



Project Cargo Procedure

Operations Procedures

Document #: PRO-031	Title: Operations Procedures - Project Cargo	Version # 1.0
-------------------------------	---	-------------------------

Reviewed By: H&S Committee	Date Reviewed: 03 January 2020
Approved By: H&S Committee	Date Approved: 03 January 2020
Issue Date:	03 January 2020

Table of Contents

1.0	Purpose	1
2.0	Overview	1
3.0	Legislation and Literature	1
4.0	Personal Protective Equipment (PPE)	1
5.0	Receiving and Stockpiling	2
5.1.	Dunnage	2
5.2.	Stockpiling.....	2
6.0	Cargo Description	2
7.0	Receiving from or Delivering to Vessel	3
7.1.	Preparation	3
7.2.	Handling Project Cargo	3
7.3.	Checker Duties	3
8.0	Delivery to Truck	4
8.1.	Preparation	4
8.2.	Handling Project Cargo	4
8.3.	Checker Duties	4
9.0	Receiving from Railcar	5
9.1.	Preparation	5
9.2.	Handling Project Cargo	5
9.3.	Checker Duties	6
10.0	Delivery to Railcar	6
10.1.	Preparation	6
10.2.	Handling Project Cargo	6
10.3.	Checker Duties	7
11.0	Delivery to Barge using Self Propelled Mobile Transporter (SPMT)	7
11.1.	Safety Precautions	7
11.2.	Preparing Dock for Barge	8
11.2.1.	Preparation	8
11.2.2.	Steps.....	8
11.3.	Loading Barge using SPMT	8
11.3.1.	Steps.....	8
12.0	Hazards	9
13.0	Appendices	10
14.0	Revision Record	14

1.0 Purpose

This document recommends handling practices with the intention to minimize the risk of injury and product damage.

2.0 Overview

Squamish Terminals handles a wide variety of products which includes Project Cargo. Project Cargo can range from small crates to yachts or heavy industrial equipment. If individual pieces are handled or stored improperly, cargo damage can occur and serious injury or death may occur. Even the most stable product could fail if the center of gravity is high, off-center, or suddenly shifts. Consequently, these guidelines focus on maintaining product stability and protecting a worker in the event the product moves unexpectedly. A risk analysis should be undertaken to determine if the potential for movement of a stockpile exists. If so, workers on foot in the vicinity should be protected from unintentional movement of the commodity. Of course, any strategies to prevent unintentional movement or collapse will also protect the product from damage.

3.0 Legislation and Literature

Part XIV of the Canadian Occupational Safety and Health (COSH) Regulations addresses Materials Handling, which requires operators of motorized equipment to be protected from falling objects (s. 14.4), restricts non-authorized workers from a materials handling area (s. 14.38), and most importantly, requires that, "...all materials...must be stored in a manner so that there is no risk to the health and safety of any employee". (s. 14.50 (f)). Of course, COSH regulations, Part XIX, (Hazard Prevention Programs) require employers to implement and monitor a program to prevent hazards.

Other than the general references in the CLC, no regulatory standards directly address handling and storage of Project Cargo, nor do any industry standards exist.

4.0 Personal Protective Equipment (PPE)

Below outlines the minimum required PPE for Squamish Terminals:

- Safety Footwear in Accordance with Industry Standard (CSA Approved 6" Boots)
- High Visibility Apparel (Compliant with CSA Standard Z96-15 High-Visibility Safety Apparel)

In addition all workers on vessels, working under the swing of the boom, changing liners on rail cars and working around reachstacker or under lifted forks must wear:

- CSA Approved Hard Hat (CSA Type 2)

Specific tasks or jobs may require additional PPE including, but not limited to:

- Hearing Protection
- Eye Protection
- Task appropriate gloves

5.0 Receiving and Stockpiling

5.1. Dunnage

Typically made from wood, dunnage allows the commodity, when sitting on the ground, to be accessed by a lift truck, and separates tiers of commodities in a pile. Dunnage also unitizes and distributes the load of individual pieces. Each layer of dunnage must support the distributed load of all commodities above it, which might total many tonnes. Consequently, dunnage should be well supported and of substantial quality and size.

