Our Ref: BA003853

National Water Reform Inquiry
Productivity Commission
Locked Bag 2
Collins Street East
Melbourne Vic 8003

Dear Dr Doolan,

Productivity Commission review of the National Water Reform 2020

Environment Protection Authority Victoria (EPA) would like to thank you for the invitation to provide a submission to this review.

EPA's primary role is preventing and reducing the harmful effects of pollution and waste on Victoria's environment and public health, and water quality is an important aspect of this role.

EPA's submission is enclosed and encourages the National Water Initiative to consider improvements to ensure the future quality of recycled water.

I trust that the Commission is able to provide due consideration of these matters as part of its review.

Yours sincerely

DR CATHY WILKINSON
CHIEF EXECUTIVE OFFICER
ENVIRONMENT PROTECTION AUTHORITY VICTORIA

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EPA Victoria submission to the Productivity Commission review of the National Water Reform 2020

EPA's primary role is preventing and reducing the harmful effects of pollution and waste on Victoria's environment and public health, and water quality plays a key role in that. EPA believes that there is a need for greater emphasis on water quality across all areas of the water sector. While adequate water supplies are critical, the quality of water needs to be appropriate for its intended use.

Our submission highlights one specific but important broad aspect which requires greater consideration in the NWI, that being the use of recycled water. We have not attempted to cover the many aspects where water quality is critical for maintaining or protecting aquatic ecosystems, nor where it is limiting the use of water by people.

Recycled water is a valuable water source and is being increasingly used as an alternative water supply. This trend will only increase given the reducing quantity of available freshwater due to a drying climate. However, despite the pressures of decreasing water supply, significant amounts of treated water continue to be disposed of into the environment rather than reused. EPA considers that the following actions may enhance the use of recycled water ensuring delivery of suitable water quality for a range of uses:

1. the inclusion of a regulatory framework to encourage and enable the safe use of recycled water,
2. consideration of establishing national standards or guidelines for current and emerging chemicals within recycled water to ensure that it is fit for purpose and does not pose a risk to people or the environment, and
3. consideration of a national strategy and support for improved technologies to reduce or eliminate these chemicals from leaving treatment plants, and at the same time minimise these chemicals getting into wastewater streams.

We consider that these matters are relevant to the following 'information requests' as specified in the Issues Paper:

> Information Request 2
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> *Are there any other current or emerging water management challenges where the NWI could be strengthened?*
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> Information Request 3
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> *The Commission welcomes feedback on the matters that should be considered for inclusion in a renewed NWI.*
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> Information Request 11
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> *Is further guidance on implementing an integrated water cycle management approach for delivering water supply, wastewater and stormwater management services required?*
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> Information Request 13
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> *Are there any areas for future reform of the NWI that have not been raised in this issues paper that should be investigated for inclusion?*

1. National leadership on a regulatory framework for the use of recycled water

The Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) was published in 2006 under the National Water Quality Management Strategy. In line with this, each jurisdiction sets their own standards and regulatory regime for the supply and reuse of recycled water, giving regard to the national guidance.

An update of the national guidance to reflect the latest science and understanding of chemical contamination would be beneficial. It is recommended that each jurisdiction could consider adopting consistent regulatory regimes, reuse scheme design principles and risk assessment processes to minimise impacts on human health and the environment. At the same time there is a need to encourage increased recycled water use and reduced discharges to the environment unless they are of suitable quality to deliver environmental benefits.

2. **National coordination of standard setting for chemicals, in particular for emerging contaminants**

A body of research has underlined the widespread presence of emerging contaminants (chemicals in the environment that do not have standards or for which the evidence is still evolving) in Australia (Sardina *et al*. 2019). Emerging contaminants are commonly found in wastewater discharges (Scott *et al*. 2014; O'Brien *et al*. 2019; Richmond *et al*. 2017) which can contain per- and polyfluoroalkyl substances (PFAS), microplastics and pharmaceuticals. Recent and ongoing work by EPA is showing the presence of emerging contaminants is widespread in the environment, including discharges from wastewater treatment plants.

The uncertainty about the impact of emerging contaminants on the environment (via discharges to surface waters) and human health (by contamination of agricultural food systems) is a risk to future wastewater reuse. The development of water standards has failed to keep pace with the large range of emerging contaminants in wastewater. This uncertainty threatens the reuse of wastewater as a reliable water resource, as regulators seek to be precautionary and wastewater treaters seek to avoid liability for environmental damage.

The Australian and New Zealand Government (ANZG) guidelines for fresh and marine water quality is the primary source of standards for the protection of aquatic ecosystems and other uses of water such as for aquaculture, stock water and irrigation. The National Health and Medical Research Council (NHMRC) guideline provides standards for primary and secondary contact for people. While there have been updates in recent years to both, the update to the ANZG guidelines was many years in development and has only delivered new standards for (currently) eight compounds. Many others are in partial development and there is an ongoing need for regular updating as new compounds are assessed.

The Australian and New Zealand Water Quality Guidelines provide world's best practice methods for water quality standard development, however there is a gap in nationally coordinated strategic planning of the science required to support standard development. Australia currently undertakes relatively little ecotoxicity research into the effect of chemicals on Australian species.

PFAS are a case where standards are lacking. These compounds have been used in fire-fighting foams as well as many household products for many years, however they are now a major source of public health concern. There are about 4000 separate compounds in this family of chemicals, yet guidelines exist only for three – Perfluorooctanesulfonic acid (PFOS), Perfluorohexane sulfonate (PFHxS) and Perfluorooctanoic acid (PFOA). There are also many other emerging chemicals found in discharges and recycled water which lack standards, such as pharmaceuticals, pesticides, plasticisers and many others, and information is starting to emerge on their impacts to human health and the environment

There is no ongoing commitment to develop and update standards for this work. It would be beneficial for the NWI to consider the development of national standards or guidelines for use by all jurisdictions.

3. **National support for development of improved technologies or approaches to achieve better quality wastewater**

The traditional approach for managing wastewater has relied on licencing, with discharge limits set for a few indicators (Morris *et al*. 2017). The assumption has been that if these limits are met, then the

values of the receiving waters will be protected. But we now know that there are hundreds if not thousands of other chemicals in wastewater, and for most of these, there is little understanding of their effects and no standards by which they can be assessed.

Current treatment technologies focus on the removal of organic matter, nutrients and pathogens. Different levels of treatment are available – primary, secondary and tertiary – with increasing effectiveness to remove pharmaceuticals and personal care products (PPCP), pesticides, endocrine disrupting compounds (EDC) and other emerging chemicals (EC). However, the treatment technologies for the removal of these compounds are limited and greater support is required for researchers and engineers to develop new technologies that focus on the removal of other contaminants.

Other approaches are also needed outside of the treatment plant. Examples of this are to reduce the load of these chemicals into treatment plants and innovative ways to offset any discharges.

References

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