Technical Memorandum

Subject	Yandicoogina Gorge PFAS Summary		
Client	BHP Western Australia Iron Ore	**Project No.**	PTG/01139
Date	31/03/2025	**Revision**	A
Prepared by	Riccardo Divita	**Office**	Perth

1 INTRODUCTION

Monitoring has been undertaken to develop an understanding of ground and surface water conditions in the vicinity of Yandicoogina Gorge during the implementation of the re-injection program.

As part of this, sampling for Per- and poly-fluoroalkyl substances (PFAS) at various times and locations from January/February has been undertaken pre and post injection.

This memorandum provides a snapshot of PFAS water quality results to date relating to PFAS compounds only. Detailed methodology and results will be provided in subsequent water quality reporting.

2 GROUNDWATER QUALITY RESULTS

The Ministers North area has been broken up into five areas as shown on Figure 1. Groundwater bores have been group based on geological location (i.e. ore bodies, lithological units) and proximity to the re-injection bore, HMN0045P.

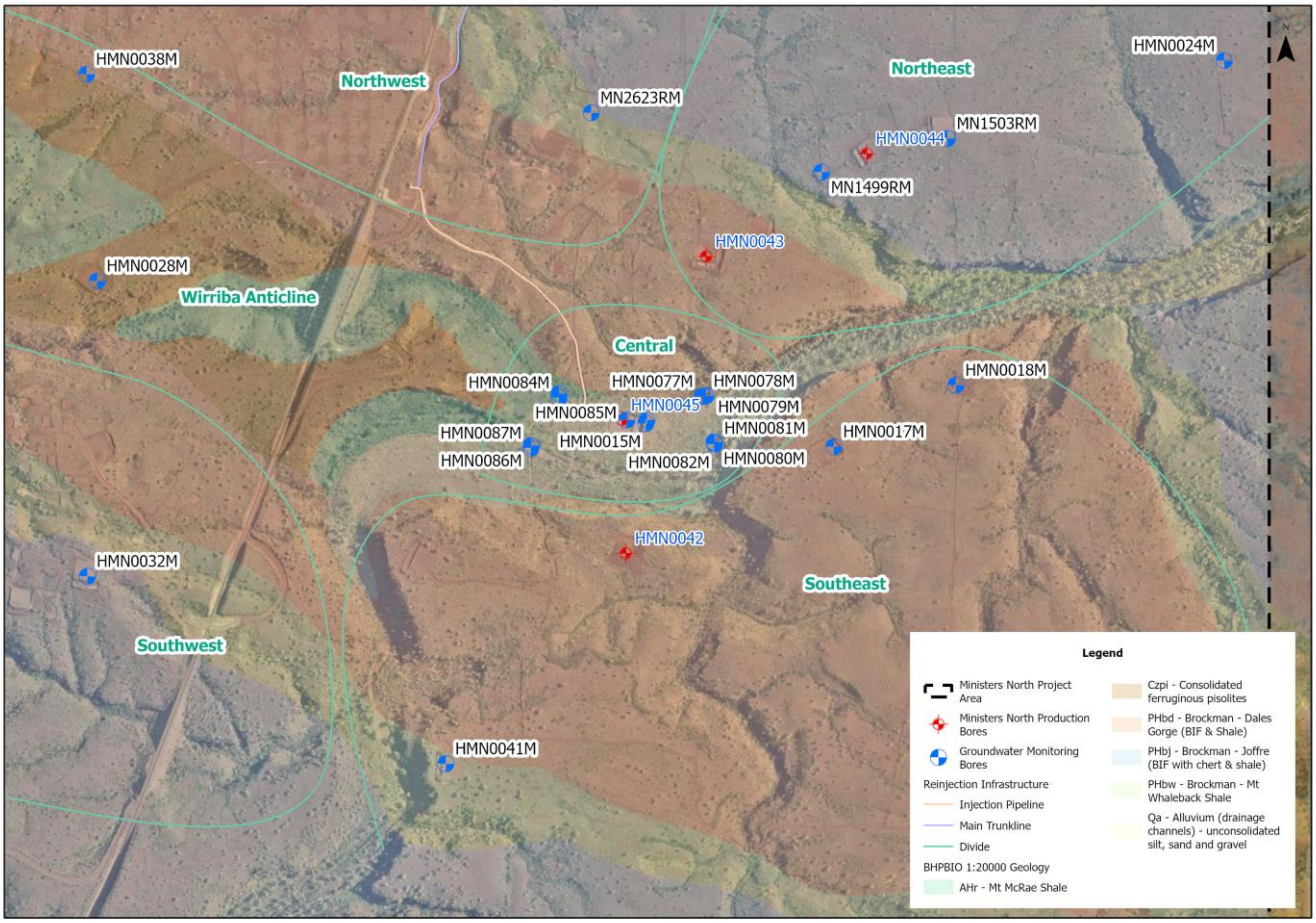


Figure 1: Groundwater Monitoring Locations

For assessment purposes, values were compared to human health and environmental guidelines frequently used in contaminated site investigations to protect the most sensitive land uses and receptors and the BHP Trigger Action Response Plan (TARP) trigger value. Further information on guidelines selected is available in the water quality monitoring report.

A summary of results is presented in Table 1 with detection of PFAS (regulated or unregulated) shown on Figure 1, Attachment A and tabulated results provided in Attachment B.

Table 1: Summary of PFAS Occurrence in Groundwater Bores

Location	Number of bores	Number of samples (number of analytes)	Number of detects (% based on 30 analytes)	Number of exceedances (% based on 4 regulated analytes)
Southwest	1	3 (90)	2 (2.2%)	2 (16.6%)
Southeast	5	44 (1,320)	2 (0.2%)	2 (1.1%)
Northwest	2	12 (360)	3 (0.8%)	3 (6.3%)
Northeast	5	28 (840)	6 (0.7%)	2 (1.8%)
Wirriba Anticline	2	12 (360)	2 (0.6%)	0 (0%)
Central	14	83 (2,490)	65 (2.6%)	29 (8.7%)
Total	29	194 (5,460)	80 (1.4%)	38 (4.9%)

