Draft Minutes of public meeting of the PFAS Scientific Advisory Panel on Teams

10:00 on 24 July 2025

Panel Members present:	Dr Steve Hajioff – Independent Chair
	Dr Tony Fletcher – PFAS and Health member
	Professor Ian Cousins – PFAS and Environment member
In attendance:	Standing Observer (Regulation) - Kelly Whitehead - Group Director of Regulation, Infrastructure and Environment Department
	Programme support team from I&E

Welcome:

The Chair welcomed everyone to the Panel meeting and reminded people the meeting was being recorded.

Introductions

The Chair and Panel members introduced themselves.

Dr Steve Hajioff, Independent Panel Chair: A retired Director of Public Health from an area of London with two major international airports and a variety of other environmental hazards and challenges, with 35 years in clinical medicine. An expert on translating science into policy, he has worked with Nice, the Greater London Authority, the EU, WHO and World Bank, several UK government departments and several international governments. Dr Hajioff has also worked extensively in the pharmaceutical industry.

Dr Tony Fletcher, PFAS and Health Panel Member: Environmental Epidemiologist at the London School of Hygiene and Tropical Medicine, working on PFAS since 2006 and member of the panel with experience of epidemiological studies on the health effects of PFAS in contaminated communities in West Virginia in the United States, in the Veneto region, in Italy, and in Ronneby, and is the health expert on the panel.

Professor Ian Cousins, PFAS and Environment Panel Member: A Professor in Environmental Chemistry at Stockholm University, an expert on PFAS, appointed as the environmental expert on this Panel and whose expertise on PFAS is on the sources, transport, fate, and exposure of PFAS.

Kelly Whitehead, Group Director for Regulation in the in the Infrastructure and Environment Department, leading on the Water Quality and Safety Programme, coordinating Government's response.

Declaration of Interests

- No new interests declared.

Minutes

- Minutes from 29 May 2025 meeting approved as a true and accurate record by the panel.
- Minutes from 26 June 2025 meeting approved as a true and accurate record by the panel following two minor changes.

Matters Arising

- Nothing to report

Additional Findings Since the Last Meeting

Ian Cousins shared a recent publication in *Nature* magazine that offers a balanced and accessible review of concerns surrounding trifluoroacetic acid (TFA). Although not directly related to the committee's current scope, Ian felt the article was relevant and informative. TFA is one of the smallest PFAS compounds and has garnered increasing attention in recent media, including coverage in *The Guardian*. The article stands out for incorporating perspectives from both academic researchers and industrial scientists, presenting a nuanced view of whether TFA poses a significant environmental or health concern. Ian emphasised that the article is written in plain language and fairly represents both sides of the debate. He offered to share a PDF copy with the panel, acknowledging that some members might not have access through university subscriptions.

Tony Fletcher raised a question about the sources of TFA, recalling that it can originate from pesticides and pharmaceutical precursors. Ian clarified that while these can be local sources, the primary global source of TFA is the atmospheric breakdown of fluorinated refrigerants. This process has led to rising TFA levels across various environmental media worldwide. Ian reiterated that the article discusses whether this rise constitutes a global problem, noting that opinions differ significantly.

Steve Hajioff responded by clarifying that the committee's current report is focused specifically on PFAS compounds associated with firefighting foam, not TFA. While there have been discussions about expanding the scope in the future, Steve stressed the importance of completing the current work before branching out, to avoid delaying progress on more immediate concerns.

The conversation then shifted to a new multi-site PFAS exposure report from the United States, which Ian had previously shared. This report examines PFAS levels in blood samples from individuals living near sites with known histories of AFFF (aqueous film-forming foam) use, such as airports and firefighting training centres. Although the committee had referenced similar studies in their earlier review, the full report had only recently become available. Ian noted that the report provides extensive data on exposure levels across different locations.

