The PFAS problem Q&A - Wedneday 25th June 2025

Question Details

#	Question	Answers from Karl		Answers from Brad:
1	What percentage of eco-friendly disposable straws contain PFAS?	I can't say. I know some studies have claimed many or even most have PFAS, but not one of my areas of expertise.		
2	Given that there is an increasing concern on growing levels of PFAs in water, would the phasing out of PFAs in products be possible despite its wide range of usage and applications?	Answered during the talk. Phasing out can help... good news from the blood concentrations of PFOS, PFHxS and PFOA. But not the whole answer given how long PFAS persist in the environment.		Yes. Humanity survived without PFAS for a long time, so no reason why we couldn't again. However, there obviously needs to be recogntion that the use of some PFAS in at least some products may have a net benefit to overall human health. For example, what would be better - a fire fighting foam that works that has PFAS ... or a fire fighting foam that doesn't work ?
3	What is the risk of bioaccumulation in animal agriculture?	This is a hot topic. Some PFAS effectively get from soil or water into plants. Other PFAS effectively get into animals. For example, a lot of research is going into understanding how to manage issues following from land application of biosolids.		There's a lot of reasons to not consume animal products - e.g. to reduce animal cruetly, planetary destruction, risk of heart disease/ cancer etc etc. However, I'd suggest this is definitely one more. PFAS bioaccumulates - so the higher up the food chain you eat, the higher the risk. The risk obviously varies with location. Without mentioning location, i recall standing outside one abartoir extracting groundwater for the cattle - in an area with known high PFAS concentrations in the groundwater - so, for example, the risk of this beef having issues is likely higher than others.
4	Can a common home-based countertop water filtration unit further filter out PFAS?	They can help. NSF has a certification program to provide info for effectiveness for PFAS... https://www.nsf.org/consumer-resources/articles/pfas-drinking-water		
5	What available resources do you recommend to stay up to date on PFAS research and studies? Most are behind journal paywalls that are difficult to access for those outside of academia.	Answered during the talk. ITRC is a good starting point. https://pfas-1.itrcweb.org/		Answered during talk. But, yes, the other one is https://www.waterra.com.au/Web/News/Articles/2025/New-State-of-Knowledge-report-on-PFAS-released.aspx
6	Why do men tend to have more PFAS in their blood than women?	Menstruation. And the trend changes post menopause but in complex ways		Answered during talk, but yes .. Menstration, as mentioned.
7	Is the higher PFAS concentration in blood of men attributable to beer consumption?	No. See item 6.		Unlikely.
8	What the implications of the class action being led by Jon Dee up in the Blue Mountains for other regions with populations with high level detections in blood?	There are various class actions being held for different purposes in various countries. Environmental lawyers would be better able to answer this question.		As per Karl's comments, this is hardly the first class action re PFAS in Australia - and many more are likely.
9	How to measure PFAS? As it is also isomers.	We are very good at measuring a suite of about 40-50 PFAS down to very low levels (low ng/L and even lower when needed). We also have methods for identifying 'all' PFAS, but all have limitations that need to be considered when choosing a method. Consult an expert if needing to go beyond the standard analysis.		Refer to Section 5 in the NEMP.
10	Why are concentrations higher in male blood? Is there anything that would skew that data?	See item 6.		
11	Do some forms bind strongly to body fat rather than remain in the blood? Have any studies found different levels in blood liver or adipose tissues??	The part of the molecule that makes a chemical PFAS doesn't want to be in fat... this is why we use PFAS to make things greaseproof. PFAS typically is found in liver because PFAS interacts with blood proteins and the liver has a very good blood supply.		
12	How to measure PFAS? It needs to measured at low levels.	See item 9.		Refer to Section 5 in the NEMP.
13	How can you effectively remove and deactivate PFAS? We use plants in Constructed Floating Wetlands to remove nutrients, including PFAS, from water bodies. The PFAS is then captured in the plant material.	Yes ongoing research into floating wetlands, including by CSIRO in Adelaide. No single tech is a magic bullet. It's about understanding the site-specific problem and tailoring an approach.		Answered during wevbinar. As mentioned, whilst wetlands can retain PFAS (mostly in subtrate, and some in plants) - this still needs to be physically removed (e.g. dug up and/ or plants harvested).
14	What's the level of PFAS around Australia in drinking water (or in Melbourne)?	You can look at this on your water supplier website. They put out testing results quarterly.	*Attendee response*	
15	Not a question, but i think its important to note that as of today the criteria for some of the PFAS compounds in the Australian Drinking Water Guidelines has been updated	Thanks	*Attendee response*	
16	How do they determine these thresholds?	In Australia, guideline values are health based. Someone determines a level of exposure below which a health impact can be reasonably ruled out. Safety factors are normally applied to provide conservatism e.g. so sensitive people will also be protected (for example babies if the cehmical has potential for reproductive impacts). Exceeding a guideline value usually does not automatically mean harm will occur... but you should be doing more to better understand and manage the issue. THis varies in different countries e.g. some guideline values in US are based on ability to achieve the value. SO please don't take this as advice for everywhere.		
17	Are PFAS essentially unavoidable at this stage, no matter where one is located?	We pretty much all have some PFAS in our blood. PFAS are used in a vast array of commercial/domestic products. So we're all exposed.		Yes. We can't avoid, but can reduce exposure.
18	What is the primary source of PFAS exposure in humans— water, food, or other environmental pathways?	Depends where you are and what you consume. For some folks it's through drinking water, unless that route is controlled (e.g. many US groundwater-dependent drinking water supplies). For others seafood could be a relatively large exposure. Household dust has heaps of PFAS, but you tend not to consume that much relatively (a bit more by toddlers due to crawling and hand to mouth behaviour).		As per Karl's comments ... it depends.
	Or product use (through skin).	The main older PFAS (PFOS, PFOA) don't get thro the skin to any reasonable degree. Newer PFAS probably a higher potentiaol for that to happen. There's a lot of PFAS and their properties vary.		
19	Are there any other wasys to reduce our own PFAS levels other than donating/losing blood?	There is a cholesterol lowering medication called cholestyramine that can lower PFAS in the blood. Please don't take that as medical advice.		I'd advise focusing on reducing exposure.
20	Many industrial & commercial processes aerosolize water that may contain long-chain PFAS. Are authorities considering inhalation of aerosolized long-chain PFAS as a risk pathway and a remediation treatment?	PFAS in the air, from various sources, is featuring a little more in research and regulatory discussion worldwide. There has been mention for a treatment approach in wastewater treatment capitalising on existing aeration processes. But an interesting engineering challenge to work at scale. Check out foam fractionation... kinda the flip side to aerosolisation... removing PFAS on the surface of bubbles in water.		
21	Are there any PFAS guidelines for recycled water?	You'd need to check in your location... and the use of the recycled water.		The PFAS NEMP also provides advice re recycled water.