PFAS across all bores did not show significant diversity (i.e. limited individual analytes detected) and were generally within an order of magnitude or below the limit of detection (LOD). With the exception of the central location (refer below), when detected, PFAS either occurred as Perfluorooctane Sulfonate (PFOS) or as Perfluoroalkane Carboxylic Acids (PFCAs)) which are terminal products (i.e. no further transformation products will form from them under environmental conditions).

The only criteria to be exceeded is the current Freshwater 99% Australian and New Zealand Guidelines (ANZG) Toxicant Default Guideline Value (DGV) (38 out of 127 samples). It should be noted that the PFOS concentrations would be below the proposed draft Freshwater 99% value (0.0091 µg/L), and on most occasions, by an order of magnitude. The BHP TARP trigger value was not exceeded on any occasion.

The Concentrations detected in groundwater bores do not show any temporal patterns, and more importantly, show no change pre and post injection.

Results across each divide shown in Figure 1 are summarised below:

- **Southwest**- one bore has been sampled for PFAS on 3 occasions. On two occasions, PFAS was detected above the LOR, and on two occasions, above the Freshwater 99% ANZG Toxicant DGV.
- **Southeast**- five bores have been sampled for PFAS on a total of 44 occasions. On two occasions, PFAS was detected above the LOR, and on two occasions, above the Freshwater 99% ANZG Toxicant DGV.
- **Northwest**- two bores have been sampled for PFAS on a total of 12 occasions. On three occasions, PFAS was detected above the LOR, and on three occasions, above the Freshwater 99% ANZG Toxicant DGV.
- **Northeast**- five bores have been sampled for PFAS on a total of 28 occasions. On six occasions, PFAS was detected above the LOR, and on two occasions, above the Freshwater 99% ANZG Toxicant DGV.
- **Wirriba Anticline**- two bores have been sampled for PFAS on a total of 12 occasions. On two occasions, PFAS was detected above the LOR, with no exceedances of the Freshwater 99% ANZG Toxicant DGV.
- **Central**- 14 bores have been sampled for PFAS on a total of 83 occasions. On 65 occasions, PFAS was detected above the LOR, and on 29 occasions, above the Freshwater 99% ANZG Toxicant DGV.