Tony added that while average PFAS levels in the report were not significantly elevated, there were individuals with very high concentrations, particularly of PFHxS, a PFAS compound strongly linked to firefighting foam exposure. He found it notable that the highest levels were observed near known point sources, despite the overall averages being modest.

Steve asked whether the report accounted for differences in water supply, specifically whether individuals were using borehole water versus mains water. He pointed out that water source could significantly influence exposure levels, especially if mains water is piped in from less contaminated areas. Tony admitted he hadn't checked that detail but agreed it was an important consideration.

The panel briefly mentioned the Bentham study discussed in the previous meeting, which focused on PFAS exposure near a foam manufacturing site in Yorkshire. No further updates were provided on that topic, and the discussion concluded with no additional findings raised under item four.

Discussions

1. **Is there a need for new guidance/regulations on drinking water levels?**

The panel began by considering whether the current approach to managing PFAS in drinking water is sufficient, without yet debating what specific form new measures should take. Steve Hajioff clarified that the focus was on PFAS in mains water and whether existing indicative levels are appropriate for protecting public health and aligning with international best practices. He framed the discussion as a “thought experiment” to assess whether the current framework is adequate or if more action is needed.

Ian Cousins confirmed the focus on PFAS and suggested that any evaluation should also consider the current intentions and practices of Jersey Water. However, Steve proposed setting aside those specifics for the moment to focus on whether the existing standards themselves are adequate.

Tony Fletcher asked for clarification on what the current guidance and regulations actually are. Steve and Kelly Whitehead explained that Jersey does not have its own formal PFAS regulations. Instead, Jersey Water voluntarily follows UK guidance, specifically that of the Drinking Water Inspectorate (DWI). PFAS is not listed as a chemical parameter in Jersey’s water law, so the UK’s standards are used as a reference rather than being legally mandated.

Ian noted that the UK’s guidance has recently changed. The Tier 1 threshold is now set at 10 nanograms per litre for total PFAS, rather than for individual compounds. This is considered an aspirational target for water companies. However, it is not always achieved in practice.

Steve expressed concern that the absence of formal regulation or even strong local guidance leaves Jersey in a vulnerable position. He argued that relying on voluntary adherence to another country’s standards is insufficient both for reassuring the public and for ensuring compliance with international best practices. Ian agreed, stating that stronger guidance is clearly needed.

Tony added that current PFAS levels in Jersey often exceed the Tier 1 threshold of 10 nanograms per litre. While this threshold is not based on a robust toxicological standard, it is a pragmatic target chosen in the UK to represent a reasonable level of protection. He emphasised that if current efforts had successfully kept PFAS levels well below this threshold, there might be no need for additional guidance. However, since exceedances are occurring, this provides a strong rationale for implementing stricter guidance or regulation.

Steve concluded by summarising the panel’s consensus: the current regulatory and guidance framework is unclear and likely inadequate, and there is a shared view that clearer and tighter measures are needed. This conclusion sets the stage for further discussion on what specific actions or standards should be considered.

2. **Should there be separate health regulations or a single level approach?**

The next discussion point was based around whether Jersey should adopt a dual-level approach to PFAS regulation; one aspirational health-based goal and one practical, enforceable limit or whether a single regulatory level would be more appropriate. Steve Hajioff opened the discussion by framing the issue, noting that while some countries like the US and Germany distinguish between a stricter health goal and a more achievable legal limit, many others opt for a single figure, often with a phased implementation period. Tony Fletcher supported the latter approach, suggesting that Jersey should aim for a single number, as it simplifies communication and implementation.

Ian Cousins agreed, citing examples from Denmark and Sweden, where legally binding PFAS limits are being introduced. He acknowledged that while a single, legally binding number is ideal, the implications—particularly within Jersey's legal and regulatory framework—are complex and not fully understood. Ian emphasised that while the panel can make recommendations, the practicalities of enforcement, monitoring, and legal responsibility would need to be carefully considered by local authorities.