Guidelines

- Dunnage should be free from rot, cracks, splits and crushed areas. Inspect regularly and dispose of any suspect material
- For Project Cargo, dunnage should be a minimum of 4 in. x 4 in. Rough 4x4 is recommended. Planed, nominal 4x4 lumber is significantly smaller than rough ($4^{1/8} \times 4^{1/8}$) and more prone to damage
- For structural strength, dunnage should be high quality structural grade and species. Dunnage should be #2 and better HemFir, or ideally, #2 and better douglas fir. Avoid softwood, like cedar, and utility or landscape grade wood
- Each piece of dunnage should be level and fully supported by the ground or the commodities it rests upon. Fill voids with short longitudinal pieces so that the dunnage is in effective contact with the ground or commodity below it
- Dunnage should be placed at each end, dunnage should be placed at each end of the commodity and every ten feet in between, with, of course, a minimum of two pieces per tier.
- Dunnage should be vertically aligned as each tier is stowed on top of the one below.

5.2. Stockpiling

Each commodity has its own safe stockpiling requirements. Simple rules for stacking and storage of Project Cargos are as follows:

1. Place in a flat level area.
2. Use adequate dunnage.
3. Place larger items in areas where site lines are not blocked.
4. Store away from high pedestrian traffic areas.

6.0 Cargo Description

- Various weights and sizes.

7.0 Receiving from or Delivering to Vessel

7.1. Preparation

Ensure all equipment is operational and ready, including:

- Various capacity forklifts with 8 foot general cargo forks.
- Utility forklifts for moving dunnage/chocks.
- 45MT capacity Reach Stacker with Break Bulk handling attachments
- Personal Protection Equipment (PPE) – minimum requirement includes safety vests and steel toed boots.

Organize materials and documentation, including:

- Dunnage and chocks. (lengths may vary)
- Site Map (See Appendix A for Sample)
- Various Forms (Check Sheets, Damage Reports, Summaries)
- Vessel Line up (distributed from Traffic)

7.2. Handling Project Cargo

- Crew is dispatched to “starting area” and Foreman discuss receiving/delivery operational plan with crew to ensure Longshore understand operation, safety and PPE. Depending on the type of product being offloaded there may be several “storage areas”.
- Products are unloaded from vessel/trucks directly to dock or onto trailers.
- Chocks/dunnage are delivered to “starting areas” where the product will be placed onsite (also known as “sections” or “lay down areas”) for the purpose of storage location identification. When delivering to vessel the chocks and dunnage are to be stacked, strapped and stored away for future use.
- Drivers use forklifts or tractor trailers to move product from shipside to the assigned “storage area” on site or delivered to vessel with lift trucks or tractor trailers.
- Labourer at “storage area” places or removes the chocks/dunnage as stated above.

7.3. Checker Duties

For Project Cargo the Checkers duties will vary depending on the type of cargo being handled.

- Counts & Records cargo being received (on Check Sheet)
- Records Storage Location
- Checks for damaged.
- Record Any Damage (on Check Sheet or Damage Report)
- Report Any Damage (to Foreman proactively during shift to prevent further damage from occurring)

- Submit Check Sheet (to Foreman at end of shift).

Types of damage the Checker should look for includes, but is not limited to the following:

- Any flaws such as rusting, dents, tears etc.
- Any damage to the packaging needs to be recorded.
- Any cargo damaged

8.0 Delivery to Truck

8.1. Preparation

Ensure all equipment is operational and ready, including:

- Various capacity forklifts with 8 foot general cargo forks.
- Utility forklifts for moving dunnage/chocks.
- Personal Protection Equipment (PPE) – minimum requirement includes safety vests and steel toed boots.

