

Title	Stow logs in and on a vessel using an excavator		
Level	4	Credits	12

Purpose	People credited with this unit standard are able to: describe the stowing of logs in and on a vessel; demonstrate operator responsibilities for lifting an excavator on to a vessel; prepare to operate an excavator to stow logs in a hatch or on a vessel's deck; stow logs in a hatch using an excavator; stow logs on a vessel's deck using an excavator; demonstrate operator responsibilities for lifting an excavator off a vessel; and document log stowing.
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Classification	Stevedoring and Ports Industry > Port Machinery Operations
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Available grade	Achieved
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Prerequisites	Unit 18952, <i>Operate an excavator to handle logs in port and shipping operations</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

- 1 Legislation relevant to this unit standard includes:
Health and Safety in Employment Act 1992.
- 2 Any new, amended or replacement Acts, regulations, Rules, standards, codes of practice, or Land Transport New Zealand requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- 3 **Definitions**
An *excavator* is a hydraulic excavator fitted with a bucket or a grapple and/or push plate.
Organisation can mean company or employer.
Organisational requirements include any legal requirements, standards, codes of practice, organisational and/or site requirements, industry best practice, and manufacturers' instructions. These must be available to candidates, providers, and assessors.
Stow factors refers to the actual volume stowed on a vessel, and measured against the vessel's known capacity.
- 4 All actions carried out must be in accordance with legal, safety, organisational, and site requirements that are applicable to each situation.

Outcomes and performance criteria

Outcome 1

Describe the stowing of logs in and on a vessel.

Performance criteria

- 1.1 Description includes reasons for using excavators to stow logs in and/or on a vessel.
- Range placement of logs, maximising the volume stowed, safety.
- 1.2 Description includes preparation required before lifting the machine on board.
- Range contacting stevedore foreperson, identifying hatch and crane, positioning machine, preparing machine, lifting procedures.
- 1.3 Description includes procedures for establishing communication for the stowing operation.
- Range radio channel/s, hatch number, name of crane operator.
- 1.4 Description includes hatch stow procedures.
- Range maintaining clearance for machine operation; positioning to receive a heave; preparing access ramps; stow patterns; drop-stows; stowing wings, eyes, and under-runs; maximum stow levels; safe working heights above and below excavator; mark-offs; lot numbers.
- 1.5 Description includes deck stow procedures.
- Range includes but is not limited to – operating on hatch lids, stowing on side decks and hatch ends, stacking against stanchions, hog lashing, top lashing.
- 1.6 Description includes discharge procedures.
- Range may include but is not limited to – using a discharge grapple, using bunks on board, machine positioning, heave size, stevedore personnel attaching wires.

- 1.7 Description includes the explanation of hazards associated with stowing logs in and on a vessel.
- Range heaves swinging above machines, loss of traction on uneven and/or slippery surfaces, losing control of logs, swinging wires, rope breakage, logs lost from grapple, restricted space in holds, toxic gases in holds, machine noise levels, heaves striking the vessel coamings, steel tracks on hatches, losing grip and/or footing climbing up or down ladders, walking over slippery logs, communication failure.
- 1.8 Description includes the management of hazards associated with stowing logs in and on a vessel in accordance with organisational requirements.
- Range includes but is not limited to – communication, protective structures, protective equipment, maximum height restrictions, techniques for stowing logs and lumber in same cargo hold, documentation of hazard management plan.

Outcome 2

Demonstrate operator responsibilities for lifting an excavator on to a vessel.

Performance criteria

- 2.1 Hatch and crane designations are confirmed.
- Range consultation with foreperson, number of cranes, location of hatch, communication with crane operator.
- 2.2 A function test is carried out to ensure the crane, and cranston where fitted, are capable of lifting the excavator.
- Range test heave or survey report, physical inspection.
- 2.3 The excavator is prepared for lifting.
- Range positioned in full view of crane operator, boom facing away from vessel, boom and stick positioned to balance the machine, lifting equipment attached.
- 2.4 Procedures for boarding the vessel and disconnecting lifting equipment from the excavator are demonstrated in accordance with organisational requirements.
- Range boarding authorisation; due care in moving to the hatch area, descending the ladder, walking to the excavator.

Outcome 3

Prepare to operate an excavator to stow logs in a hatch or on a vessel's deck.

Performance criteria

3.1 Preparation is in accordance with manufacturer instructions and organisational requirements.

Range machine access, closing door, operator protective structure, seating and seat adjustment, fastening seat belt, checking communication, activating controls.

Outcome 4

Stow logs in a hatch using an excavator.

Performance criteria

4.1 The door is securely closed, seat belt is fastened, and operator protective structure is in place throughout the operation.

4.2 Radio communication is established and maintained with the crane operator using predetermined radio procedures.

4.3 Communication is used to ensure the crane operator knows the location and activities of the excavator throughout the operation.

4.4 When receiving heaves, the crane operator is notified of the location of the excavator, which is positioned to face the inwards heave and in anticipation of heave movement.

4.5 Instructions to the crane operator of required placement of heaves are in accordance with the stow plan and stability considerations for the excavator.

4.6 Unplanned heave movements are rectified appropriately, and in accordance with organisational and/or site requirements.

4.7 Stowing of logs in a hatch is in accordance with organisational requirements.

Range indicators – adjusting to limitations on traction, following stow plan, guiding heave into position before release, avoiding contact with vessel's structure, placing logs to optimise space, filling under-runs, filling eyes and wings, using drop-stow pattern, pausing the operation when the excavator is unattended.

4.8 Stowed logs are levelled to enable mark-off.

4.9 Stow factors are achieved in a timely manner and in accordance with organisational requirements.

Outcome 5

Stow logs on a vessel's deck using an excavator.

Performance criteria

- 5.1 The door is securely closed, seat belt is fastened, and operator protective structure is in place throughout the operation.
- 5.2 Radio communication is established and maintained with the crane operator using predetermined radio procedures.
- 5.3 Communication is used to ensure the crane operator knows the location and activities of the excavator throughout the operation.
- 5.4 The excavator is positioned to receive heaves, including maintaining safe distance from hatch lid edges and stanchions, minimising steel-on-steel contact, facing heave as it comes in, keeping in view of the crane operator, and anticipating heave movement.
- 5.5 Instructions to the crane operator of required placement of heaves are in accordance with the stow plan and stability considerations for the excavator.
- 5.6 Unplanned heave movements are rectified appropriately, and in accordance with organisational and/or site requirements.
- 5.7 Stowing of logs on a vessel's deck is in accordance with organisational requirements.
- Range indicators – filling side decks first, ensuring a bed of logs is laid down on the hatch lid, keeping a heave between excavator and stanchions.
- 5.8 Stow is crowned to enable hog or top lashing.
- 5.9 Stow factors are achieved in a timely manner and in accordance with organisational requirements.

Outcome 6

Demonstrate operator responsibilities for lifting an excavator off a vessel.

Performance criteria

- 6.1 The excavator is prepared for lifting.
- Range on a level surface, positioned in full view of crane operator, boom and stick positioned to balance the machine, lifting equipment attached.
- 6.2 When unloaded, the lifting equipment is disconnected from the excavator in accordance with organisational requirements.

Outcome 7

Document log stowing.

Performance criteria

7.1 Documentation of log stowing is completed.

Range includes but is not limited to – time spent, any problems that occurred.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	24 January 2002	31 December 2022
Review	2	27 October 2006	31 December 2022
Rollover	3	17 September 2015	31 December 2022
Review	4	29 July 2021	31 December 2022

Consent and Moderation Requirements (CMR) reference

0145

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.