22	Would you suggest that infrastructure (such as flood mitigation/stormwater management measures) planned for sites with PFAS contamination (e.g. airports) make provisions for PFAS containment/collection and aim to separate potential PFAS contaminated waters from the main floodwater/stormwater?	yes, if you have PFAS contamination on a large site, it makes sense to redirect clean stormwater to avoid it from being contamianted as it passes across/thro the site. This has been done as part of overall management strategies for some large sites. Whether or not you need to collect/treat depends on remedation or pollution prevention objectives for the site... hard to generalise (but Brad would love the answer to be yes).		Following on from Karl ... and noting I have a clear conflict of interest here, as Ocean Protect make/ install PFAS treatment devices to do this very thing ... Yes. Noting the waste management heirachy (i.e. avoid first - and treatment being 2nd last), I still would recommend this.
23	Is there any evidence to say that heating PFAS is just creating another chemical? Wouldn't the chemical composition reform into something else?	If you heat it high enough and fast enough you destroy the PFAS. If you don't get it hot enough you can form other compounds (products of incomplete combustion). Analytical methods for undertsanding this are improving rapidly.		
24	What is the cost to remove/dispose the PFAS contaminated filter media from the stormwater treatment devices?	Need to ask a waste contractor sorry.	*Attendee response*	
25	Primary sources appear to be mainly point sources - how has it become so globally distributed in rainfall?	Even non-volatile PFAS can be introduced to the air during production process. PFAS can be aerosolised in coastal wave action but how much this may be a local phenomenon may not be yet known.		Following on from Karl's comments, there's also evidence of PFAS resuspension from ocean enviroments. Same goes for microplastics. Just because something enters the ocean, doesn't mean it stays there. https://www.theguardian.com/environment/2024/apr/19/ocean-spray-pfas-study
26	Is there any recommendations on the changing sampling method for PFAS? The current criteria is quite low that almost any detects fall into exceedances, but most time it's just the Perfumes or Sunscreens cross contamination...	Envionmental consultants (at least in countries where I'm involved in work) have very good procedures for avoiding cross contamination during sampling. These procedures are well documented.		
27	Is it true that using permanent markers to label PFAS containers for sampling can effect laboratory analysis of PFAS concentrations	Maybe. If in doubt, and if you abslutely have to use a particular product, have it checked.		
28	How successful has PFAS groundwater remediation been? (pump out contaminated GW, treat / remove PFAS, return water to environment)	Pump and treat needs to be treated cautiously. A detailed site investigation is needed to establish if there will be any benefit for Pump and treat. There are times when it can be of good value, but there is generally uncertainty in how long to treat for and will concentrations rebound if you stop.		
29	What is the source of the highest concentration discovered of Victorian coast? Waste Water discharge, groundwater contamination from coal mines and power stations in Gippsland, other?	Let me know when you find out.		Great question, and I wondered the same. The study I referred to didn't go into this detail. I'm doing an Ocean Protect Podcast with the lead author in a month or 2, and i'll be sure to ask. However, I would expect it'd be mainly a combination of stormwater and wastewater discharges.
30	Given the extent of the PFAS & precursors challenge, both on its space distribution and the time we have taken to react/regulate it, hence nowadays concentrations being above the Legislation's thresholds (legacy contamination) - when it comes to setting management priorities at water utilities (WWTP included), what are the main priorities for ratepayers' value for money or return of investment that would bring the best results for managing PFAS distribution?	Answer is site specific and difficult to provide a short answer. I could talk at length on this. Maybe a positive example... In NSW we've just had a great program with funding from NSW Health to test drinking water catchments. Most catchments had no PFAS at levels of concern. In this case understanding whether there or not was a systematic problem was money well spent. I would add, it's not all about PFAS. There are other issues WWTPs may need to manage and looking holistically rather than just one set of contaminants may be valuable to support long term decisions.		Yep, agree with Karl.
31	How much PFAS is coming in in food from overseas?	Hard to answer. Australia has a market basket survey for food on the shelves. Most recent round found almost no PFAS (of those PFAS in the analytical suite). Promising result but limited study and perhaps we could know more.		I'd expect that this would be a very small portion of the overall PFAS load in Australia.