Organize materials and documentation, including:

- Dunnage and chocks. (lengths may vary)
- Site Map (See Appendix A for Sample)
- Various Forms (Check Sheets, Damage Reports, Summaries)
- Vessel Line up (distributed from Traffic)

8.2. Handling Project Cargo

- Crew is dispatched to “starting area” and Foreman discuss receiving/delivery operational plan with crew to ensure Longshore understand operation, safety and PPE. Depending on the type of product being offloaded there may be several “storage areas”.
- Products are unloaded from vessel/trucks directly to dock or onto trailers.
- Chocks/dunnage are delivered to “starting areas” where the product will be placed onsite (also known as “sections” or “lay down areas”) for the purpose of storage location identification. When delivering to vessel the chocks and dunnage are to be stacked, strapped and stored away for future use.
- Drivers use forklifts or tractor trailers to move product from shipside to the assigned “storage area” on site or delivered to vessel with lift trucks or tractor trailers.
- Labourer at “storage area” places or removes the chocks/dunnage as stated above.

8.3. Checker Duties

The Checker performs the following duties for each truck:

- Counts & Records product (on Check Sheet, noting truck # and other pertinent details)

- Record Any Damage
- Report Any Damage (to Foreman proactively during shift to prevent further damage from occurring)
- Checker also records the truck # and other pertinent details on Check Sheet.
- Submit Check Sheet (to Foreman at end of shift or at the completion of load out).

9.0 Receiving from Railcar

9.1. Preparation

Ensure all equipment is operational and ready, including:

- Various capacity forklifts with 8-foot general cargo forks.
- Utility forklifts for moving dunnage/chocks.
- Reachstacker if needed
- Personal Protection Equipment (PPE) – minimum requirement includes safety vests and steel toed boots, hard hat if needed.

Organize materials and documentation, including:

- Dunnage and chocks. (lengths may vary)
- Site Map (See Appendix A for Sample)
- Various Forms (Check Sheets, Damage Reports, Summaries)
- Vessel Line up (distributed from Traffic)

9.2. Handling Project Cargo

- Crew is dispatched to “starting area” and Foreman discuss receiving operational plan with crew to ensure Longshore understand operation, safety and PPE. Depending on the type of product being offloaded there may be several “storage areas”.
- Products are unloaded from railcar directly to dock or onto trailers.
- Chocks/dunnage are delivered to “starting areas” where the product will be placed onsite (also known as “sections” or “lay down areas”) for the purpose of storage location identification. When delivering to vessel the chocks and dunnage are to be stacked, strapped and stored away for future use.
- If required, labourers de-lash project cargo from railcar
- Drivers use forklifts or tractor trailers to move product from railcar to the assigned “storage area” on site or delivered to vessel with lift trucks or tractor trailers.
- Labourer at “storage area” places or removes the chocks/dunnage as stated above.

9.3. Checker Duties

For Project Cargo the Checkers duties will vary depending on the type of cargo being handled.

- Counts & Records cargo being received (on Check Sheet)
- Records Storage Location
- Checks for damaged.
- Record any Damage (on Check Sheet or Damage Report)
- Report any Damage (to Foreman proactively during shift to prevent further damage from occurring)
- Submit Check Sheet (to Foreman at end of shift).

Types of damage the Checker should look for includes, but is not limited to the following:

- Any flaws such as rusting, dents, tears etc.
- Any damage to the packaging needs to be recorded.
- Any cargo damaged

10.0 Delivery to Railcar

10.1. Preparation

Ensure all equipment is operational and ready, including:

- Various capacity forklifts with 8-foot general cargo forks.
- Utility forklifts for moving dunnage/chocks.
- Reachstacker if needed
- Personal Protection Equipment (PPE) – minimum requirement includes safety vests and steel toed boots, hard hat if needed.

