

Review on the use of Recycled Water
Department of Environment, Land, Water and Planning
Submitted via Engage Victoria
26 November 2020

Dear Sir/Madam

FLoW Submission regarding *Review on the use of Recycled Water - Victorian Guideline for Water Recycling*

Friends of Latrobe Water welcomes the opportunity to provide input to this Review. FLoW advocates for the protection of Latrobe Valley's water sources and safeguarding the protection of Gippsland's waterways from industry activities, including coal mine rehabilitation and associated contamination.

In context to contamination within the regional area of Gippsland, FLoW believes the proposed use of a significant volume of recycled wastewater for rehabilitation of Latrobe Valley's coal pit voids for stability could create unforeseen complications to ground and surface water quality.

Notwithstanding the implementation of the new EPA Act and GED obligations by landowners, the use of recycled water for irrigation and by irrigators could create legal implications and unintended consequences for the landowner, water quality and ecosystems of our waterways.

This submission is made to assist DELWP and EPA in understanding the risks of an expanded use of recycled water in the absence of any compelling urgency to implement appropriate technologies to address emerging contaminants, including PFAS, already being dispersed extensively in our rural and regional areas.

In consideration of the Review's new guidelines FLoW has concerns with,

- an absence of publicly available monitoring data at wastewater treatment plants.
- lack of proactive policy/planning framework to compel waste treatment facilities to install the necessary technology to reduce the spread of toxic chemicals into the receiving environment which include all classes.
- alignment of state wastewater policy, including biosolids, in consideration of national PFAS guidelines.
- other policy settings, both State or Commonwealth, to better manage and limit the source point of contaminants entering the waste stream.
- advocacy to ensure the Commonwealth is urgently ratifying agreements with the Stockholm Convention aimed at protecting human beings and environment from banned substances instead of allowing exemptions.
- advocacy on comprehensive research to impacts, if any, on existing recycled water users.
- EPA's conflict of interest in managing human health for both PFAS NEPM and wastewater treatment.

Threats to our water resources

- Potential dependence on Class A recycled ‘waters’ to provide fill for rehabilitation of Latrobe Valley coal mines.
- Increasing use of biosolids & sewerage sludge as a beneficial use
- Increasing pollution to surface and groundwaters
- Land farming of ‘agricultural quality water’ from recycled wastewater plants

A growing concern for the receiving environment impacting ecosystems and human health is the use of recycled wastewater and biosolids from sewerage sludge in fertilisers. Whilst the guidelines direct water quality management plans and the like it is then the individual responsible authorities that set the standards.

Are the standards as set by State EPAs for water quality management regimes -

- relevant, current, robust and enforceable?
- nationally consistent across regions and borders?
- effectively monitored, reported and evaluated regularly in consideration of a rise in emerging contaminants?

Water quality must be monitored regularly, and the results analysed, evaluated, reported publicly and acted upon to achieve effective and rigorous management. Overuse and poorly managed use of recycled water could be our greatest threat impacting our environment to potentially sterilise huge areas of waterways and arable land effecting our economic resilience across Gippsland.

The review should consider if the evaluation of risk, as structured, will effectively achieve the intended objective to reduce harm to human health and the environment while ensuring transparency with an engaged public.

Yours sincerely,

Tracey Anton

Friends of Latrobe Water

FLoW Submission

November 2020

Since early 2019 the Department of Environment, Land, Water and Planning (DELWP) has been leading a whole of government review and update of Victoria's recycled water guidance.

A bold statement when the objective of guidelines for wastewater reuse is to limit risks to the person and environment, however, there is little in the draft documents on implementing action now in consideration of ***Quantification of chemical risk, Technical information***, p55.

In contrast to microbial risk, chemical risk in recycled water has largely been assumed, until recently, to be negligible, as analysis of a wide range of persistent, bioaccumulative and toxic (PBT) organic compounds and heavy metals from wastewater treatment plants around Australia had shown that recycled water typically complied with drinking water guidelines, notwithstanding the reduced exposure to recycled water compared with drinking water (NRMMC et al., 2006).

