# Railcar Switching Procedure

## Operations Procedures

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# RAILCAR SWITCHING PROCEDURE

## 1.0 Purpose

This document provides standard operating procedures for railcar switching with the intention to increase the efficiency of day today operations while minimizing the risk of injury and product damage.

## 2.0 Overview

Squamish Terminals loads and discharges multiple different commodities from railcars. The Switching Procedure must be followed because of the potential for severe injury and damage caused by a runaway railcar. Following the appropriate procedures regarding railcar switching, ensures a low risk of injury to workers and that commodities remain free from damage.

Switching Procedures must:

1. Clearly outline the method of controlling and signaling that will be used during car movement activities. This includes keeping someone in a position to observe the leading end of the movement and relay signals to the equipment operator.
2. Ensure that no car can be moved while people are working in or around that equipment.
3. Include the requirement to walk around and inspect for the removal of all toe plates, loading/ unloading equipment and loose debris of any kind.
4. Ensure established methods of communication are followed.
5. Allow for control of the speed and direction of the railcar movement at all times
6. Clearly outline radio or communication procedures which include positive communication and the establishment of standards for brief, to-the-point conversations for instructions and information between crew members.

## 3.0 Legislation and Literature

COSH regulations, Part XIX, (Hazard Prevention Programs) require employers to implement and monitor a program to prevent hazards. This document defines the Squamish Terminals safe work procedures for Railcar Switching.

Squamish Site Safety Rules restricts the number of cars moved to 7 cars loaded and 12 cars unloaded.

## 4.0 Railcar Switching

### 4.1. Safety Precautions

#### 4.1.1. General Safety Precautions

When moving railcars at Squamish Terminals the following General Safety Procedures apply:

- Foreman must be present during all switching and ensure procedures are performed correctly;

- All operators and machinery must be out of the railcars and the toe plates removed before railcars are moved;
- Point person and Machine Operator must maintain effective radio contact at all times;
- If any safety hazard exists on the rail track, do not push cars until hazard is clear;
- Always be aware of additional safety hazards in the immediate area which may result in slips, trips and falls;
- Point person must ensure all railcar switching procedures are followed (refer to 4.4);
- Machine Operator must ensure all railcar switching procedures are followed;
- Switch only one warehouse at a time;
- Push cars only during normal switching. Pull only when pushing is restricted;
- Machine Operator must signal any movement of the railcars with the horn;
    - 2 blasts – go ahead
    - 3 blasts – reverse
- Machine Operator must be aware of number of pulp cars being moved. (maximum – 7 cars loaded / 12 cars unloaded);
- Machine Operator must use 1st gear only when switching;
- Once railcars are moved, the loader should be turned off and not left idling while workers are working in the railcars;
- When moving cars either the Point person or the Machine Operator must be at the head end of the string. NEVER PUSH AHEAD BLIND!
- All drivers must obey the posted speed limits at all times.

### 4.1.2. Blue Flag Signal Protection

When rail crews are working on any track and there is a chance of CN coming on site, the use of blue flags is necessary for the safety of our workers. The Foreman in charge of these rail crews will be responsible for putting this flag in place and for taking it down on completion of the work. This will ensure that if SQT does not have prior knowledge of CN coming on site, CN will not start switching railcars while work is still being done in the cars.

When blue flags are required at night, Squamish Terminals also has blue flashing lights that can attach to the blue flag. These lights are stored in the Operations Superintendent's office.

a) A blue flag, displayed at one or both ends of equipment indicates that workers are in the vicinity of such equipment. When such signals are displayed the equipment must not be coupled to or moved. The removal of the blue flag from one or both ends of the equipment shall indicate that workers are no longer in the vicinity and such equipment may be coupled to or moved;

b) Other equipment must not be placed on the same track which will block a clear view of the blue flag without first notifying the workers who placed the flag. When equipment is placed on

the same track, the crew placing the equipment must remain until workers have relocated the blue flag to include the additional equipment;

c) Only the same class of workers who put up the blue flag can remove the flag; and

d) Blue metal reflective signs may be used in lieu of blue flags.

### 4.1.3. Blue Light Warning System – Rail Line Site Access

Squamish Terminals has installed a blue light warning system for when the rail line wants to access our site for railcar switching. The purpose of these warning lights is to let employees know that the rail line is on our site moving railcars along our tracks. When these lights are flashing, use extra caution crossing over any rail tracks to avoid a collision with the railcars. If the railcars are blocking your pathway, you may have to move to an alternate crossing point.

The blue lights are installed on the north end of #2 warehouse, between #1 & #2 warehouse and on the south end of #1 warehouse. There are presently 2 switches to turn these lights on/off – 1 inside the south end of warehouse #1 by the electrical panels and the other inside the south end of #2 warehouse by the electrical panels.

