**Submission No 46**

# INQUIRY INTO INQUIRY INTO PFAS CONTAMINATION IN WATERWAYS AND DRINKING WATER SUPPLIES THROUGHOUT NEW SOUTH WALES

**Name:** Name suppressed

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# Submission Regarding PFAS in Drinking water supplies to NSW UPPER HOUSE ENQUIRY

## Introduction

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that have been used in various industrial applications and consumer products since the 1940s. These substances are highly persistent in the environment and human body, earning them the nickname "forever chemicals." The presence of PFAS in drinking water has become a matter of significant concern due to their potential adverse health effects.

## Sources of PFAS Contamination

PFAS can enter drinking water sources through several pathways:

- Industrial discharge: Manufacturing plants that use PFAS in production processes can release these chemicals into nearby water bodies.
- Wastewater treatment plants: Treated wastewater containing PFAS can contaminate surface and groundwater.
- Firefighting foam: PFAS-containing foams used in firefighting exercises and emergencies can seep into groundwater.
- Landfills: Leachate from landfills containing PFAS-treated products can infiltrate groundwater.
- Biosolid waste disposal currently includes use as fertiliser for commercial and domestic use, this is totally unacceptable due to the fact this will contaminate food sources and through leaching of the soil potentially contaminate the water tables or nearby water bodies, comprehensive and legislated disposal regime which is safe and destroys all PFAS would use the precautionary principle and is therefore the goal

## Health Implications

Exposure to PFAS has been linked to various health issues, including:

- Increased cholesterol levels: PFAS exposure can lead to elevated cholesterol levels, posing a risk for cardiovascular diseases.
- Immune system effects: PFAS can weaken the immune system, reducing the effectiveness of vaccines and increasing susceptibility to infections.

- Thyroid disease: PFAS exposure is associated with thyroid hormone disruption, leading to thyroid disease.
- Cancer: Studies suggest a link between PFAS exposure and certain types of cancer, including kidney and testicular cancer. Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research - Fenton - 2021 - Environmental Toxicology and Chemistry - Wiley Online Library
- Reproductive and developmental effects: Pregnant women and developing fetuses are particularly vulnerable to PFAS, which can lead to low birth weight, delayed puberty, and other developmental issues.

## Regulatory Standards and Guidelines

The **EPA guidelines for PFAS** include the following points:

Levels of PFOA and PFOS in public drinking water can't exceed 4 parts per trillion[1].

Three additional PFAS chemicals are restricted to 10 parts per trillion[1].

EPA considers the full lifecycle of PFAS, their unique properties, and multiple exposure pathways[2].

EPA prioritizes protection of disadvantaged communities[2].

EPA provides guidance on destroying and disposing of certain PFAS-containing materials[3].

In Europe, the Drinking Water Directive limits the total concentration of PFAS in drinking water to 0.1 µg/L for individual compounds and 0.5 µg/L for the sum of all PFAS.

In Australia the proposed guidelines are as follows

Based on human health considerations, the concentration of the following PFAS in drinking water should not exceed the specified health-based guideline values*:

- PFOA: 200 ng/L
- PFOS: 4 ng/L
- PFHxS: 30 ng/L
- PFBS: 1000 ng/L
- GenX chemicals: no health-based guideline value can be derived at this time.

NHMRC Statement: Per- and polyfluoroalkyl substances (PFAS) in drinking water | NHMRC

A summary of the results of these recent studies can be found below, indeed it seems that the proposed Australian guidelines are based on old or incomplete data, It is our suggestion at , that we follow the best practice guidelines from the US using the precautionary principle. Meaning that we would like to see the US guidelines legislated and enforced (rather than advisory as suggested)
Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS) - June 2022

And here Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS) - June 2022

The proposed NHMRC guidelines are well above the current US standards which are based on in depth epidemiological studies, recent studies have shown that there is NO SAFE LEVEL OF PFAS, therefore we believe that the guidelines proposed by NHMRC are inadequate, and should be, rather than guidelines, legislated and enforceable. And brought in line with the US guidelines. Due to the high risk to human health.
The U.S. Environmental Protection Agency now believes that there is **no safe level for two common PFAS, PFOA and PFOS, in drinking water**[1]. A new study suggests that levels of one PFAS in rainwater around the globe often "greatly exceed" US drinking water advisory levels, and soil around the world is similarly contaminated[2].