However, more recently there has been an increasing awareness among water industry professionals of the issue of emerging chemicals of concern such as:

- pharmaceuticals and personal care products (PPCPs)*
- endocrine disrupting compounds (EDCs)*
- new disinfection by-products (for example brominated and iodinated organics)*
- nanoparticles and microplastics*
- flame retardants*
- domestic chemicals used for cleaning, such as anti-scalants, disinfectants and polishes*
- PFAS (per-and poly-fluoroalkyl substances)*
- complex mixtures.*

Reuse of PFAS contaminated soils/biosolids

The most important pathways posing a risk to human health and/or the environment are:

- transport of PFAS to surface water and groundwater through leaching from PFAS-contaminated material*
- bioaccumulation in plants and animals, in particular, those consumed by humans and animals.*

Therefore, any assessment of risks associated with reuse of PFAS-contaminated soil should consider the proximity and sensitivity of surface or groundwater receptors, potential for bioaccumulation, and secondary or tertiary exposure to humans and animals.¹

Reuse of PFAS-contaminated water

The proposed reuse must not -

- result in an unacceptable or increased risk to human health and/or the environment.*
- breach environmental and/or health laws such as those pertaining to the contamination of drinking water, groundwater, stormwater and soil.*

¹ <https://www.environment.gov.au/system/files/resources/2fadf1bc-b0b6-44cb-a192-78c522d5ec3f/files/pfas-nemp-2.pdf> p64

Human health and ecological guideline values for water provide primary guidance on the suitability of PFAS-contaminated water for reuse. These guideline values MUST be considered along with the potential for water to impact groundwater or aquatic ecosystems. Local catchment risk assessments in sensitive areas may require that the overall PFAS mass within the catchment should be reduced to achieve the agreed objectives for water quality.

These new draft guidelines have been created for essential public service providers to ensure the recycled water made available to the public is fit for purpose. So, for the year 2020, FLoW would expect better than what has been proposed by the Victorian Government.

Clear documentation and studies already exist on the best technologies to treat and remove PFAS & emerging contaminants from the treatment processes to ensure the end waste stream is actually safe to use. Likewise, much international credible research also exists proving that PFAS and other emerging contaminants like *nanoparticles and microplastics* are leaching into groundwater, surface waters and uptake in plants for human consumption and that of our wildlife.

However, it would appear from all the current reviews associated with Australian guidelines for water recycling, the water industry does not want to have to deal with emerging contaminant and PFAS, in particular.

Will a risk-based approach dealing with the numerous substances be appropriate when the terms 'tolerable', 'acceptable' and 'reasonably practicable' are the norm in the guidelines?

National guidelines have been developed under the auspices of the National Water Quality Management Strategy (NWQMS) but has the process been fully transparent; are the studies used up to date and could there be potential legal implications on its use. Then, it is to the review guidelines with National Water Quality Management Strategy² that prove this undermining of our human rights to be protected by 'responsible authorities' to ensure our receiving environment and the food we eat is, in fact, safe.

Explanatory Paper on Draft Revisions to Public Health Components of the Australian Guidelines for Water Recycling: Managing Health and Environmental Health Risks (Phase 1)

SCOPE OF CHANGES

The revision is restricted to updating components relating to human health risks based on data and information published since the Phase 1 document was finalised in 2006. This includes a range of Australian data produced to support application of the guidelines.

The primary changes are to Chapter 3 (Managing Health Risks in Recycled Water), Chapter 5 (Monitoring) and Appendix 2 (Calculating Microbial Targets) with limited changes to Chapters 1 (Introduction) and 2 (Management Framework) and Appendix 3 (Preventive Measures). The environmental risk components (e.g. Chapter 4 Managing Environmental Risks) have not been reviewed. The principles and the basic structure of the Guidelines are strongly supported and have not been changed.

² <https://www.waterquality.gov.au/about>

Chapter 4 and 6 (Consultation and Communication); Appendices 1 (Case Studies), 4 (Environmental Risk Assessment), 5 (Environmental Reference Tables), 6 (Nutrient and Buffer Strips) and 7 (Communication Case Studies) have not been changed and are not included in the consultation draft. They will be retained in the final version. These Chapters and Appendices can be downloaded from the existing guidelines at:

3.3. Chapter 3 Managing health risks in recycled water

The chapter has been updated **using new data (largely from 2015-2016)** to refine default concentrations of pathogens in sewage (virtually no change). Unlike the existing data used in the 2006 version the new data has been published (Deere and Khan 2016; King et al 2017)³

This review states the following,

The proposed Victorian Guideline for Water Recycling and Technical Information for the Victorian Guideline for Water Recycling were developed by a joint industry and government working group comprising representatives from DELWP, the Environment Protection Authority (EPA), Department of Health and Human Services (DHHS), VicWater and Yarra Valley Water.

