

4 November 2024

Dear Members of the PFAS Senate Inquiry Committee,

I/we intend to make a submission to the PFAS Senate Inquiry from the Queensland Alliance for Environmental Health Sciences (QAEHS) at The University of Queensland (supported by Queensland Health). QAEHS (formerly known as Entox) has pioneered and led and/or contributed to research on perfluoroalkyl substances for about two decades since we reported on the trends of PFAS exposure in the Australian population in 2006. QAEHS has led and/or partnered on a host of ARC, NHMRC and other government (Australian and overseas) funded projects covering PFAS-specific questions including human exposure, sources, fate, monitoring approaches, remediation efficacy and analytical techniques (current projects can be found on <https://qaehs.centre.uq.edu.au/projects>). QAEHS collaborates with the United Nation Environment Program and serves as a reference laboratory for the Pacific Region with a focus on Stockholm Convention chemicals. We continue to collaborate closely with leading researchers in PFAS from across the world including the US-EPA and US-CDC, EU and Asia. As part of this, we have benefited from regular exchange of academics. QAEHS has led/contributed to over 100 peer-reviewed publications and supervised over a dozen PhD students and a similar number of early career researchers on PFAS topics relevant to the TOR of this Senate enquiry.

Some key areas of our PFAS research include, but are not limited to:

PFAS measurement in human serum and related PFAS exposure, exposure trends and potential factors that links exposure with serum concentration (relevant to various TORs specifically (a), (b), (c), (e), (f) and (h))

- Trends of PFAS in the general population of Australia (Data available since 2002). This data has been used to estimate past exposure / exposure trends.
- Trends of PFAS in a small number of archived serum samples from a Cohort in Western Australia for assessing pre-2000 trends of PFAS in serum (dating back to 1975).
- PFAS exposure and exposure trends in Airservices firefighters (including identification of previously unknown PFAS that accumulate in humans and establishing PFAS half-lives in humans).
- Exposure and exposure trends in communities with PFAS contaminated ground water.
- The role of menstruation and blood donation on PFAS serum concentration and PFAS elimination.
- Associations between PFAS exposure and health biomarkers.



PFAS exposure sources (primarily relevant to TORs (a) and (b))

- Drinking water.
- Indoor environments.
- Consumer goods, food contact material and cosmetic and personal care products.
- Selected foods and how cooking affects PFAS levels in food.
- Environmental waters, waste streams (including extensive studies on PFAS in wastewater treatment influent, effluent and biosolids covering 50% of Australia's population).
- Firefighting training grounds as a long-term source including release of PFAS from concrete (firefighting training grounds).

Methodology (sampling and analytical) (relevant to various TORs)

- Sampling techniques for water (development of time integrative passive samplers).
- Analytical techniques (including identification and quantification of novel PFAS).

PFAS remediation techniques (mainly relevant to TORs (i) and (j))

- Efficacy of wastewater treatment processes.
- Efficacy of drinking water treatment methods.
- Efficacy of soil treatment processes (including immobilisation and soil washing methods).
- Review of remediation techniques (for the Australian Research Council).

Links to environmental and human health (metabolomic studies) (specifically relevant to TOR (j))

- PFAS impact on wildlife.
- PFAS and links to metabolomics outcomes in humans

Sincerely,

**Professor Jochen Mueller (on behalf of QAEHS)**  
Professor for Environmental Toxicology