  Newly installed bores within the central area all exhibited a higher diversity of PFAS compounds with Fluorotelomersulfonic Acids detected. Under natural conditions these may ultimately transform, primarily into PFCAs (currently detected in bores throughout Ministers North), and under normal environmental conditions, the transformation will stop. It is likely the concentrations in these bores are reflective of PFAS compounds been present in drilling muds and/or water utilised in drilling or development.

3 SURFACE WATER QUALITY RESULTS

3.1 Re-injection water

PFAS concentrations in the Transfer Tank (November and December 2024) has not exceeded any human health or ecological (current or in draft). Typically, two to four compounds are detected, predominantly comprising PFCAs.

The Discharge Point, which has been sampled since August 2024 to represent the source of re-injection water, is similar in concentration and composition with the exception of PFOS which has been detected (4 out of 6 samples) above the current Freshwater 99% ANZG Toxicant DGV. It should be noted that the PFOS concentrations would be below the proposed draft Freshwater 99% value (0.0091 µg/L) by an order of magnitude.

3.2 Delaney Pool

PFAS concentrations in Delaney Pool (April to November 2024) are below detection limits and do not exceed any human health or ecological (current or in draft) with the exception of PFOS. PFOS exceeded the Freshwater 99% ANZG Toxicant DGV on 4 out of 9 occasions. PFOS concentrations would be below the proposed draft Freshwater 99% value (0.0091 µg/L) by an order of magnitude.

Similar to groundwater, Delaney Pool had limited diversity of PFAS compounds detected with only PFOS and one occurrence of PFPeA (a PFCA) detected.