Organize materials and documentation, including:

- Dunnage and chocks. (lengths may vary)
- Site Map (See Appendix A for Sample)
- Various Forms (Check Sheets, Damage Reports, Summaries)
- Vessel Line up (distributed from Traffic)

10.2. Handling Project Cargo

- Crew is dispatched to “starting area” and Foreman discuss delivery operational plan with crew to ensure Longshore understand operation, safety and PPE. Depending on the type of product being loaded there may be several “storage areas”.
- Products are collected from storage area using forklifts or tractor trailers and delivered alongside railcar

- Railcar is prepped to receive cargo (dunnage or cribbing)
- Project cargo is lifted and positioned onto railcar using forklifts or Reachstacker
- Positioning will be coordinated by a foreman
- If tandem lift trucks are used, drivers need to work simultaneously
- The Labourers will use lashing gear required (i.e. chains, straps, bars) to secure the load in the railcar.
- The Labourer removes dunnage/cribbing from storage section as it becomes available, stacking 4x4's neatly. Once a pile of 4x4's is complete the Labourer bands it and the driver moves it to a storage area.

Safety Caution:

- The Foreman, Labourer and Checker must stand safely at the side of the railcar while it is being loaded. If direction has to be given to the Forklift Operator it must be done from a safe position.
- Working on the leading edge – working on railcar, be aware of surroundings

10.3. Checker Duties

The Checker performs the following duties for each railcar

- Counts & Records product and/or ID # (on Check Sheet, noting railcar # and other pertinent details)
- Record any Damage
- Report any Damage (to Foreman proactively during shift to prevent further damage from occurring)
- Submit Check Sheet (to Foreman at end of shift or at the completion of load out).

11.0 Delivery to Barge using Self Propelled Mobile Transporter (SPMT)

11.1. Safety Precautions

When loading project cargo to a barge at Squamish Terminals the following General Safety Procedures apply:

- 1) Foreman must ensure all workers in his crew are aware of all safety procedures and that all procedures are performed correctly;
- 2) All workers must ensure all procedures are followed;
- 3) If any safety hazard exists on the barge, do not proceed with loading until hazard is clear;
- 4) Always be aware of additional safety hazards in the immediate area which may result in slips, trips and falls;
- 5) All workers must be wearing the proper PPE, including the Foreman;
- 6) All barge workers must wear a Personal Floatation Device (PFD);
- 7) Foreman must ensure the barge access is secured for safe access to the barge;

- 8) Tugs can be used to position barge and hold in place
- 9) Barge lines must be monitored to ensure the barge is kept in place with the changing of the tides;
- 10) All doors, if any on the barge, are to be properly secured when in the open position;
- 11) Lighting and ventilation must be adequate inside the barges. If not, then the labourers must use the appropriate equipment available from Squamish Terminals;
- 12) All drivers must obey the posted speed limits at all times.

11.2. Preparing Dock for Barge

11.2.1. Preparation

Ensure all equipment is operational and ready, including:

- Gangway - used to bridge the gap between the dock and the barge to allow barge personnel on to and off of the barge parallel to dock
- Barge ramps – used to bridge dock to barge for SPMT to drive cargo onto barge perpendicular to dock
- Placement of steel plates, bunks, save-all, handrails and other barge access equipment on the dock
- Lift truck equipped with fork attachments.

11.2.2. Steps

- 1) The tug employees spot the barge alongside berth;
- 2) Dock must be set up with appropriate safety and unloading equipment;
- 3) The dock drivers prepare the dock for shipping;
- 4) Drivers place the necessary equipment mentioned above adjacent to the barge using a lift truck equipped with fork attachments;

11.3. Loading Barge using SPMT

11.3.1. Steps

1. Once barge is in place and secure, (perpendicular to the dock) barge loading ramps will be placed between the dock and the barge
2. Foreman to ensure the ramps are secured to dock and barge before use
3. If module is stored on support cans on the dock, SPMT will be maneuvered under the module
4. SPMT will be raised to take module off support cans and cribbing
5. Module to be lashed to the SPMT
6. SPMT will maneuver module to the barge location
7. SPMT will maneuver the modules across the loading ramps, onto designated areas on barge.
8. For modules being removed from SPMT, they will be maneuvered to an area with pre-installed support cans

