial	4/2/2016	Minor	None	No	While pulling up empty cars heading south, switch points were not aligned for the intended track and caused damage to the switch upon impact.	Human Error	Run through switch	No
Industrial	3/9/2016	Minor	None	No	Trackmobile was going to get empty railcars and the operator did not realize the switch was not in the correct position for movement and drove through it, damaging the switch.	Human Error	Run through switch	No
Commuter	7/27/2016	Moderate	Minor	No	Hi-rail vehicle used for construction of the Evergreen Line had a brake failure; the vehicle ran away and hit a derail.	Human Error	Derailment	No
Heritage	6/4/2016	Minor	None	No	Crew member lined a switch against speeder. Equipment operator did not realize this and ran through it and derailed speeder and one car.	Human Error	Run through switch	No
Industrial	6/16/2016	Minor	None	No	Trackmobile operator was moving forward attempting to hook onto the last two cars on the outside track. Prior to hooking onto the cars, the top right corner window came in contact with the side wall struts of the barge (not enough clearance) and fouled the track for the trackmobile.	Human Error	Collisions	No
Industrial	10/19/2016	Minor	None	No	Crew did not check switch position when pulling cars and ran through a misaligned switch.	Run Through Switch	Run through switch	No
Industrial	4/22/2016	Insignificant	None	No	Crew ran through a switch lined away from them, causing one car of gasoline to derail.	Run Through Switch	Derailment	Yes
Industrial	11/30/2016	Minor	None	No	Single-car derailment resulting from chocks not being removed from the axle set prior to movement.	Human Error	Derailment	No
Industrial	1/12/2016	Insignificant	None	No	A crew was pulling a string of five loaded rail cars to the entrance for pickup. The cars started to slip on the tracks when beginning to move (normal for wet, cold rails). The cars pushed back towards the barn; then started forward again. After travelling a couple of car lengths, the cars were unable to move forward or back. The crew stopped the movement. Upon investigation, the crew found that the train had been pulling through a two-foot-deep spill of product (sponge coke) and had derailed last two wheels on the third car in the string.	Ice-Mud (Coal etc.) Buildup	Derailment	No
Industrial	6/28/2016	Moderate-3	None	No	Car moving equipment operator mistakenly shoved 13 cars instead of pulling these, which in turn caused one car to go over the derailer, derailing the car.	Human Error	Derailment	No
Industrial	2/14/2016	Minor	None	No	Loadout operator did not raise chute before moving railcar, resulting in the chute being damaged after making contact with railcar.	Human Error	Property damage	No
Industrial	9/13/2016	Moderate-3	None	No	The switch was incorrectly lined for the intended movement. The car was pushed onto the wrong track, sideswiping another car in the process.	Human Error	Derailment	No
Industrial	9/7/2016	Moderate-3	None	No	Switch was lined incorrectly under a string of cars. When crew attempted to pull the cars, one car derailed.	Human Error	Derailment	No
Industrial	6/9/2016	Moderate	Minor	No	Service provider struck a truck at a crossing equipped with stop signs and crossing signs. Vehicle did not stop at stop sign. Conductor was injured when he jumped off railway equipment to avoid collision. One car derailed a set of wheels. Crossing was off mill's property; it was private and recently commissioned by the mill.	Human Error	Crossing collision	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Industrial	3/7/2016	Insignificant	None	No	One car climbed up on a buildup of ice and snow and derailed.	Ice-Mud (Coal etc.) Buildup	Derailment	No
Industrial	11/28/2016	Minor	None	No	The trackmobile was travelling south through switch YH-39, which was not lined for the intended movement and consequently damaged the switch.	Human Error	Run through switch	No
Industrial	4/27/2016	Insignificant	None	No	A three-car train travelling west through a semi-auto switch stopped clear of the fouling points. Despite the conductor visually inspecting the switch to ensure the points were set and locked prior to the movement, the switch in fact was not locked, resulting in the axle-sets splitting the switch.	Human Error	Derailment	No
Industrial	8/4/2016	Minor	None	No	Single-car derailment resulting from a trackmobile pushing an eight-car train through a closed derailer. CPR had spotted eight railcars that day when seven is the requested number. This was the the first time the car mover had worked the rail spur at this site. Car mover thought there was enough distance to continue to push the cars east.	Procedural Error	Derailment	No
Common Carrier	6/30/2016	Major	None	No	Free roll while loading a railcar with a fork lift; the car moved approximately two feet. Operators reviewed procedures and understand how to ensure this does not happen again with new hires.	Procedural Error	Other	No
Heritage	8/5/2016	Minor	None	No	Streetcar collided with vehicle that was parked too close to railway right of way on curve under the Nelson Bridge.	Human Error	Collisions	No
Industrial	12/26/2016	Major	None	No	Single-car derailment resulting from a runaway car that was not correctly coupled.	Human Error	Rules violation	No
Industrial	11/17/2016	Moderate	None	No	Service provider shoving five empty cars into customer's track pushed over derail, derailing two cars upright. The derailed cars struck a car on an adjacent track, damaging safety appliances.	Human Error	Derailment	No
Industrial	11/13/2016	Minor	None	No	Single-car derailment due to the operator pushing a fully loaded car over a track derail left in the derailing position.	Human Error	Derailment	No
Industrial	7/30/2016	Minor	None	No	Trackmobile derailed when retrieving an empty rail car from track two.	Human Error	Run through switch	No
Industrial	8/7/2016	Major	None	No	A railway employee bumped the knuckle of a railcar with the trackmobile. The railcar began to roll north away; the worker attempted to recover it with the trackmobile and bumped it again. The empty car went through the switch and hit the derail and the north end of the car derailed, while the south wheels remained on the track.	Procedural Error	Run through switch	No
