

Submission re: IChEMS Call for information on PFOS, PFHxS and PFOA chemicals

The Queensland Water Directorate (**qldwater**) is the central advisory and advocacy body within Queensland's urban water and sewerage services sector, providing a collaborative hub for its members to provide safe, secure and sustainable urban water services to Queensland communities. Our members include all local government and local government-owned water service providers in the state, along with other core and affiliate members from within the sector.

The urban water sector is an important gateway between the community and the environment. Wastewater treatment plants (WWTPs) accept, manage and treat water on the behalf of the community from domestic, industrial, trade waste and landfill sources on its journey to the broader environment. This is a responsibility that is taken very seriously, as the sector strives to move from a linear to a circular economy and join with others to help achieve targets such as those outlined in the UN Sustainable Development Goals.

Specific consultation with our members on issues relating to sewerage and environmental protection is undertaken through the Sewerage and Water Environmental Advisory Panel, an active group composed of environment professionals and water managers from across Queensland.

As a sector we are watching with interest how the new Industrial Chemicals Environmental Management Standard (IChEMS) framework for the management of industry chemicals will proceed to implementation. The scheduling of specific chemicals on the IChEMS register in accordance with Australia's obligations under the Stockholm Convention seems likely to result in more chemicals being prohibited for use in Australia (unless specifically exempt) and thus prohibited from release to the environment. While the sector supports such moves, there is concern that water utilities will then effectively bear the responsibility for the release of prohibited chemicals that are concentrated through the urban water cycle.

It is our understanding that the polluter-pays principle, which rightly places the responsibility for the contamination of the environment on the polluter, does not recognise the status of the urban water sector as a public good, managing wastewater on behalf of the community that it serves, not as an industry in its own right. Treating publicly owned sanitation services as polluters results in inequitable cross-subsidisation and removes the nexus created by the polluter-pays approach.

In addition, Queensland legislation encourages landfill leachates, which often have high PFAS concentrations, to be discharged to sewers meaning that the sector is forced to remediate the communities' PFAS legacy. Recognition is also required for water utilities that manage wastewater from defence and former defence sites, air services and emergency services training sites. These sites are known sources of PFAS contaminants owing to the historical use of PFAS-containing fluorinated fire-fighting foams.

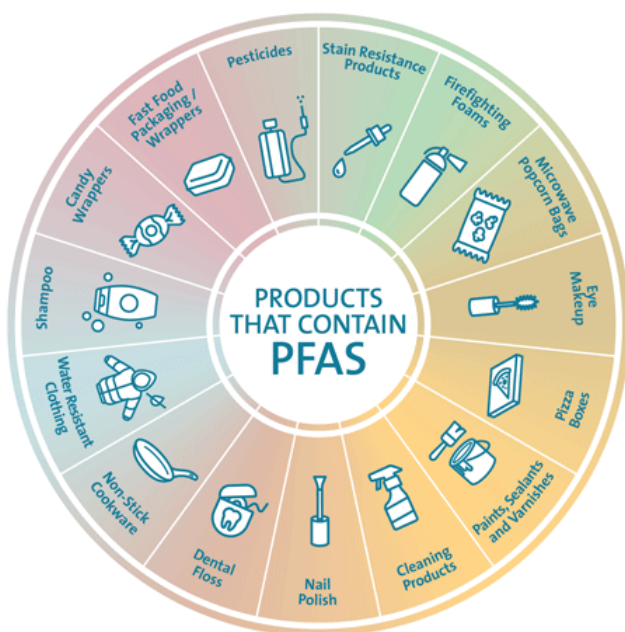
As a point of particular concern, the recently released Draft PFAS NEMP 3.0, provides specific guidance on PFAS in biosolids, which we recognise as a persistent bioaccumulative and toxic (PBT) class of chemicals and thus appropriate candidates for the listing on the IChEMS register. However, there appears to be a focus within this document on management of PFAS from industrial sources to

wastewater through the administration of trade waste agreements. This is particularly concerning and will be a serious problem if this is the approach that will be adopted for other PBT chemicals. This approach places the responsibility for compliance with the IChEMS scheduling conditions onto the WWTP and sewerage network operators, which in Queensland, New South Wales, Tasmanian and South Australian jurisdictions are the responsibility primarily of local government. Many of these are insufficiently resourced to manage such compliance. In the case of PFAS, compliance testing is prohibitively expensive for both trade waste customers, many of which will be small businesses, and local governments alike.

