

LEARNER GUIDE



Civil

Water Vehicle

TICKET



Training support material for:

RIIMPO326E

**Conduct water vehicle
operations**

Produced by:



Contents

How to use this guide	4
Language – Literacy – Numeracy (LLN)	6
Acknowledgements	8
Introduction to water carts	9
Basics of road construction	17
Chapter 1 Plan and prepare water vehicle operations	27
Chapter 2 Operate water vehicle	83
Chapter 3 Load, transport and distribute water	143
Chapter 4 Carry out machine operator maintenance	161
Chapter 5 Conduct housekeeping activities	173

Introduction to Water Vehicles



Introduction to water vehicles

This unit may be used to demonstrate competency in the following industries:

- Coal mining
- Extractive industries
- Metalliferous mining
- Civil construction



What is a water vehicle?

A **water vehicle** is a purpose built vehicle or plant platform used to load, carry and distribute water on roads or worksites. This guide covers water carts in the **civil construction** industry.

Water carts include:

- Diesel-mechanical
- Diesel-electric
- Rigid or articulated steering vehicles.

Articulated steering means the front of the truck bends behind the cab and the rear tank can move independently.

Rigid trucks can't do this, and steer using the front wheels.

Articulated body



Rigid body

**Note:**

In this Learner Guide, the terms **water cart** and **water vehicle** are used to mean the same type of

Water vehicles and their uses (civil construction)

In **civil construction**, water carts are used for dust control, and to make sand, gravel or other materials easier to work with.

The type of water cart you will drive depends on the ground conditions and access to the site.

For example, if you are working on a small country road you may use a road water cart, or smaller water cart with a slip-on tank. However, if you were working on a large civil construction site you would use a much bigger bulk water cart.

Water carts can hold a large amount of water and usually have spray nozzles or spray bars and pumps, which spray water on roads or other surfaces. Some have large water **cannons** which can spray long



Example of a water vehicle with a slip-on tank

distances. Some spray water on the road as they drive.

Water carts have different types of spraying equipment and pump systems.

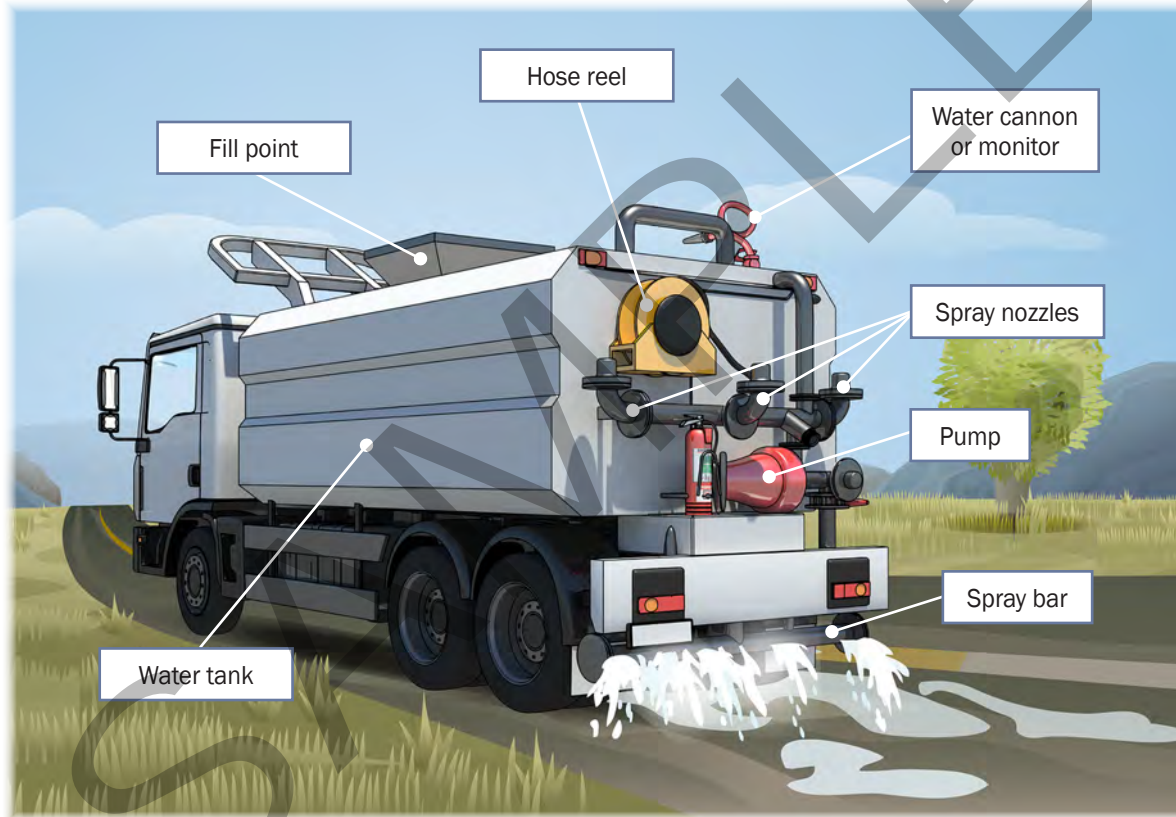
For example, most are fitted with spray nozzles or bars at the rear of the vehicle. These can spray water on to the surface using pressure pump or gravity feed.