Steve expressed concern that having multiple regulatory figures could be confusing for the public and regulators alike. He proposed an approach based on the environmental health principle of "as low as reasonably practicable" (ALARP), suggesting that a single enforceable level, combined with a commitment to continual improvement as technology and understanding evolve, might strike the right balance. Tony responded by clarifying that ALARP can be interpreted in two ways: either as a guiding principle in setting the standard or as an ongoing duty to reduce levels further. He cautioned against the latter, noting that it could lead to legal ambiguity and frequent disputes over what is "reasonable." Instead, he advocated embedding the principle of practicability into the process of setting a single, clear limit.

The panel also discussed the scientific uncertainty surrounding PFAS toxicity thresholds. Tony noted that while guidance such as the EFSA's tolerable weekly intake is useful, it is not a definitive boundary between safe and unsafe exposure. He compared this to the use of ALARP in radiation protection, where risks are known to exist at all exposure levels. In contrast, PFAS may involve biological thresholds, making the application of ALARP less straightforward. Steve added that for certain PFAS compounds like PFOA, which has been classified as a carcinogen by IARC, the assumption of no safe level might still apply, reinforcing the need for caution.

Despite these complexities, the panel reached a consensus that a single regulatory level is preferable. Tony emphasised that this number should be chosen with practicability in mind and should not be seen as fixed indefinitely. Steve and Ian agreed, suggesting that the regulation should include a narrative of openness to future revision, particularly in response to new scientific evidence or international standards. Tony noted that while frequent reviews would be burdensome, updates could be triggered by significant developments from bodies like the WHO or the EU.

In conclusion, the panel agreed to recommend that Jersey adopt a single numerical target for PFAS in drinking water. This target should be clear, enforceable, and based on current best evidence, while also allowing for future improvements as knowledge and technology advance. The specifics of the number and its scope would be addressed in subsequent discussions.

3. If there is going to be guidance, should it be guidance or regulation?

The panel went on to discuss whether any future recommendations on PFAS levels in drinking water should take the form of guidance or regulation. Steve Hajioff introduced the topic by acknowledging the legal complexities specific to Jersey, noting that while both options are legally feasible, regulation would involve a more intricate and time-consuming process. He emphasised that the purpose of the discussion was not to limit the panel's recommendations but to ensure everyone understood the implications of each route.

Kelly Whitehead provided a comprehensive overview of Jersey's legal framework for water regulation. She explained that the Water (Jersey) Law 1972 governs the supply of water, with Article 9 requiring Jersey Water to provide "sufficient and wholesome water." The definition of "wholesome" is tied to a schedule of chemical parameters in the law, which currently does not include PFAS. Adding PFAS would require amending this schedule—a change to primary legislation. Kelly outlined the legislative process, which includes ministerial instruction, law drafting, public consultation (8–12 weeks), debate in the States Assembly, and ultimately Royal Assent from the monarch. Once approved and registered in the Royal Court, the law comes into force, and any breach becomes a criminal offence, subject to fines and legal proceedings.

Kelly also clarified that guidance, by contrast, could be issued more swiftly as a policy decision by the Minister. However, it would carry no legal enforcement power. Steve asked whether breaches of regulated standards would require proof "beyond reasonable doubt," and Kelly confirmed that this is indeed the case, as with any criminal matter. She explained that enforcement would involve evidence gathering, witness statements, and a decision by the Attorney General on whether prosecution is in the public interest.

Tony Fletcher and Steve Hajioff both acknowledged the clarity of the legal process but raised concerns about the practicality of using criminal law to enforce PFAS standards. Steve noted that while regulation offers strong sanctions, it also introduces a high burden of proof and limited flexibility. He suggested reframing the discussion away from a binary choice between guidance and regulation and instead focusing on whether the standard should be advisory or enforceable. This would allow for alternative enforcement mechanisms, such as contractual obligations, which would operate under civil law and be easier to implement.