Industrial	1/30/2016	Minor	None	No	Trackmobile was pushing locomotive southward through switch when the lead set of trucks of the locomotive split the switch points and derailed.	Human Error	Derailment	No
Industrial	1/13/2016	Minor	None	No	Crew noticed switch stand was moving as the movement went over it. They stopped the movement and investigated and saw the switch keeper was not in and its handle was not fully down. Conductor had lined switch prior to previous movement and had not restored switch to its proper position, resulting in a damaged switch.	Human Error	Run through switch	No
Commuter	12/21/2016	Minor	None	No	An unsecured gate made contact with a train under tow, damaging both the gate and the train.	Procedural Error	Collisions	No
Commuter	11/26/2016	Moderate	None	No	Train struck a piece of a handrail, causing damage to the train and a piece of metal to fall onto a car parked below (car was located at Quebec Street and Terminal Avenue).	Unknown	Property damage	No
Commuter	10/29/2016	Severe	None	No	Loram rail grinder hostler over ran Operating Permit (OP) area into neighbouring OP.	Human Error	Rules violation	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Commuter	10/28/2016	Major	None	No	Electronics technician was issued authority from train operations operator to enter the guideway. The technician and a partner entered the track area to perform guideway intrusion system maintenance. Moments later, the technicians realized a train was about to enter the station so they jumped clear onto the centre walkway, clear of the guideway. The train entered the station and made the station stop with no injuries reported.	Human Error	Rules violation	No
Commuter	10/11/2016	Moderate	None	No	The rail grinder (Loram) was grinding in reverse towards DC 136 which was lined against the unit. The operator misjudged the distance to the switch, riding up onto the frog and stopping prior to derailing.	Human Error	Run through switch	No
Commuter	10/1/2016	Minor	Major	Yes	A patron entered into the guideway directly in front of a train. A review of the safety systems was completed and all systems worked as intended.	Unknown	Trespass	No
Commuter	9/15/2016	Minor	None	No	Damage to inbound running rail resulting from the Loram rail grinder stones not retracting prior to stopping.	Mechanical Failure	Property damage	No
Commuter	9/13/2016	Moderate	None	No	The Loram rail grinder derailed at a switch due to the switch position not being aligned for the intended movement	Human Error	Derailment	No
Commuter	9/12/2016	Minor	None	No	Loram rail grinder (contractor) was travelling when an exterior side storage door came unlatched and struck some temporary plywood hoarding at the end of the platform.	Human Error	Collisions	No
Commuter	8/19/2016	Minor	Minor	No	Patron on a motorized scooter inadvertently drove into the guideway injuring themselves.. There were no trains in the area.	Unknown	Other	No
Commuter	8/18/2016	Major	Minor	No	MK-III three-car train being demonstrated to media at a train station was operated by an unqualified employee. The train was emergency braked accidentally.	Procedural Error	Other	No
Commuter	8/16/2016	Major	None	No	Power and engineering departments were conducting a test of a grounding device (ground strap). The ground strap was attached to the de-energized power rail and when the power rail was energized, a sub-station breaker, ground strap and power rail were damaged due to an arc flash on the power rail/ground strap connection and in the sub-station at the breaker.	Unknown	Fire / explosion	No
Commuter	7/24/2016	Minor	None	No	A SkyTrain car struck a five-gallon can of paint near Edmonds Station that had been placed in the guideway in an act of vandalism. The paint was drawn into the motor, disabling the train.	Other (see cause notes)	Vandalism	No
Commuter	7/22/2016	Minor	Minor	No	Intoxicated male stumbled into a departing inbound train and fell onto the platform, hitting his head.	Human Error	Other	No
Commuter	6/24/2016	Minor	None	No	Two employees were travelling to a station to drop off materials. At approximately track section 2246-2247, the cart carrying the Stumec grinder and power pack derailed to the gauge side and travelled approximately 40 feet before coming to a complete stop, making contact with several automatic timing and control brackets. The speeder was pushing the cart and the Stumec cart had a power pack loaded on it with an uneven load. A high rate of speed while pushing a load with the improper drawbar attached lead to instability of the cart while travelling. Poor weather conditions were present over the course of the shift, making the rails slick to travel along.	Procedural Error	Derailment	No
Commuter	6/1/2016	Minor	Major	No	Trespasser was fleeing from transit police and running down guideway when the trespasser jumped from the concourse to the ground below. Trespasser was taken by ambulance with major injuries incurred by fall.	Human Error	Trespass	No
Commuter	5/27/2016	Minor	Major	No	Patron intentionally entered guideway in front of and was struck by approaching train. On May 30, 2016, a railway safety officer viewed CCTV footage of the incident and acknowledged that the platform intrusion emergency system worked as intended; the train emergency braked and stopped immediately.	Human Error	Trespass	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Commuter	2/29/2016	Minor	Major	Yes	A patron waited on the platform for a train to arrive. Once the train entered station envelope, the patron jumped into the guideway but did not set off the guideway intrusion emergency system as they landed on the linear induction motor rail and stepped onto the outside rail. The train struck the patron and came to a full stop before the guideway intrusion emergency system initiated. The safety system worked as intended and the incident did not occur as a result of actions or conditions created by the railway.	Human Error	Trespass	No