# Detection and Treatment

## Detection Methods

Currently testing methods and scope seem to be very ad hoc, with some regions testing for up to 30 Pfas related substances, and others only 5. The scope of testing seems to vary greatly as well with most areas only testing the top meter of a body of drinking water whereas

others are testing sediment. It is our opinion that this process needs to be standardised across NSW and Federally with best practice again being that of the USEPA with the full scope of the water storage body tested, ie all levels of the water

National PFAS Testing Strategy

## Recommendations

To address PFAS contamination in drinking water, the following actions are recommended:

- Establishing stringent regulatory standards for PFAS in drinking water at national and international levels.
- Investing in research and development of more effective and affordable detection and treatment technologies.
- Ensure safe disposal of PFAS filtration by products with a focus on elimination from the environment. Using them as bio solid fertiliser is our view highly irresponsible short sighted and dangerous
- Implementing regular STANDARDISED monitoring and reporting of PFAS levels in public water systems.
- Ban the import of PFAS products, safely dispose of any stockpiles as a matter of urgency
- Raising public awareness about the sources and risks of PFAS contamination and promoting water conservation practices.
- Legislate proper and formal communication between EPA and Health in the event of contamination with advice to the minister or relevant independent body so their response can be overseen to ensure effectiveness and timeliness.

## NHMRC guidelines

There are several concerns with how the NHMRC have arrived at their guidelines. They are not in line with best practice or scientific consensus that there is no safe level of PFAS

The approach in the Australian context is within a vacuum of our own qualifiable data. Feedback from Commonwealth entities in the Addendum also discount and/or undermine potential for PFAS contamination in our individual catchments. • Australia has yet to quantify the totality of the problem by identifying contaminated sites, extent of the

magnitude and implications of the contamination for both public health risk and subsequent societal health cost burdens. • There are more & more contaminated sites being uncovered which has highlighted the precautionary principle, extensive monitoring and regulatory duty of care has been absence. • It is questionable how the guidelines will reduce risk of PFAS exposure to protect the public. The Draft will fail to achieve this for multiple reasons. NHMRC's Evidence-to-Decision review process is based on their selective determination of studies to prove evidence of causation as opposed to association. The Australian references quoted for FSANZ and enHealth is based on causation vs association. The Fact Sheet struggles to justify the lack of precautionary application to PFAS drinking water levels with the choice of health effect end points as opposed to more protective and precautionary levels adopted by other proactive countries. This leads to how chemical risk is applied for risk management to prevent risk exposures, e.g., FSANZ TDIs used as safe end points. I have previously challenged the FSANZ Board in February 2023 about TDI's with FSANZ providing a prompt response.

Both Statement and Fact Sheet reveals risk assessment and science are not value neutral. • The PFAS fact sheet notes the many different references with SLR consultants' cherry picking the evidence to suit in the Australian context yet provide no credible Australian evidence. • This is where conflicted research challenges independent research to achieve a certain outcome which is evident in the draft guideline levels for PFOA. P 7 Fact sheet - the default equation outlined by NHMRC for health-based information based on animal toxicity studies should be updated as the default assumption used in the Guidelines for adult average human body weight of 70 kg bw. In 2017-18, Vic Dept of Health had the average male and female as 5 kg heavier. https://www.health.vic.gov.au/your-health-report-of-the-chief-health-officer-victoria-2018/burden-of-disease/overweight-and This has remained stable in 2022 https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity/contents/overweight-and-obesity The higher consumption of food and water per kilogram body weight leads to a greater intake of PFAS ingested. P 2 NHMRC Statement - notes the observed effects of animal studies have been extrapolated to humans and used to derive health-based guideline values for drinking water. It is not clear how any framework in the absence of human epidemiology studies for Drinking Water Guidelines (DWGs) will assure safety for public health. Have concerns about the methodology to derive new HBGVs for drinking water with PFOA, in the Australian context, seemingly evaluated on two factors: 1. US derived cancer slope factor (CSF) are not derived consistent with Australia science policy. (Statement p2) 2. IARC found inconsistent findings of evidence for cancer in humans for PFOA (P8 fact sheet) This would be confusing for the uninformed public as it is just different risk assessment approaches between Australia and

