

Guideline for low-exposure recycled water schemes



Introduction

The supply and use of recycled water can provide many benefits for Queensland communities. If, however, the hazards associated with the supply and use of recycled water are not managed appropriately, the health of the public can be put at risk. Queensland, like most other Australian states and territories, has a regulatory framework for recycled water to help ensure public health risks are properly managed. This framework comprises provisions under the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act) and provisions under the *Public Health Act 2005* (the PH Act). Requirements that apply to providers of recycled water differ according to the uses for which they supply recycled water. This guideline has been developed by Queensland Health to support recycled water providers that supply recycled water for low-exposure uses and to support users of recycled water to use it safely.

Scope

These guidelines apply to **recycled water providers** and **users of recycled water** that supply or use **recycled water** for **low-exposure** uses only.

What is recycled water?

The term recycled water is commonly taken to mean any sort of wastewater that has been treated for the purpose of beneficial reuse. However, the recycled water provisions in Queensland legislation reference a more limited definition of recycled water. For the purpose of this guideline, recycled water refers to sewage or effluent, sourced from a service provider's infrastructure¹, that is intended to be reused. A common example is treated effluent sourced from a local government sewage treatment plant that is intended to be reused for municipal irrigation. Other forms of wastewater (for example effluent from a sugar mill that is used by nearby cane growers for irrigation, or urban stormwater) are not considered by this guideline.

Who is a recycled water provider?

A recycled water provider, as defined by the Water Supply Act, is an entity that owns infrastructure for the production and supply of recycled water². A recycled water scheme is defined under the Water Supply Act to be a scheme involving the production and supply of recycled water and includes the infrastructure, owned by the provider, for the production and supply of recycled water. All recycled water schemes must be registered with the

¹ Under the *Water Supply (Safety and Reliability) Act 2008* service providers are defined as water service providers or sewerage service providers that are registered under the Act.

² The definition of a recycled water provider in the *Public Health Act 2005* refers to the definition of a recycled water provider given in Schedule 3 of the *Water Supply (Safety and Reliability) Act 2008*.

Department of Regional Development, Manufacturing and Water (DRDMW) in accordance with section 196AA of that Act.

The most common examples of recycled water providers are local governments or water utilities that treat sewage to a level such that it can then be supplied as recycled water for beneficial reuse. These guidelines have been developed for these entities. Recycled water providers that do not fit this description are encouraged to contact the nearest Queensland Health Public Health Unit (see Table 8) for specific advice regarding management of public health risk.

Who is a user of recycled water?

In the context of these guidelines, a user of recycled water is defined as an entity that receives recycled water from a recycled water provider and beneficially uses that recycled water. A common example is a golf course that receives recycled water from the local government's sewage treatment plant for the irrigation of the golf course.

What are low-exposure uses of recycled water?

In Queensland, the regulation of recycled water differs depending on how much recycled water a member of the public might be exposed to. Exposure can be thought of as the quantity of recycled water a person might ingest, incidentally or accidentally, as a result of recycled water being used nearby. The higher the exposure, the greater the risk of adverse health effects. The term 'low-exposure' has been used in these guidelines as this covers the uses of recycled water that are generally associated with a low level of exposure.

The most common low-exposure uses of recycled water in Queensland include the irrigation of public open spaces (such as playing fields and parks), pasture and fodder crops, heavily processed food crops (such as sugar cane), non-food crops such as cotton, as well as use for dust suppression on construction sites.

These guidelines do not apply to higher exposure uses of recycled water including:

- augmentation of drinking water supplies (also known as indirect potable reuse)
- dual-pipe schemes (where in addition to drinking water, recycled water is also supplied to residents for non-potable domestic purposes such as toilet-flushing, laundry and irrigating lawns or gardens), and
- irrigation of minimally processed food crops.

These uses are not considered low-exposure and are required to have recycled water management plans approved by DRDMW (see www.business.qld.gov.au/industries/mining-energy-water/water/sewage-service-providers/industry-regulation/recycled-water).

Health risks posed by the use of recycled water

The health risks posed by the use of recycled water are largely dependent on two key factors: the quality of the recycled water being supplied and the extent to which someone might be exposed to the recycled water.