Tony expressed uncertainty about the best approach, noting that Jersey's unique context—with a single water provider and close government involvement—might not require the same level of legal force as in larger jurisdictions. He suggested that if a ministerial guidance note were sufficient to achieve compliance, then regulation might be unnecessary. However, he acknowledged that this was difficult to judge without knowing how the system would function in practice.

Ian Cousins offered a contrasting view, arguing that an enforceable standard would likely inspire greater public confidence. He noted that in his experience, public trust in government varies between countries, and in Jersey, enforceability might be key to ensuring credibility. Ian also pointed out that other contaminants like mercury are already regulated, so adding PFAS to the list should be feasible.

The panel ultimately agreed that while they were not in a position to determine the specific legal mechanism, they should recommend that any PFAS level be enforceable in some form. Steve emphasised that the panel's role was to set the principle, not to dictate the legal route. Kelly confirmed that any change to primary legislation would be a decision for the Minister and the States Assembly, and that the panel's recommendation would be considered as part of that process.

In conclusion, the panel agreed that any recommended PFAS level should be enforceable, but they would not specify whether this should be through regulation, contractual means, or another mechanism. This approach allows for flexibility in implementation while maintaining a clear commitment to accountability and public reassurance.

4. **Is that level based on RPFs or not?**

The panel discussed whether Relative Potency Factors (RPFs) should be used in determining acceptable PFAS levels in Jersey's drinking water. Steve Hajioff introduced the topic by explaining that RPFs are a method of weighting different PFAS compounds based on their relative toxicity. He cautioned that while RPFs may indicate how harmful a compound is in one context—such as liver toxicity in rats—they may not accurately reflect risks in other contexts, such as cancer in humans. This variability raises concerns about the applicability and reliability of RPFs in regulatory settings.

Tony Fletcher elaborated on the origins and limitations of RPFs. He noted that initial RPFs were derived from studies on liver weight changes in rats, and later extended to immune effects in rodents. While these studies showed some consistency, they also highlighted the challenge of applying RPFs to standards driven by different health concerns. Tony pointed out that RPFs can be calculated based on either body burden (serum concentrations) or intake levels (dietary or water exposure), and the results differ depending on the method used. He expressed uncertainty about which approach had been adopted in existing models and emphasised that this arbitrariness complicates their use.

Tony also noted that RPFs have only been formally adopted in a limited context—specifically in the Netherlands—and even there, they remain advisory rather than enforceable. He argued that while RPFs may be useful for risk assessment, they are problematic for setting fixed exposure limits, especially when the mix of PFAS compounds varies. In Jersey's case, the two main PFAS of concern—PFOS and PFHxS—have RPFs that effectively cancel each other out, making the use of RPFs irrelevant to the final exposure calculation. He concluded that RPFs are an interesting scientific tool but not suitable for regulatory implementation in Jersey.

Ian Cousins supported this view, adding that while RPFs are valuable in research for their scientific accuracy, they introduce significant uncertainty and communication challenges in practical applications. He emphasised that the relevance of RPFs depends heavily on which PFAS compounds are included in the regulatory sum. For example, if only four long-chain PFAS are considered, their similar toxicities and elimination rates make simple summation acceptable. However, if a broader set of 48 PFAS is included, the lack of RPF data for many compounds makes the approach unworkable. Ian highlighted the risk of skewed results if low-potency but high-concentration compounds like PFBA or TFA are included without proper weighting.

Steve agreed with both Tony and Ian, stating that implementing RPFs in regulation or contractual terms would be highly complex, potentially leading to legal disputes without offering meaningful public health benefits. He advocated for a simpler approach: setting a total PFAS concentration limit based on a defined set of compounds. This method would be easier to monitor, enforce, and communicate, while still providing adequate protection for Jersey residents.

