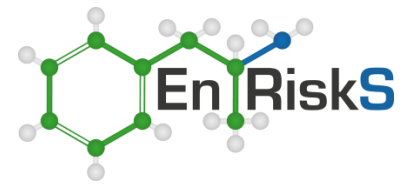


**Submission
No 16**

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

Organisation: Environmental Risk Sciences Pty Ltd (enRiskS)

Date Received: 26 November 2024



Environmental Risk Sciences Pty Ltd

26 November 2024

Parliament of New South Wales
Select Committee on PFAS Contamination in Waterways
and Drinking Water Supplies Throughout New South Wales

Public Submission from Environmental Risk Sciences Pty Ltd (enRiskS)

Dear Sir/Madam,

Environmental Risk Sciences Pty Ltd (enRiskS) is pleased to provide the **attached** public submission in response to the Terms of Reference for the Inquiry into PFAS Contamination in Waterways and Drinking Water Supplies Throughout New South Wales.

From an overall perspective, we think it is important to acknowledge that the fundamental building blocks for the entire planet are chemicals. The building blocks of all matter are the chemical elements like carbon or hydrogen or copper or gold. These elements combine to form chemical compounds. Whether it is the water we drink, the air we breathe, the food we eat, the ground we walk on, the houses we live in, the things we have inside our houses or workplaces or what we ourselves are made of, everything is made of chemicals. Some chemical substances like water, oxygen and nutrients are essential to keeping us alive or to let plants or other animals live. Other chemical substances are naturally occurring, but they can harm us – like spider and snake venoms or well-known poisons like arsenic or mercury.

The same applies to the chemical substances we manufacture – some substances are quite benign, and some are quite toxic. A range of chemical substances are used to manufacture things we use every day like food, clothes, computers, kitchen appliances, cars, houses, roads, trains, planes, hair dyes, beauty products, toothpaste, shampoo, flea rinse for our pets and many other things.

Given that everything in the world is made from chemicals, the presence or detection of a chemical does not equal a risk to people or the environment. Human health and ecological risk assessment is used to determine if the amount of a chemical present in the environment could pose a risk to people or the environment. Assessing risk requires detailed consideration of how much of a chemical can reach a place where people or ecosystems can be exposed. This includes consideration of where and how a chemical is used along with whether it is released into the environment and what happens to the chemical if this occurs. In doing this, it is important to consider the properties of a chemical e.g. whether it bioaccumulates, binds to soil, is taken up over human skin etc. Such assessments are also conservative (precautionary) i.e. designed to overestimate risks.

In Australia, we have well established Government guidance on how to undertake a human health and ecological risk assessment. This guidance is not chemical specific, hence, is valid for all chemicals, including PFAS. There is no reason for PFAS to be assessed differently to other chemicals. In fact, it is our experience that treating PFAS differently to other chemicals can create practical, logistical, financial and risk communication issues. These issues can outweigh any positive effects and benefits that may be gained from applying an overly cautious approach to PFAS management.



Thank you for the opportunity to provide this submission.

We would be happy to make an in-person presentation to the Inquiry upon request.

If you require any additional information, please do not hesitate to contact Dr Jackie Wright on

Yours sincerely,

Dr Jackie Wright (Fellow ACTRA)
Director
Environmental Risk Sciences Pty Ltd

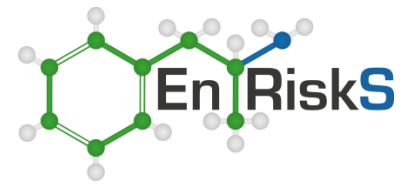
Therese Manning (Fellow ACTRA)
Environmental Risk Sciences Pty Ltd