All these so-called responsible authorities and water corporations are well aware of PFAS complications as they contributed to the feedback for the draft PFAS National Environmental Management Plan [NEMP]. Therefore, has there been a deliberate agenda to ignore updated data amongst agencies and water corporations as evidenced by VicWater and others in their submission feedback⁴ to the Draft of version 2 of the PFAS NEMP?

NEMP2 by VicWater,⁵ peak industry association for water business in Victoria, articulates this well in the following,

5. Beneficial reuse of biosolids and recycled water will require a holistic and health-centric approach, which will need to be articulated more clearly. There is a current dichotomy between the current mandate to encourage beneficial reuse of biosolids and recycled water, versus the (as yet unknown) risk of PFAS potentially impacting human health. Biosolids applications on land could potentially lead to future health impacts and landfilling causes potential detrimental leachate. Clear expectations relating to the disposal and/or treatment of PFAS are needed.

It is suggested that federal and state governments:

- Support further research to understand the environmental and human health risks from the use of PFAS contaminated biosolids and recycled water.
- Articulate a holistic and health-centric approach and incentivise and appropriately resource solutions to develop new innovative solutions to treating and disposing of PFAS.

6. Guidance: *There appears to be confusion over whether the NEMP2 is a legally binding document or a guidance document (a standard). Questions were raised as to whether there are transition plans in place to support water corporations towards reducing PFAS levels.*

Further, the document states that “further work, in collaboration with the water industry, will be undertaken to establish criteria and guidance for water authorities and environmental regulators

³ <https://www.waterquality.gov.au/guidelines/recycled-water>

⁴ <https://www.environment.gov.au/system/files/resources/2fab5865-66d5-44cc-88f0-1990ce7c3c02/files/pfas-nemp2-submissions.pdf>

⁵ <https://vicwater.org.au/2019/06/20/vicwater-pfas-draft-nemp2-submission/>

based on current science" (Section 15, Wastewater Treatment, p.61), without stating a timeframe...

It is recommended that:

- Clearer water industry specific guidance and information (**State of Knowledge - SoK**) relating to the application of NEMP2 is produced, including sampling regimes, treatment of influent, effluent and reuse points.
- NEMP2 transition arrangements are spelt out and **a transition plan developed** to support industries towards reducing PFAS levels; **including the application of the precautionary principle.**
- **A suitable government body or association is identified to disseminate national and international best practice and scientific knowledge (SoK) for distribution to the Australian water industry, including national and international case studies.**
- Water-industry specific working groups are established (nationally and state-wide) – convened by the suitable industry bodies and/or associations to contribute to the SoK and collaborate with state EPAs to develop industry specific proposals and submissions relating to risk reduction/minimisation.
- A timeframe is communicated for providing criteria and guidance to the water industry.

7. Customer willingness to pay: the Victorian Essential Services Commission's (ESC) PREMO approach stipulates extensive customer consultation to determine a water corporation's future expenditure. In light of PFAS sampling and treatment resource intensity, uncertainty around surrounding research findings and potential health impacts, this approach could prove challenging. If water corporations were to reduce PFAS during its treatment processes, the cost of upgrading and/or changing infrastructure would be substantial. Consultation relating to PFAS has been undertaken with industry; **not with the broader community (yet)**, which will be of a sensitive nature.

It is suggested that:

- **EPA Victoria consult with the ESC as to next steps relating to willingness-to-pay consultation and/or potential incorporation into the Statement of Obligations (SoO).**
- **A concise community message plan be developed, including watching briefs.**

8. Other comments:

- **EPA Victoria needs to play a crucial role in reducing PFAS at the source, where a reduction of PFAS entering the catchment can be achieved through education and enforcement** (rather than regulating the waste treatment plant operator). An EPA education-heavy approach will likely not result in large-scale PFAS reductions; it is recommended that EPA Victoria map polluters and focus on point-source pollution prevention efforts to stop PFAS entering the catchments in the first place (through regulation and fines). **It is also recommended that EPA Victoria conduct more regular auditing of trade waste customers who may be discharging PFAS.**

For the Victorian Government, EPA and water corporations to be proactive is to identify and manage the cause of entry from a source point which would also be more cost effective. While these sorts of backward reviews undermine the reality of the situation there is an irresponsible position of inaction by the Commonwealth Government to ratify

agreements and to discontinue and phase out the use and distribution of these toxic chemicals in Australia.⁶

All this information is extremely important and EPA and DELWP need to answer why there is nothing in the draft discussion material to reflect the severity of the concern, the confusion on leadership and how PFAS and other emerging contaminants are going to be managed by water corporations now and into the future.