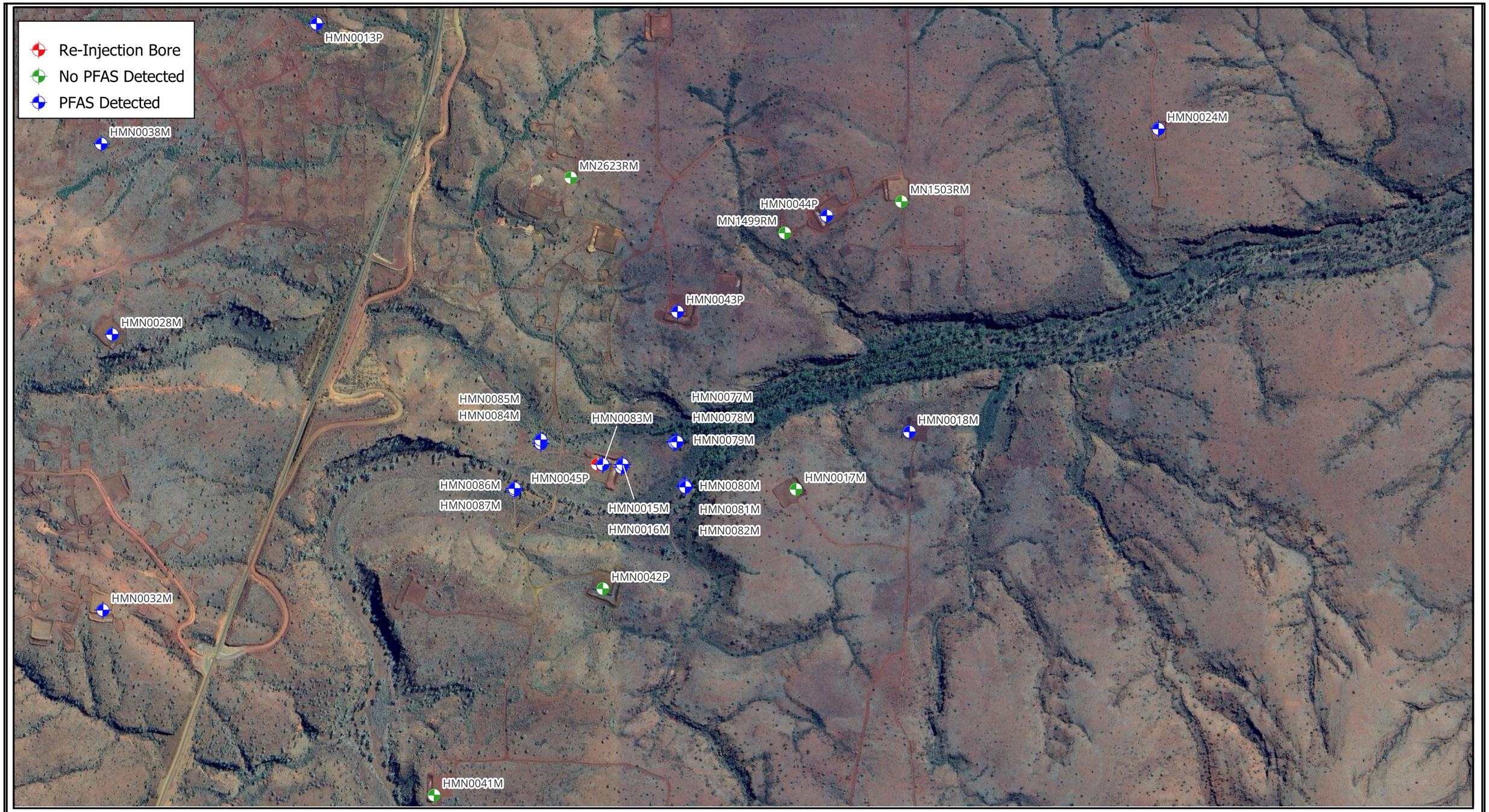
4 CONCLUSION

The information gathered since groundwater monitoring commenced in 2024 provides baseline data on the occurrence of PFAS at Ministers North and Yandicoogina Gorge.

Overall, the concentrations and diversity of PFAS compounds is low/limited. While there are exceedances of the current Freshwater 99% ANZG Toxicant DGV, concentrations would be below the proposed draft Freshwater 99% Toxicant DGV (0.0091 µg/L), and on most occasions, an order of magnitude lower.

It is likely that the concentrations of PFAS are ambient, typically within an order of magnitude or below the LOD. The ambient concentrations of PFAS detected is not unexpected and is likely from exploration drilling practices at the time which would have included fire suppression systems change outs on drill pads and potentially contaminated source water for drilling and drill muds which may have contained PFAS compounds. Given there are sources of PFAS within Ministers North, concentrations are not expected to change.

ATTACHMENT A –
FIGURE



Minister North - PFAS Detection 2024
Hydrogeological Investigation
Project: Yandicoogina Gorge Re-Injection Trial

Client: - BHP
Project Code: - PTG 01139
Drawn By: AW, Checked By: RD
Date: (2025-03-31)
Figure No: 1.1