Ruth Jarman (Registrant ACTRA)
Environmental Risk Sciences Pty Ltd

Dr Kate Langdon
Environmental Risk Sciences Pty Ltd

Dr Belinda Goldsworthy (Registrant ACTRA)
Environmental Risk Sciences Pty Ltd

Attached: Public Submission

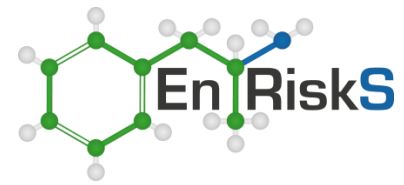


Item from Terms of Reference	enRiskS submission
(a) the adequacy and extent of monitoring and data collection on PFAS levels in waterways and drinking water sources	<p>There has been limited organised monitoring for PFAS in Australia and most of the data are not publicly available. A large amount of PFAS data have been collected, however:</p> <ul style="list-style-type: none"> - most data have been collected on a site by site or state by state basis - most data sit with private companies or local/state governments - most data are not publicly available - these data generally target contaminated areas and areas around PFAS sources. <p>Data on ambient PFAS concentrations in NSW is particularly lacking (noting that some data on ambient PFAS concentrations is publicly available for other states¹). There are some data available from large infrastructure projects in NSW, however, data from any other sources are limited. NSW should consider conducting an ambient PFAS study similar to those that have been undertaken in other states.</p> <p>There is a lack of data on PFAS in livestock in NSW, due to perceived potential impacts to Australia’s international trade. This adds complexities to, and creates uncertainty in, human health and ecological risk assessments for PFAS in livestock products. Some other states in Australia have undertaken livestock testing at potentially impacted sites (e.g. sampling livestock serum) which results in more certainty in human health risk assessments.</p> <p>Updated data on PFAS in human blood (an updated population blood study) would also be useful as the data from the last study from 2016 are now almost 10 years old and PFAS concentrations in blood are expected to have decreased since then.</p> <p>We also recommend considering the current barriers to information/data sharing and how these can be overcome, to allow better access to the data collected to date.</p>
(b) the adequacy of the reporting and disclosure requirements to the public of monitoring and findings on PFAS contamination of water	<p>The presence of PFAS in the environment does not automatically mean these chemicals are a risk to human health or the environment. PFAS are no different to the thousands of chemicals that people come into contact with every day. In our view, communication activities for PFAS need to be consistent with those used for other chemicals. Communication activities for PFAS do not need to be more intensive or different to other chemicals as can lead to public concern/panic which often has more adverse effects on human health than exposure to PFAS.</p> <p>For example, we should not be communicating that ambient PFAS concentrations are a health risk without adequate justification (as is the case by the 2024 draft Australian Drinking Water Guidelines that were recently released in draft by the National Health and Medical Research Council; NHMRC)² or that the only acceptable PFAS concentration in the environment is zero³ (which we note is not even scientifically possible) or effectively zero (a concentration at or close to the laboratory limit of reporting).</p>
(c) the identification of communities at risk from PFAS contamination	
(d) the adequacy and effectiveness of government engagement with and support for communities disproportionately affected by PFAS contamination, including First Nations communities	
(e) sources of exposure to PFAS, including through historic and current firefighting practices	<p>Key sources of PFAS are considered adequately identified based on the work undertaken to date by state governments.</p>

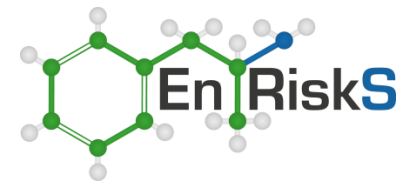
¹ <https://www.epa.vic.gov.au/about-epa/publications/2049-report-on-pfas-in-the-environment>

² <https://www.nhmrc.gov.au/health-advice/environmental-health/water/PFAS-review>

³ https://www.austlii.edu.au/cgi-bin/viewdoc/au/legis/qld/consol_reg/epr2019386/sch9.html