South East Water Corporation notes,⁷

It is not possible for a wastewater treatment utility to manage the risk associated with any emerging contaminant in which they have no effective control over its discharge to sewer and no feasible treatment process to destroy or permanently capture it.

From the Water Services Association of Australia,⁸

Our utilities are asking that additional measures be considered to control potential human health and environmental impacts; such as regulation on chemical imports, chain of custody tracking and mass balance accounting of such chemicals and a requirement to disclose pollution events by the user of these chemicals (including discharge to sewer). The most significant action we need to take today is to remove these chemicals of concern from the stream of commerce and pursue cleanup and remediation at highly contaminated sites. Source reduction and pollution prevention can serve as the most efficient means of addressing the persistent background presence of PFAS and effectively limit exposure to PFAS going forward.

The efficacy of managing emerging contaminants impacting on human health and the environment will be severely constrained if everyone has their head in the sand.

Dependency on recycled water for the future

Water for Victoria is a reference document for the Victorian Government's strategic water policy: to "clarify and improve the regulatory arrangements for recycled water and stormwater" (action 5.1).

This same document shows the dependency on recycled water over the next 30 years⁹ but doesn't include those fill amounts needed for the three Latrobe Valley coal mine voids. Full pit lakes for the three mines would total 3,000 gigalitres with approx. 10-14 GL annually of evaporation. These amounts will create their own micro-climate and Latrobe Valley should not be rained on by toxic droplets let alone what would leach into the groundwater.

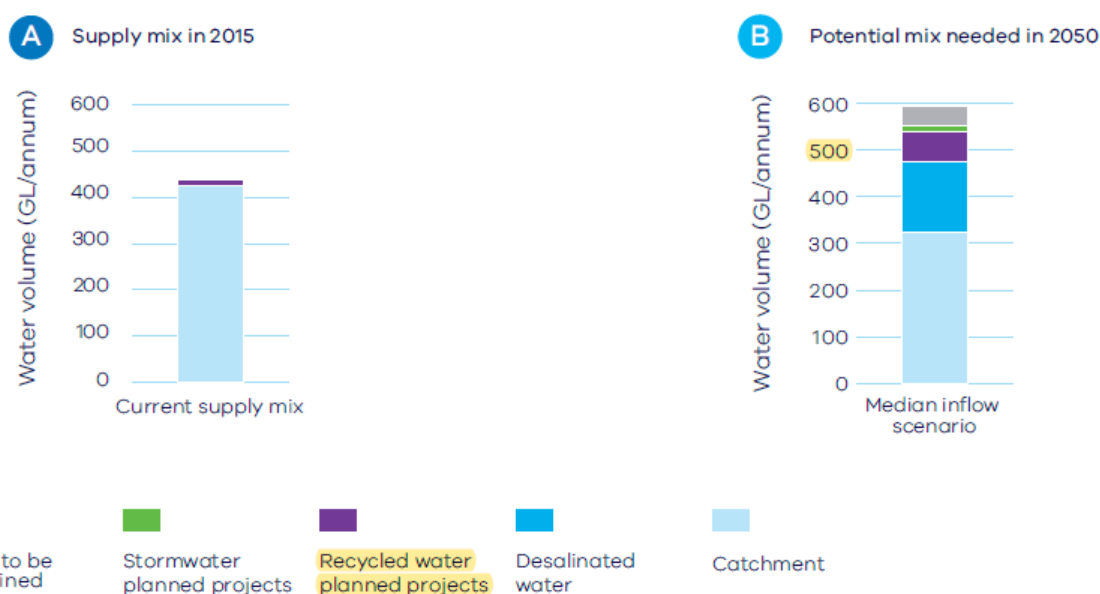
⁶ <https://www.environment.gov.au/system/files/resources/2fadf1bc-b0b6-44cb-a192-78c522d5ec3f/files/pfas-nemp-2.pdf> p10

⁷ <https://www.environment.gov.au/system/files/resources/2fab5865-66d5-44cc-88f0-1990ce7c3c02/files/pfas-nemp2-submissions.pdf> p234