In conclusion, the panel unanimously agreed that RPFs should not be used in determining PFAS levels in Jersey's drinking water. Instead, they recommended a straightforward summation approach based on a selected group of PFAS compounds.

5. At what Level do we believe it is appropriate to be set?

The next discussion point is based around what PFAS concentration level should be recommended for Jersey's drinking water and which specific PFAS compounds should be included in that calculation. Steve Hajioff opened the discussion by outlining the main international approaches: the sum of four PFAS (used in countries like Sweden and Denmark), the sum of 10 PFAS (recently adopted in the UK), and the sum of 48 PFAS (used in broader European guidance). He invited the panel to consider which of these frameworks would be most appropriate for Jersey.

Tony Fletcher began by cautioning against attempting a full primary review or risk assessment, suggesting instead that Jersey should draw on existing international syntheses, particularly the EFSA tolerable weekly intake (TWI). He noted that different jurisdictions have interpreted this TWI differently, resulting in thresholds of 2, 4.4, and 4 nanograms per litre for the sum of four PFAS. Tony recommended the 4 ng/L threshold, which aligns with the Swedish model and includes three PFAS compounds known to be present in Jersey. He also proposed using the 10 ng/L threshold for the sum of 48 PFAS as a secondary, broader reference point, though he acknowledged this would introduce a second number.

Ian Cousins agreed with the 4 ng/L threshold for the sum of four PFAS, noting that it is both scientifically justified and practically achievable. He highlighted that this level is already enforceable in Sweden and Denmark and is within the detection capabilities of modern laboratories. Ian emphasised that the four PFAS included—particularly PFOS and PFHxS—are the most relevant for Jersey's water profile and health concerns. He also noted that while the 10 ng/L threshold for the sum of 48 PFAS could be useful, it should be treated as supplementary guidance rather than a primary standard.

Steve supported this consensus, expressing concern that relying solely on the 10 ng/L threshold for 48 PFAS could be misleading. For example, a high concentration of a single harmful PFAS like PFOA could still fall within the 10 ng/L limit, potentially masking a significant health risk. He agreed that the Swedish model of 4 ng/L for the sum of four PFAS offers a clearer, more protective, and enforceable standard for Jersey. The panel formally agreed to recommend this as the primary threshold.

The discussion then turned to whether the 10 ng/L threshold for the sum of 48 PFAS should be included as a secondary monitoring tool. Ian argued that it would be valuable for tracking emerging PFAS compounds, especially shorter-chain variants that may become more prevalent in the future. Tony added that Jersey Water already publishes annual data on individual PFAS and their sums, so incorporating this broader threshold into ongoing monitoring would be consistent with current practice. He proposed that this threshold be used as a guidance value, with exceedances prompting further investigation rather than enforcement.

The panel agreed to a second recommendation: that the sum of 48 measurable PFAS should remain below 10 ng/L on average, and that this data should continue to be published transparently. This would provide an additional layer of oversight and help identify trends in emerging contaminants. Tony emphasised that the list of 48 PFAS should be treated as evolving, reflecting new scientific knowledge and regulatory developments.

In conclusion, the panel agreed on two key recommendations:

- A primary enforceable threshold of 4 ng/L for the sum of four key PFAS, based on the Swedish model.
- A secondary guidance threshold of 10 ng/L for the sum of 48 PFAS, to be used for monitoring and transparency, with the understanding that the list of PFAS may change over time.

6. **What would be the necessary lead time to implementation? & What treatment technologies are appropriate, and do we make recommendations?**

The panel began by acknowledging the interconnected nature of items 10 and 11, deciding to address them together in a broader discussion. Steve Hajioff introduced the idea of considering PFAS treatment strategies across three timeframes: immediate actions, medium-term implementation, and long-term horizon scanning. He suggested that some measures could be implemented quickly without major infrastructure changes, while others would require more substantial planning and investment.