When recycled water is produced from sewage, there is potential for it to contain a range of disease-causing microorganisms. Many of these microorganisms are enteric pathogens, that is pathogens associated with the human gastroenteric system, which can cause serious illness in some people. For this reason, the main exposure of concern for public health is via incidental or accidental swallowing of the recycled water, although some pathogens may also affect the respiratory system, or the ears, eyes or skin.

Potential exposure to recycled water is dependent on the likelihood that a person will come into contact with the water as well as the quantity of recycled water they may unintentionally swallow when they do. These two factors are, in turn, influenced by the use of recycled water and the nature of the on-site exposure controls employed.

Some uses of recycled water are associated with greater potential for exposure than others. For example, people are more likely to come into contact with recycled water when it is used to irrigate public open spaces compared to when it is used to irrigate non-food crops on a farm.

On-site controls are controls employed by the user to reduce potential exposure. They are sometimes referred to as 'non-treatment barriers' and include measures aimed at reducing human exposure. Examples include restricting public access to irrigated areas, employing buffer zones between the area where the recycled water is used and where people may pass by or live, displaying signage that advises the public that recycled water is used in the area, and plumbing controls to prevent cross-connections with potable water supplies (e.g. colour-coded pipes and 'non-potable water' or 'do not drink' labels on taps).

Recycled water schemes typically consist of a recycled water provider and a user or a number of users. The responsibility for ensuring the recycled water is of an appropriate quality falls to the recycled water provider and, operationally, it is the responsibility of the user to ensure the recycled water is only used for appropriate uses and that the necessary on-site controls are implemented and maintained. These responsibilities are discussed in further detail below in the context of Queensland's regulatory requirements.

The risk to human health from chemicals in recycled water provided for low-exposure uses is low. Provided appropriate trade waste arrangements are in place for industrial and commercial customers, controls implemented to address the risks associated with pathogens will ensure that chemicals in recycled water will not present a risk to public health.

The regulation of low-exposure recycled water schemes in Queensland

Regulatory requirements for recycled water providers

Under the PH Act, there are two key regulatory obligations relevant to recycled water providers³:

- that the supply of recycled water does not create a risk to public health, and
- to supply recycled water that is ‘fit for use’.

Although there is no regulatory requirement for recycled water providers operating low-exposure schemes to have a recycled water management plan (RWMP), having an appropriate RWMP can be a useful way of demonstrating compliance with these guidelines. Those recycled water providers wishing to develop a RWMP should refer to the most recent edition of the Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) 2006, available at: www.waterquality.gov.au/guidelines/recycled-water.

Public health risk provisions

Under section 11 of the PH Act, recycled water can be categorised as a ‘public health risk’ if it “...is, or is likely to be, hazardous to human health, or that contributes to, or is likely to contribute to, disease in humans or the transmission of an infectious condition to humans”.

In cases where an authorised person under the PH Act⁴ has determined that recycled water is a public health risk, he or she may issue a ‘public health order’ requiring the recycled water provider to take certain actions to eliminate, or reduce, the risk to public health. Failing to comply with a public health order is an offence with a maximum penalty of 200 penalty units. The current value of penalty units can be found at www.qld.gov.au/law/crime-and-police/types-of-crime/sentencing-fines-and-penalties-for-offences.

Fit for use provisions

Under Part 5A of the PH Act, recycled water providers are obliged to ensure the recycled water they supply is ‘fit for use’. Section 57D states that:

Recycled water is fit for use at a particular time if it would not be likely to cause physical harm to a person who might later be exposed to it, assuming—

³ The *Environmental Protection Act 1994* also imposes regulatory obligations on operators of sewage treatment plants for the disposal or reuse of treated effluent. For further information on these requirements, please contact the Department of Environment and Science.

⁴ Authorised persons under the PH Act can include state or local government environmental health officers.

(a) nothing happened to it after that particular time and before the person was exposed to it that would prevent its being used for its intended use; and

(b) it was used according to its intended use.