⁸ Ibid p214

⁹ https://www.water.vic.gov.au/_data/assets/pdf_file/0030/58827/Water-Plan-strategy2.pdf p87

We need a range of sources to secure our water supply



Legal liability

Through the Latrobe Valley Regional Rehabilitation Strategy (LVRRS), the Victorian Government has committed to further exploring *the potential for alternative sources of water to be used for mine rehabilitation in the Latrobe Valley.*¹⁰

The most likely source stated by the LVRRS team would be Melbourne Water's Eastern Treatment Plant¹¹ being able to deliver approximately 100GL annually. But what is disturbing in implementing the LVRRS is the assessment to also *'consider co-opportunities that could be delivered for regional development, irrigation, industry and jobs from additional water being made available within the region.'* This is value-adding where a pipeline built to deliver recycled water to Latrobe Valley to provide fill for the mines could also provide recycled water for irrigation.

It is to the farming community with the potential importation of contamination that puts many unsuspecting landowners/managers in a position where many *other statutory obligations will be compromised.*

*LPA & NVD Requirements SAFEMEAT has agreed that at this stage, there is no requirement for producers to declare exposure to PFAS when completing LPA NVDs. This situation will be reassessed if FSANZ determines a ML is required or there is a need to support market access. It is the producer's responsibility to ensure that if a ML is set for PFAS, the property risk assessment map and risk assessment table is updated.*¹²

¹⁰ https://www.water.vic.gov.au/data/assets/pdf_file/0030/477057/LVRRS-Alternative-Water-factsheet.pdf

¹¹ <https://www.melbournewater.com.au/water-data-and-education/water-facts-and-history/where-your-sewage-goes/eastern-treatment-plant>

¹² <https://www.integritysystems.com.au/globalassets/mla-corporate/meat-safety-and-traceability/red-meat-integrity-system/safemeat-issues-brief-lpa-pfas-may-2019.pdf>

Simply put, a third party can make a legal case against a landowner who willingly receives recycled water to irrigate that may leach into groundwater/surface waters and/or bioaccumulate in plants and animals consumed by humans and animals. Are there actual protections in these new guidelines for both the wastewater suppliers and users of recycled water that would absolve both the supplier and receiver from potential third-party litigation?

The guideline cannot and, is not, ensuring best practice to prevent the introduction of emerging contaminants to land and water via use of recycled water regardless of any risk management framework because the framework is flawed and the guide does not specifically provide for the effective management to treat the contaminants.

Allocating responsibilities and obligations between parties via agreements for liability in relationship to water quality, restrictions on uses, methods, places and timing of application, responsibilities to third parties and the environment, monitoring and record keeping doesn't appear to be achievable.

In the absence of clear actions and obligations on how to treat PFAS and emerging contaminants from primary to end phase treatment, what transparent disclosures and legal disclaimers will suppliers of recycled water be providing to those users?

See section *General Environmental Duty*

Changes in Guidelines

EPA cannot currently manage their own workload for the whole of the environment, project planning, monitoring, compliance, enforcement let alone protect human health. To be the one lead approving authority for approvals and endorsement of Class A recycled water is troublesome given EPA continue to play politics leading with the same government rhetoric by enHealth.

enHealth Guidance Statements on per- and poly-fluoroalkyl substances¹³

In human studies, the Expert Health Panel for PFAS¹ found that a number of health effects (such as slightly high blood cholesterol) have been associated with PFAS exposure but these health effects are generally small and have not been shown to be clinically significant. More research is required before definitive statements can be made on causality or risk but, currently, there is no evidence of a significant impact on human health.

EPA & DELWP cannot claim,

- safe recycled water use for non-potable purposes when there is no policy plan to treat PFAS and emerging contaminants.
- sustainability of recycled water use as dependency on recycled water resource is not sustainable due to the salinity loads and the toxic pollutants that cannot be removed.
- significant progress has been made over last 10 years when there is no policy plan to treat PFAS and emerging contaminants.

¹³[https://www1.health.gov.au/internet/main/publishing.nsf/Content/A12B57E41EC9F326CA257BF0001F9E7D/\\$File/PFAS-guide-stat-enHealth-2019.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/Content/A12B57E41EC9F326CA257BF0001F9E7D/$File/PFAS-guide-stat-enHealth-2019.pdf)

EPA and DELWP cannot claim,

- recycled water use has the added benefit of protecting our waterways and bays from treated wastewater discharges when all that has occurred is the transfer of waste to onshore and rebranded the wastewater as beneficial.
- using the recycled water resource in a manner that provides economic and/or social benefit (direct or indirect), while still being protective of human health and the environment when the management frameworks are flawed to compel the removal of contaminants from the treatment phase.