Commuter	2/20/2016	Moderate	None	No	Patron entered a guideway to retrieve a phone when a train was in the station. The train started to leave the station and the patron pressed against the wall to avoid contact. The patron then exited via the guideway. The guideway intrusion emergency system did not initiate an emergency brake application on the train. A test after the event confirmed that the guideway intrusion emergency system was operational.	Human Error	Trespass	No
Commuter	2/2/2016	Minor	Major	Yes	Patron intentionally entered a guideway when a train was entering the station. The train struck the person and then came to a complete stop. The guideway intrusion emergency system initiated an emergency brake application on the train. A test after the event confirmed that the guideway intrusion emergency system was operational.	Human Error	Trespass	No
Commuter	2/2/2016	Minor	Minor	No	A patron entered a station on the inbound platform. As they were walking along the platform, a train was leaving the station. The patron was walking, facing the train as it was leaving. They walked too close to the edge, and their hand made contact with the train. First aid was administered by STAs and an ambulance took the patron to hospital.	Human Error	Other	No
Commuter	1/28/2016	Major	None	No	A six-car train was proceeding into the storage lane when the train came to a stop. The switch points under the train were reversed and, when the train started forward, the second car derailed.	Procedural Error	Derailment	No
Commuter	1/27/2016	Minor	None	No	A wheelchair went into the guideway by accident, without injuries or damage. The safety systems worked as intended.	Human Error	Other	No
Commuter	1/12/2016	Minor	None	No	A rail contractor was cleared by control to travel from the Operations Maintenance Centre 2 to the mainline guideway. The contractor train was approaching Switch 104 when the third cart in the train derailed. The contractor had the day before changed the way they anchored the replacement rail to the carts from the last cart to the middle cart. It was the middle cart that derailed. No damage was found to PNR carts or property.	Human Error	Derailment	No
Commuter	1/11/2016	Minor	None	No	Contractor train was traversing through Switch 104 to Operations Maintenance Centre 2 from mainline when the front axle of the last rail cart de-railed through the frog of the switch. The cart twisted with the load lifting the front left wheel and flange off the rail, causing the cart to de-rail. The cart was then re-railed and the train proceeded to Operations Maintenance Centre.	Track Conditions	Derailment	No
Common Carrier	12/22/2016	Minor	None	No	Single-car derailment resulting from a buildup of ice, snow, and dirt at a crossing in Queensborough.	Ice-Mud (Coal etc.) Buildup	Derailment	No
Common Carrier	12/17/2016	Minor	None	No	Single-car derailment resulting from frozen ground conditions and thick ice buildup.	Ice-Mud (Coal etc.) Buildup	Derailment	No
Common Carrier	11/24/2016	Moderate	Major	No	A contractor hired by the railway had an excavator tip over while attempting to re-rail a car from a derailment. The railcar being re-railed also tipped over.	Track Conditions	Other	No
Common Carrier	11/23/2016	Moderate	None	No	Inadequate drainage produced soft ground conditions that facilitated a four-car derailment.	Track Conditions	Derailment	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Common Carrier	11/22/2016	Minor	None	No	Single-car derailment resulting from a derail still in the derailing position.	Human Error	Derailment	No
Common Carrier	11/17/2016	Major	None	No	Train proceeding along the Fraser Valley Sub was struck by a motor vehicle that did not stop or acknowledge the crossing's warning systems.	Human Error	Crossing collision	No
Common Carrier	11/15/2016	Major	None	No	Uncontrolled movement of two cars over a road crossing on Annacis Island.	Procedural Error	Run through switch	No
Common Carrier	10/19/2016	Moderate	None	No	Eastbound movement through a crossing with wide gauge resulted in a rail rollover derailing four cars.	Track Conditions	Derailment	No
Common Carrier	10/12/2016	Minor	None	No	While pushing cars down the Ritchie Smith 2 Lead, the movement failed to stop short of the derail at the end of Track 2 Lead.	Human Error	Derailment	No
Common Carrier	10/7/2016	Minor	None	No	Crew derailed a car over an end-of-track stop block.	Human Error	Derailment	No
Common Carrier	8/15/2016	Moderate	None	No	The crew entered S-yard from the east end and a worker inadvertently lined the S-yard switch into S-yard 15 by mistake. The movement struck the derail on the east end causing the lead engine to derail one axle.	Human Error	Derailment	No
Common Carrier	7/17/2016	Minor	None	No	A derailment occurred on the turnout from a client facility. The crew was in the process of pushing four loaded rock cars into the flat track for storage. The crew pulled through the switch; a worker lined the switch and started the shoving movement into the track, at which point the worker heard noisiness coming from the car. The worker noticed the railcar was on the ground. The worker immediately stopped the movement.	Track Conditions	Derailment	No
Common Carrier	5/31/2016	Minor	None	No	One car derailed on account of its ramp rails being misaligned due to the guides/saddle in which the barge rails rest on being worn and out of line.	Track Conditions	Derailment	No
Common Carrier	5/11/2016	Minor	None	No	Employee did not remove derail from derailing position. Employees did not communicate derail was removed prior to a train moving. A locomotive ran over the derail.	Human Error	Rules violation	No
Common Carrier	4/27/2016	Moderate	None	No	Conductor failed to line the switch for the movement and ran through it on their reverse movement. Once the switch was run through, the conductor then gave the instruction to pull ahead, causing four cars to derail prior to the conductor noticing the derailment and stopping the movement.	Human Error	Run through switch	Yes
