Summary of Tyr Group Purified Recycled Water (PRW) Investigations Report 2024

The Northern Rivers Purified Recycled Water (PRW) Investigations, commissioned by Rous County Council, was completed in June 2024 by the Tyr Group. A range of national and international wastewater and water recycling professionals contributed to the investigation. Engagement with regulators also formed part of this process. The highly technical and comprehensive report identifies the suite of possible options for using PRW in the Northern Rivers as a potential stage 3 option in Rous's Future Water Project.

The four most prospective options were shortlisted for detailed examination. While technically viable and a rainfall-independent source of water, the report identifies two challenges to implementing PRW in the Northern Rivers: the relatively high cost of producing drinking water and current legislative barriers.

In the Northern Rivers we have a low population density dispersed across a wide geographical area. This means we have relatively small wastewater treatment plants (the water source), which limit the capacity of advanced water treatment plants to produce ~10 ML/day of drinking water. This is not sufficient to reach economies of scale that are normally seen in other urban installations around the world (typically ~40 ML/day or larger). The fixed cost associated with compliance testing, process monitoring, instrumentation, auditing, operation staff and control systems are significant and at this small scale, this would result in higher costs to the community if implemented.

The most viable PRW scheme identified for the Northern Rivers is a direct potable reuse (DPR) scheme. Unlike indirect potable schemes (IPR), DPR schemes do not involve an environmental buffer. The purified water is sent either directly to the network or to the intake of a water treatment plant. The regulatory situation varies for the different types of scheme implementations, and while in all instances the schemes would need to demonstrate that safe drinking water can be produced, currently there is uncertainty in national guidelines in relation to direct potable reuse (DPR) schemes.

The report highlights that while costly to build, demonstration/pilot plants can play a role in the successful implementation of a PRW scheme. Pursuing a pilot plant is likely to be considered if Rous seeks approval for a full-scale PRW scheme. As an active member of the broader water utility industry in Australia, Rous will maintain involvement and interest in recycled water discussions, across the industry.

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The information in this report will be used to compare PRW as future water source to other options such as surface water, groundwater and desalination. This comparison will then be used to update strategic planning investigations and ultimately inform future decision making.