With the aim to facilitate an increased uptake of recycled water where risks to the environment and human health are acceptable, what are the risks to be able to know how the regulations are appropriate and proportionate to the risks? All data needs to be made publicly available.

General Environmental Duty (GED)

Primarily, the GED is the responsibility of the wastewater treatment plant - the supplier, however this is not altogether clear.

The Environment Protection Act 2017, as amended by the Environment Protection Amendment Act 2018 (new Act), includes a general environmental duty (GED) that applies to all Victorians imposing new duties, including in relation to **the minimisation of environmental risks (the general environmental duty), contaminated land and pollution incidents.**

How is this review to ensure those receiving recycled wastewater understand the risks under GED obligations to the impacts on human health and the environment through the use of recycled water and take reasonably practicable steps to eliminate or minimise these risks.

For Gippsland, the construction of a new pipeline to deliver recycled water from the Eastern Treatment Plant would be necessary. This would be a significant investment by the mine operators and, presumably, taxpayer funding. How would the EPA and DELWP ensure members of the public have access to reliable and relevant information in appropriate forms to facilitate a good understanding of issues of harm or risks of harm to human health and the environment and how decisions are made under the new Act and these guidelines?

This is relevant for the water quality within the coal pit voids, the potential for leaching into the groundwater, whether the pits will be a closed system and the stagnation of that water. Particularly important is the increase in precipitation from the new water bodies in a valley that will create their own microclimates. Exposure pathways with droplets of nanoparticles and emerging contaminants could be a realistic but unacceptable option for the people in the Latrobe Valley.

Compliance with the GED

Whilst the GED will require a proactive approach to risk identification and minimisation on an ongoing basis post 1 July 2021, what would be EPA's view in relation to compliance with their own Act via an environment management plan to knowingly allow & promote the contamination of groundwater and/or agricultural land with emerging contaminants.

If the New EP Act takes a fundamentally different approach to environmental regulation from the approach taken by the EP Act 1970 how can EPA allow/condone the importation of potential contamination of land and water. The GED will apply to any person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste, and requires such a person to minimise those risks, so far as reasonably practicable (New EP Act, section 25(1)). **A failure to comply with the GED is an indictable offence, and civil penalties are also available for breach.**

In addition to the GED, the New EP Act will require a person in management or control of contaminated land to minimise any risks of harm to human health or the environment that arise from the presence of contamination on or in that land (New EP Act, section 39). There is also a duty to report certain contamination. Additionally, some statutory instruments such as SEPPs will not be retained although EPA expects that aspects of the SEPPs that describe "beneficial uses" are likely to be translated into "environmental values" under a separate legislative instrument called the Environment Reference Standard. Other components of the SEPPs and Waste Management Policies (**WMPs**) are expected to be translated into regulations or will otherwise be addressed by the operation of the GED.

What we already know

FLoW is also concerned that no baseline levels exist in our Gippsland waterways and that evidence of indicative species for ecotoxicity testing for sediment weight-of-evidence toxic scoring system (Vic Draft SEPPS) is not a true reflection how the SEPPS will protect human and environmental health as this subsurface system (Groundwater Dependent Ecosystems) has already been greatly impacted.

Sediment toxicants and ecotoxicity

The benthic environment (i.e. the surface and sub-surface layers of sediment) have an important role in the storage and transport of toxicants. The Draft SEPP (Waters) proposes the use of indicator species for ecotoxicity testing, using a sediment weight-of-evidence toxicant scoring system. This inclusion in the Draft SEPP (Waters) will mean that if an emerging chemical causes toxicity to biota, then this should trigger further investigation to determine if the levels of this chemical are likely to cause harm to beneficial uses. This approach will provide a sensitive indicator of emerging chemicals and help to identify toxicity of complex chemical mixtures and reflects the science that has been developed for the new ANZECC guidelines, which are expected for release in 2018.¹⁴

¹⁴ <https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/state-environment-protection-policy> P44

- Emerging and legacy contaminants across land-use gradients and the risk to aquatic ecosystems 2019¹⁵

- Evidence of PFAS in treatment plants

*PFAS in sewage treatment plant effluent and biosolids are a contaminant of concern for the wastewater industry, waste management industry and EPA. Landfills and sewage treatment plants can be considered vectors for PFAS from residential, industrial and commercial sources into the environment, as PFAS are not readily attenuated in landfills or sewage treatment plants due to their high solubility.*¹⁶

- Evidence of PFAS entering groundwater from recycled water irrigation

Although wastewater is well-documented point source of PFASs to the receiving environments, such as rivers and oceans ... irrigation using treated wastewater may potentially distribute PFASs in a diffuse manner and its impact on groundwater is not well documented...