Importantly, it is a very serious offence under the PH Act for recycled water providers to supply recycled water that is not ‘fit for use’:

S57F (b) The recycled water provider must not supply the recycled water if the provider knows, or reasonably ought to know, the recycled water is not fit for use.

Maximum penalty—1350 penalty units or 2 years imprisonment.

If an authorised person believes that recycled water being supplied by a recycled water provider is ‘not fit for use’, he or she may issue an ‘improvement notice’ requiring the recycled water provider to remedy the contravention or have the contravention remedied. The penalty for not complying with an improvement notice is equivalent to the offence for supplying recycled water that is not fit for use (1350 penalty units or two years imprisonment). In certain instances, the authorised person may elect to proceed directly to initiating a prosecution against the recycled water provider.

When might recycled water be considered a risk to public health or ‘not fit for use’?

Recycled water is most likely to be categorised as a risk to public health or not ‘fit for use’ when the quality of the recycled water, from a public health perspective, is below that which is required to protect public health. For example, if it is specified in these guidelines that Class A recycled water is required for a particular use, and the recycled water provider is supplying recycled water that only meets the requirements for Class C recycled water, this could be considered an offence.

Managing risks posed by users of recycled water

Low-exposure recycled water schemes are typically comprised of a recycled water provider and a user, or a number of users. This often means that a recycled water provider will not have day to day control over how the recycled water that they supply is used. This could give rise to situations where recycled water is used inappropriately, resulting in a risk to public health. In such cases, the recycled water provider may be held responsible for allowing such a situation to occur, resulting in significant reputational damage. Furthermore, if the provider is aware that the recycled water is being used inappropriately and they continue to supply recycled water to that user, they may be subject to enforcement action under the PH Act. To reduce the likelihood of this occurring, recycled water providers are strongly encouraged to:

- restrict how their customers use recycled water via a ‘recycled water user agreement’ developed in accordance with these guidelines (user agreements are discussed below)

- cease supply when they become aware of a user using the recycled water for inappropriate uses⁵, and
- undertake periodic inspections, having regard to the conditions set out in the relevant user agreement, to ensure the recycled water is only being used for the agreed uses and with the necessary on-site controls.

With respect to periodic inspections, it is recommended that these inspections be undertaken annually and need only involve inspecting the area(s) where a customer is, or has been, using recycled water to ensure that they are using the recycled water for agreed purposes only and that they are maintaining the necessary on-site controls. The frequency for these checks could be reduced if the customer has a history of conformity with the agreement or increased where problems have been identified in the past. Recycled water providers should also investigate legitimate reports or complaints of a customer not using the recycled water appropriately. Finally, users should be aware that, no matter what agreements are in place, they are still obliged to meet their requirements under the *Work Health and Safety Act 2011*. This includes ensuring that the health and safety of workers and other people (e.g. members of the public) is not put at risk as a result of any work activities involving the use of recycled water.

Monitoring

Recycled water providers will typically have to monitor for a range of parameters as part of their Environmental Authority to operate a sewage treatment plant, issued by the Department of Environment and Science under the *Environmental Protection Act 1994*. From a public health perspective, the key water quality parameter to be monitored is *Escherichia coli* (*E. coli*). This is because *E. coli* provides an indication of the level of disease-causing microorganisms that may be present in the recycled water and the results of analysis can be used to determine compliance with the different classes of recycled water.

It is recommended that samples for *E. coli* be taken weekly by the recycled water provider and submitted for laboratory analysis. The frequency of this 'verification' monitoring may be reduced provided there is sufficient 'operational' monitoring in place to identify deficiencies in treatment in a timely manner (see Table 1 for definitions of operational and verification monitoring). For example, where disinfection is employed, online monitoring of chlorine dosing could form the basis of a decision to reduce the frequency of monitoring for *E. coli*, although this should not be less than monthly. The frequency of verification monitoring may also be decreased when the recycled water provider has monitoring data showing the required water quality criteria are met reliably under stable operating conditions, and stable operating conditions exist. That is, the monitoring frequency may be reduced during extended periods of dry weather and ordinary flows when a recycled water provider has data showing the relevant standard will be met reliably under these conditions. Again, the monitoring frequency should not be less than monthly and more frequent monitoring should be undertaken at times when

⁵ If a user stores recycled water on-site and continues to use recycled water for inappropriate uses after the recycled water provider has ceased supply, the recycled water provider is encouraged to inform their nearest Queensland Health Public Health Unit (see Table 8 for relevant contact details).

recycled water quality may be affected (e.g. during and after significant wet weather events when wastewater treatment efficacy may be reduced).