Water is sprayed to help with soil compaction. It is also used for dust suppression, or to wash down roads to help keep them clean.

Some carts have water cannons that are used for directional spraying. They can also be used to help with fighting a fire.



An example of a water vehicle (civil construction)



Worker's duty of care

As a worker you must take care of your own health and safety – and the health and safety of others at the workplace. You must not put your own or other people's health and safety at risk.

Never work where you believe a hazard is a serious risk to your health and safety.

You must also:

- do your best to follow reasonable health and safety instructions from your boss (PCBU)
- follow workplace health and safety policies and procedures
- do not work where you believe a hazard would be a serious risk to your health and safety.



Operate water cart

Chapter 2



QUESTION 58

Why is it important to use a spotter when reversing a water vehicle?

The spotter can see what's behind the truck better than you.

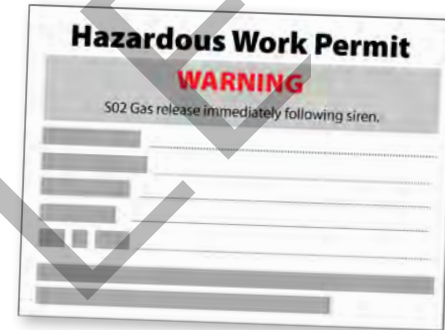


QUESTION 60

You will work in a hazardous area, for example, a confined space.

What type of permit might you need to get?

You may need to get a hazardous work permit.



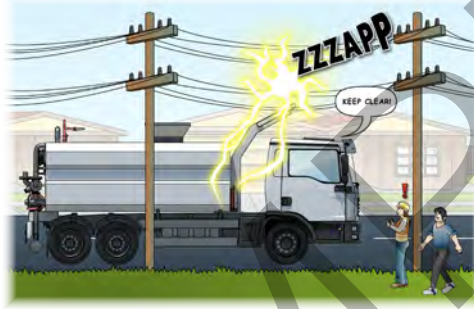
QUESTION 65

You are operating a water vehicle and it touches live powerlines.

What do you do?

If you are operating a smaller water truck:

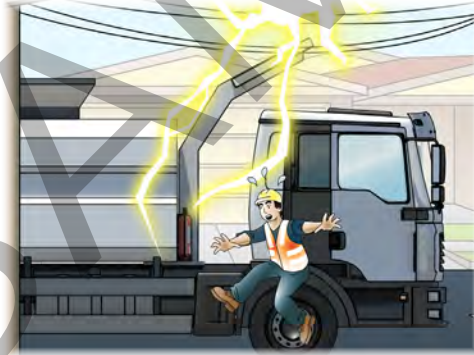
Try to stay calm. **Stay in your seat** if possible. Tell other people to **keep away**.



Try to move away from the powerlines. Ask someone to get the power turned off.



If you are alone and must get off the machine, jump well clear of the machine.



Do not touch the machine and the ground at the same time.

If you do, you will be **electrocuted**.



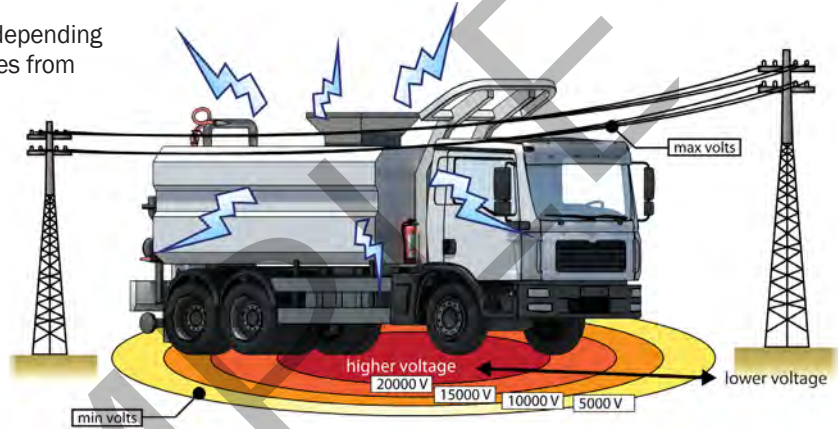
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QUESTION 65

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You are operating a water vehicle and it touches live powerlines.
What do you do?