We are also concerned that the onus for compliance with the IChEMS falls to local authorities, it will create conflict within local governments. For example, a local council could be forced to cancel trade waste agreements or insist that trade waste is treated at the source, with the associated costs being borne by the business. Trade waste customers include small businesses such as food businesses and cafes that are likely to be unwittingly discharging PFAS into sewer, and indeed it is likely that not all customers currently discharging trade waste are subject to trade waste agreements. This may leave the council with the difficult choice of accepting the trade waste and permit the trade waste customer to continue to operate; or cancelling the trade waste agreement, which may lead to business closures, and loss of the resulting jobs and/or the potential for increasing illegal discharges

to sewer as small businesses choose not to seek trade waste agreements. We are aware of several instances already existing where local government-operated water and waste businesses have existing “zero” limits for discharge of PFAS in trade waste that are being pressed by trade waste customers to provide a specific acceptance limit for PFAS.

There is also growing evidence that the domestic sources are a significant contributor to the load of PFAS in urban wastewater in Australia¹. This suggests that a much broader effort is required to manage these chemicals at the source, incorporating manufactured goods and products (see Figure 1²), especially imported goods and products.



¹ Damien Moodie, Timothy Coggan, Kathryn Berry, Adam Kolobaric, Milena Fernandes, Elliot Lee, Suzie Reichman, Dayanthi Nuggegod, Bradley O. Clarke, Legacy and emerging per- and polyfluoroalkyl substances (PFASs) in Australian biosolids, Chemosphere, Volume 270, 2021, 129143, ISSN 0045-6535, <https://doi.org/10.1016/j.chemosphere.2020.129143>.

Hue T. Nguyen, Michael S. McLachlan, Ben Tscharke, Phong Thai, Jennifer Braeunig, Sarit Kaserzon, Jake W. O'Brien, Jochen F. Mueller, Background release and potential point sources of per- and polyfluoroalkyl substances to municipal wastewater treatment plants across Australia, Chemosphere, Volume 293, 2022, 133657, ISSN 0045-6535, <https://doi.org/10.1016/j.chemosphere.2022.133657>.

² <https://www.veolianorthamerica.com/pfas-management>

The State of California has led the world in the banning of consumer products from sale that contain PFAS, including food packaging, cosmetics and textiles³. In Australia, there is no such legislation. Moreover, there are no requirements for the labelling of products containing PFAS. A recent study of North American cosmetics highlighted the presence of fluorinated compounds in cosmetics and personal care products⁴, unlabelled. It is not known if these products are the same as those that are sold in Australian markets without extensive research that is beyond the capability of the typical consumer.

Case study

A chemical product⁵ is widely advertised as a surface treatment for its ability to shed water and prevent the build-up of soap scum on glass shower screens. A DIY version of the product is available.

The nature of this product strongly suggests that it may contain at least one PFAS compound due to its surfactant and water repellent properties. A review of the product Safety Data Sheet lists the contents of the product as “<10% proprietary ingredients” with the balance made up of Isopropyl Alcohol. No CAS Number is provided for the proprietary ingredients.

Without analysis, there is no way for a consumer, or even a distributor and potentially an importer to know if this product contains PFAS chemicals.

This concern extends to imported clothing and textiles: products that may not typically be associated with PFAS. Australia is a large importer of finished textiles and goods from China⁶. Laundries are known to be key emitters of PFAS in urban water networks but there are as yet few solutions to reduce this source without shutting laundries down. Fabric finishings is a class of product that is particularly high in PFAS chemicals⁷. China is known to be one of the few jurisdictions that continues to manufacture PFOS and PFOA, as evidenced by several studies⁸.