USA that USA can back up with strong mechanistic evidence, but Australia cannot. Both cannot be correct. Australia only has the ANU epidemiology study which is not credible and indefensible against a mountain of evidence from international research studies. IARC was able to support PFOA as a Group 1 carcinogen due to strong mechanistic evidence. Australia is either intentionally or unintentionally not using advanced science including quality epidemiology studies in the many PFAS hotspot areas around Australia. Experts do agree toxicity concerns increase with fluorinated chain length because long chain PFAS usually take longer to be excreted from the body due to their lower water solubility, higher affinity for serum proteins increasing their elimination time from plasma and tissue. Disturbingly, this means children are more at risk because children drink more water, eat more food and breathe more air per kilogram of body weight than adults which can increase their exposure to PFAS. https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas#:~:text=What%20We%20Know%20about%20Health,blood%20

The current approach for PFAS management is 'bottom up', bit by bit, without urgency therefore, not precautionary and certainly not proactive. The Australian Government is now finding the PFAS contamination expansion extremely problematic to manage and appearing to be dismissive of the inherent risks and implications from the referenced material. Legally, you knew but didn't act while providing no authoritative containment and management leadership on a national level. What Australian research exists is manipulated while all risks default to FSANZ's Tolerable Daily Intake (TDI) as indefensible safe endpoints. NHMRC's Statement p2 - link to review reports for the Administrative Report and SLR Addendum to PFAS Evidence Evaluation for Australian Drinking Water gives me little reassurance much will change. • How are the water providers held accountable or resourced to monitor and identify potential and real time catchment sources of PFAS contamination. • There also needs to be a historic forensic evaluation of past uses of AFFF in each catchment. • Who is coordinating a national level comprehensive response for PFAS management accountability across all levels of government, all agencies and all Commonwealth entities because the current system is ad hoc, fragmented and not accountable. • How will the NHMRC manage the conflict between water corporation's objective to provide safe drinking water while also overseeing significant volumes of PFAS laden domestic and industrial wastewater legally discharged into catchments via EPA approved licenses upstream of drinking water take-off. The Draft Statement recommends site-specific, risk-based approach to monitoring chemicals in our drinking water catchments, then claims, the underpinning principle of this risk-based approach is to know-your-catchment and for water providers to be more transparent. Yet media is revealing more drinking water contaminations, and private PFAS water testing is uncovering higher PFAS levels in our reservoirs. This a total failure for

reasons unknown to the public. We can only surmise a critical lack of resources to PFAS testing, data sharing and treatment are contributing to an increase in higher PFAS levels detected in our drinking water catchment. This is also an absolute failure in the Framework for Managing Drinking Water Quality. With implementation of the proposed changes to PFAS in drinking water subject to any new information which includes monitoring, it would be irresponsible if Australia still takes the same causation via association approach and continues the same lack of scientific health evidence. The NHMRC need to stop applying justifications for higher proposed DWGs as this gives no protection to the highly contaminated communities. It's discrimination of the minority population over the majority while proposing no other measures or interventions to reduce PFAS exposures. DWGs based on scientific evidence should be developed to protect people who are most vulnerable to the potentially harmful effects of known PFAS adverse health effects in the HUMAN context. New proposed levels should be enforceable. • PFOA should be lowered to 4 ng/L therefore a sum of PFAS can be derived • PFHxS to be lowered from 30 ng/L to 10 ng/L • HFPO-DA (GenX) to be given a health-based guideline value same as USA to 10 ng/L • A hazard index for two PFAS mixture or Sum of PFAS is needed • PFBS for a DWGV of 100 ng/L Publication of the final advice in April 2025 is acceptable but it should be noted that Federal and State policy and funding resourcing to water providers for PFAS treatment system updates should be viewed as a high priority.

The Fact Sheet needs to have an authoritative consensus and ability to predict the future environmental and human health cost burden of PFAS. I believe the NHMRC committee would agree that Australia's understanding on the extent of PFAS contamination is slowly evolving and their action on dealing with PFAS at the point source is relatively non-existent. Rather than be reactive to a problem from multiple or, as yet, evidence of PFAS substances like GenX, a more proactive and protective action is to provide guideline values for the sum of multiple PFAS. After all, no need to reinvent what information already exists internationally. It is clear the NHMRC cannot apply the precautionary principle to adopt a PFAS mixture for the Sum of PFAS as it is based on the current higher Australian PFOA & PFOS DWGs. It is confusing for the public to read an apparent new concern for some short and long-chain PFAS, their precursors, including fluorotelomers, yet in the feedback section of the administrative report the entities tasked with protecting public health has provided some irresponsibly ignorant comments.

