

REPORTS TO COUNCIL - ITEMS FOR INFORMATION

10.5 PFAS Testing for QPRC Drinking Water Supplies (Ref: ; Author: Duff/Cunningham)

File Reference: 32.1.1-08

Recommendation**That the report be received for information.**

Report

Following recent public interest and social awareness, Council conducted baseline testing for PFAS (per and polyfluoroalkyl substances) in our drinking water supplies across the Queanbeyan-Palerang region, noting Queanbeyan receives its drinking water from ICON Water in the ACT under agreement. No previous PFAS testing had been undertaken by QPRC. ICON has separately confirmed that no PFAS has been detected in the drinking water supplied to Queanbeyan.

PFAS test results from samples taken 24 September 2024 showed that all our QPRC drinking water supplies are compliant to current Australian Drinking Water Guidelines (ADWG). All drinking water supplies tested all clear for PFAS, except Bungendore which returned very low-level detection.

The first Bungendore result was 0.004 µg/L for PFOS and 0.003 µg/L for PFHxS with a sum total of 0.007 µg/L or 7 parts per trillion (ppt). A second test was taken (for Bungendore only) on 8 October 2024 with a result of 0.004 µg/L for PFOS and 0.002 µg/L for PFHxS and a sum total of 0.006 µg/L, or 6 ppt.

Bungendore drinking water supply is served from two separate systems, being the Currandooley Bore and Treatment Plant (off Tarago Rd) and a township bore array and Aeration Facility (off Bungendore Road). Both systems draw from what is known as the Bungendore Alluvial Groundwater Source. The Currandooley system has tested all clear for PFAS.

The first PFAS sum result for the township bore array was sampled post-aeration facility where it then delivers into the supply network. The second test was made to locate the source and included samples from each of the four township bores (numbered #1, #2, #3 and #6) as well as the post-aeration facility with the following results, noting Bores #1 and #2 tested all clear for PFAS.

Bungendore	Test 1	Test 2		
	24 September 2024	8 October 2024		
PFAS	Post-Aeration	Bore #3	Bore #6	Post-Aeration
PFOS	0.004 µg/L	0.009 µg/L	0.007 µg/L	0.004 µg/L
PFHxS	0.003 µg/L	0.002 µg/L	0.005 µg/L	0.002 µg/L
Sum	0.007 µg/L	0.011 µg/L	0.012 µg/L	0.006 µg/L
PFOA	Nil	Nil	Nil	Nil
PFBS, Gen X	Nil	Nil	Nil	Nil

10.5 PFAS Testing for QPRC Drinking Water Supplies (Ref: ; Author: Duff/Cunningham) (Continued)

Due to the unexpected PFAS results for Bungendore, Council immediately notified and have since been working closely with the drinking water regulator and relevant authorities including NSW Health (Water Unit), NSW EPA and the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

The National Health and Medical Research Centre (NHMRC) is the leading expert on public health matters and the relevant authority for developing and updating the ADWG. The current ADWG have been adopted by the drinking water regulator, NSW Health who oversee suppliers including QPRC for compliance. This includes limits for PFAS in their determination as to whether the water is safe to drink.

The values detected are very low-level and remain compliant to ADWG. NSW Health have assured Council that the NHMRC has confirmed that while the new proposed guideline values - yet to be confirmed or put in place, are lower than current values, the drinking water at Bungendore remains safe.

As part of our preliminary root cause investigations and risk management activities, the NSW EPA has been contacted for alignment and guidance in determining how the PFAS source can be identified. The EPA are not conducting their own investigations at this time.

Council staff will continue to liaise with relevant agencies and will ensure that the Bungendore community is kept informed and as we work on our own response plan, investigations and next steps.

This includes ongoing operational system balancing and fortnightly PFAS testing until the nature and pattern of the results can be clearly demonstrated, as well as any taking any proactive steps necessary to provide compliant drinking water.