BHP

ptg consulting

N

0 80 160 m

Projection : GDA94 / MGA zone 50

Scale at A3: 1:10000

ATTACHMENT B –
LABORATORY DATA

				(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkane Carboxylic Acids										Perfluoroalkane Sulfonic Acids							Perfluoroalkyl Sulfonamides							PFAS			
				4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluoropropanesulfonic Acid (PFPrS)	Perfluorobutane sulfonic Acid (PFBS)	Perfluoropentane sulfonic Acid (PFPeS)	Perfluorohexane sulfonic Acid (PFHxS)	Perfluoroheptane sulfonic Acid (PFHpS)	Perfluorooctane sulfonic Acid (PFOS)	Perfluorodecane sulfonic Acid (PFDS)	Perfluorooctane Sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane Sulfonamide (NeFOSA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-ethyl perfluorooctane Sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane Sulfonamidoethanol (EtFOSE)	Perfluorononanesulfonic acid (PFNS)	Sum of PFASs and PFOS	Sum of PFAS	Sum of PFAS (WA DER List)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR				0.001	0.001	0.001	0.001	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0005	0.0005	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0000005	0.0002	0.0002	0.0002
PFAS NEMP 2018 Table 5 Freshwater 95%												220												0.13											
PFAS NEMP 2018 Table 5 Freshwater 99%												19												0.00023											
PFAS NEMP 2020 Drinking Water												0.56											0.07	0.07									0.07		
PFAS NEMP 2020 Recreational Water												10											2	2									2		
Proposed PFAS Freshwater 95% - ANZG in DRAFT																								0.13											
Proposed PFAS Freshwater 99% - ANZG in DRAFT																								0.0091											
RMP TARP Trigger Values																								0.0091 | 10										
Location Code	**Field ID**	**Date**	**Lab Report Number**																																
Delaney Pool	Delaney Pool	20 Apr 2024	EP2405524	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0003	0.0003	0.0003
	Delaney Pool	19 May 2024	EP2406953	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	Delaney Pool	23 Jun 2024	EP2409502	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	Delaney Pool	05 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	Delaney Pool	06 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	Delaney Pool	04 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0049	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0053	0.0053
	Delaney Pool	03 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0003	0.0003
	Delaney Pool	14 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	Delaney Pool	28 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0003	0.0003
Discharge Point	Discharge Point	06 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	0.0030	0.0045	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0009	0.01	0.0100
	Discharge Point	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	0.0023	0.0036	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0074	0.0074
	Discharge Point	05 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	0.0009	0.0014	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0032	0.0032
	Discharge Point	15 Nov 2024	EP2417148	0.0021	0.0037	0.0062	0.0019	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0139	0.0139
	Discharge Point	28 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0013	0.0017	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.004	0.0040
	Discharge Point	20 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	<0.002	0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0007	<0.0005	<0.0005	<0.0005	0.0004	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0025	0.0025
Transfer Tank	Transfer Tank	03 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	0.0020	0.0029	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0002	0.0066	0.0066
	Transfer Tank	14 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	0.0007	0.0011		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0018	0.0018
	Transfer Tank	28 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0006	0.0008	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0002	0.0021	0.0021
	Transfer Tank	21 Dec 2024	EP2419357	0.0024	0.0041	0.0060	0.0021	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0146	0.0146
HMN0013P	HMN0013P	21 Apr 2024	EP2405524	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0013P	20 May 2024	EP2406953	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0013P	23 Jun 2024	EP2409502	<0.001	0.010	0.003	<0.001	0.0294	0.0020	<0.0005	0.0010	0.0014	0.0026	0.0007	0.0011	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0058	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0058	0.0570	0.0526
	HMN0013P	05 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0014	0.0014	0.0014
	HMN0013P	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0013P	05 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0013P	31 Oct 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0004	0.0004
	HMN0013P	15 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0013P	27 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
HMN0015M	HMN0015M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0015M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0015M	01 Dec 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0021	0.0014		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0035	0.0035
	HMN0015M	20 Dec 2024	EP2419357	0.0385	0.0227	0.0040	0.0018	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0676	0.0676
HMN0016M	HMN0016M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	0.0186	0.0040	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0005	0.0255	0.0255
	HMN0016M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	0.0203	0.0042	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.026	0.0260
	HMN0016M	01 Dec 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0191	0.0037	0.0016	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0249	0.0249
	HMN0016M	20 Dec 2024	EP2419357	0.0128	0.0038	0.0013	0.0008	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0187	0.0187
HMN0017M	HMN0017M	01 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0017M	16 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0017M	29 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0017M	11 Dec 2024	EP2419358	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
HMN0018M	HMN0018M	21 Apr 2024	EP2405524	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	19 May 2024	EP2406953	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	22 Jun 2024	EP2409502	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	03 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0006	0.0006	0.0006
	HMN0018M	07 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	03 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	01 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	16 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	29 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0018M	11 Dec 2024	EP2419358	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
HMN0024M	HMN0024M	31 Oct 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	0.0480	<0.0005	0.0061	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0017	<0.0005	<0.0005	<0.0005	0.0022	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0022	0.058	0.0580
	HMN0024M	17 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0006	0.0006
	HMN0024M	27 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0006			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	0.0006	0.0006
HMN0028M	HMN0028M	21 Apr 2024	EP2405524	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0028M	20 May 2024	EP2406953	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0000005	<0.0002	<0.0002	<0.0002
	HMN0028M	23 Jun 2024	EP2409502	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

