Unitywater

Pr11237 - Recycled Water Tanker Operator Training Guide

unitywater.com

Document owner	Head of Customer Service
Document contact	Customer Assurance Team - retail.compliance@unitywater.com

Contents[1]

List of Appendices

[1] This document and its contents are the property of Unitywater and are subject to copyright laws. No part of this document may be reproduced, distributed or transmitted in any form or by any means including photocopying, recording or other electronic transmission without the prior written consent of Unitywater.

1. Introduction

Only trained persons can take and use recycled water from the recycled water fill stations. Recycled water is only permitted to be used by operators who have completed recycled water training.

The aim of this training program is to provide guidance on the safe use of recycled water for tanker operators.

This guide forms part of the learning content in uLearn module: RWTM1 - Recycled Water Tanker Operator Course.

2. What is recycled water?

Recycled water is a valuable climate resilient source of water that can be used for irrigating parks, gardens, dust suppression and many other uses, depending on its quality. To ensure recycled water does not cause harm to people or the environment it is important that safety protocols are followed.

- Recycled water is the product from treating sewage at sewage treatment plants.
- Sewage includes everything that goes down the kitchen sink, laundry, bathroom sink and toilet (also called grey water).
- The treatment plant 'cleans' the sewage until it meets standards set by the Department of Environment, Tourism, Science and Innovation.

The management of recycled water involves assessing the risks to ensure that the quality and quantity of water is suitable for the end use purpose. This is called the fit-for-purpose approach.

3. Recycled water quality and Material Safety Data Sheet (MSDS)

The standards categorise recycled water into Class A+, A, B, C and D with Class A+ being the highest quality class of recycled water.

Unitywater offers recycled water of Class A+, A and B quality that meets the standards set by the Department of Local Government, Water and Volunteers from various fill stations.

Operators must be aware of the recycled water class they are transporting and using. They must also ensure that receiving customers are aware of the class and permitted uses and provide the relevant recycled water fact sheet on the first delivery of recycled water.

Unitywater provides fact sheets for the classes of recycled water that are supplied.

4. Recycled water uses

Table 1: Common approved uses

Common Approved Uses	A+	A	B
Construction			
• Dust Suppression	☑	☑	☑
• Road works	☑	☑	☑
• Sewer works (gravity mains, pressure mains)	☑	☑	☑
Irrigation			
• Landscaping on construction sites	☑	☑	☑
• Residential gardens & lawns – below ground irrigation	☑	☑	☒
• Residential gardens & lawns – above ground irrigation	☑	☒	☒
• Above ground open space irrigation	☑	☒	☒
• Watering parks, playing fields, footpaths, roadside plants (**note** Class B is only approved if area has controlled access or restricted irrigation hours)	☑	☑	☑
Agricultural			
• Filling of fenced ponds, lagoons or dams (non-recreational use)	☑	☑	☒
• Washing animals (excluding pigs)	☑	☒	☒
• Agricultural wash down	☑	☑	☑
Industrial			
• Firefighting	☒	☒	☒
• Business use (note the Class allowed will depend on the actual use and advice should be sought)	☑	☑	☑
Property Use			
• Toilet flushing	☑	☒	☒
• Washing cars	☑	☒	☒
• Filling residential 'nondrinking water' tanks	☒	☒	☒

5. Accessing recycled water

Before accessing recycled water, you must:

- Successfully complete recycled water training.
- Ensure the business you work for holds a current agreement with Unitywater with current public liability insurance and backflow certificates for each tanker.
- Receive a key and access tag.

5.1 Recycled water access points

Unitywater has many access points. Sites vary in the class of recycled water available.

All outlets are fitted with an 80mm male camlock fitting.

All sites must be locked after use regardless of another tanker waiting to access.

6. Working safely with recycled water

Before accessing recycled water it's important to understand the hazards around recycled water use and handling to ensure any risks are minimised.

6.1 What is a risk assessment?

Risk assessment is the process where you:

- Identify Potential Hazards.
- Assess or evaluate the risk associated with the hazard.
- Determine appropriate ways to eliminate or control the hazard i.e. safe work procedures, control measures.
- Implement the control measures.
- Monitor and review control measures.

Why complete a risk assessment?

- Create an awareness of the hazards or risks.
- Identify others who may be at risk.
- Prevent Injury or illness.
- Can help determine if your control measures are adequate.