Table 1 – Types of monitoring

Operational monitoring	Operational monitoring typically takes place on-site and is undertaken to check whether the recycled water treatment process is working as expected. Operational monitoring provides operators with an opportunity to address recycled water quality in a timely fashion. Examples include monitoring of turbidity immediately post filtration and monitoring of chlorine residual post chlorine dosing.
Verification monitoring	Verification monitoring typically involves taking a water sample and sending that sample to a laboratory to check that certain recycled water quality criteria have been met. The most common example of verification monitoring is taking a sample of the treated effluent and submitting the sample to a laboratory for <i>E. coli</i> analysis.

E. coli analysis should be undertaken using a methodology that is recognised as valid (such as the membrane filtration method or the most probable number method, which is often abbreviated to the MPN method⁶) and conducted by a laboratory with National Association of Testing Authorities (NATA) accreditation for the analytical method. *E. coli* analysis may be undertaken ‘in-house’ provided that duplicate or split samples are taken periodically, with the additional sample submitted to a laboratory with NATA accreditation for the analysis. The results of the NATA accredited laboratory samples should be compared against the results obtained through the in-house test, to ensure the in-house testing methodology is producing accurate results. Regular monitoring of *E. coli* is a very important part of ensuring, and being able to demonstrate, that the recycled water supplied is ‘fit for use’.

Table 2 – Guideline values for recycled water (for low exposure uses)⁷

Class of recycled water	Guideline values
Class A+	Less than 1 <i>E. coli</i> cfu / 100mL or less than 1 <i>E. coli</i> MPN / 100mL in at least 95% of samples taken in the previous 12 months*,
Class A	Less than 10 <i>E. coli</i> cfu / 100mL or less than 10 <i>E. coli</i> MPN / 100mL in at least 95% of samples taken in the previous 12 months
Class B	Less than 100 <i>E. coli</i> cfu / 100mL or less than 100 <i>E. coli</i> MPN / 100mL in at least 95% of samples taken in the previous 12 months

⁶ Microbiologists sometimes refer to the “enzyme hydrolysable substrate method”, which is one variation of MPN method.

⁷ The standards for recycled water contained in the PH Regulation are given legal effect via the recycled water provisions of the *Water Supply (Safety and Reliability) Act 2008*. Recycled water providers supplying recycled water for low exposure uses should therefore refer to Table 2 for the recycled water standards relevant to their scheme(s).

Class of recycled water	Guideline values
Class C	Less than 1,000 <i>E. coli</i> cfu / 100mL or less than 1,000 <i>E. coli</i> MPN / 100mL in at least 95% of samples taken in the previous 12 months
Class D	Less than 10,000 <i>E. coli</i> cfu / 100mL or less than 10,000 <i>E. coli</i> MPN / 100mL in at least 95% of samples taken in the previous 12 months

* When Class A+ recycled water is being supplied to households as part of a dual reticulation scheme, and when it is used to irrigate minimally processed crops, there are additional microbiological criteria that must be met (see Public Health Regulation Section 58). However, it can be provided for low-exposure uses without testing for anything other than *E. coli*.

A recycled water provider's compliance with the guideline values should be assessed on a monthly basis, having regard to the previous 12 months' results. To assist recycled water providers to undertake these assessments, Queensland Health has prepared a number of Excel spreadsheets – one for each class of recycled water – that can be used to record the details of monitoring and calculate compliance over the preceding 12-month period. The relevant spreadsheets are available for download here: www.health.qld.gov.au/public-health/industry-environment/environment-land-water/water/quality/recycled-water.