Common Carrier	4/25/2016	Moderate	None	No	Seven of 18 loads derailed when they were being pulled through the yard. A sharp flange caused one of the cars to derail, which in turn caused the rail to roll and derailed six more cars.	Mechanical Failure	Derailment	Yes
Common Carrier	4/10/2016	Minor	None	No	One set of wheels walked up on switch points when pushing 26 cars and derailed.	Track Conditions	Derailment	No
Common Carrier	4/7/2016	Insignificant	None	No	When pushing into customer's track, a rail broke and caused two cars to derail.	Track Conditions	Derailment	No
Common Carrier	3/31/2016	Minor	None	No	When pushing 10 cars into a siding, a wheel climbed up on switch points and derailed the lead set of wheels.	Track Conditions	Derailment	No
Common Carrier	3/30/2016	Minor	None	No	When pulling a string of cars, one car derailed at switch and then travelled approximately 300 feet to the next switch where the derailed wheel hit the heel block for the switch and re-railed itself.	Track Conditions	Derailment	No
Common Carrier	3/23/2016	Minor	None	No	A train crew had pulled two engines and eight cars past the North Fraser Way railway crossing. A vehicle that was turning right on to North Fraser Way had stopped to wait for the train when it suddenly started rolling towards the train and struck the second to last railcar.	Human Error	Crossing collision	No
Common Carrier	2/28/2016	Minor	None	No	A crew was shoving 24 empty automobile-rack cars for storage. The conductor riding the point thought they had more room than was available and shoved one car through the end of the track, derailing one set of trucks on the railcar.	Human Error	Rules violation	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Common Carrier	2/19/2016	Minor	None	No	When pulling cars from a customer's track, the lead engine walked up on a buildup of sand that had fouled the track and derailed.	Ice-Mud (Coal etc.) Buildup	Deraiment	No
Common Carrier	2/5/2016	Minor	None	No	The bolts of a railcar broke at the rail joint and the wheel flange rode up onto the top of the rail where it stayed until it fell inside the rail, causing a minor deraiment.	Track Conditions	Deraiment	No
Common Carrier	1/14/2016	Minor	None	No	A rail crew pulled 55 cars; they intended to retrieve two railcars that were required for spotting for a customer. After placing three cars into Track 3, the crew pushed 25 cars back into a clear Track 2 at approximately five miles per hour. The crew then kicked one more car to the mainline and coupled back onto Track 2 and attempted to push back into Track 2. After coupling, the engineer advised they could not move the train. The conductor walked down to find three railcars derailed.	Track Conditions	Deraiment	No
Common Carrier	1/11/2016	Insignificant	Minor	No	Train was travelling eastbound with a worker located in the seat across from the engineer and the conductor located in the caboose. The train approached Lickman Road Crossing at the speed of 23 miles per hour, complying with all items of CROR Rule 13 (engine bell), Rule 14 (engine whistle signals), Rule 17 (headlight), and Rule 19 (ditch lights) prior to entering the public crossing at grade, which has a permissible track speed of 25 miles per hour. As the movement approached the crossing, the worker advised the engineer to plug it (meaning exhaust the train brake pipe of air and putting the train into emergency brake application status), as the worker had noticed a white SUV-style vehicle travelling south at a high rate of speed and that was not going to stop in time at the crossing. The vehicle did not stop, running through the posted stop sign, and colliding with the train. The train was 10 -12 feet into the crossing when contact was made with the vehicle and travelled approximately 300 feet after the impact. The train crew immediately called emergency services. The lone occupant of the vehicle was taken via ambulance from the scene to Royal Columbian Hospital.	Human Error	Crossing collision	No
Common Carrier	6/6/2016	Minor	None	No	While pulling a cut of five empty cars off a barge to load onto another barge track, the fourth car in the string derailed at the hinge point of the barge ramp. All four wheels on the B-end of the car derailed onto the wood planks of the barge ramp.	Track Conditions	Deraiment	No
Siding & Spur	10/19/2016	Minor	None	No	One car walked up on spilled coal and derailed one set of wheels.	Ice-Mud (Coal etc.) Buildup	Deraiment	No
Siding & Spur	12/19/2016	Insignificant	None	No	Lead engine was going under the front-end chute of the loading silo when the loadout operator heard a scratching sound. The operator quickly raised the chute, but the engine's communications cover had already been broken.	Human Error	Collisions	No
Siding & Spur	8/15/2016	Minor	None	No	Coal load-out chute made contact with locomotive while loading the train.	Procedural Error	Collisions	No
Siding & Spur	7/22/2016	Insignificant	None	No	A packer chute rose automatically when a tail engine was going by and, for some reason, the packer came down and made contact with the top of the engine. This caused a scrape on each top side and also a small plastic cover was broken on an edge.	Mechanical Failure	Other	No
Siding & Spur	10/30/2016	Minor	None	No	Operator reversed the train to reweigh while the auto chute gate was still open, spilling coal onto the track and derailling the lead engine and two cars.	Human Error	Deraiment	No
Siding & Spur	11/17/2016	Insignificant	None	No	A limit switch was frozen and stopped the plow from raising, which struck the mid-train locomotive.	Mechanical Failure	Collisions	No
Siding & Spur	8/22/2016	Insignificant	None	No	The leveling plow on the coal load-out chute did not rise up and it struck the locomotive, causing minor damage to the locomotive.	Mechanical Failure	Collisions	No
Siding & Spur	4/16/2016	Insignificant	None	No	Spray bar used to apply coal sealant came into contact with the locomotive when loading cars.	Human Error	Property damage	No
Industrial	12/13/2016	Minor	Minor	No	Employee was setting the brake on a railcar and, when detraining, slipped from the platform and fell to the ground. This resulted in a back injury.	Human Error	Other	No