Victorian regulations require that recycled water must be chlorinated and UV-treated prior to use (EPA Victoria, 2003). However, these treatment techniques do not remove PFASs from wastewater and oxidation treatment processes can also contribute to the formation of perfluoroalkyl acids (PFAAs) from precursor PFASs...

Considering that PFAS may persist in groundwater for centuries or longer, the impacts of this type of contamination may have far-reaching implications for wastewater treatment providers, and the level of treatment required to eliminate persistent organic pollutants such as PFAS from recycled water.

*...The occurrence of PFASs in recycled water impacted groundwater in the Melbourne region have been presented in this study. The use of contaminated recycled water from a WWTP [wastewater treatment plant] for irrigation and subsequent groundwater infiltration has far-reaching implications throughout the world. The use of both recycled water or groundwater contaminated with PFAS will result in the redistribution of PFASs in the environment. This redistribution of PFAS may then result in the risk of human exposure as the water is used for drinking and agriculture (Bräunig et al., 2017) and requires further research.*¹⁷

What is the goal of this review in relation to the primary use and disposal of PFAS, wastewater treatment, recycling, reuse and the GED to manage the risks?

What is the duty of the suppliers of recycled water to test the chemistry of the end product and to the suitability?

What declaration should they make, legal disclosures, disclaimers to the receivers of the product chemistry (including fertilisers) in the event the recycled water used contaminates land and water outside of their management/ownership.

¹⁵ <https://pubmed.ncbi.nlm.nih.gov/31426001/>

¹⁶ <https://www.researchgate.net/publication/336603065> PFAS concentrations of landfill leachates in Victoria Australia - implications for discharge of leachate to sewer/link/5da7ebc3299bf1c1e4c8404d/download

¹⁷ <https://www.researchgate.net/publication/326491603> Investigating recycled water use as a diffuse source of per- and polyfluoroalkyl substances PFASs to groundwater in Melbourne Australia?enrichId=rgreq-7b33bb4cf6a041afa2cb9ab44129c4f4-XXX&enrichSource=Y292ZXJQYWdlOzMyNiQ5MTYwMztBUzo2NjczMDExNzUxMTk4NzJAMTUzNjEwODQwNjE2OA%3D%3D&el=1_x_3&_esc=publicationCoverPdf

Could water managers be held accountable or in breach of any conditions under the new Act or is reasonably practicable the get-out clause citing cost factors.

Definition: A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

Reasonably practicable means putting in controls that are proportionate to the risk. It relates to the chance of harm occurring and potential impacts on the environment. It also relates to what controls are available, their cost, and considers what an industry generally knows about the risk and control options. This is termed the 'state of knowledge'.

State of Knowledge

There is a whole section in the draft guidelines about state of knowledge which reveals how this review is manipulating the facts. FLoW has clearly established emerging contaminants IS KNOWN BY ALL in the wastewater treatment industry.

The expression, 'state of knowledge', describes the body of accepted knowledge that is known or ought to be reasonably known about the harm or risks of harm to human health and the environment and the controls for eliminating or reducing those risks. Under the GED, you are required to have reasonable knowledge about the risks your activities pose, and how to address them.

So here, are the few comments in the draft guidelines related to the term 'emerging',

*Review. This includes **evaluation and audit processes to ensure that the management system is effective and provides the basis for review and continual improvement**. Effective risk management systems are not static and must be capable of accommodating change, such as **emerging issues**, advances in technology and new institutional arrangements. Development should be an ongoing process whereby performance is continually evaluated and reviewed.*

p26

*Independent organisations' knowledge: reports from independent organisations such as Standards Australia, universities, and environmental engineers. The state of knowledge will develop over time as new technology, systems and processes **develop or where there is an emerging risk**. p50*

Review and improvement p51

The HEMP should be regularly reviewed at least annually and, where necessary, updated to ensure it remains relevant. The review should:

- ***address emerging problems and trends** identified through monitoring results, internal reviews, incidents and emergencies*
- ***incorporate management responses to emerging issues** that relate to recycled water quality and confirm whether the HEMP appropriately manages risks associated with these.*

The problem exists NOW so should be addressed and incorporated NOW.