PFAS compromises the following compounds:

- PFOS (perfluorooctane sulfonic acid)
- PFHsX (perfluorohexane sulfonate)
- PFOA (perfluorooctanoic acid)
- Other (PFBS, GenX, no current health-based guideline)

PFAS is measured in the ADWG in terms of micrograms per litre or units µg/L, which convert as follows for nanograms per litre ng/L, and parts per trillion, ppt:

- 0.001 µg/L = 1 ng/L
- 1 ng/L = 1 part per trillion (ppt)
- Example: 0.07 µg/L = 70 ng/L = 70 ppt

Council is implementing a coordinated response plan to manage and mitigate PFAS levels detected in the Bungendore water supply. The main activities include:

- Testing:
 - Fortnightly tests will continue until it can be determined whether PFAS levels are static, declining or increasing.
 - Once the nature and pattern of results are clearly demonstrated, the testing frequency will be reassessed in consultation with NSW Health.
- Operations:

10.5 PFAS Testing for QPRC Drinking Water Supplies (Ref: ; Author: Duff/Cunningham) (Continued)

- Continued system sequencing and balancing of all available raw water supply sources to mitigate and reduce levels of PFAS in the network.
 - Continued liaison with the regulator and relevant agencies to keep informed and aligned with government direction of travel on PFAS.
 - Continued situation updates and reporting for Council and the community through business-as-usual communications.
- Root Cause Investigations for potential PFAS source:
 - Preliminary enquiries into the Bungendore hydrogeology and groundwater characteristics, past land uses, adjacent facilities and potential causes near Bores #3 and #6 seeking to identify matters for further examination with support from government agencies as required, including NSW Health, NSW EPA, DCCEEW and DPI.
 - Subject to preliminary findings and resource support from government agencies, continue root cause investigations as required.
 - Establish and maintain an active risk register to capture identified hazards and appropriate control measures.
- Future options and assessment of longer-term solutions (subject to resources and support from government agencies) including:
 - Remediation of any identified PFAS source if feasible and practical to do so.
 - Removal of PFAS through methods such as Reverse Osmosis, Activated Carbon, or Ion Exchange if feasible and practical to do so.
 - Replacement of Bores #3 and #6 with alternative raw water sources including substitute bore sites if feasible and practical to do so.
 - Expediting the Queanbeyan to Bungendore Pipeline Project.

In recent months there has been increasing public interest in the potential for PFAS chemicals in Australian drinking water supplies. PFAS incorporates a group of synthetic chemical compounds that have been in wide use globally since the 1950's for their unique properties to resist heat, stains, grease and water.

The Water Service Association of Australia (WSAA) reports typical uses for these chemicals to include firefighting foams, food packaging, sunscreen, photographic and lithographic processes, waterproof clothing, fertilisers, textiles and leather products, shampoos, denture cleaners, hydraulic fluids, non-stick cookware, floor polishes, metal plating, cosmetics, medical devices, carpets, pesticides, coating and coating additives.

PFAS compounds are known to have very strong molecular bonds that make them resistant to degradation, which means that they can persist in the environment for a long time. This characteristic is why they are sometimes referred to as 'forever chemicals'.

The persistent characteristics of PFAS, both in terms of its longevity and extent, means that there is a risk of its presence in drinking water supplies. Recent media investigations have assisted in raising awareness of this risk with several water suppliers now actively testing for PFAS.

On 21 October 2024, the NHMRC released a consultation draft for its proposed new PFAS guideline values.

10.5 PFAS Testing for QPRC Drinking Water Supplies (Ref: ; Author: Duff/Cunningham) (Continued)

The table below shows the comparison from the current ADWG to the draft NHMRC proposal which is currently open for public consultation.

Compound	Existing ADWG	Draft NHMRC Proposal
PFOS	0.07 µg/L	0.004 µg/L ng/L (less than 4 ppt)
PFHxS	(70 ng/L or 70 parts per trillion of PFOS and PFHxS combined)	0.030 µg/L ng/L (less than 30 ppt)
PFOA	0.56 µg/L	0.20 µg/L ng/L (less than 200 ppt)
PFBS	(560 ng/L, or 560 parts per trillion) N/A	1.0 µg/L ng/L (less than 1000 ppt)

It is important to note that both test results for Bungendore are approximately 10 times under the ADWG guideline value of 0.070 µg/L or 70 ppt (sum of PFOS and PFHxS) however PFOS at 0.004 µg/L is right on the proposed PFOS level of 0.004 µg/L. PFHxS levels detected at 0.002 µg/L are well below the proposed level of 0.030 µg/L.

Council have released a statement on the recent PFAS developments which is published on the QPRC website at <https://www.qprc.nsw.gov.au/Services/Water/PFAS> along with other information and useful links which will be periodically updated.

The next range of tests for the Bungendore water supply will be undertaken in the first week of November, the results of which should be returned by 15 November 2024 and published on Council's website.

Attachments

Nil