Outlook

New finalised PFOS ANZ water quality guideline

From [redacted]
Date Fri 3/6/2026 11:13 AM
To [redacted]
Cc [redacted]

2 attachments (879 KB)

pfos-fresh-dgvs-technical-brief.docx; WRC Suggested Changes to Draft Consent Conditions - Expert Panel Decision Copy Sent to EPA.docx;

Hi [redacted]

Just following up on the draft condition responses [redacted] sent through to you yesterday.

Water Quality Australia has just released ANZ freshwater default guidelines for PFOS as of today (please see attached PFOS technical brief)! Wish this had come out earlier in the week.

These new guidelines are based on the latest ecological toxicity data and therefore should supersede the PFAS NEMP 3.0 freshwater guideline value for PFOS (noting that for the other PFAS compound PFOA, the NEMP still stands because ANZ don't have a PFOA guideline).

The NEMP 99% protection value is 0.00023 ug/L as per Table 8

Table 8 Ecological water quality guideline values

Exposure scenario	Guideline value	PFOS µg/L	PFOA µg/L
Freshwater[a]	99% species protection – high conservation value systems [b]	0.00023	19
	95% species protection – slightly to moderately disturbed systems [c]	0.13	220
	90% species protection – highly disturbed systems	2	632
	80% species protection – highly disturbed systems	31	1824
Interim marine[d]	99% species protection – high conservation value systems	0.00023	19
	95% species protection – slightly to moderately disturbed systems	0.13	220
	90% species protection – highly disturbed systems	2	632
	80% species protection – highly disturbed systems	31	1824

Data source: Australian and New Zealand Guidelines for Fresh and Marine Water Quality – interim default guideline values for PFOS and PFOA (ANZG 2023).

a The interim guidelines do not account for effects which result from the bioaccumulation and biomagnification of toxicants in air-breathing animals or in animals which prey on aquatic organisms.

b The 99% species protection level for PFOS is close to the commercially available ultra-trace level of detection. Agencies may wish to apply an 'ultra-trace detect' threshold in such circumstances rather than a quantified measurement.

c The WQG advise that the 99% level of protection be used for slightly to moderately disturbed systems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. Environmental regulators may specify, or environmental legislation may prescribe, the level of species protection required, rather than allowing for case-by-case assessments.

d Freshwater values are to be used on an interim basis until final marine guideline values can be set using the nationally agreed process under the WQG. The WQG advise that in the case of estuaries, the most stringent of freshwater and marine criteria apply, taking account of any available salinity correction. Marine guideline values developed by CRC CARE are under consideration through the nationally agreed water quality guideline development process.

The latest ANZ 99% protection value just released as of today is 0.02 ug/L which is significantly higher but is not protective of bioaccumulation.

Table 2 Default guideline values, PFOS anion in freshwater, very high reliability

Level of species protection (%)	DGV for PFOS anion in freshwater (µg/L) [a, b]
99	0.02
95	0.9
90	4
80	20

a Default guideline values were derived using the shinyssdtools (V 0.4.0) software, and have been rounded according to the details provided in Appendix E.
b The DGVs may not adequately protect higher order biota from effects due to bioaccumulation of PFOS. Refer to Section 4.3.2 for further details and guidance.

The ANZ guidelines therefore recommend that the biota screening value of 0.0005 ug/L would therefore be the level for ensuring protection against bioaccumulation in aquatic species:

Table 3 Biota screening threshold for PFOS in freshwater for triggering an assessment of PFOS concentrations in aquatic biota

Biota screening threshold (µg/L) [a]	Supporting references
0.0005	Vardy et al. (2025); also see Appendix F

a The threshold value relates to a concentration of PFOS in freshwater that, if exceeded, may result in PFOS concentrations in aquatic biota that exceed the PFAS NEMP 3.0 biota guideline values (HEPA 2025).

While this value of 0.0005 ug/L is not that much different to the NEMP 99% value of 0.00023 ug/L which we have referred to in the recommended consent conditions, there is much better evidence and science that has gone in to deriving this value.

I have therefore made some recommended changes to the condition table that [redacted] sent through yesterday (highlighted in yellow) that specifies the ANZ biota screening threshold for PFOS for consideration depending on the panel's decision whether to include this guideline or retain the NEMP guideline for PFOS.

Regards

[redacted]

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