What happens when Government are non-compliant with their own Acts???????????????

Power rests with the Environmental Regulator

Under the PFAS NEMP 2.0 the environmental regulator may consider reuse of waters and soils containing PFAS on a case by case basis if reuse situations are 'likely to include exposure pathways to potentially sensitive receptors and would therefore normally be considered unacceptable uses for PFAS-contaminated material, based on risks to the environment and human health.'¹⁸ Of course appropriate site-specific risk assessment in consideration of applicable legislative requirements.

However, it is very convenient for the water industry and our irresponsible authorities to weaken the actual risk assessment/hazards in the guidelines as the EPA are now the go-to authority for all human health with guidelines for the NEPM being stronger than the guidelines for wastewater treatment.

What a conflict of interest.

¹⁸ <https://www.environment.gov.au/system/files/resources/2fadf1bc-b0b6-44cb-a192-78c522d5ec3f/files/pfas-nemp-2.pdf> p65

REVIEW OF THE EPA'S RECYCLED WATER GUIDANCE – SUBMISSION TEMPLATE

1. I am making this submission:
 On behalf of an organisation
 As an individual
2. Name of organisation (if relevant): Friends of Latrobe Water
3. My/my organisation's level of experience with applying the current EPA Reclaimed Water Guidelines:
 Significant
 Some
 A little
 None
4. Several existing recycled water guidelines have been consolidated into one proposed guideline and a technical information document. To what extent is the usability and structure of the proposed guideline and technical information document an improvement on the existing guidelines?:
 Significant improvement
 Some improvement
 About the same
 Somewhat worse
 Significantly worse

Please explain your response. What views/suggestions (if any) do you have to improve the usability or structure of the proposed guideline and technical information document?:

Consolidating environmental managements guidelines make sense

5. The questions below relate to the objectives of the review. To what extent do you agree the proposed guideline and technical information document meet the following objectives:
 - a. *More Efficient and proportional regulatory approval processes with clear accountabilities*
 Strongly agree Agree Undecided Disagree Strongly disagree
 - b. *Simplified content for applications for wastewater reuse scheme approvals*
 Strongly agree Agree Undecided Disagree Strongly disagree
 - c. *Simplified reporting and encouraging continuous improvement by establishing clear guidance on reporting and auditing*
 Strongly agree Agree Undecided Disagree Strongly disagree
 - d. *Improved and consolidated guidance on harm reduction (human health and the environment)*
 Strongly agree Agree Undecided Disagree Strongly disagree
 - e. *Overall, does the proposed guideline and technical information document achieve the key objectives of the review?*
 Strongly agree Agree Undecided Disagree Strongly disagree

What improvements (if any) would you suggest to the proposed guideline and technical information document to achieve the above objectives?

We believe it gave industry and EPA an excuse to not change what is currently the practice. What part promotes best practice because a proportional risk framework with reasonably practicable is basically, if it costs too much you don't have to change your operations

6. To what extent do you agree the proposed guideline and technical information document will benefit you as an organisation/individual?:

- Strongly Agree
 Agree
 Undecided
 Disagree
 Strongly Disagree

Please explain your response:

Whilst our organisation is not against the use to recycled water where appropriate, it appears treatment is business as usual.
Therefore, how are water corporations removing those harmful chemicals from the waste stream now.
It wasn't clear that the guidelines were an enabler of better treatments

7. Overall, to what extent do you agree the proposed guideline and technical information document are an improvement on the existing guidelines?:

- Strongly Agree
 Agree
 Undecided
 Disagree
 Strongly Disagree

Please explain your response

It is collated as one for relevant sections but references to existing docs are still greatly outdated with publication 168 only in image form as a PDF.

8. What help (if any) will you require in implementing the changes within the proposed guideline and technical information document? How would you like this assistance to be provided?

N/A

9. There is scope to consider further ongoing review of the proposed guideline with expanded objectives. What should future reviews of the guideline consider?

More focus on waste inputs and source with EPA playing a greater role to be proactive about misuse re-disposal of waste into sewers/stormwater systems
Who is advocating for industry to push CW to ratify and remove harmful chemicals from use.
Heavy polluters pays more for disposal of worst chemicals