6.2 Working safely with recycled water

You will find below some guidelines and information to effectively control risks associated with transporting and using recycled water.

Tanker operators and drivers, like sewage treatment plant staff, will be continuously exposed to recycled water. Experience over a long period of time in recycled water plants around the world, shows that the risk of illness from recycled water is minimal when safe working procedures and control measures are followed.

The main hazards associated with recycled water use are:

Health hazards – ingestion or breathing recycled water droplets (aerosols) either direct or indirect, recycled water coming into contact with open wounds.

Community hazards – Members of the public being exposed to recycled water or being sprayed with water from a tanker, cross connecting the recycled water supply with potable water supply.

Environmental hazards – Erosion, ground water contamination, algal blooms, soil salinity or sodicity (clumping), soil nutrient imbalances.

Table 2: Working safely with recycled water

Prepare for Recycled Water Use	
Potential Hazards:	Defective Equipment, Environmental or Health Incident.
Control Measures:	• Ensure you have appropriate licenses i.e. driver's license, recycled water training card, safety and site induction. • Conduct a pre-start: – inspect hoses and couplings for any damage – check that you have your first aid kit and hand disinfectant (soap or sanitiser). • Trucks used to transport recycled water can NOT then be filled with potable water for domestic household or potable uses, recycled water trucks are to be fitted with warning signs denoting Non-Potable Water, Not Drinking Water or Recycled Water.
Take Health Precautions	
Potential Hazards:	Pathogens.
Control Measures:	• Carry a first aid kit in your vehicle including soap and eyewash. • Do not drink, shower or process food using recycled water. • Avoid direct contact with recycled water from sprays or wet areas on site. • Don't consume food or drink or smoke while working with recycled water. • Wear appropriate PPE including rubber gloves, safety glasses. • Wash hands regularly with soap and potable water or use hand sanitiser. • Make sure recycled water doesn't come into contact with open wounds and cover any wounds with waterproof dressings.

Filling your water tanker	
Potential Hazards:	Overfilling or defective equipment, fill station leaking, ponding of water or runoff, Driver/clothing saturated with recycled water, lifting and connecting hoses, uneven surfaces.
Control Measures:	• Wear appropriate PPE including rubber gloves, safety glasses. • Heavy equipment - Be aware of body position to minimise strain to back. • Prior to connecting hoses ensure o-rings are in place. • Before removing hose drain it using the drain valve on the standpipe. • Do not overfill the tank. • Use emergency shutoff valve switch in the case of hose or valve failure. • Check for any leaks and ensure fill station cabinet is locked prior to leaving site. • Queuing on site/driving onsite. • Follow operating instructions procedure.
Transporting Recycled Water	
Potential Hazards:	Driving, other vehicles, defective equipment, environmental or health incidents.
Control Measures:	• Comply with all road transport legislation, including the Department of Transport and Main Roads and other State and Federal laws. • Be aware of: – weight limits (don't overload) – tank baffles (ensure your tank complies), and – load security (don't allow water to leak or splash onto the road). Monitor for spillage during transport. • Tanker fitted with approved backflow prevention that has been appropriately maintained. Refer to Section **Error! Reference source not found.** for backflow prevention. • Provide a copy of the relevant fact sheet to person in charge of site upon first delivery.
Storage of recycled water on site or in tanker	
Potential Hazards:	Pathogen Growth, Health risk.
Control Measures:	• Label all tanks, hoses and taps with warning signs denoting recycled water. • The quality of recycled water may deteriorate over time, the customer becomes responsible for maintaining the quality of recycled water after receiving. It is recommended to not store longer than 24 hours to prevent microbial regrowth. • Disinfect tanks if water remains in there longer than 24 hours. • Storage for recycled water must not overflow to the environment. • Do not supply recycled water for unapproved uses.

Applying recycled water	
Potential Hazards:	Other vehicles, health risk, environmental damage (including erosion, groundwater contamination, algal blooms, soil salinity).
Control Measures:	• Ensure appropriate exclusion zones using signage or barriers as required taking into consideration site conditions, wind speed, boom spray height. Do not overspray. • Restrict applying recycled water where it could impact members of the public or other staff members. • Do not apply recycled water to footpaths, which may result in runoff to storm water drains. • Do not apply recycled water on picnic/eating tables, barbecue facilities and drinking fountains. • Allow water to be absorbed before second application. • Use only a hand-held hose to apply recycled water to parks, gardens etc. • Do not allow runoff. • Don't allow public to come into contact with recycled water.
Carry out ongoing monitoring of equipment	
Potential Hazards:	Other vehicles, health/environmental risk.
Control Measures:	• Ensure vehicle signage is legible i.e., permit sticker and recycled water safety stickers. • Stock first aid kit as required. • Check PPE for signs of wear and replace as necessary. • Ensure training up to date/licenses/insurance etc.