TABLE 5: RAILWAYS ACCIDENTS AND INCIDENTS (CONTINUED)

TYPE	DATE (M/D/Y)	INCIDENT RATING	INJURY	FATALITY	DESCRIPTION	CAUSE	CATEGORY	DANGEROUS GOODS
Industrial	7/23/2016	Moderate	None	No	While pushing a six-car string of empty tank cars into the load track, cars four, five and six came off the rail at the switch and the locomotive units also came off.	Track Conditions	Derailment	Yes
Industrial	11/30/2016	Minor	None	No	CN crew was pulling with three locomotives and four empty cars when they ran through an improperly lined switch, derailing three locomotives.	Run Through Switch	Derailment	No
Industrial	1/11/2016	Moderate	None	No	A loaded railcar was brought down the track beside the derail with its handbrake applied. A second loaded railcar was then pushed down the track by a forklift to couple up. The forklift driver nudged the stationary car approximately five feet with the brakes on and it came to a stop. The operator then nudged the railcars approximately 10 more feet and once the railcars started rolling, they would not stop. The runaway railcars hit the derail and derailed.	Procedural Error	Derailment	No
Industrial	2/14/2016	Moderate	None	No	Operator failed to apply the handbrake sufficiently to prevent the cars from moving when the car mover was detached from the set. When the car mover hooked onto the cars, a railcar struck a derailing device and wheels derailed.	Human Error	Rules violation	Yes
Siding & Spur	1/19/2016	Minor	None	No	When the railway service provider was pulling loaded cars, one car walked up on a buildup of ice and derailed.	Ice-Mud (Coal etc.) Buildup	Derailment	No
Industrial	12/6/2016	Minor	None	No	Due to a breakdown in procedures, there was an overlap between the service provider (CN) and the local train crew.	Human Error	Rules violation	No
Industrial	5/26/2016	Minor	None	No	A contractor working on the track without authority did not follow company procedures.	Human Error	Other	No
Industrial	5/18/2016	Minor	None	No	Rail crew went to clear and gave the service provider authorization to enter the mill site. The service provider was late coming in, so the crew started switching cars without cancelling the authorization. The service provider entered the mill site, which resulted in a near miss.	Procedural Error	Other	No
Siding & Spur	1/5/2016	Moderate	None	No	Employee was using a 966 loader grapple to push two loaded (lumber) cars south out of the loading area for pick up. While pushing the cars very slowly, the operator stopped and the cars continued down the track to the derail and the south car derailed.	Human Error	Derailment	No
Industrial	4/4/2016	Major	Minor	No	Movement was pushing nine cars southbound. Conductor was on the ground guiding the spotting of the cars in the warehouse. A piece of clothing got caught on the passing car and the conductor was pulled in between the movement and ramp. Once the car was past him, he fell to the ground. The employee suffered injuries due to being crushed between the railcar and the ramp.	Human Error	Other	No
Industrial	7/12/2016	Moderate	None	No	Service provider entered the site when blue flags were in place and asked an employee to take down the blue flag that indicates persons are working in and around railcars. The employee took down the blue flag but did not contact the car-loading crew and advise that the service provider would be pulling cars. The service provider proceeded to move railcars while some cars were still being loaded.	Human Error	Rules violation	No
Industrial	11/29/2016	Minor	None	No	While coupling railcars, the knuckles did not line up and struck the brake pipe. This severed the pipe on the car.	Procedural Error	Property damage	No
Industrial	5/9/2016	Insignificant	None	No	A loader operator noticed a buggy was stuck on the tracks. The operator went to help. While crossing the tracks near Switch 6, the front wheels of the operator's loader dropped into a depression, allowing the loader's bucket to hit the ground and grab the rail tracks.	Track Conditions	Other	No
Heritage	8/29/2016	Minor	None	No	A new joint on a railway turntable did not work. A coach on the turntable rolled 10 feet and derailed off its end.	Human Error	Derailment	No

