Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Maura T. Healey
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Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

November 1, 2024

Mr. William Wanberg, Superintendent
North Attleborough Water Department
48 Whiting Street
North Attleborough, MA 02760

RE: NORTH ATTLEBOROUGH – Public Water Supply
North Attleborough Water Department
PWS ID#: 4211000
McKeon Water Treatment Plant
BRPWS25D, Treatment Facility
Modification> 1MGD
Transmittal No.: X289239
Final Inspection

Dear Mr. Precourt:

Attached please find the Massachusetts Department of Environmental Protection's approval to activate PFAS removal treatment at the McKeon Water Treatment Plant in the Town of North Attleborough, Massachusetts. A revised 3-year sampling schedule is also enclosed.

The signature on this cover letter indicates formal issuance of the attached document. If you have any questions concerning this document, please contact Giliane.tardieu@mass.gov or via phone at (774) 384-7861.

Sincerely,

Jim McLaughlin, Chief
Drinking Water Program
Bureau of Water Resources

GT/encl. – Sampling Schedule
DWP Archive\SERO\North Attleborough–4211000-System Modifications-2024-11-01 Final Inspection

ec: William Wanberg, wwanberg@nattleboro.com
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amfleming@nattleboro.com
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Margaret Finn, DEP-Boston-DWP
Lilla Dick, DEP-Boston-SRF

North Attleborough Water Department
North Attleborough, Massachusetts
PWS ID #4211000
Installation of Granular Activated Carbon Filters at the McKeon Water Treatment Plant
BRP WS 25D, Treatment Facility Modification > 1 MGD
Transmittal No. X289239
FINAL INSPECTION

In response to a request by the North Attleborough Water Department ("the PWS"), technical staff from the Massachusetts Department of Environmental Protection ("the Department") performed a final inspection on October 24, 2024, of newly installed treatment systems at the McKeon Water Treatment Plant located at Mary Kennedy Drive in North Attleborough, Massachusetts. The final certification was submitted on behalf of the PWS by the contract engineering firm, Woodard & Curran, Canton, Massachusetts, under the seal and signature of Mr. Kyle Corbeil, Massachusetts Registered Professional Engineer, P.E. No. 563295 ("the Engineer"). The Department approved the water treatment facility modifications in a letter dated October 11, 2022. The Engineer's final certification of the facility is dated October 11, 2024. A package of information including water quality testing results was also submitted to the Department electronically on October 11, 2024.

PERMIT CONDITION COMPLIANCE

Documents submitted to comply with the permit conditions include Engineer's certification letter dated October 11, 2024, and cross connection survey results. Finished water sampling results provided include: total coliform; secondary contaminants; arsenic; per- and polyfluoroalkyl substances (PFAS); and volatile organic compounds (VOC).

INSPECTION RESULTS

The Department's inspecting engineer found the facilities completed in accordance with its construction approval, the Massachusetts Drinking Water Regulations, and *Guidelines for Public Water Systems*. Critical chemical alarm systems and call-out messaging were tested successfully in the presence of the Department's engineer. Department identification numbers associated with the source and treatment facility are summarized below. The enclosed 3-year sampling schedule has been revised to include the activated treatment plant. Treatment consists of a bag filter followed by TIGG vessels containing granular activated carbon (GAC) for PFAS removal.

STAFFING

The Department has re-evaluated the rating of the McKeon Water Treatment Plant with the new process and determined that the rating will remain at a Grade 2-T level. The PWS has as a sufficient number of licensed treatment operators for system coverage.

3-YEAR SAMPLING SCHEDULE & RTCR SAMPLING PLAN

Enclosed please find your revised 3-year sampling schedule. Sampling location ID 10051 has been assigned to the McKeon Treatment Plant finished water plant tap. The modified treatment requires rescheduled monitoring of the finished water, and semiannual lead & copper sampling in the distribution system. Please review the schedule for accuracy and contact the Department if you find any discrepancies. **Please note, this sampling schedule is being provided for your convenience and its**

accuracy is not guaranteed; it is the PWS's responsibility to comply with all regulatory sampling requirements.

Lead and Copper Rule (LCR) sampling is required to revert to semi-annual sampling upon adding new treatment. LCR sampling is shown as scheduled for the fourth quarter of 2024 and will be scheduled during the second quarter of 2025. However, EPA rules allow the semi-annual sampling to be conducted from July 1 to December 31 to satisfy the "4th Quarter" sampling, and from January 1 to June 30 to satisfy the "2nd Quarter" sampling. Limitations in the Department's software prevent showing this detail on the sample schedules. The PWS must establish Optimal Water Quality Parameters (OWQP) following activation unless the PWS already has accepted OWQP's.

PFAS sampling has been scheduled for monthly monitoring at this location in accordance with the Drinking Water Regulations. The PWS is required to create a operational plan to guide its decision making for changing out GAC media.

The existing Revised Total Coliform Rule (RTCR) Sampling Plan includes the sampling locations associated with the Kelley Wells 1 and 2 and the McKeon Treatment Plant, and the RTCR Plan does not require revision at this time.

SUMMARY

The Department approves the modified McKeon Treatment Plant for activation.

