



---

# *PFAS & The Department of Defense*

Janice L. Willey  
Senior Chemist, NAVSEA  
EDQW CEC Chair  
[Janice.l.willey.civ@us.navy.mil](mailto:Janice.l.willey.civ@us.navy.mil)

Alyssa G. Wingard  
Senior Chemist, NAVSEA  
EDQW QAOS Chair, DoD ELAP Program Manager  
[Alyssa.g.wingard.civ@us.navy.mil](mailto:Alyssa.g.wingard.civ@us.navy.mil)

---



# Agenda



- *DoD ELAP Laboratories*
- *DoD ELAP PFAS Laboratories*
- *DoD/DOE overlap Laboratories*
- *Draft EPA 1633 DoD Policy*
- *Future of Table B-15 QSM*
- *DoD statement on EPA 8327*
- *UCMR5*
- *DoD AFFF01*
- *PFAS Data Validation Guidelines*
- *DoD-funded Research*

# DoD ELAP – Status (as of 11/30/2022)



- *General*

- *72 laboratories DoD ELAP accredited*
- *14 laboratories are fully accredited to Draft EPA 1633 plus Table B-24 requirements QSM Version 5.4*
- *Draft EPA 1633 PFAS Laboratories expected to increase to 20 by January 2023*



# DoD ELAP Status – (as of 11/30/2022)



AB	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
A2LA	19	21	17	19	22	25	25	22	27	29	30	24
PJLA	31	32	32	34	31	26	27	29	28	31	27	23
ANAB*	22	28	30	29	32	39	41*	11	11	11	14	24
LAB*	*	*	*	*	*	*	*	31	32	28	31	28
IAS	0	**	**	**	**	**	**	**	**	**	**	**
<b>Total Labs</b>	<b>72</b>	<b>81</b>	<b>79</b>	<b>82</b>	<b>85</b>	<b>90</b>	<b>93</b>	<b>93</b>	<b>98</b>	<b>99</b>	<b>102</b>	<b>99</b>

\*ANAB acquired LAB December 2015.

\*\*IAS granted DoD ELAP Recognition October 2022. IAS has not done assessor training and cannot accept assessments.

# PFAS DoD/DOE QSM Version 5.4 Table B-24

## Accredited Matrices



Laboratories	Aqueous	Solid	Tissue	AFPP
ALS Environmental - Kelso	X	X	X	
APPL, Inc.	X	X		
Alpha Analytical	X	X	X	
Babcock Laboratories	X	X		
Battelle	X	X	X	
Bureau Veritas Laboratories	X	X		
Environmental Monitoring and Technologies	X	X		
Eurofins Lancaster	X	X		
Eurofins TestAmerica Sacramento	X	X	X	
Pace Analytical – Gulf Coast	X	X	X	X
SGS Axys Analytical Services Ltd.	X	X	X	X
SGS North America – Orlando	X	X		
Vista Laboratories	X	X		
Weck Laboratories	X	X		



# PFAS Labs Status



*PFAS by LCMSMS Compliant with Table B-15 of QSM 5.1 or Latest Version*

Aqueous	Solid	Tissue	AFFF
26	24	7	6

*EPA Method 533 Accredited Laboratories*

Drinking Water
12

*EPA Method 537.1 Accredited Laboratories*

Drinking Water
20



# DoD ELAP – PFAS Drinking Water



## **EPA Method 533 Accredited Laboratories**

APPL, Inc.  
Advanced Environmental Laboratories, Inc.  
Alpha Analytical – Mansfield, MA  
American Analytics, Inc.  
Babcock Laboratories, Inc.  
Battelle  
Bureau Veritas Canada Inc.  
Eurofins Lancaster Laboratories Environmental  
Eurofins Sacramento  
GEL Laboratories, LLC  
SGS North America. – Orlando  
Vista Analytical Laboratory

## **EPA Method 537.1 Accredited Laboratories**

ALS Environmental – Kelso  
APPL, Inc.  
Alpha Analytical – Mansfield, NA  
American Analytics, Inc.  
Babcock Laboratories, Inc.  
Battelle  
Bureau Veritas Canada Inc.  
Energy Laboratories, Inc.  
Enthalpy Analytical, LLC – Wilmington  
Eurofins Lancaster Laboratories Environmental  
Eurofins Sacramento  
GEL Laboratories, LLC  
McCampbell Analytical, Inc.  
Merit Laboratories, Inc.  
Pace Analytical – Gulf Coast  
Pace Analytical – South Carolina  
RTI Laboratories  
SGS North America, Inc. – Orlando  
Vista Analytical Laboratory  
Weck Laboratories, Inc.