Prior to CN's arrival on our site they call our security guards to advise they are on their way. The guard contacts any Foreman working on site to let them know and the Foreman will activate the 2 switches to turn the blue lights on. Upon CN's departure the blue lights are to be turned off by the Foreman.

## 4.2. Squamish Site

The commodities handled at Squamish Terminals usually arrive by railcar and are stored in a warehouse or on site until loaded aboard a vessel/truck. There are three warehouses on site (see **Appendix A** for Site Map):

- **No. 1 Warehouse** – 6 to 7 cars can be spotted at the ramp
- **No. 2 Warehouse** – 7 to 8 cars can be spotted at the ramp
- **No. 3 Warehouse** – 5 to 6 cars can be spotted at the ramp

Five railway tracks are used for handling the cars:

- **Track 2** – empty track
- **Track 3** – feeds No. 2 Warehouse
- **Track 4** – feeds No. 1 Warehouse
- **Track 5** – empty track
- **Track 6** – feeds No. 3 Warehouse

### 4.3. Equipment

Ensure all equipment to move railcars is prepared and operational, including:

- 966 Loader
    - Equipped with knuckles on front and back for connection to railcar;
    - Move railcars in 1st gear only;
    - Once railcars are moved, the 966 loader should be turned off and not left idling while workers are working in the railcars;
    - Squamish site restricts the number of cars moved to 7 cars loaded and 12 cars unloaded;
    - Equipped with fixed radio to connect on dedicated radio channel with Point person's portable radio, to help efficiency of moving railcars.

### 4.4. Railcar Switching Procedures - Pulp

The Railcar Switching Procedures are identical for all three warehouses except for the number of cars that can be spotted at the ramp. A typical switch order consists of 21 to 27 cars spotted on one of the tracks 3, 4 or 6.

- Any movement of railcars must be signaled with the horn:
    - 2 blasts … go head
    - 3 blasts … reverse

#### 4.4.1. Preparation

The Foreman:

- must be present during all switching to ensure procedures are performed correctly.

The Point Person:

- is responsible for directing the movement of railcars according to the General Safety Precautions and Railcar Switching Procedures;
- signals the crews to stop working by sounding the ramp horn;
- ensures all operators and machinery are out of the railcars, and toe plates are removed;
- establishes radio communication with the Mobile Equipment Operator;
- ensures there is no traffic across the track;
- sees that the tracks are clear of workers and any safety hazards;
- checks the switch to ensure it is in the correct position;
- ensures knuckles on cars are open.

The Machine Operator:

- must be aware of the number of cars being moved;
- must couple the loader to the string of cars, as instructed by the Point person;
- must be sure radio communication is established with the Point person;
- must wait for and follow instructions from the Point person.

### 4.4.2. Railcar Coupling

Before coupling railcars, ensure that at least one knuckle is open on the two railcars to be coupled.

Steps:

If required to open a knuckle, do the following:

1) Ensure knuckle pin is in place for the knuckle you are opening.
2) Keep feet well clear in case the knuckle or pin are loose and fall.
3) Lift the operating lever to release knuckle.

If the knuckle does not open when the operating lever is lifted, do the following:

- with one foot outside of the rail, lift the operating lever with your left hand, grab the middle of the knuckle with your right hand and pull the knuckle open (see below).

Once one knuckle is open, using the pusher, push a set of railcars towards the cars to be coupled with, maintaining radio contact with the head man. Once the cars are coupled together, the coupling must be stretched to ensure it is secure. This involves pulling the cars back slightly to ensure all the knuckles have stayed connected. This must be done during every coupling to avoid run away railcars for the safety our crews and for the rail line crews.

### 4.4.3. Moving Railcars

Steps:

1) The Rail Company spots the first cars alongside the unloading ramp. As railcars are emptied, a new group of 7 cars is needed;
2) The Point person indicates the start of the switching procedure with 2 blasts of the ramp horn. This signals the pulp receiving crew to stop working;
3) The Machine Operator will connect the loader to one end of the string as instructed by the Point person.

   *Note: Often when moving empty cars out of the warehouse, only a part of the string will be moved. The Point person will uncouple the cars, and set the brake on the cars which are to remain. At no time are we to use stickers, wood, dunnage or any other means of blocking the wheels to prevent railcar movement. In this case, the Machine Operator must pull the empty cars a short distance to create a space large enough to fit the loader into. He will then move the loader into the break, couple the loader to that end, and push the empty cars when directed by the Point person.*