If a single sample of recycled water fails to meet the guideline values, an investigation should be undertaken to determine the cause of the non-compliance. This should be followed by undertaking any necessary actions to remedy treatment deficiencies and taking a follow-up sample. If, after undertaking an investigation and correcting the treatment process, the follow-up sample is also non-compliant, the recycled water provider should contact its nearest Queensland Health Public Health Unit (see Table 8) for advice on any measures that may need to be implemented to ensure public health is not jeopardised.

If a recycled water provider fails to meet the 'annual value' (i.e. less than 95% of samples taken in the preceding 12 months meet the relevant standard), the recycled water provider should contact its nearest Queensland Health Public Health Unit to discuss any measures that may need to be implemented to ensure public health is not jeopardised. This may include improving treatment processes, implementing more rigorous on-site controls, or ceasing the supply of recycled water until appropriate improvement measures can be implemented.

Point at which water quality should be assured

The supply of recycled water generally necessitates the use of storages such as lagoons, dams or reservoirs to ensure continuity of supply or to store surplus recycled water during periods of lower demand by users. This means that the recycled water might first be directed to a lagoon, managed by the recycled water provider or another entity, before being supplied to customers via a pipeline. Alternatively, recycled water may be supplied to a user's dam via a pipeline before being used on-site. As these storages can be subject to faecal contamination from the environment, some recycled water providers have been unsure of where to monitor for *E. coli*. Queensland Health's position is that the *E. coli* should be sampled at the last point where treatment of the water is undertaken by the recycled water provider. For example, where chlorine disinfection is the last treatment step, samples for *E. coli* should be monitored at the

point where the recycled water is discharged from the chlorine contact tanks or before it enters a storage lagoon or pipework for distribution to customers.

Regulatory requirements for users of recycled water

Users of recycled water can minimise any public health risks associated with recycled water by using it safely. Users of recycled water should ensure that they comply with any restrictions on use, as well as any on-site control requirements, set out in a recycled water user agreement. Users should also notify the recycled water provider when, for whatever reason, they are unable to comply with these requirements.

Recycled water user agreements

A recycled water user agreement is a formal agreement between a recycled water provider and a user of recycled water. An agreement will typically cover a range of matters associated with the supply and use of recycled water but should be prepared in such a way that it helps ensure the public health risks associated with recycled water schemes are managed appropriately. From a public health perspective, the agreement should set out:

- the class of the recycled water to be supplied
- the appropriate use(s) of recycled water
- the on-site controls the user must employ to ensure exposure is appropriately managed.

These details should be based on the advice contained in this guideline.

To assist recycled water providers and users of recycled water, Queensland Health has developed a model recycled water user agreement. The model agreement, and associated guidance material, can be found at: www.health.qld.gov.au/public-health/industry-environment/environment-land-water/water/quality/recycled-water.

It is strongly recommended that recycled water providers have recycled water user agreements in place with each of their users⁸.

Water quality and on-site controls required for common uses of recycled water

This part of the guideline provides guidance on the classes of recycled water that can be used for the five most common uses of recycled water in Queensland, and the on-site controls required in each instance. For other uses of recycled water, recycled water providers are encouraged to contact the nearest Queensland Health Public Health Unit (see Table 8) for specific advice.

⁸ Written consent, with any third party who is supplied with treated effluent, is required under the Department of Environment and Science's Model Operating Conditions for ERA 63 – Sewage Treatment. A recycled water user agreement could meet this requirement.

Important terms

It is important to understand the following terms when interpreting the requirements detailed in the tables that follow.

Minimum on-site controls

Certain controls must be employed for every use of recycled water. These controls are required because recycled water, other than purified recycled water (which has been very highly treated and can be used to replenish drinking water supplies), cannot be considered suitable for human consumption. Minimum on-site controls must include:

- Compliance with all applicable plumbing requirements, to prevent cross-connections with drinking water pipes
- Prominent warning signs at public access points to where recycled water is used indicating that the recycled water is not suitable for drinking or for human exposure. Guidance on the design and usage of signage can be found in Australian Standard 1319-1994 Safety Signs for the Occupational Environment
- Precautions to ensure the recycled water does not contaminate any source of water used as a supply of drinking water (e.g. dam or bore). This may require the use of setback distances (the distance from where the recycled water is applied to the location of the water source used as a supply of drinking water). When there is any doubt as to whether the use of recycled water in a particular area will have negative impacts on a supply of drinking water, recycled water providers are strongly encouraged to make contact with the potentially impacted entity and to discuss the proposed use of recycled water in that area.
- No runoff or ponding of recycled water, and
- No overspray.