# DoD / DOE Overlap – (as of 11/30/2022)



## List of Laboratories

ARS Aleut Analytical

Eurofins Air Toxics

Eurofins Knoxville

Eurofins Sacramento\*

Eurofins Seattle

Eurofins St. Louis

Eurofins TestAmerica Denver

GEL Laboratories\*

Pace Analytical SC\*

Pace Analytical Services, LLC dba BC Laboratories

Pace Analytical Services TN

RJ Lee Group CBAL

Torrent Laboratory\*

*\*Laboratory performs PFAS testing.*





# DoD Memorandum Draft EPA1633



## [Update for Establishing a Consistent Methodology for the Analysis of Per-and Polyfluoroalkyl Substances in Media Other than Drinking Water \(osd.mil\)](#)

*December 7, 2021*

*The DoD Environmental Data Quality Workgroup has determined that draft method 1633 meets the precision, accuracy, and limits of quantitation needed to support sound decision-making. All new contracts and task orders after December 31, 2021, shall require the use of Draft Method 1633 for the analysis of PFAS in matrices other than drinking water using a laboratory accredited to the method/matrix/analyte by the DoD Environmental Laboratory Accreditation Program (ELAP). All existing projects are encouraged to use Draft Method 1633 for PFAS analysis in matrices other than drinking water when ELAP-accredited laboratories become available*



# Table B-15 QSM Version 5.4



- *Per- and Polyfluoroalkyl Substances (PFAS) Using Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) With Isotope Dilution or Internal Standard Quantification in Matrices Other Than Drinking Water*
- *Will be removed in its entirety from QSM Version 6.0. Old projects may continue to use ONLY if required by the contract.*



# DoD statement EPA 8327



<https://denix.osd.mil/edqw/documents/documents/method-8327/>

*Due to limitations associated with the sample preparation procedure included in this method (Appendix B, future SW-846 EPA Method 3512) as well as limitations associated with the analytical procedure, the DoD Environmental Data Quality Workgroup (EDQW) has determined this method is not capable of achieving the precision, accuracy, and limits of quantitation currently needed to support the DoD's PFAS efforts. The method itself discusses the effects of these limitations as it states the following with respect to 11 of the 24 method analytes: "This analyte exhibits known difficulties with reproducibility, response, recovery, stability, and/or chromatography that may reduce the overall quality or confidence in the results when using this method." Therefore, the EDQW considers Method 8327 to be a screening method and should not be used for the collection of definitive data.*



# UCMR5 - PFAS



## Fifth Unregulated Contaminant Monitoring Rule | US EPA

- *The Safe Drinking Water Act (SDWA) requires that once every five years EPA issue a list of unregulated contaminants to be monitored by public water systems (PWSs).*
- *The Fifth Unregulated Contaminant Monitoring Rule (UCMR 5) was published on December 27, 2021.*
- *NDAA specifies that EPA shall include all PFAS in UCMR 5 for which a drinking water method has been validated, and that are not subject to a national primary drinking water regulation.*
- *UCMR 5 includes all 29 PFAS that are within the scope of EPA Methods 533 and 537.1.*



# UCMR5 - PFAS



- *Sample Collection from January 2023 through December 31, 2026*
- *NMeFOSAA, NEtFOSAA, PFTA & PFTrDA by EPA 537.1, MRLs range from 5 to 8 ppt*
- *All 25 listed in EPA 533 by EPA 533, MRLs range from 2 to 20 ppt*
- *Currently 42 laboratories are EPA approved to perform EPA 537.1, 533, or both 537.1 & 533*

<https://www.epa.gov/dwucmr/laboratory-approval-program-unregulated-contaminant-monitoring-rule-ucmr-5>