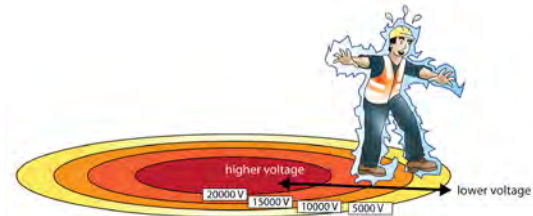
Voltages vary depending on the distances from the powerlines



Shuffle away keeping your feet **closely** together.



Do not make contact with different ground areas at the same time.



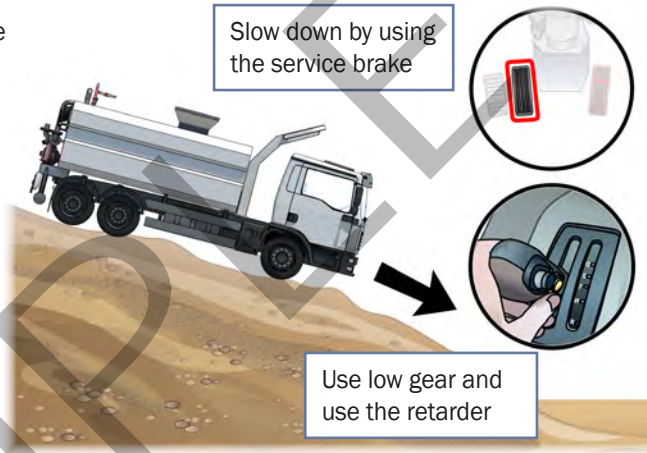
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QUESTION 80

You are driving towards a steep slope (grade).

What do you do **before** going down the slope?

Slow down by using the service brake, then choose a low gear and use the retarder.



QUESTION 81

Can you use the sound of the engine to decide when to change gears?

No. You must use the tachometer to know when to change gears.



QUESTION 82

When you drive on to a worksite, how fast do you drive?

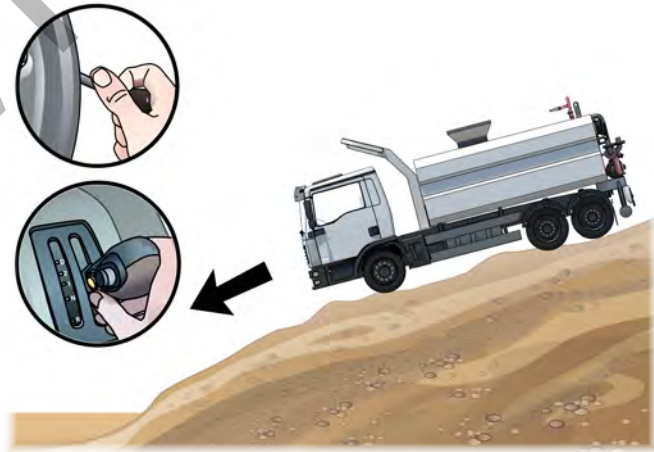
You always follow site speed limits when you are driving through a worksite.



QUESTION 83

Which way do you travel down a slope, across or straight down?

Travel straight down the slope. You might use the manual retarder and gears to help control the speed of the water truck.



Load, transport and distribute water

Chapter 3



QUESTION 93

What is a water vehicle loading point?

A water loading point can be a reservoir, river or water station where water is stored and trucks can be loaded.

Water can be loaded into a vehicle using pressure or pumps.

**QUESTION 94**

How do you make sure the water vehicle is lined up directly under the standpipe?

Why is it important?

Some water loading points have a monitor which the driver can see as he lines up. Other points have marks on the ground to help the driver line up.

It is important to make sure the water is loaded properly, without spilling. If water is spilt at the load point it can make the ground boggy.