³ https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2771
https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1817

⁴ Heather D. Whitehead, Marta Venier, Yan Wu, Emi Eastman, Shannon Urbanik, Miriam L. Diamond, Anna Shalin, Heather Schwartz-Narbonne, Thomas A. Bruton, Arlene Blum, Zhanyun Wang, Megan Green, Meghanne Tighe, John T. Wilkinson, Sean McGuinness, and Graham F. Peaslee Environmental Science & Technology Letters 2021 8 (7), 538-544
 DOI: 10.1021/acs.estlett.1c00240

⁵ <https://www.enduroshield.com.au/>

⁶ <https://www.fibre2fashion.com/news/textile-news/china-continues-to-have-dominant-share-in-australian-textile-imports-281819-newsdetails.htm>

⁷ Mehvish Mumtaz, Yixiang Bao, Wenchao Li, Lingxiao Kong, Jun Huang and Gang Yu, Screening of textile finishing agents available on the Chinese market: An important source of per- and polyfluoroalkyl substances to the environment. Frontiers of Environmental Science & Engineering volume 13, Article number: 67 (2019) <https://doi.org/10.1007/s11783-019-1145-0>

⁸ Shuhong Fang, Cheng Li, Lingyan Zhu, Hongling Yin, Yingchun Yang, Zhixiang Ye, Ian T. Cousins, Spatiotemporal distribution and isomer profiles of perfluoroalkyl acids in airborne particulate matter in Chengdu City, China, Science of The Total Environment, Volume 689, 2019, Pages 1235-1243, <https://doi.org/10.1016/j.scitotenv.2019.06.498>.

Qi Wang, Yuefei Ruan, Huiju Lin, Paul K.S. Lam, Review on perfluoroalkyl and polyfluoroalkyl substances (PFASs) in the Chinese atmospheric environment, Science of The Total Environment, Volume 737, 2020, 139804, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2020.139804>.

It is a concern of our members that without stronger regulation Australia may become a “dumping ground” for products that are prohibited from sale in other international jurisdictions with more stringent regulation.

The lack of information about consumer products deprives the community of the opportunity to make informed decisions about their own use and exposure to these chemicals through everyday items. More insidious is the regulation of PFAS in sewage with limited consultation with the public and the multiple users of products that contain high concentrations of PFAS. Shifting costs of remediation (including potentially from current and legacy biosolids reuse) to the water sector for this important societal issue not only breaks the polluter-pays nexus but fails multiple tests of transparency for Environmentally Sustainable Development. The lack of transparency, thorough regulatory impact assessment and monitoring to determine the benefit of new rules amounts to a centralised tax on utility customers and in states like Queensland, local government rate payers.

There is strong evidence that the banning of imports of PFOS and PFOA has had the effect of reducing the amount of these chemicals that is present in the population as evidenced by blood serum concentrations⁹. The banning of PFAS as a class¹⁰ of chemicals will surely have similar measurable effects in the human population.

The urban water sector supports measures that reduce the volume and number of persistent PBT chemicals, and especially PFAS chemicals, that are discharged to wastewater. We therefore call for the following:

1. The fast-tracking of national labelling laws for all imported goods that identifies chemicals that belong to the PFAS class¹⁰ of chemicals.
2. A transition to the national prohibition of the PFAS class¹⁰ of chemicals in all goods in Australia that intended for use in contact with skin and food or food products.
3. A national communication campaign to explain the risks and why the new approach is being adopted and how it will be funded.
4. Recognition and support of the urban water sector as the receiver of these chemicals on behalf of the community.

These measures will assist the urban water sector to work together with regulators and the communities they serve to make informed choices that will support the sustainable development of a circular economy for the urban water sector in Australia.

⁹ Toms LML, Bräunig J, Vijayasathay S, Phillips S, Hobson P, Aylward LL, Kirk MD, Mueller JF (2019) Per- and polyfluoroalkyl substances (PFAS) in Australia: Current levels and estimated population reference values for selected compounds. *Int J Hyg Environ Health*. 2019 Apr; 222(3):387-394. doi: 10.1016/j.ijheh.2019.03.004.

¹⁰ Carol F. Kwiatkowski, David Q. Andrews, Linda S. Birnbaum, Thomas A. Bruton, Jamie C. DeWitt, Detlef R. U. Knappe, Maricel V. Maffini, Mark F. Miller, Katherine E. Pelch, Anna Reade, Anna Soehl, Xenia Trier, Marta Venier, Charlotte C. Wagner, Zhanyun Wang, and Arlene Blum, Scientific Basis for Managing PFAS as a Chemical Class, *Environmental Science & Technology Letters* 2020 7 (8), 532-543 DOI: 10.1021/acs.estlett.0c00255