				(n:2) Fluorotelomer Sulfonic Acids				Perfluoroalkane Carboxylic Acids									Perfluoroalkane Sulfonic Acids							Perfluoroalkyl Sulfonamides							PFAS			
				4:2 Fluorotelomer Sulfonic Acid (4:2 FTS)	6:2 Fluorotelomer Sulfonic Acid (6:2 FTS)	8:2 Fluorotelomer Sulfonic Acid (8:2 FTS)	10:2 Fluorotelomer Sulfonic Acid (10:2 FTS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluoropropanesulfonic Acid (PFPrS)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluoropentane Sulfonic Acid (PFPeS)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluoroheptane Sulfonic Acid (PFHpS)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorodecane Sulfonic Acid (PFDS)	Perfluorooctane Sulfonamide (FOSA)	N-Methyl Perfluorooctane Sulfonamide (MeFOSA)	N-Methyl Perfluorooctane Sulfonamidoacetic Acid (NMeFOSAA)	N-methyl Perfluorooctane Sulfonamidoethanol (NMeFOSE)	N-Ethyl Perfluorooctane Sulfonamide (EtFOSA)	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	N-Ethyl Perfluorooctane Sulfonamidoethanol (EtFOSE)	Perfluorononanesulfonic Acid (PFNAS)	Sum of PFASs and PFOS	Sum of PFAS	Sum of PFAS (WA DOH List)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR				0.001	0.001	0.001	0.001	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0005	0.0005	0.001	0.0005	0.001	0.001	0.0005	0.001	0.0000005	0.0002	0.0002	0.0002
PFAS NEMP 2018 Table 5 Freshwater 95%												220												0.13											
PFAS NEMP 2018 Table 5 Freshwater 99%												19												0.00023											
PFAS NEMP 2020 Drinking Water												0.56											0.07	0.07									0.07		
PFAS NEMP 2020 Recreational Water												10											2	2									2		
Proposed PFAS Freshwater 95% - ANZG in DRAFT																								0.13											
Proposed PFAS Freshwater 99% - ANZG in DRAFT																								0.0001											
RMP TARP Trigger Values																								0.0001 | 10										
Location Code	**Field ID**	**Date**	**Lab Report Number**																																
	Delaney Pool	20 Apr 2024	EP2405524	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0003	0.0003
	Delaney Pool	19 May 2024	EP2406953	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0078M	04 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	0.0037	0.0016	0.0029	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0008	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0103	0.0103
	HMN0078M	08 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	0.0006	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0017	0.0017
	HMN0078M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.001	0.0010
HMN0078M	HMN0078M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0007	0.0007
	HMN0078M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0007	0.0007
	HMN0078M	01 Dec 2024	EP2418029	<0.001	0.001	<0.001	<0.001	<0.002	0.0009	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0027	0.0027
	HMN0078M	20 Dec 2024	EP2419357	<0.001	0.003	<0.001	<0.001	<0.002	<0.0005	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0067	0.0067
	HMN0079M	04 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	0.0016	0.0027	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0051	0.0051
	HMN0079M	08 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	0.0007	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0014	0.0014
	HMN0079M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0007	0.0007
HMN0079M	HMN0079M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0011	0.0011
	HMN0079M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	0.0008	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0019	0.0019
	HMN0079M	01 Dec 2024	EP2418029	<0.001	0.002	<0.001	<0.001	<0.002	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0033	0.0033
	HMN0079M	20 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	<0.002	0.0025	0.0014	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0044	0.0044
	HMN0080M	04 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	0.0095	0.0068	0.0021	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0137	0.0137
	HMN0080M	08 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	0.0123	0.0089	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0015	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0006	0.0171	0.0171
	HMN0080M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	0.0064	<0.0005	0.0017	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0043	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0124	0.0124
HMN0080M	HMN0080M	02 Nov 2024	EP2416348	<0.001	0.002	<0.001	<0.001	0.0075	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0029	<0.0005	<0.0005	<0.0005	0.0004	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0004	0.0128	0.0128
	HMN0080M	13 Nov 2024	EP2417148	<0.001	0.003	<0.001	<0.001	0.0078	0.0069	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0027	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0152	0.0152