Item from Terms of Reference	enRiskS submission
	<p>The state of knowledge (and updating the state of knowledge as more information becomes available) remains important as with any other chemical or environmental issue.</p> <p>More data on PFAS in food and consumer products would be useful, to ensure we are making appropriate replacements (not like for like replacements) when phasing out of the use of PFAS in consumer products.</p>
(f) the health, environmental, social, cultural and economic impacts of PFAS	<p>There is no agreement on the underpinning science on potential impacts to health and the environment from PFAS. This is a work in progress; and timely resolution or agreement on this issue is critical to ensure consistent and appropriate approaches across Australia.</p> <p>Over regulation because of the over application of the precautionary principal has occurred to date, and along with cumulative (compounding) conservatism, this has had significant negative impacts on the cost of investigations, clean-up and management as well as the cost of major projects. This money could have been much better spent on improving health outcomes in other areas. This has also created public concern and anxiety which in many cases is not warranted.</p> <p>Over application of the precautionary principal is also pushing PFAS guidelines lower and lower into the realm of, or below, commercially available laboratory limits of reporting and ambient concentrations. This means that any detection of PFAS in the environment represents contamination. This in turn:</p> <ul style="list-style-type: none"> - identifies areas with ambient PFAS concentrations as contaminated - increases the volume of materials sent to landfill - increases the need for fishing (no-take) advisories - creates uncertainty for commercial fishing operations - creates significant issues for a circular economy, as any reuse of materials such as biosolids, food organics garden organics (FOGO), compost, aggregates etc. is no longer possible - creates unfounded fear and anxiety, which have documented adverse health effects.
(g) the impacts, monitoring and mitigation of contamination on livestock, domestic animals and wildlife, including water birds, fish and other aquatic life	<p>Please see response to items (a) and (b)-(d). There are established processes in place to address these issues – these processes can be applied to PFAS.</p> <p>Requirements for monitoring PFAS concentrations in biota by regulators should be cognisant of the direct impact to organisms from collecting these data i.e. the ethics of killing organisms to obtain the data, and leverage on the vast amount of biota PFAS data we already have to inform site management. For example, in one waterway we are aware of, the regulator required biota sampling to address PFAS risks. There were 4 sampling events over 2 years where 7,263 individuals were caught (the majority then killed and analysed). These were predominantly fish, but also crustaceans, molluscs and gastropods. Fortunately, the turtles were released. There was some variability in the data, but the risk assessment outcomes were unchanged based on the 4 rounds of data. We are now reviewing the data from round 5, where an additional 2,053 individual organisms were impacted.</p> <p>As noted above, there is a lack of data on PFAS in livestock in NSW, due to perceived potential impacts to Australia's international trade. This adds complexities to, and creates uncertainty in, human health and ecological risk assessments for PFAS in livestock products. This testing can be done</p>



Item from Terms of Reference	enRiskS submission
	without harming the animals but collecting and analysing blood serum. This allows concentrations in meat and other produce to be estimated with a high level of certainty.
(h) the structure, capacity, capability and resourcing of New South Wales Government agencies and water utilities to detect, monitor, report on, respond to and mitigate against PFAS contamination of water supplies, including the adequacy of infrastructure and resources	Please see responses provided above. Additional resources are not required where inconsistencies within NSW state regulators are addressed. The exception is where additional resources are needed to complete and interpret data from the additional PFAS studies recommended in comment (a) (for ambient and foodstuff/consumer products).
(i) the adequacy and effectiveness of New South Wales's legislative and regulatory framework in testing for, monitoring, mitigating and responding to PFAS contamination, including the adequacy of health-based guidance values, as compared to the standards and practices of other Australian and international jurisdictions	Human health and ecological risk assessments are an important part of managing risks from chemicals in water in Australia. Australia has established, robust and clear guidance on how to undertake a human health and ecological risk assessment for chemicals in water. This guidance applies to all chemicals including PFAS. There is no need to take a different approach for PFAS or a more conservative approach for PFAS.
(j) public sector resourcing and coordination amongst relevant agencies in preventing controlling and managing the risks of PFAS to human health and the environment	The above Australian guidance is world leading. There is no need to adopt international guidance for Australia e.g. direct application of the United States Environmental Protection Agency (USEPA) drinking water guidelines and toxicity values without consideration of Australian guidance and context, and United States (US) guidance and context.
(k) international best practices for water treatment and filtration, and the environmentally sound management and safe disposal of PFAS	It is recommended that the management of PFAS in Australia be brought into line with how we manage other chemicals in Australia. e.g. the PFAS National Environmental Management Plan (NEMP) is not required to be revised more often or with more effort than other documents such as the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) or NEMPs for other chemicals, and the guidance in the PFAS NEMP can be incorporated into the next revision of the ASC NEPM.
(l) the effectiveness of remediation works on specific sites and international best practices for remediation and management of contaminated sites	No comments. This is not our area of expertise.
(m) areas for reform, including legislative, regulatory, public health and other policy measures to prevent, control and manage the risks of PFAS in water supplies	Please see responses provided above. Agreement on the underpinning science and consistency of application within NSW government departments is critical.
(n) the impact of taking contaminated water sources offline on water security, including the effects of diverting water between communities; the social, economic and logistical implications of such diversions, and the challenges posed by PFAS contamination to water availability, drought management and emergency supply planning	This is a key issue for PFAS, as cumulative conservatism has resulted in actions such as those listed, which create a higher potential for adverse health effects than the exposure to PFAS. A lack of drinking water is a significant public health risk for all members of the community. Further, health impacts would also occur as a result of stress/anxiety (with associated health risks) due to perceived concern about health and/or caused by inappropriate risk communication or lack of communication.
(o) any other related matters.	No additional comments. We would be happy to provide an in-person presentation to the Inquiry upon request and answer any additional questions at this time.