

**New Jersey Department of Environmental Protection  
Division of Science, Research and Environmental Health**

**Interim Practical Quantitation Level (PQL) determination to support Interim Specific  
Ground Water Quality Standard development for Perfluorononanoic Acid (PFNA)**

**March 2017**

**Derivation of PQL:** The method detection limit (MDL) and the practical quantitation level (PQL) are performance measures used to estimate the limits of performance of analytical chemistry methods for measuring contaminants. The MDL is defined as "the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero" (40 CFR Part 136 Appendix B). USEPA recommends that the MDL be multiplied by a factor of five or 10 to account for the variability and uncertainty that can occur at the MDL.

The New Jersey Department of Environmental Protection (Department) develops an interim PQL and Interim Specific Ground Water Quality Criterion when the need for an Interim Ground Water Quality Standard is identified (i.e., for a contaminant that is not included in the Ground Water Quality Standards [GWQS]: N.J.A.C. 7:9 Appendix Table 1). As per the GWQS, all standards and PQLs are rounded to one significant digit.

NJDEP uses a median of the interlaboratory MDL distribution from the New Jersey certified laboratory community and multiplies the MDL by a factor of five to derive the PQL. Establishing the PQL at a level that is five times the MDL provides a reliable quantitation level that most laboratories can be expected to meet during day-to-day operations.

There is sufficient information to recommend a reporting limit (interim PQL) of 0.002 µg/L or 2 ng/L for PFNA in water as per the Site Remediation Program request for Office of Science derivation of an Interim Groundwater Quality Standard for PFNA. The NJDEP Office of Quality Assurance currently certifies three commercial laboratories for PFNA analysis (AXYS, Eurofins Eaton, and Test America). In the latest performance information from these three (3) laboratories, only Eurofins Eaton is certified for USEPA method 537. Perfluorononanoic acid (PFNA) also appears as a listed parameter in proprietary method SOPs from each of these three laboratories.

The three certified laboratories had similar performance values for PFNA analysis by USEPA Method 537 and/or proprietary methods. A statistical technique called the "Bootstrap Estimate of a confidence interval of the mean" was used to determine the concentration level that would encompass the certified laboratory community quantification capability using the upper 95% confidence interval (UCL) value of 0.0025 µg/L or 2.5 ng/L (rounded to 0.002 µg/L or 2 ng/L), which is consistent with and complements the Department's traditional approach.

In conclusion, an interim PQL of 0.002 µg/L (2 ng/L) is recommended for PFNA in groundwater.