

Applying Reclaimed Water for Irrigation Schemes: Management and Safeguards

Power and Water Corporation provide reclaimed water for multiple irrigation schemes in the Northern Territory. Our policy is to promote efficient use of reclaimed water, in a manner which protects public health, is socially acceptable, environmentally sustainable and commercially viable. Based on the type of irrigation and application of reclaimed water, various safeguards and guidelines must be followed.

Power and Water follow the *National Water Quality Management Strategy, GUIDELINES FOR SEWERAGE SYSTEMS, Use of Reclaimed Water, November 2000 (ARMCANZ, ANZECC & NHMRC)* for reclaimed water performance assessment and management. Safeguards required for new reclaimed water systems in the NT will be treated on a case by case basis through the Department of Health and Community Services (DHCS).

Water Quality

The degree of treatment of wastewater by Power and Water determines appropriate use for that water. Any new reclaimed water scheme must take this into account before progressing too far into the design or land acquisition stage.

Safeguards

Protection of public health is a primary focus in managing reclaimed water irrigation schemes. Although treated, reclaimed water still has the potential to carry some disease causing microbes and contaminants. Various safeguards and controls must be implemented by the customer to prevent public exposure to these contaminants, such as public access, buffer distances, type of irrigation, plumbing and signage.

Power and Water conduct routine sampling at its reclaimed water schemes to monitor for possible pathogens and contaminants that can compromise public health. This information is passed on to DHCS. Furthermore, regular audits are conducted to ensure implemented safeguards are functioning appropriately and to take remedial action if required. All reclaimed water proposals are assessed and subject to approval by DHCS.

Customer Agreements and contracts

The customer is for the management of reclaimed water irrigation systems. Power and Water have customer agreements that details the terms and conditions of the supply of reclaimed water for various irrigation schemes. These terms and conditions relate to supply charges, safeguards and controls that the customer must follow and agreements will vary from customer to customer depending on the type of irrigation schemes.

The following are some examples of safeguards and controls that customers may be required to implement depending on the application of reclaimed water:

Access and Irrigation

The Customer must ensure that;

- no public access allowed during irrigation periods (including installation testing days);
- No access allowed until the irrigated area is dry (a minimum drying of period of four hours required)
- irrigation restricted to dry days only
- irrigation systems that run on timers should not operate during rainfall events (where possible) and should be isolated as required;
- where irrigation is taking place within or outside the customer's land area, use direct irrigation sprinkler jets to minimise spray drift towards public land or access ways
- To minimise drift of aerosol use large droplet design sprays
- Do not use spray irrigators within a 50 meter distance from dwellings or public roadways

- Notify Power and Water if you wish to change irrigation practices
Power and Water may restrict supply during 'out of hours' periods and any use of reclaimed water during these periods is prohibited (except during test days). Power and audit customers irrigation system on an annual or 'as needs' basis. Suitable notice of such audits will be given to the customer.

Plumbing

There is a risk that reclaimed water could be mistaken for a potable supply and an illegal cross connection could occur. Potable water is not allowed to be integrated into the reclaimed water irrigation system, unless approved by Power and Water. The customer should ensure that cross connection with the potable supply is avoided and that;

- pipeline locations and plans are maintained
- Where plans are not available plans must be kept which detail any new Infrastructure installed
- pipelines are clearly identified with lilac paint or lilac adhesive markings
- above and below ground reclaimed water pipes are not within 100 and 300 mm's respectively of any parallel potable water supply;
- the reclaimed water system is installed below the depth of the potable water supply and operated at a lower pressure than the potable supply,
- irrigation pipe work including backflow prevention devices shall be designed and installed in accordance with AS 3500 Water Supply Plumbing Code,
- Any potable connection to a reuse system must be approved by Power and Water prior to commissioning

Signage

Signs are required to be established around the irrigation system which clearly designate that the water is reclaimed and should not be contacted. A design of a sign for this purpose is shown in Figure 1.



RECLAIMED WATER
AVOID CONTACT
NOT FOR DRINKING

Figure 1. Signage required.

- All above ground Infrastructure should also be identified, colour coded lilac and marked with the words "**Reclaimed Water – AVOID CONTACT, NOT FOR DRINKING**".

Other

- Certified 'as constructed' plans and drawings of irrigation system and backflow prevention devices must be available on site at all times.

Commercial Arrangements

As part of a contract, commercial arrangements will need to be discussed between the customer and Power and Water. Power and water usually charge a unit rate for reclaimed water similar in structure to the potable water tariff but at a considerably lower cost.

Potential Customer Checklist

Customers who wish to utilise reclaimed water for irrigation are required to provide Power and Water with the following:

- Detailed proposal of project
- How the safeguards are addressed (see previous)
- Estimated quantity of reclaimed water required (KL/day)
- Type of irrigation scheme (eg. crops, grass etc)
- Drawings of irrigation site and neighbouring easements
- Expected lifetime of the project
- Brief management plan of irrigation scheme
- Information of any third party involvement
- Public access restrictions to the irrigation scheme

Copies of the proponents reclaimed water proposal should be sent to Power and Water Corporation at the following address;

Reclaimed Water Application
Water Facilities
Power and Water Corporation
GPO Box 1921
Darwin 0801
Phone: 8924 7334 or 8924 7096