2016 Passenger Ropeway Incidents

Incidents that are UNDER INVESTIGATION are excluded from these listings. Tables are sorted by Incident Rating and Date except where noted.

BC Safety Authority (BCSA) receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to BC Safety Authority and the long term effects of a resultant injury may not be recorded as part of the BCSA investigation.

TABLE 6: PASSENGER ROPEWAYS INCIDENTS

INCIDENT DATE	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
		QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
9-Jan-2016	Major	1	Head injury, possible punctured lung	Major	N/A	None	A passenger was preparing to unload from the carrier when they fell approximately 7 metres to the ground. The passenger was not sitting in the carrier correctly and the restraining device was raised early.
24-Jan-2016	Major	1	Multiple fractures	Major	N/A	None	An employee was carrying some equipment while riding a carrier with the restraining bar in the 'up' position. The end of the equipment came into contact with a lift tower, forcing the passenger out of the carrier. The passenger fell approximately nine metres. Documented policies indicate that gates/poles must be packaged specifically. The policy may not have been followed by the passenger. Also, the passenger may not have been paying attention to the position of the load (equipment) they were carrying.
6-Jan-2016	Moderate	1	Possible fractured ankle	Moderate	N/A	None	A passenger was attempting to load a fixed-grip four-passenger chairlift with another guest. One passenger's ski became entangled with the other passenger's ski.
7-Jan-2016	Moderate	1	Fractured wrist, hip contusion, ankle sprain	Moderate	N/A	None	A passenger slipped out of the carrier and fell approximately 30 feet. The restraining bar was raised by the other passenger before the designated point. The passenger was leaning forward and may not have been paying attention to their position on the carrier.
18-Jan-2016	Moderate	0	N/A	None	Wire conductor insulation damaged	Moderate	A gondola stopped due to a cut wire fault.
5-Feb-2016	Moderate	1	Concussion, unknown spine injury	Moderate	N/A	None	A passenger was struck by a downhill carrier in the deceleration zone. The passenger was sweeping snow off of their seat and did not sit down before the end of the load ramp. The passenger skied off the ramp and into the path of downhill chairs.
6-Feb-2016	Moderate	1	Tenderness, pain	Moderate	N/A	None	A passenger (skier) was unable to sit on an approaching carrier as all four seat positions were occupied. As the ropeway was coming to a stop, the passenger was pushed forward by the uphill-moving carrier, down the end of the loading ramp and collided with an empty carrier on the downhill side.
12-Feb-2016	Moderate	1	Concussion, neck pain	Moderate	N/A	None	A passenger fell while attempting to load a fixed-grip double-chair carrier. The passenger's skis became entangled as they attempted to load onto a moving carrier, causing the passenger to fall.
21-Feb-2016	Moderate	1	Broken femur	Moderate	N/A	None	A passenger (skier) unloading the chairlift lost their balance at the bottom of the unload ramp and the fell on their knee.
24-Feb-2016	Moderate	1	Broken wrist, sprained ankle	Moderate	N/A	None	A passenger fell approximately 7 metres from the chair to the ground. As the chair departed the loading station, the lift operator instructed the passengers to lower the restraining device; however, the passengers did not. One of the passengers turned around and was in the chair backwards. The passenger lost their grip and fell from the chair, several hundred metres from the loading station.
2-Jan-2016	Minor	1	Pain	Minor	N/A	None	A passenger failed to unload at the designated point. The passenger jumped from the carrier and fell approximately 1.5 metres to the ground.
2-Jan-2016	Minor	1	Knee sprain	Minor	N/A	None	Two passengers were loaded onto a T-bar carrier. The T-seat slipped down to the back of the passengers' knees, causing them to fall. One passenger's leg was caught by the T-seat and was dragged approximately two metres before the ropeway came to a stop.

TABLE 6: PASSENGER ROPEWAYS INCIDENTS (CONTINUED)

INCIDENT DATE	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
		QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
2-Jan-2016	Minor	1	Pain, strained knee	Minor	N/A	None	A passenger fell after their skis became entangled with an adjacent passenger's skis as it attempted to unload from the carrier at the ropeway unloading point.
3-Jan-2016	Minor	1	Cuts	Insignificant	Electrical switch gear, DC input card, position sensors damaged	Minor	Electrical switch gear that feeds the mountain failed. The subsequent power surge caused electronic components to fail on the gondola, and the evacuation drive was inoperable. Passengers were manually evacuated from the line.
8-Jan-2016	Minor	0	N/A	None	Multiple carriers damaged (broken seats); sheave assembly damaged (sheave beam and main beam)	Minor	An excavator operating under the lift line came into contact with the haul rope, resulting in the deropement of two towers. The haul rope was not retained by the rope catchers.
11-Jan-2016	Minor	0	N/A	None	Cooling fan bearings damaged	Minor	The main drive motor's cooling bearings failed on a fixed-grip four-passenger chairlift. The main drive shut down due to a drive fault.
11-Jan-2016	Minor	1	Chipped teeth	Minor	N/A	None	A passenger fell from an above-surface ropeway. The passenger entered the unloading station, and while raising the carrier restraining device, slid forward and off the carrier. The passenger fell approximately 8 to 10 feet.
14-Jan-2016	Minor	1	Broken tooth, cut	Minor	N/A	None	A passenger entered the loading point of a surface T-bar ropeway when the operator was not present. The passenger turned to load onto the carrier and was struck by it.
24-Jan-2016	Minor	1	Pain	Minor	N/A	None	A passenger attempted to unload from the carrier after the designated unload point and fell approximately three feet from the chair.
1-Feb-2016	Minor	0	N/A	None	Carrier components broken	Minor	Deropement of Tower 4 downhill side. The rope landed in the cable catcher originally, then "jumped out" and was not retained. The ropeway was stopped by Tower 4's deropement switch.
3-Feb-2016	Minor	1	Bruising, soreness	Minor	N/A	None	A passenger loaded a chairlift and caught their ski tip in the snow, approximately six metres after the load area. This caused the ski to come off the passenger's boot. The lift operator retrieved the ski and informed the person that the ski would be taken to the top by following passengers on the chair lift. The passenger who lost their ski may not have heard or understood that the ski would follow with the next passengers. Approximately 32 metres after the load area, the passenger either fell or jumped off the chair.
6-Feb-2016	Minor	1	Possible hip injury	Minor	N/A	None	A passenger was injured while unloading from a carrier. The passenger failed to unload at the designated point, then jumped from the carrier as it went around the bull wheel.
6-Feb-2016	Minor	1	Twisted ankle	Minor	N/A	None	A passenger attempted to unload from a chairlift, but the passenger's jacket was caught on the chair frame. This resulted in the passenger being unable to unload the chair at the designated point on the unload ramp. When the passenger was able to release their jacket from the chair, they jumped to the unload ramp. The chair then contacted the passenger, causing the passenger to fall over.
20-Feb-2016	Minor	0	N/A	None	Broken tension system winch ratcheting mechanism casting	Minor	A maintenance person was performing an adjustment of the chairlift tension counterweight position. The maintenance person released the safety anchor line for the tension system counterweight winch and began to turn the winch. The winch anti-rollback device's metal casting broke. The breaking of the casting caused the maintenance person to release the winch handle. The winch began to unwind slowly until the counterweight touched down at the bottom of the counterweight enclosure.
25-Feb-2016	Minor	1	Not described	Minor	N/A	None	A passenger fell from the carrier approximately nine metres from the unload ramp. The passenger may have been too close to the seat edge, or may have been bumped by another passenger on the chair as they prepared to unload.
3-Mar-2016	Minor	1	Possible whiplash/neck injury	Minor	N/A	None	Four passengers were attempting to load onto a carrier when they became entangled with each other. This caused them to fall and one passenger was hit by the carrier.