Spray drift control

A spray drift control is an on-site control that minimises spray from drifting beyond the irrigation area. This can be achieved by the use of low-throw sprinklers, vegetation screening (e.g. windbreaks), anemometer switching (to monitor and respond to wind conditions) and other related methods.

Restricted access

Restricted access can be defined as:

- Preventing members of the public from accessing the area where recycled water is being used, and for four hours after use or until dry. This may be achieved through the use of physical barriers, appropriate to the location, that deter access (e.g. uninterrupted fencing with locked gates), or
- Irrigating at times when there is a very low likelihood of members of the public being present in the area where recycled water is being used.

Buffer zone

A buffer zone is an area, between where recycled water is used (for example the edge of the wetted area from a sprinkler) and where members of the public could be present, that minimises or eliminates potential for exposure to recycled water.

Table 3 – Municipal open space irrigation (e.g. parks and sports fields)

Class of recycled water	On-site controls required
Class A+	<ul style="list-style-type: none">• Minimum on-site controls
Class A	<ul style="list-style-type: none">• Minimum on-site controls and• A spray drift control
Class B	<ul style="list-style-type: none">• Minimum on-site controls• Restricted access during irrigation and for four hours after use or until dry, and• A spray drift control or a buffer zone of at least 25 metres
Class C	<ul style="list-style-type: none">• Minimum on-site controls• Restricted access during irrigation and for four hours after use or until dry• A spray drift control, and• A buffer zone of at least 25 metres

Table 4 – Golf course irrigation

Class of recycled water	On-site controls required
Class A+	<ul style="list-style-type: none">• Minimum on-site controls
Class A	<ul style="list-style-type: none">• Minimum on-site controls and• A spray drift control
Class B	<ul style="list-style-type: none">• Minimum on-site controls• Restricted access during irrigation, and• A spray drift control or a buffer zone of at least 25 metres

Class of recycled water	On-site controls required
Class C	<ul style="list-style-type: none"> • Minimum on-site controls • Restricted access during irrigation • A spray drift control, and • A buffer zone of at least 25 metres

Table 5 – Irrigation of pasture and fodder crops for beef and dairy cattle*

Class of recycled water	On-site controls required
Class A+	<ul style="list-style-type: none"> • Minimum on-site controls • Exclude lactating dairy cattle during irrigation and until pasture is dry • Fodder must be allowed to dry before being supplied as feed
Class A	<ul style="list-style-type: none"> • Minimum on-site controls • Exclude lactating dairy cattle during irrigation and until pasture is dry • Fodder must be allowed to dry before being supplied as feed <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • A spray drift control
Class B	<ul style="list-style-type: none"> • Minimum on-site controls • Exclude lactating dairy cattle during irrigation and until pasture is dry • Fodder must be allowed to dry before being supplied as feed <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • Restricted access and • A spray drift control or a buffer zone of at least 25 metres

Class of recycled water	On-site controls required
Class C	<ul style="list-style-type: none"> • Minimum on-site controls • Exclude grazing animals from pasture during irrigation and for five days following irrigation • Fodder must be allowed to dry before being supplied as feed <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • Restricted access, a spray drift control, and a buffer zone of at least 25 metres or • Restricted access and an extended buffer zone of at least 50 metres

* According to the Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1), recycled water schemes that supply recycled water for the irrigation of pasture and fodder crops should be capable of removing or inactivating helminths. The AGWR lists secondary treatment, disinfection and greater than 25 days of lagoon detention as an acceptable treatment train for inactivating helminths. Alternative treatment trains may be employed provided it can be demonstrated that the treatment train is capable of removing helminths.

N.B. Recycled water of any class should not be used for the irrigation of fodder crops for pigs or provided to pigs for drinking water.

