



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Enthalpy Analytical, LLC

**2714 Exchange Drive
Wilmington, NC 28405**

Fulfills the requirements of

ISO/IEC 17025:2017

and

**U.S. Department of Defense (DoD) Quality Systems Manual for
Environmental Laboratories
(DoD QSM V5.3)**

In the field of

TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 15 January 2024
Certificate Number: ADE-2835



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
and
U.S. Department of Defense (DoD) Quality Systems Manual for
Environmental Laboratories (DoD QSM V5.3)

Enthalpy Analytical, LLC
2714 Exchange Drive
Wilmington, NC 28405
Juanica Thomas
919-850-4392

TESTING

Valid to: **January 15, 2024**

Certificate Number: **ADE-2835**

Environmental

Non-Potable Water		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFBA (Perfluorobutanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFPeA (Perfluoropentanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFBS (Perfluorobutanesulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHxA (Perfluorohexanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHpA (Perfluoroheptanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHxS (Perfluorohexanesulfonic acid)



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Non-Potable Water		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	6:2-FTS (6:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOA (Perfluorooctanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHpS (Perfluoroheptanesulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOS (Perfluorooctanesulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFNA (Perfluorononanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDA (Perfluorodecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	8:2-FTS (8:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOSA (Perfluorooctane sulfonamide)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDS (Perfluorodecanesulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFUdA (Perfluoroundecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDoA Perfluorododecanoic acid
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFTTrDA (Perfluorotridecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFTeDA (Perfluorotetradecanoic acid)



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Non-Potable Water		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	EtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	MeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	4:2 FTS (4:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFPeS (Perfluoropentane sulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFNS (Perfluorononane sulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	HFPO-DA (2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (Gen-X))
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)



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Non-Potable Water		
Technology	Method	Analyte
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)
HRGC/MS	EPA 8290A / EPA 1613B	2,3,4,6,7,8-Hexachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	2,3,4,7,8-Pentachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
HRGC/MS	EPA 8290A / EPA 1613B	2,3,7,8-Tetrachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	Total Hpcdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Hpcdf
HRGC/MS	EPA 8290A / EPA 1613B	Total Hxcdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Hxcdf
HRGC/MS	EPA 8290A / EPA 1613B	Total Pecdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Pecdf
HRGC/MS	EPA 8290A / EPA 1613B	Total TCDD
HRGC/MS	EPA 8290A / EPA 1613B	Total TCDF
Preparation	Method	Type
Aqueous Extraction	SOP EU-046	Extraction/Preparation of Dioxins and Furans

Solid and Chemical Materials		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFBA (Perfluorobutanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFPeA (Perfluoropentanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFBS (Perfluorobutanesulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHxA (Perfluorohexanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHpA (Perfluoroheptanoic acid)



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Solid and Chemical Materials		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHxS (Perfluorohexanesulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	6:2-FTS (6:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOA (Perfluorooctanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFHpS (Perfluoroheptanesulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOS (Perfluorooctanesulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFNA (Perfluorononanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDA (Perfluorodecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	8:2-FTS (8:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFOSA (Perfluorooctane sulfonamide)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDS (Perfluorodecanesulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFUdA (Perfluoroundecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFDoA Perfluorododecanoic acid
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFTTrDA (Perfluorotridecanoic acid)



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Solid and Chemical Materials		
Technology	Method	Analyte
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFTeDA (Perfluorotetradecanoic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	EtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	MeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	4:2 FTS (4:2 Fluorotelomer sulfonate)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFPeS (Perfluoropentane sulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	PFNS (Perfluorononane sulfonic acid)
LC/MS/MS	SOP EU-047/PFAS by LC/MS/MS Compliant with QSM 5.3 Table B-15	HFPO-DA (2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (Gen-X))
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,6,7,8-Hxcdd)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)