TABLE 6: PASSENGER ROPEWAYS INCIDENTS (CONTINUED)

INCIDENT DATE	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
		QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
5-Mar-2016	Minor	1	Head pain/ headache	Minor	N/A	None	The chairlift operator was attempting to assist a passenger onto the chair when the swinging chair contacted the chairlift operator.
14-Mar-2016	Minor	1	Pain, tenderness	Minor		None	A passenger caught their ski tip on the unload ramp ski tip deflector when the passenger was preparing to unload from the chairlift. The caught ski tip caused the passenger's leg to be dragged backwards, under the moving chair. The passenger's ski broke and the passenger fell out of the chair and onto the unload ramp.
17-Mar-2016	Minor	0	N/A	None	Crack in tower cross arm	Minor	An operator discovered a crack on the tower cross arm during a visual inspection conducted following a manufacturer's safety bulletin.
23-Mar-2016	Minor	1	Pain	Minor	N/A	None	Four passengers loaded a chairlift. The passenger positioned on the inside of the chair (furthest from the operator) was unable to sit properly. The carrier left the station and the passenger began to slip out of the seat. The carrier travelled approximately 450 metres before the passenger fell from the chair, falling approximately 10 metres.
1-Jan-2016	Insignificant	0	N/A	None	N/A	None	A passenger was stranded on a gondola for approximately 20 minutes before contacting operations personnel.
11-Jan-2016	Insignificant	0	N/A	None	N/A	None	A passenger loaded a chairlift approximately two minutes before the end of daily operations. Lift operators at the top of the chair had begun flipping up the chairs in preparation for the chairlift shut down. A passenger loaded the lift without waiting for the lift attendant, and loaded a chair with the seat in the 'up' position.
14-Jan-2016	Insignificant	0	N/A	None	N/A	None	Deropement at Tower 2 uphill assembly. The haul rope was not retained by the rope catchers. Between Towers 1 and 2, two passengers attempted to ski out of the platter lift's uphill tow path, around a fence line intended to keep passengers in the tow path. The action of the two passengers caused a pulling force on the moving haul rope significant enough to cause the Tower 2 uphill assembly to derope. The passengers ignored signs and rules to stay within the uphill tow path underneath the tower sheave assemblies.
17-Jan-2016	Insignificant	0	N/A	None	N/A	None	Two passengers (an adult and a child) loaded the chairlift. The child was slipping off the chair, and the adult called to the lift operator to stop the chair. The adult held onto the child until approximately 40 metres past the load point. The child fell approximately 12 meters into the fall arrest pad.
18-Jan-2016	Insignificant	0	N/A	None	N/A	None	A passenger fell 2 metres from a carrier approximately 14 metres uphill of the load point. The passenger slid from the front edge of the seat.
23-Jan-2016	Insignificant	0	N/A	None	N/A	None	After a stop occurred on the ropeway, it was found that a surface lift T-bar carrier rope was entangled in a tower sheave assembly that caused a deropement.
23-Jan-2016	Insignificant	0	N/A	None	N/A	None	Due to the failure of an impulse counter proximity switch at the return station and a series of response procedural issues, a ropeway was evacuated via the use of the evacuation drive.
31-Jan-2016	Insignificant	0	N/A	None	N/A	None	Due to a utility power outage, the electric drive of a fixed grip triple chairlift became inoperable. As per operational procedures, passengers were evacuated from the ropeway by engaging a diesel-powered evacuation drive into the ropeway drive system.
15-Feb-2016	Insignificant	0	N/A	None	N/A	None	A passenger loaded onto a chairlift and dropped their pole on the station platform. The passenger leaned to pick up the pole as other passengers on the chair lowered the restraining device. The restraining device contacted the passenger leaning forward and began pushing the passenger out of the chair. The operator noticed the passenger hanging from the chair as they exited the load station and initiated a normal stop. The operator and people in the area were able to hold a catchment net and the passenger dropped approximately 6 metres into the net.
24-Feb-2016	Insignificant	0	N/A	None	N/A	None	A passenger unloaded from a chairlift and swung the carrier excessively. This caused the carrier to swing in and impact with the guide sheave assembly. This impact caused the haul rope to derope; the rope was retained by the haul rope deropement catcher.