# UCMR5 – PFAS



<u>EPA 533 Analytes</u>	<u>MRL</u>	<u>EPA 533 Analytes</u>	<u>MRL</u>
11CI-PF3OUdS	5 ppt	PFDA	3 ppt
8:2FTS	5 ppt	PFDoA	3 ppt
4:2FTS	3 ppt	PFHpS	3 ppt
6:2FTS	5 ppt	PFHpA	3 ppt
ADONA	3 ppt	PFHxS	3 ppt
9CI-PF3ONS	2 ppt	PFHxA	3 ppt
HFPO-DA	5 ppt	PFNA	4 ppt
NFDHA	20 ppt	PFOS	4 ppt
PFEESA	3 ppt	PFOA	4 ppt
PFMPA	4 ppt	PFPeS	4 ppt
PFMBA	3 ppt	PFPeA	3 ppt
PFBS	3 ppt	PFUnA	2 ppt
PFBA	5 ppt		

<u>EPA 537.1 Analytes</u>	<u>MRL</u>
<u>NEtFOSAA</u>	5 ppt
<u>NMeFOSAA</u>	6 ppt
<u>PFTA</u>	8 ppt
<u>PFTrDA</u>	7 ppt



# Fire-Fighting Foam Concentrate Method



## DoD AFFF01, Rev. 1.0

- *Applicable to AFFF concentrates for demonstration of compliance to MIL-PRF-24385*
- *PFOA & PFOS, LOQ 25 ppb or less*
- *Similar method to EPA Draft Method 1633*
  - *Includes requirements designed to ensure homogeneity of dilution prior to extraction*
  - *Requires samples to be prepared and analyzed in duplicate*
  - *Requires an LCS Duplicate (LCSD) instead of an MS/MSD*
  - *Isotope dilution quantitation*
- *Available at <https://denix.osd.mil/edqw>*



# PFAS Validation Guidelines



- *Data Validation Guidelines Module 6: Data Validation Procedure for Per and Polyfluoroalkyl Substances Analysis by QSM Table B-24.*
- *The document was written with primary consideration to EPA Draft Method 1633 compliant with QSM, Table B-24. Validation should proceed using the acceptance criteria specified in the laboratory data deliverable or in the QAPP.*
- *These guidelines may be revised following completion of the EPA 1633 multi-laboratory validation study*





# Ongoing DoD PFAS Research

- *Air Force, Army, and Navy research programs continue to fund PFAS-focused research*
- *SERDP/ESTCP has funded over 250 PFAS research projects, including*
  - *Leachate analytical methods*
  - *Fluorine-free foam total PFAS analytical method*
  - *PFAS Field screening methods*
  - *EPA 1633 single and multi-laboratory validation studies*
- *Statements of Need, Calls for proposal, continue to be let*

<https://www.serdp-estcp.org/newsitems/details/26c0d116-3f23-4c25-b84f-2c23e7eff29e/serdp-releases-fy-2024-solicitation>



# SERDP/ESTCP FY24 SONs



- *Development of Improved Concentration Technologies for Treatment of Matrices Impacted by Per- and Polyfluoroalkyl Substances (PFAS)*
- *Development of Improved Sampling and Analytical Methodologies for the Determination of Per- and Polyfluoroalkyl Substances (PFAS) in the Environment*
- *Improved Understanding of Destructive Treatment Processes for Per- and Polyfluoroalkyl Substances (PFAS) in the Subsurface*
- *Improved Understanding of the Fate and Transport of Per- and Polyfluoroalkyl Substances (PFAS) in the Subsurface*



# SERDP/ESTCP FY24 SONs



- *Improved Understanding of Thermal Destruction Processes for Materials Laden with Per- and Polyfluoroalkyl Substances (PFAS)*
- *Self-Assembly Behavior of Per- and Polyfluoroalkyl Substances (PFAS) Found in Soil and Groundwater at Aqueous Film-Forming Foam-Impacted Sites*
- *Development of Next Generation PFAS-Free Firefighting Formulations*



# SERDP/ESTCP FY24 SONs



- *Development of Per- and Polyfluoroalkyl Substance-Free Superhydrophobic Coatings for Textile Applications*
- *Improved Pool Fire Testing for PFAS-Free Firefighting Formulations, and Modernized Training Methodologies for DoD Firefighters*



---

***Thank you for your attention***

***Questions???***

---