One immediate option discussed was the use of powdered activated carbon (PAC) as a short-term measure to reduce PFAS levels. Ian Cousins supported the idea in principle, noting that any intervention that lowers PFAS concentrations is beneficial. However, he emphasised the need for pilot-scale testing before implementation, as lab-scale results may not translate directly to real-world conditions. He also noted that full-scale treatment plant upgrades would take years to complete.

Steve proposed framing PAC as a “consideration” rather than a formal recommendation, similar to how healthcare guidelines sometimes suggest exploratory measures. He also raised concerns about the waste by-products of PAC treatment, particularly the disposal of treatment sludge, which had not yet been formally addressed. Tony Fletcher expressed scepticism about prioritising interim solutions, arguing that resources should be focused on developing a robust long-term strategy. Ian agreed, suggesting that while interim measures are welcome, they should not detract from the primary goal of implementing effective, permanent treatment technologies.

The panel then shifted to discussing long-term treatment options, emphasising the need for Jersey to develop sustainable methods for treating freshwater at scale. Steve stressed that relying solely on dilution with desalinated water is not a viable strategy for future water security. Ian outlined the main technologies considered in the report: granular activated carbon (GAC), ion exchange resins (IX), and membrane technologies such as reverse osmosis (RO) and nanofiltration. He noted that GAC and IX are widely used and effective for long-chain PFAS, while RO was ruled out due to high energy costs and water loss. Nanofiltration was seen as a promising future option but not yet mature enough for immediate deployment.

The panel discussed the practical challenges of each technology in the Jersey context. Steve highlighted that GAC’s advantages—such as regeneration—may not apply locally due to the lack of on-island facilities and the difficulty of transporting contaminated waste. He suggested that IX might be more suitable, given its smaller footprint and lower waste volume. Ian agreed that both GAC and IX are viable but emphasised the need for site-specific pilot testing and a whole-system cost-effectiveness appraisal, including waste disposal and infrastructure requirements.

The panel agreed that while they could not definitively rank the technologies, they could recommend a detailed options appraisal between GAC and IX, tailored to Jersey’s unique conditions. Other technologies, such as foam fractionation and novel sorbents, were acknowledged as potential components of a treatment train but not primary solutions. These could be considered in future upgrades, especially if regulations expand to include short-chain PFAS.

Regarding implementation timelines, the panel recognised the complexity of estimating how long it would take to deploy new treatment systems. Ian suggested that, based on international examples, a committed effort could achieve results in three years, but acknowledged that Jersey’s specific challenges—such as infrastructure limitations and land acquisition—could extend this to five or more years. Tony noted that large projects often take longer than planned and emphasised the link between regulatory enforcement and realistic lead times.

Ultimately, the panel agreed on a compromise recommendation: PFAS treatment should be implemented “as soon as is reasonably practicable, ideally within five years.” This phrasing provides a clear target while allowing flexibility for unforeseen obstacles. The panel emphasised the importance of honesty and transparency in their recommendations, avoiding overly optimistic timelines that could lead to future setbacks.

In conclusion, the panel recommended:

- A primary focus on long-term treatment solutions, with GAC and IX as the leading candidates.
- A site-specific options appraisal to determine the most suitable technology for Jersey.
- Interim measures like PAC are welcome but not prioritised.
- Monitoring and consideration of emerging technologies for future upgrades.
- An implementation timeline of ideally five years, acknowledging practical constraints.

Any other business

Date of next meeting

Thursday 4th September 2025. It will be held 10am - 1pm online.

The Chair thanked everyone for their contributions, those watching the meeting and those offering support throughout the whole process.

A reminder to the public that this meeting has been recorded, and the video will be available online on request by emailing the Regulation Enquiries mailbox on RegulationEnquiries@gov.je. This will take a couple of days to make sure the observers are anonymised.

There being no further business, the meeting was closed.

To note that the Panel can be emailed via PFASpanel@gov.je.

Details of meeting dates and times can be found at PFAS in Jersey (gov.je)