TABLE 6: PASSENGER ROPEWAYS INCIDENTS (CONTINUED)

INCIDENT DATE	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
		QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
27-Feb-2016	Insignificant	0	N/A	None	N/A	None	A passenger did not load onto the carrier properly and fell from the carrier, just uphill of the load station.
5-Mar-2016	Insignificant	0	N/A	None	N/A	None	Four passengers were attempting to load onto a carrier. The passenger on the far left side was struggling and interfered with the passenger to their right, preventing this passenger from sitting on the carrier correctly. The operator stopped the ropeway and deployed the firefighter's net. The passenger dropped approximately three metres to the net.
7-Mar-2016	Insignificant	1	Pain, discomfort	Insignificant	N/A	None	A passenger riding a chairlift raised the restraining device several metres before the unload ramp in preparation to depart the chair. The passenger attempted to move forward in the seat, slipped off its edge, and fell approximately 3 metres to the ground.
10-Mar-2016	Insignificant	0	N/A	None		None	A significant gust of wind blowing perpendicular to the operating lift caused the deropement of one side of one tower. The moving haul rope cable fell off the tower wheel assembly and was retained by the wheel assembly haul rope catcher. The safety switch on the tower stopped the chairlift and eight passengers were manually evacuated from the chairlift.
11-Mar-2016	Insignificant	0	N/A	None	N/A	None	A passenger's backpack was caught on a carrier seat as they attempted to unload the chairlift. The passenger pulled on the backpack to disengage it from the carrier. When the backpack released, the carrier swung inwards and made contact with the guide sheave wheel assembly. The haul rope fell off the assembly and was retained by the guide sheave wheel rope catcher.
13-Mar-2016	Insignificant	0	N/A	N/A	N/A	None	As the carrier with three passengers loaded on it was leaving the station, a passenger's ski tip caught the snow surface, causing the passenger to be pulled out of the carrier seat. The passenger was held and prevented from falling by two other passengers on the same carrier seat. After the ropeway was stopped by the attendant, the passenger was pulled back into the seat by the other two passengers.
13-Mar-2016	Insignificant	0	N/A	None	N/A	None	A passenger was stranded on a gondola lift line after the ropeway was shut down at the termination of daily operations.
19-Mar-2016	Insignificant	1	Pain	Insignificant	N/A	None	A passenger fell from a chairlift carrier. The chairlift had stopped a short distance from the unloading point. The passenger raised the restraining bar and moved towards the edge of the chair seat in preparation for unloading. The passenger slipped off the chair seat and fell a short distance to the snow below.
3-Apr-2016	Insignificant	1	Pain	Insignificant	N/A	None	One passenger unloaded from a chairlift and their skis became entangled with another passenger's skis, which caused the passenger to fall.
24-Nov-2016	Insignificant	0	N/A	None	N/A	None	A ropeway's electrical DC drive over-current protection tripped on a full load start up after a normal stop. The ropeway was switched to diesel evacuation drive and 25% of the chairs were unloaded. The ropeway was then switched back to normal electric drive and restarted. Over-current protection did not trip and the ropeway continued to operate with a 75% load for the rest of the day.

2016 Amusement Devices Incidents

Incidents that are UNDER INVESTIGATION are excluded from these listings. Tables are sorted by Incident Rating and Date except where noted.

BC Safety Authority (BCSA) receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to BC Safety Authority and the long term effects of a resultant injury may not be recorded as part of the BCSA investigation.

TABLE 7: AMUSEMENT DEVICES INCIDENTS

INCIDENT DATE	INCIDENT RATING	INJURY			DAMAGE		INCIDENT DESCRIPTION
		QTY. INJURED	INJURY DESCRIPTION	INJURY RATING	DAMAGE DESCRIPTION	DAMAGE RATING	
4-Aug-2016	Major	2	1 - concussion; 1 - broken wrist and back injury	Moderate	Failure of zipline anchor bolt; damaged zipline cable	Major	A zipline tension anchor bolt failed, causing the complete release of the zipline cable. One person was riding the zipline at the time of the failure; the release of the cable caused them to fall several metres to the ground. A second person was holding on to the zipline cable at the loading area deck when the failure occurred, causing them to be thrown several metres off of the loading area deck to the ground.
5-Feb-2016	Moderate	1	Extreme pain	Moderate	N/A	None	A participant was riding in the second position of a four-person bobsleigh. The run finished with what was described as a normal run with no unusual occurrences. Upon arriving at the finishing dock, the participant complained of pain.
25-Feb-2016	Moderate	1	Broken clavicle	Moderate	N/A	None	After completing a successful first run, a participant was fitted for a sled and released into the track. As the participant slid down the track, they lost control and flipped sideways, striking their right shoulder against the ice.
17-Jun-2016	Moderate	1	Broken arm	Moderate	N/A	None	A participant was injured while using an inflatable bouncy castle.
24-Jun-2016	Moderate	1	Possible fracture, neck and shoulder strain	Moderate	N/A	None	A participant was injured while using an amusement ride.
26-Jun-2016	Minor	1	Laceration	Minor	N/A	None	A participant was injured during the ride cycle.
11-Mar-2016	Insignificant	1	Pain	Insignificant	N/A	None	A participant hit their head on the side of the waterslide flume.
5-Jun-2016	Insignificant	1	Pain	Insignificant	N/A	None	A participant reported an injury when exiting the ride.
31-Oct-2016	Insignificant	0	N/A	None	N/A	None	While riding a zipline, a participant came into the landing platform at a higher than normal rate of speed. The braking springs were completely compressed and the force caused the cable off the cable support sheave.



Safe technical systems. Everywhere.

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