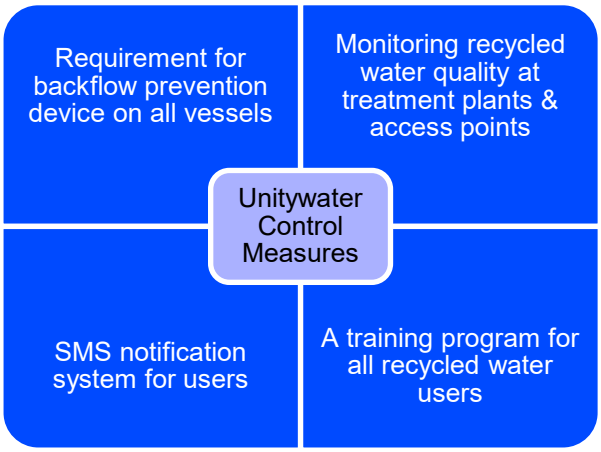


Figure 1: Summary of control measures

7. Backflow prevention

Why is backflow important?

- A backflow device prevents water accidentally siphoning out of the tank back into the supply pipe if the pressure drops unexpectedly.
- The backflow device must be certified by a plumber licensed for backflow certification before Unitywater will allow recycled water to be collected from the Unitywater Service area.
- An Air Gap is the backflow prevention device for water trucks under the recycled water agreement.

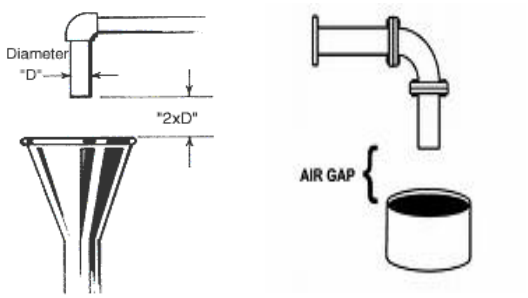
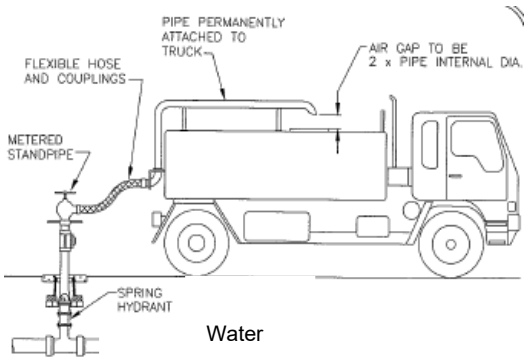


Figure 2: Backflow prevention device



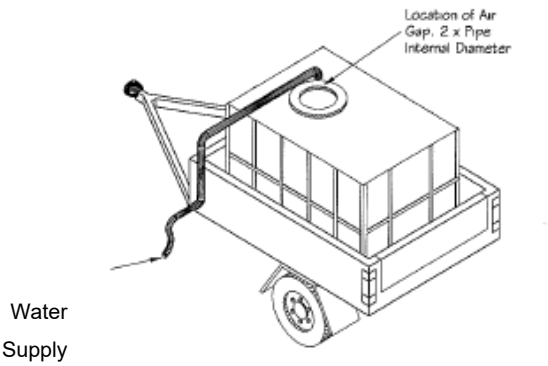


Figure 3: Backflow arrangements for tankers or trailers

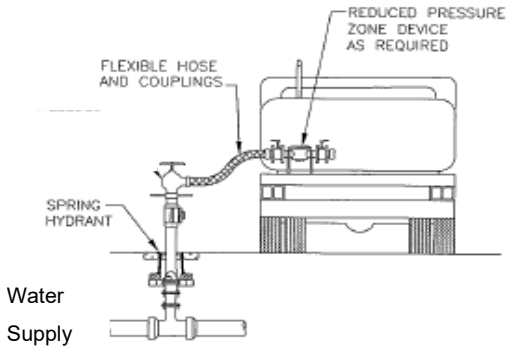


Figure 4:RPZ backflow arrangements

8. Incidents

If an incident occurs involving recycled water, complete an incident form available at the following website link (https://www.unitywater.com/business/fill-stations-and-standpipes/recycled-water-fill-stations) and forward to Unitywater via email to retail.compliance@unitywater.com as soon as practical, but no less than 24 hours after the incident has occurred. Example of incidents include:

- Person is sprayed with recycled water from the tanker.
- Complaint received by the recycled water carrier from the public.
- Recycled water released into surface waters.