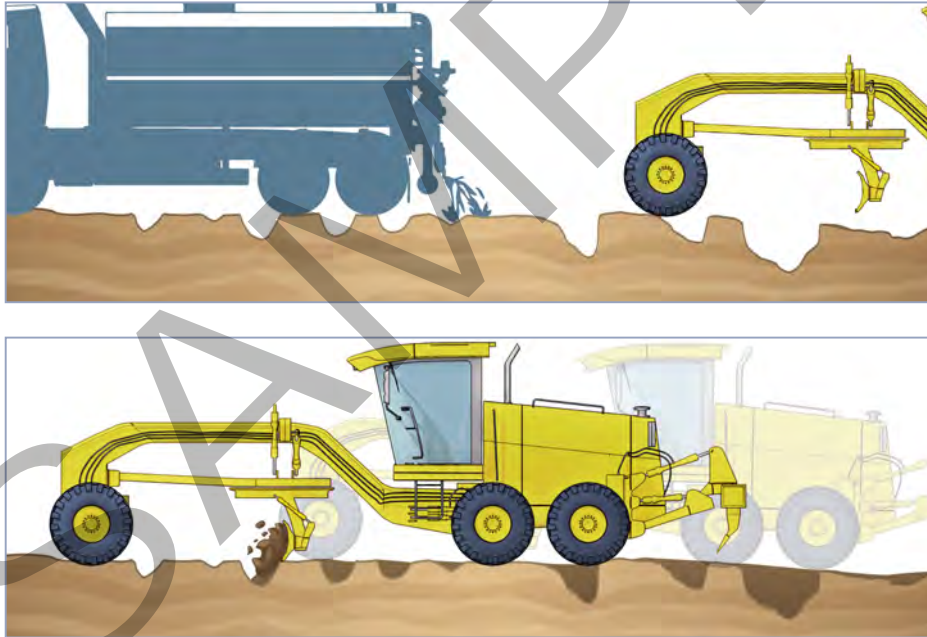


About levelling

To level a road, you work the road material across the surface. This is usually done with a grader. As the road material is moved it fills up any holes or divets. This creates a smoother surface.

If the material is too dry the material is harder to work with. It creates lots of dust. The material does not stick or bind together as well.

A water vehicle is an important part of this process in dry weather. Wetting down the road base makes it easier for the grader to work with, reduces dust, and makes the road base interlock better. This makes the job easier and gives you a better result.



Water Vehicle

Record of Training Logbook



RIIMPO326E

Conduct civil construction
water vehicle operations



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Contents

Operator, employer, supervisor and training details	(i)
Purpose of this logbook	1
How to use this logbook	2
Sample pages	3
Plan and prepare for water vehicle operations	6
Operate water vehicle.....	21
Load, haul and distribute water to complete work activity.....	35
Conduct house keeping activities.....	49

Element/Work tasks	Description of work/training performed
<p>PC 1.3</p> <p>Hazards and environmental issues</p> <p>Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies</p>	<p><i>I looked around the site and found that a busy footpath was near my working area. People walking by might be at risk. I put up barricades and signs to warn people of the danger nearby. I then checked the water vehicle. I checked oil, petrol and hydraulic fuel.</i></p>
	<p><i>I had to use the water vehicle near a trench. The trench was about 2 metres deep. No-one had put up any warning signs or barriers. I put up a row of barricades 3 metres away the trench. This would give me a safe working distance and also keep other people away from the trench.</i></p>
	<p><i>The work site is noisy. A jackhammer was being used nearby so I wore some ear muffs while I worked. I also put on other PPE including steel capped boots and a hard hat as there were safety signs telling me to wear these.</i></p>

Date/time	No. of hours	Machine details	Supervisor/competent person
Date: <i>18 / 09 / 2020</i> Start time: <i>11.30</i> am pm	<i>20 minutes</i>	Make: <i>Isuzu</i> Model: <i>FVZ 1400</i> Serial No: <i>62232</i>	Name: <i>Nathan Deeman</i> Signed: <i>Nathan D</i> Experience/qualifications: <i>20 years on the job experience and Cert IV</i>
Date: <i>23 / 09 / 2020</i> Start time: <i>9.00</i> am pm	<i>20 minutes</i>	Make: Model: Serial No:	Name: <i>Nathan Deeman</i> Signed: <i>Nathan D</i> Experience/qualifications: <i>20 years on the job experience and Cert IV</i>
Date: <i>25 / 09 /</i> Start time: am <i>1.15</i> pm	<i>30 minutes</i>	Make: <i>Isuzu</i> Model: <i>FVZ 1400</i> Serial No: <i>62232</i>	Name: <i>Sam Hasseron</i> Signed: <i>S.H.</i> Experience/qualifications: <i>Cert IV in Training & Assessing and RII RTO Statement of Attainment in Water Cart.</i>

Element 2

Operate water vehicle in line with established requirements to complete



Element/Work tasks	Description of work/training performed
<p>PC 2.1</p> <p>Carry out prestart and start-up checks in line with workplace procedures</p>	

SAMPLE

Date/time	No. of hours	Machine details	Supervisor/competent person
Date: Start time: am pm		Make: Model: Serial No:	Name: Signed: Experience/qualifications:
Date: Start time: am pm		Make: Model: Serial No:	Name: Signed: Experience/qualifications:
Date: Start time: am pm		Make: Model: Serial No:	Name: Signed: Experience/qualifications:

Element 3

Load, haul and distribute water to complete work activity



Mapping Tool

RIIMPO326E Conduct civil construction water vehicle operations

Note: This completed document shows that the enclosed learning materials have been mapped against the Unit of Competency.