4) The Point person moves to the head end of the string;
5) The Point person checks to ensure it is safe to proceed;
6) The Point person instructs the Machine Operator to push when it is safe to do so;
7) The Machine Operator pushes the cars until he reaches the yellow line, or when instructed to stop by the Point person. The yellow line is a foul indicator (clearance point). Cars must be past this point so they are clear of the adjacent track;
8) The Point person spots the cars at the head of the string as long as the cars are moving, and gives the Machine Operator continuous instructions until the switch is complete;
9) The Machine Operator then uncouples the loader. When uncoupling, always leave the car knuckle in the open position;
10) The Point person will spot the cars as they move. When adding cars, call down the distance between the stationary car and the moving car;
    a. Ex. “1 car length, ½ car length, 10 feet …etc.
11) Based on the Point person’s spot, the Machine Operator can slow down as the gap closes. The Machine Operator may also spot the cars by moving them until the lead car lines up with the red line;
12) After the switch is complete, the Foreman will instruct the crew to resume work;
13) When cars are parked on our tracks, hand breaks are required to be applied. On track 4 (#1 warehouse and south) a minimum of 2 hand brakes are to be applied. For all other tracks on our site a minimum of 1 hand brake is required to be applied to each group of railcars.
14) The first cars in are spotted by the Rail Company and the last railcars offloaded are left in place for the Rail Company to remove from the site, unless otherwise instructed.

*Note: As all of our switches are semi-automatic, for them to be fully engaged when switched, they require that a railcar be completely pushed through the switch. This means that both sets of trucks on a railcar must completely pass over the switch to lock it in place. Therefore, when we are switching railcars on our site we must make sure the 1st car on the string passes completely over any switch it crosses. In the case where the car cannot be completely passed over the entire switch, then the switch will have to be manually thrown into the completed position.*

### 4.5. Railcar Switching Procedures – Other Commodities

Though pulp railcars are the main type of railcar we switch on site, we also handle and switch other types of railcars. Some examples of these are long rail, coil and lumber railcars. The Railcar Switching Procedures described above are the same for these types of railcars as well as all the safety precautions. As for these types of railcars there is sometimes work required to be done on their decks (securing, lashing, etc.). With this work comes additional safety precautions regarding the switching:

a. There is to be no switching or movement of these railcars while anyone is on the railcar itself. All personnel are to be out of harm's way before these railcars are to be moved.
b. No one is to be working on the railcars or the commodity on the railcars when they are being switched. If work (i.e. securing) is being done on a railcar it must be completely disconnected from the remaining cars to be moved and at least 15' from the other railcars before said work can commence or the switch can take place.
c. Before switching any of these railcars all tools, gear and equipment are to be removed from said cars or securely fastened so they will not fall from the railcar. Also make sure there is nothing impeding the track prior to the switch.

As the weights of these railcars (loaded or empty) are similar to the pulp railcars, we will keep to the same numbers for switching (7 fulls and 12 empties).

## 5.0 Hazards

As outlined in the Squamish Terminals (SQT) Health and Safety Policy, SQT is committed to providing a safe place of work for all employees, visitors and contractors. SQT is committed to the development, implementations and maintenance of a hazard prevention program (HPP) and methodology for managing hazards related to all activities at SQT.

As such, a Hazard and Risk Analysis has been completed for the Railcar Switching Procedure. Hazards are detailed below:

- Slips, Trips, Falls on slippery / uneven surfaces
- Pedestrians exposure to being struck by site traffic / loader / materials handling equipment / railcar
- Site vehicles / Loader striking other vehicles or stationary obstacles / equipment / stopper
- Accessing pusher – ladder – fall from height (7-8 ft)
- Poor ergonomics while opening knuckles on loader / railcar – overexertion, musculoskeletal injuries
- Falling objects (knuckle, equipment, cargo, debris, broken equipment, tools) – risk of being struck or crushed
- Applying brakes – point person – fall from ladder (3-4 ft)
- Hand brake release – stiff handles – overexertion
- Air brake release – air brake could be stiff – overexertion
- Movement of railcar when brakes released – crush, struck
- Noise levels when air brakes release – high noise levels, damage to hearing
- Air brake release - Exposure to air – dust exposure
- Flipping the switches - overexertion
- Railcars may hit stopper – strike injury / jarring to driver
- Railcars may hit other equipment in the area – strike injury / jarring to driver
- Releasing the knuckle – overexertion
- Falling objects (equipment, cargo, debris, broken equipment, tools) – risk of being struck or crushed
- Pinch Points
- Sharp edges / slivers
- Exposure to elements (wind, sunburn, heat index, cold, dust)

## 6.0 Appendices

Appendix A: Site Map

## Appendix A – Sample Site Map

## Revision Record

| Document | Rev | Date | Originator | Details of Change |
|---|---|---|---|---|
| PRO-016 | 1.0 | 2016-10-11 | SQT | Original draft |
| PRO-016 | 1.1 | 2017-09-06 | SQT | Added blue flag signal protection to Section 4.1.2; moved Blue Light Warning System – Rail Line Site Access from section 4.4.4 to Section 4.1.3 |
| PRO-016 | 1.2 | 15 July 2020 | SQT | Added that Pusher needs to be turned off and not idling while workers are working in the railcars (Sections 4.1.1 and 4.3), added hazards section, updated map |
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