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Our suggestion in the absence of in-depth Australian studies as to the health effects and the scope of the problem is to firstly commission these as a matter of urgency, and in the interim refer to the many studies conducted in the US to date and use the precautionary principle rather than a risk-based approach, hence bring our drinking water guidelines into enforceable legislation and to match the values of the US which is 4 parts per trillion

## EPA duty of care

It is overly concerning to find that EPA were only testing on a risk-based approach, hence no drinking water was tested prior to June 2024 . It is our understanding that they are compelled to do so and have failed in their duty of care. NSW HEALTH are required to Work with the Environmental Protection Authority to implement an analysis of the risk to
impacted community members cause by the pollution incident pursuant to section
295ZC(1) of the Protection of Environment Operations Act 1997 (NSW) (POEO Act). Considering this we would like to EPA and NSWHEALTH to work together to
A, thoroughly test residents of the Blue Mountains who are potentially impacted by what appears to be over 30 years of exposure, via the Medlow Bath petrol tanker crash 23 September 1992(Testing by Dr Ian Wright in October showed levels 600 times the current limit for pFAS contamination in Adams Creek which is approximately 50m from the crash site, we also have video of the fire brigade response to the crash which clearly shows a river of pFOS foam draining into the creek,) Adams creek drains directly into our water supply. I have a GIPA in process atm with

FRNSW asking for a full incident report which will include how much foam was used and it's composition, expected ETA for the GIPA response 12.12.24

## Cultural impacts

Quote "BMCC is concerned about the potential cultural impacts of PFAS contamination on Dharug and Gundungurra people, for whom the living waterways of the Blue Mountains hold great
cultural significance. For Dharug and Gundungurra people, water plays a significant spiritual role in the creation of Ngurra (Country). The lifeblood of Dharug and Gundungurra Ngurra is water – physically and spiritually it binds together all living things. It is considered a custodial responsibility to look after Ngurra, and any impact on the environment impacts the spirituality of Traditional Custodians and their ability to practice culture."

Response
Nature has been unbound in so many places. Including in the Cascade Medlow and Greaves Dam surrounds. You can feel it. There are very few places left where nature sings in harmony as it should. You need all life to be present, air needs to be clean, and so does the water. It is a dance that requires all parts to be present. Our country does not feel like it once did. Nowhere near it. The balance, and the energy that interconnects everything is quickly being lost. I firmly believe this interconnection is at the heart of creation. Because this is lost it is also exceedingly difficult for us to connect and feel grounded
We live with this loss every day. It sits on our hearts with a heavy weight. Unless we walk on country far into the bush where it can be felt
The bush itself feels lonely.

There also needs to be a full cultural assessment of effects on sacred sites in the vicinity of the contamination in line with legal responsibilities to protect such outlined in section 86 of the NPWS act, particularly the section relating to penalties for damage to these sites. Water is women's business and is central to all life, the purity of the water is important to us both spiritually and physically

“A person must not harm or desecrate an object that the person knows is an Aboriginal object. (b) in the case of a corporation--10,000 penalty units. (2) A person must not harm an Aboriginal object. (b) in the case of a corporation--2,000 penalty units.
NATIONAL PARKS AND WILDLIFE ACT 1974 - SECT 86 Harming or ...

www5.austlii.edu.au/au/legis/nsw/consol_act/npawa1974247/s86.html”

There is also the issue of effects on wildlife. There are many endangered or critically endangered species surviving in the vicinity of these dams, eg the Macquarie perch is listed on the DPI website as being present in very close proximity to these dams
See legislation for the protection of these species below
act-1995-101

Considering this we believe that urgent studies need to be commissioned, and mitigation measures to alleviate any impact on what remains of our precious wildlife need to be undertaken. First Nations culture sees the interconnection between all life and it pains us to see this cultural difference continually ignored by government with their species-specific approach by primarily focusing on human impact, this to me effect a cultural suppression and limits our ability to practice culture in breach of the Geneva convention and our human rights article 11 UN Declaration on the Rights of Indigenous Peoples | Australian Human Rights Commission

# Conclusion

PFAS contamination in drinking water is a pressing environmental and public health issue that requires immediate and sustained action. By implementing stringent regulations, advancing detection and treatment technologies, and fostering public awareness, we can protect our water sources and ensure the safety and well-being of present and future generations.