Legend

PC	Performance Criteria
PE	Performance Evidence
KE	Knowledge Evidence
AC	Assessment Conditions

Application

This unit describes a participant's skills and knowledge required to conduct civil construction water vehicle operations in the Civil construction sector.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and industry sectors. Relevant information must be sourced prior to application of the unit.

Section 1 – Performance Criteria

Performance Criterion (PC)	Learner Guide & Multimedia Presentation	Formative Assessment		Test Paper (Summative Assessment)		RTO to fill out (Customised and additional materials, eg. web sites, DVDs, handouts...)
		Review Questions	Practical Training Task	Knowledge Questions	Practical Tasks	
1.1 Access, interpret and apply water vehicle operations documentation	<ul style="list-style-type: none"> • Who has a duty of care. Page 14 • Worker's duty of care. Page 15 • PCBU Employer's duty of care. Page 16 • Work Health & Safety Legislative Requirements. Page 28 • Worksite requirements. Page 30 • Q 1, 2, 3, 5, 6 	Q 1, 2	Task 1-A,	Q 1, 2	1-A Documents	
1.2 Obtain, interpret, clarify and confirm work instructions and confirm compliance with documentation and workplace procedures	<ul style="list-style-type: none"> • The basics of road construction. Page 18 • Calculations. Page 23 • How to find the capacity of a bucket. Page 24 • JSEA and SWMS. Page 35 • Dust suppression theory. Page 40 • Q 8, 9, 10, 11, 12, 14, 15, 18 	Q 3, 4, 5	Task 1-B Task 1-F	Q 3, 4	1-A Documents	

Performance Criterion (PC)	Learner Guide & Multimedia Presentation	Formative Assessment		Test Paper (Summative Assessment)		RTO to fill out (Customised and additional materials, eg. web sites, DVDs, handouts...)
		Review Questions	Practical Training Task	Knowledge Questions	Practical Tasks	
1.3 Identify hazards and environmental issues, assess the risks and implement control measures in line with workplace policies	<ul style="list-style-type: none"> Manual handling. Page 48 Environmental management plan. Page 50 How serious is the environmental risk. Page 54 Principles of soil technology for civil works. Page 56 About compaction. Page 58 Soil volumes and soil swell. Page 60 Earthmoving hazards and risks. Page 109 Decibel levels of common sounds. Page 111 Overhead powerlines on poles. Page 118 Q 16, 17, 19, 20, 21, 22, 59, 60, 76, 77, 78 	Q 6, 7	Task 1-C Task 1-D Task 1-E	Q 5, 6	1-B Inspect the area where you will be working and identify hazards.	

Performance Criterion (PC)	Learner Guide & Multimedia Presentation	Formative Assessment		Test Paper (Summative Assessment)		RTO to fill out (Customised and additional materials, eg. web sites, DVDs, handouts...)
		Review Questions	Practical Training Task	Knowledge Questions	Practical Tasks	
1.4 Select and wear personal protective equipment appropriate required for work activities	<ul style="list-style-type: none"> Q 12, 23, 24 Tools and equipment. Page 71 	Q 8	Task 1-G	Q 7	1-C Select and wear PPE	
1.5 Follow traffic management signage requirements according to standard operating procedures and safe work practices	<ul style="list-style-type: none"> Q 13, 25, 26, 27, 70, 71 	Q 9, 10	Task 1-H	Q 8, 9	1-D Inspect	
1.6 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency	<ul style="list-style-type: none"> First aid and emergencies. Page 77 Safety plan. Page 78. Q 32, 33, 79 	Q 11, 12, 13	Task 1-I Task 1-J	Q 10, 11	1-D Inspect 2-A Do visual checks of the water vehicle 2-B Do routine checks on the water vehicle before you start it.	
1.7 Coordinate and communicate planned activities with others at the site prior to commencing work activity	<ul style="list-style-type: none"> Q 53, 55, 63 	Q 14, 15	Task 1-B	Q 12, 13	1-A Documents	