Unitywater should also be notified as soon as practical of a leak at a fill station.

9. Tanker disinfection

9.1 Tanker disinfection

There may be times when a tanker driver may wish to clean or disinfect a recycled water tanker and its delivery lines. Some reasons for this could be:

- Where you have been carting Class B Recycled Water or creek/river water, you **must** disinfect your tanker before taking Class A or A+ recycled water for a use which is only suitable for that class, e.g. residential properties, use in water fountains, etc.
- The tanker has become smelly.
- There is concern about growth in the tanker (including lines and fittings).
- There is concern about the build-up of solids in the tanker.
- The tanker may be converted from recycled water to potable water (Domestic Water Carrier Permit required – refer to Council's relevant local laws).
- Disinfection may also be required for general cleaning.

Disinfection process (refer to Tanker Disinfection Fact Sheet):

- Use an appropriate disinfectant.
- Make sure the disinfectant mix is strong enough to kill pathogens.
- Remove any solids from the tanker before disinfecting.

9.2 Disposal of washing water

The disposal of solids and disinfectant contaminated water needs consideration.

✓ Discharge to the sewer system.

✓ Clean the truck in a vehicle wash bay which does not discharge to stormwater.

✗ Do not discharge any material into the stormwater system.

Figure 5: Household waste water

10. References and resources

Table 3: References and resources

Source	Reference
External	N/A
Internal	Unitywater's Recycled Water Web Resource page Pr10668 - Water Carrier Customer Guide F10342 - Water Carrier Application Form Additional training resources: • uLearn Module: RWTM1 - Recycled Water Tanker Operator Course • Class A+ & A Fact Sheet • Class B Fact Sheet • Incident Reporting Form (F9308) • Fill Station Operating Instructions • Tanker Disinfection Fact Sheet

Appendix A: Classification of recycled water for use in Queensland[2]

Class of Water	E. coli (median) cfu/100mL[3]	BOD5 mg/L median	Turbidity, NTU	SS, mg/L	TDS (mg/L) or EC (µS/cm) medians TDS/EC	pH	Recycled water uses[4]
A+ (see other criteria below)	<1 (median) <10 (95% percentile)	20	<2 (5)	5	1000/1600	6-8.5	Toilet flushing, outdoor hosing & wash down, domestic, or commercial above ground garden watering, food crops, industry, firefighting, other users as detailed in Class A to D.
A	<10	20	<2 (5)	5	1000/1600	6-8.5	Above ground open space irrigation, retail nurseries (not ready to eat products), industry, fountains, water features (no primary or secondary contact) other users as detailed in Class B to D.
B	<100	20	—	30	1000/1600	6-8.5	Pasture for dairy animals without withholding period, wash down of hard surfaces in agricultural industry, other users as detailed in Class C to D.
C	<1000	20	—	30	1000/1600	6-8.5	Controlled access or subsurface irrigation, sugar cane and grapes for wine production, pasture (with certain withholding periods), other users as detailed in Class D.
D	<10,000	—	—	—	1000/1600	6-8.5	Silviculture, turf, cotton, wholesale nurseries with controlled access.

[2] Source: Queensland Guidelines for the Safe Use of Recycled Water
[3] cfu = colony forming units
[4] A recommendation for use of any particular class of recycled water includes higher classes as well. In other words, if Class C is recommended for a particular use, then Classes A+, A and B could also be used, but Class C is the minimum recommended quality.
Class A+ other criteria

- Treatment train that will achieve 6 log removal of viruses, 5 log removal of bacteria & protozoa (from raw sewage)
- Clostridium perfringens <1 cfu/100mL (median); <10 cfu/100mL (95%ile)
- F-RNA bacteriophage: <1 pfu2/100mL (median); <10 pfu/100mL (95%ile)
- Somatic coliphage: <1 pfu/100mL (median); <10 pfu/100mL (95%ile)