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Solid and Chemical Materials		
Technology	Method	Analyte
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)
HRGC/MS	EPA 8290A / EPA 1613B	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)
HRGC/MS	EPA 8290A / EPA 1613B	2,3,4,6,7,8-Hexachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	2,3,4,7,8-Pentachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
HRGC/MS	EPA 8290A / EPA 1613B	2,3,7,8-Tetrachlorodibenzofuran
HRGC/MS	EPA 8290A / EPA 1613B	Total Hpcdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Hpcdf
HRGC/MS	EPA 8290A / EPA 1613B	Total Hxcdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Hxcdf
HRGC/MS	EPA 8290A / EPA 1613B	Total Pecdd
HRGC/MS	EPA 8290A / EPA 1613B	Total Pecdf
HRGC/MS	EPA 8290A / EPA 1613B	Total TCDD
HRGC/MS	EPA 8290A / EPA 1613B	Total TCDF
Preparation	Method	Type
Soxhlet Extraction	SOP EU-046	Extraction/Preparation of Dioxins and Furans

Drinking Water		
Technology	Method	Analyte
LC/MS/MS	EPA 537.1	NEtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	EPA 537.1	NMeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid)
LC/MS/MS	EPA 537.1	PFBS (Perfluorobutanesulfonic acid)
LC/MS/MS	EPA 537.1	PFDA (Perfluorodecanoic acid)
LC/MS/MS	EPA 537.1	PFDoA (Perfluorododecanoic acid)
LC/MS/MS	EPA 537.1	PFHpA (Perfluoroheptanoic acid)
LC/MS/MS	EPA 537.1	PFHxS (Perfluorohexanesulfonic acid)
LC/MS/MS	EPA 537.1	PFHxA (Perfluorohexanoic acid)
LC/MS/MS	EPA 537.1	PFNA (Perfluorononanoic acid)
LC/MS/MS	EPA 537.1	PFOS (Perfluorooctanesulfonic acid)
LC/MS/MS	EPA 537.1	PFOA (Perfluorooctanoic acid)



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Drinking Water		
Technology	Method	Analyte
LC/MS/MS	EPA 537.1	PFTA (Perfluorotetradecanoic acid)
LC/MS/MS	EPA 537.1	PFTTrDA (Perfluorotridecanoic acid)
LC/MS/MS	EPA 537.1	PFUnA (Perfluoroundecanoic acid)
LC/MS/MS	EPA 537.1	HFPO-DA Hexafluoropropylene oxide dimer acid
LC/MS/MS	EPA 537.1	11Cl-PF3OUdS 11-chloroeicosafluoro-3oxaundecane-1-sulfonic acid
LC/MS/MS	EPA 537.1	9Cl-PF3ONS 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
LC/MS/MS	EPA 537.1	ADONA 4,8-dioxa-3H-perfluorononanoic acid

Air and Emissions		
Technology	Method	Analyte
HRGC/MS	EPA 23 Modified	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
HRGC/MS	EPA 23 Modified	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)
HRGC/MS	EPA 23 Modified	1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf)
HRGC/MS	EPA 23 Modified	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd)
HRGC/MS	EPA 23 Modified	1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf)
HRGC/MS	EPA 23 Modified	1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf)
HRGC/MS	EPA 23 Modified	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd)
HRGC/MS	EPA 23 Modified	1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf)
HRGC/MS	EPA 23 Modified	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxc dd)
HRGC/MS	EPA 23 Modified	1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf)
HRGC/MS	EPA 23 Modified	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd)
HRGC/MS	EPA 23 Modified	1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf)



ANSI National Accreditation Board

Air and Emissions		
Technology	Method	Analyte
HRGC/MS	EPA 23 Modified	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd)
HRGC/MS	EPA 23 Modified	2,3,4,6,7,8-Hexachlorodibenzofuran
HRGC/MS	EPA 23 Modified	2,3,4,7,8-Pentachlorodibenzofuran
HRGC/MS	EPA 23 Modified	2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD)
HRGC/MS	EPA 23 Modified	2,3,7,8-Tetrachlorodibenzofuran
HRGC/MS	EPA 23 Modified	Total Hpcdd
HRGC/MS	EPA 23 Modified	Total Hpcdf
HRGC/MS	EPA 23 Modified	Total Hxcdd
HRGC/MS	EPA 23 Modified	Total Hxcdf
HRGC/MS	EPA 23 Modified	Total Pecdd
HRGC/MS	EPA 23 Modified	Total Pecdf
HRGC/MS	EPA 23 Modified	Total TCDD
HRGC/MS	EPA 23 Modified	Total TCDF
Preparation	Method	Type
Soxhlet Extraction	SOP EU-046	Extraction/Preparation of Dioxins and Furans

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No ADE-2835.

R. Douglas Leonard Jr., VP, PILR SBU