9. SPMT lowers the module onto the support cans
10. Labourers will access via ramp in order to access barge
11. Module will be de-lashed from the SPMT, SPMT moves out from under module.
12. Module will be lashed to the deck of the barge
13. If module is staying on SPMT, the SPMT is maneuvered to the designated area on the barge.
14. Labourers will access via ramp in order to access barge
15. The module and the SPMT will be lashed to the deck of the barge
16. If barge is to be rotated parallel to dock for the lashing of modules to the barge, the barge ramps will need to be removed first, and a portable gangway will be installed from the dock to the barge.
17. Foreman to ensure the gangway is secured to dock and barge before use
18. Labourers will access barge via gangway to complete/adjust lashing
19. Any gear, equipment etc. will be collected and returned to storage area on dock or loaded to barge.

12.0 Hazards

The following have been determined through the Hazard Management Program as being the main hazards for the Steel Coil procedure.

Hazards
<ul style="list-style-type: none"> • Working with contractor – care to be taken to work together to ensure safety • Slips, Trips, Falls on slippery / uneven surfaces • Pedestrians exposure to being struck by site traffic • Site vehicles / materials handling equipment striking other vehicles or stationary obstacles / equipment • Poor ergonomics while unloading dunnage and equipment – overexertion, musculoskeletal injuries • Working near the leading edge (working on the railcar) • Working near the leading edge – edge of barge/dock • Risk of falling into water – edge of barge/dock/gangway/ ramp • Barge movement – risk of falling onto deck • Poor ergonomics – rigging, lifting, pulling, pushing, unloading / positioning cans, cribbing & equipment, unlashng, lifting, pulling, pushing – overexertion, musculoskeletal injuries • Falling objects (chains, equipment, cargo, debris, broken equipment, tools) – risk of being struck or crushed • Overhead hazards – lashing equipment, cargo, equipment, gear • Collapsing load - risk of being struck or crushed • Falling objects (equipment, cargo, debris, broken equipment, tools) – risk of being struck or crushed • Materials handling equipment - unstable load – tipping/rolling • Lashing – swinging or falling chains, Pinch Points / Sharp edges / Slivers • Exposure to elements (wind, sunburn, heat index, cold, dust)

13.0 Appendices

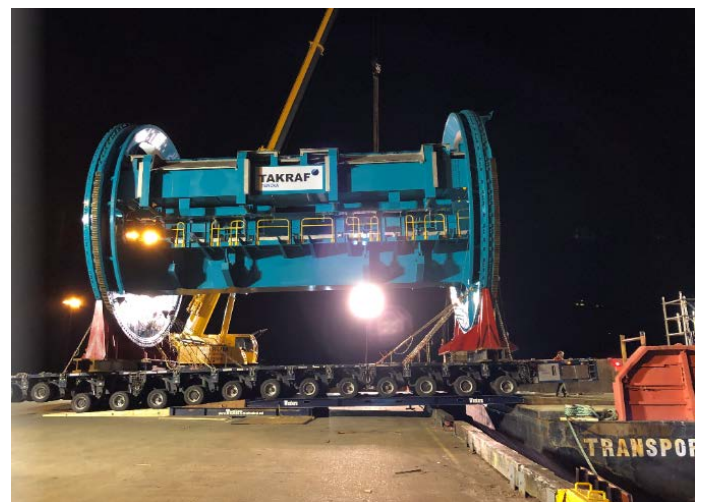
- A. Sample Site Map
- B. Photo Gallery

Appendix A – Sample Site Map



Appendix B – Photo Gallery





14.0 Revision Record

Document	Rev	Date	Originator	Details of Change
PRO -031	0.0	14-Aug-13	SQT	Draft
PRO -031	1.0	03-Jan-20	SQT	Added delivery to barge using SPMT, added hazards section, added more photos