NJ DWQI Testing Subcommittee

PQL Report on Perfluorononanoic acid (PFNA)

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Due to the limited number (2) of laboratories performing analyses for PFNA in the NJDEP PFC database, the Testing Subcommittee reviewed analytical information from other laboratories performing PFC analyses. In considering other sources of PFNA data, the following criteria were established by the Testing Subcommittee:

1) Laboratories must be drinking water laboratories certified by NJDEP OQA, NELAP, or EPA.

2) The laboratories must use methods that have been vetted by NJDEP OQA, EPA or analogous certifying body.

3) Only those laboratories using methods with minimum reporting limits lower than the proposed PFNA interim specific ground water criterion (ISGWC) of 20 ng/L would be considered.

Laboratory Data Meeting Criteria for Determination of PQL Using MDLs

Laboratory/ Location	Method	Reporting Limit (ng/L)	MDL (ng/L)	Accreditation
American Water Central Laboratory Illinois	EPA Method 537	1	0.13	UCMR3
Axys Analytical Services LTD Canada	Proprietary MLA -060	1	0.4	NELAP-FL
Vista Analytical Laboratory California	EPA Method 537	2	0.342	NELAP- OR Department of Defense
Test America Sacramento California	Proprietary WS-LC-0025 Rev 1.2	2	0.65	Department of Defense
Eurofins Lancaster Laboratories Environmental	EPA Method 537	2	1	NELPA-NJ
Eurofins Eaton Analytical California	EPA Method 537	2.5	0.35	NELAP-NJ
Eurofins Eaton Analytical California	Proprietary MWH PFC EXTRA	5	0.327	NELAP-NJ
State Hygienic Laboratory-Coralville Iowa	EPA Method 537	16	1.39	UCMR3
BSK Associates California	EPA Method 537	10	0.476	UCMR3

PQL determination using Median MDL derived from inter-laboratory MDLs

Median MDL = 0.4 ng/L
Median MDL X 5 = 2.0 ng/L

PQL would be 2 ng/L

PQL developed by using mean of reporting limits

Laboratory	Reporting Limit (RL) (ng/L)	MRL confirmation or verification of RL	Method Detection Limit (ng/L)	Lowest Calibration Standard (ng/L)	Method
American Water Central Laboratory	1	Yes	0.13	1	EPA Method 537
Axys Analytical Services Ltd.	1	Yes	0.4	0.5	Axys SOP MLA-060
BSK Associates	10	Yes	0.476	2	EPA Method 537
Eurofins Eaton Analytical CA	2.5	Yes	0.35	2.5	EPA Method 537
Eurofins Eaton Analytical CA	5	Yes	0.327	2.5	MWH-PFC- Extra
Eurofins Lancaster Laboratories Environmental	2	Yes	1	2	EPA Method 537
State Hygienic Laboratory Coralville	16	Yes	1.39	6.27	EPA Method 537
Test America Sacramento ,	2	No	0.65	1	WS-LC-0025 Rev 1.2
Vista Analytical Laboratory	2	Yes	0.342	2	EPA Method 537
Mean	4.9		0.6	2.3	
Median	2.3		0.4	2.0	

Bootstrap Estimate of a Confidence Interval of a Mean

generated using the inter-laboratory MDLs :

Lower Confidence Limit (ng/L)	Mean (ng/L)	Upper Confidence Limit (ng/L)	Confidence Level Range	Number of Randomly Selected Values
0.36	0.61	0.91	95.15%	2000

The upper confidence limit of the mean MDL x 5 = 4.6 ng/L

Bootstrap Estimate of a Confidence Interval of a Mean

generated using the inter-laboratory reporting limits :

Lower Confidence Limit (ng/L)	Mean (ng/L)	Upper Confidence Limit (ng/L)	Confidence Level Range	Number of Randomly Selected Values
1.89	4.61	8.11	95.15%	2000

Bootstrap Estimate of a Confidence Interval of a Mean

generated using the inter-laboratory reporting limits but eliminating the two laboratories that have RLs above the 95.15% confidence level of 8.11 ng/L :

Lower Confidence Limit (ng/L)	Mean (ng/L)	Upper Confidence Limit (ng/L)	Confidence Level Range	Number of Randomly Selected Values
1.33	2.25	3.42	95.15%	2000

Summary of approaches for Calculating a PQL

Approach	Value (ng/L)
NJDEP PQL (median MDL x 5)	2
NJDEP PQL (mean of RL)	4.9
Bootstrap Upper Confidence Limit MDL x 5	4.6
Bootstrap RL Upper Confidence Limit	3.42

The Testing Subcommittee decided to use the method for deriving the PFNA PQL that takes into consideration both the precision and accuracy of the analytical method. Therefore the Testing Subcommittee relied on the actual reporting limits from laboratories currently performing PFNA analyses for determining its recommendation. Therefore, the Testing Subcommittee recommends a **PQL of 5 ng/L** for PFNA to the DWQI.