Table 6 – Irrigation of highly-processed food crops and non-food crops

Class of recycled water	On-site controls required
Class A+	<ul style="list-style-type: none"> • Minimum on-site controls
Class A	<ul style="list-style-type: none"> • Minimum on-site controls <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • A spray drift control or drip irrigation

Class of recycled water	On-site controls required
Class B	<ul style="list-style-type: none"> • Minimum on-site controls <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • Restricted access and one of the following: <ul style="list-style-type: none"> • A spray drift control • Drip irrigation • A buffer zone of at least 25 metres
Class C	<ul style="list-style-type: none"> • Minimum on-site controls • Highly-processed food crops must be allowed to dry before harvesting <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • Restricted access and two of the following on-site controls: <ul style="list-style-type: none"> • A spray drift control • Drip irrigation • A buffer zone of at least 25 metres <p>Or</p> <ul style="list-style-type: none"> • Restricted access and an extended buffer zone of at least 50 metres
Class D	<p>To be used for non-food crops only</p> <ul style="list-style-type: none"> • Minimum on-site controls <p>If members of the public may be in the vicinity of the irrigation area:</p> <ul style="list-style-type: none"> • No public access and drip irrigation, or • Restricted access, a spray drift control, and a buffer zone of at least 50 metres

Table 7 – Dust suppression

Class of recycled water	On-site controls required
Class A+	<ul style="list-style-type: none">• Minimum on-site controls
Class A	<ul style="list-style-type: none">• Minimum on-site controls and• Low pressure dispersion of recycled water (e.g. gravity-fed ‘dribble bar’)
Class B	<ul style="list-style-type: none">• Minimum on-site controls• Low pressure dispersion of recycled water (e.g. gravity-fed ‘dribble bar’)• Restricted access during dust suppression activities until dry

Queensland Health’s Public Health Units – Contact Details

Enquiries relating to the regulation of low-exposure recycled water schemes should be directed to one of Queensland Health’s public health units. An up-to-date list of Queensland Health’s Public Health Units, and their contact details, is maintained at:

www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units.

Table 8 – PHU contact details

Public Health Unit	Telephone
Metro North (Brisbane North) Bryden Street, Windsor Qld 4030 Locked Bag 2, Stafford DC Qld 4053	(07) 3624 1111
Metro South (Brisbane South) Level 1, 39 Kessels Road, Coopers Plains Qld 4108 PO Box 333, Archerfield Qld 4108	(07) 3156 4000
Tropical Public Health Services (Cairns) William McCormack Place II Level 7, 5 Sheridan Street, Cairns Qld 4870 PO Box 1103, Cairns Qld 4870	(07) 4226 5555

Public Health Unit	Telephone
Central Queensland (Rockhampton) 82-86 Bolsover Street, Rockhampton Qld 4700 PO Box 946, Rockhampton Qld 4700	(07) 4920 6989
Darling Downs (Toowoomba) Baillie Henderson Hospital, Browne House, Cnr Tor and Hogg Streets, Toowoomba Qld 4350 PO Box 405, Toowoomba Qld 4350	(07) 4699 8240
Gold Coast Carrara Health Centre 45 Chisholm Road, Carrara Qld 4211 PO Box 318, Nerang Qld 4215	(07) 5667 3200
Mackay Mackay Base Hospital, 475 Bridge Road, Mackay Qld 4740 PO Box 5580 Mackay MC Qld 4741	(07) 4885 5800
Sunshine Coast Level 1, 60 Dalton Drive, Maroochydore Qld 4558 PO Box 577, Maroochydore Qld 4558	(07) 5409 6600
Townsville 242 Walker Street, Townsville Qld 4810 Locked Bag No 4016, Townsville Qld 4810	(07) 4433 6900
West Moreton (Ipswich) 81Queen Street, Goodna, Ipswich Qld 4305 PO Box 188, Goodna Qld 4300	(07) 3818 4700
Wide Bay (Hervey Bay) Suite 11-17 Hershel Court, Uraween Qld 4655 PO Box 724, Hervey Bay Qld 4655	(07) 4184 1800