	HMN0080M	30 Nov 2024	EP2418029	<0.001	0.002	<0.001	<0.001	0.0077	0.0021	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0019	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0147	0.0147
	HMN0080M	19 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	0.0030	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0010	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0043	0.0043
	HMN0081M	04 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0002	0.0002	0.0002
	HMN0081M	08 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0007	0.0007
	HMN0081M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
HMN0081M	HMN0081M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0081M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0081M	01 Dec 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0081M	20 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0082M	04 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	0.0006	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0013	0.0013
	HMN0082M	08 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0006	0.0006
	HMN0082M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0006	0.0006
HMN0082M	HMN0082M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0018	0.0018
	HMN0082M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0082M	01 Dec 2024	EP2418029	<0.001	0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.001	0.0010
	HMN0082M	20 Dec 2024	EP2419357	<0.001	0.001	<0.001	<0.001	<0.002	0.0010	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0032	0.0032
	HMN0083M	06 Aug 2024	EP2411158	<0.001	<0.001	<0.001	<0.001	<0.002	0.0025	0.0025	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0007	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0007	0.0101	0.0075
	HMN0083M	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	0.0054	0.0040	0.0038	0.0017	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0010	<0.0005	<0.0005	<0.0005	0.0013	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0013	0.0181	0.0181
	HMN0083M	05 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	0.0096	0.0054	0.0065	0.0025	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0018	<0.0005	<0.0005	<0.0005	0.0025	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0025	0.0295	0.0295
HMN0083M	HMN0083M	02 Nov 2024	EP2416348	<0.001	0.001	<0.001	<0.001	0.0047	0.0016	0.0019	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0015	0.0122	0.0122
	HMN0083M	13 Nov 2024	EP2417148	<0.001	0.010	<0.001	<0.001	0.0024	0.0021	0.0021	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0008	0.0197	0.0197
	HMN0083M	01 Dec 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	0.0021	0.0042	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0007	0.0079	0.0079
	HMN0083M	20 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	0.0036	0.0050	0.0109	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0006	0.0215	0.0215
	HMN0084M	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	0.0078	0.0033	0.0055	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0011	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0007	0.0202	0.0202
	HMN0084M	05 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	0.0063	0.0035	0.0062	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0024	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0007	0.0205	0.0205
HMN0084M	HMN0084M	02 Nov 2024	EP2416348	<0.001	0.004	<0.001	<0.001	0.0079	0.0032	0.0051	0.0015	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0011	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0005	0.0233	0.0233
	HMN0084M	13 Nov 2024	EP2417148	<0.001	0.003	<0.001	<0.001	0.0077	0.0036	0.0060	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0011	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0005	0.0237	0.0237
	HMN0084M	27 Nov 2024	EP2418029	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0010	0.0010
	HMN0084M	20 Dec 2024	EP2419357	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0085M	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0085M	05 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
HMN0085M	HMN0085M	02 Nov 2024	EP2416348	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0085M	13 Nov 2024	EP2417148	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
	HMN0085M	27 Nov 2024	EP2418029	<0.001	0.002	<0.001	<0.001	<0.002	0.0008	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0034	0.0034
	HMN0085M	20 Dec 2024	EP2419357	<0.001	0.006	<0.001	<0.001	0.0025	0.0031	0.0017	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	<0.0005	0.0139	0.0139
	HMN0086M	09 Sep 2024	EP2413020	<0.001	<0.001	<0.001	<0.001	<0.002	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0003	0.0016	0.0016
	HMN0086M	07 Oct 2024	EP2414675	<0.001	<0.001	<0.001	<0.001	<0.002	0.0012	0.0019	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.001	<0.0005	<0.001	<0.