Treatment Facility Name: McKeon Water Treatment Plant
Treatment Plant Identification Number: 4211000-02T
Treatment Level Rating: II-T
Source Treated: Kelley Wells 1 and 2 (4211000-05G and 06G)
Finished Water Sampling Location ID: 10051
Treatment Provided:

pH adjustment pre and post – potassium hydroxide
disinfection pre and post – sodium hypochlorite
fluoridation- sodium fluoride
Greensand filtration-
Permanganate- potassium permanganate
PFAS removal – TIGG GAC vessels (Two filter bags followed by two trains of two, 12-feet in diameter vessels: flow through a lead GAC vessel followed by a lag GAC vessel. Each TIGG vessel will hold 20,000 pounds of GAC. The maximum flow is 1,500 gpm and average flow is 1,400 gpm. The maximum loading rate is 6.6 gpm/sf. The corresponding EBCT is 6.0 minutes per vessel. The GAC is single-use with no backwash. The filter bags will be 5-micron (felt polypropylene or polyester.)

250 Royall Street | Suite 200E
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Via Electronic Mail

October 11, 2024

Mr. Jim McLaughlin, Chief
Drinking Water Program
MassDEP – Southeast Regional Office
20 Riverside Drive,
Lakeville MA 02347

Re: Transmittal Nos. X289018 and X289239
BRP WS 25 Approval of Treatment Facility Modification
McKeon WTF PFAS Treatment (DWSRF# 6950)
Engineer's Letter of Construction Certification

Dear Mr. McLaughlin:

On behalf of the Town of North Attleborough (Town), Woodard & Curran is providing this letter related to the subject project. In accordance with the Massachusetts Department of Environmental Protection (MassDEP's) approval letter dated September 26, 2022, the Town has completed installation of the new PFAS Treatment System at McKeon Water Treatment Facility (WTF). The PFAS treatment system, which consists of granular activated carbon (GAC) filter vessels for PFAS removal as well as appurtenant piping and equipment, was installed by Waterline Industries Corporation of Seabrook, NH in accordance with the approved plans and specifications. Other than the addition of a fluoride chemical feed system, no changes affecting the WTF capacity, hydraulic conditions, operating units, functioning of water treatment processes, or effluent water quality were made to the approved design. Woodard & Curran was onsite to witness the installation, commissioning and startup of the system. The PFAS treatment system has been tested and is fully operational.

Following installation, the GAC filter vessels and associated piping were disinfected in accordance with the applicable ANSI/AWWA standards. Bacteriological and volatile organic compound (VOC) sampling was conducted by the Town with acceptable results. After additional flushing of the GAC media, arsenic was sampled and found to be non-detect. The sampling results are also attached to this letter for reference.

We are hereby requesting to schedule a site meeting with MassDEP, the Town and Woodard & Curran to perform a final inspection of the facility for final MassDEP approval to place the facility online and deliver finished water to the distribution system.

Should you have any questions, please feel free to contact me at (860) 265-8068 or via email at kcorbeil@woodardcurran.com or Mark Hollowell, Director of Public Works for the Town of North Attleborough at (508) 695-9621.

Sincerely,

WOODARD & CURRAN, INC.

Digitally signed by Kyle Corbeil
Reason: I have reviewed this document
Date: 2024.10.11 15:27:03-04'00'

Kyle Corbeil, P.E.
Technical Manager

cc: Mark Hollowell, Director of Public Works
Patricia Arp, MassDEP

PN: 0233637.03

Attachments:

1. McKeon PFAS WTF – Post-Treatment Sample Results Summary
2. McKeon PFAS WTF – Post-Treatment Laboratory Results

Attachment 1

McKeon PFAS WTF – Post-Treatment Sample Results Summary

WOODARD & CURRAN, INC.

Town of North Attleborough Department of Public Works
McKeon PFAS WTF
McKeon PFAS WTF – Post-Treatment Sample Results Summary
10/8/2024

Post Treatment Sampling Results	Date of Sample Collection T1	Train 1	Date of Sample Collection T2	Train 2	Comments
PFAS	9/11/2024	ND	9/9/2024	ND	
VOC	9/11/2024	ND	9/9/2024	Pass	
VOC cis-1,2-Dichloroethene	9/11/2024	ND	9/9/2024	2.0 < 5 ug/L MMCL	
Inorganics (Arsenic, Lead, Copper)	9/11/2024	Pass	9/9/2024	Pass	
Arsenic	9/11/2024	ND	9/9/2024	ND	Arsenic samples collected after rinsing media for 60 bed volumes (BV). Sample labeled as "T1-60-B-T/0" or "T2-60-B-T/0" in lab reports attached.
Lead	9/11/2024	ND	9/9/2024	ND	
Copper	9/11/2024	ND	9/9/2024	ND	
Bacteria	9/11/2024	Negative	9/17/2024	Negative	
Secondary Contaminants	9/11/2024	Pass	9/9/2024	Pass	

Attachment 2

McKeon PFAS WTF – Post Treatment Laboratory Results

ANALYTICAL REPORT

Lab Number:	L2452128
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/13/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2452128-01	T1-20-B-T/0	DW	MCKEON T. F	09/11/24 11:13	09/11/24
L2452128-02	T1-40-B-T/0	DW	MCKEON T. F	09/11/24 12:19	09/11/24
L2452128-03	T1-60-B-T/0	DW	MCKEON T. F	09/11/24 14:25	09/11/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452128
Project Number:	Not Specified	**Report Date:**	09/13/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Case Narrative (continued)

Sample Receipt

L2452128-02: The collection date and time on the chain of custody was 11-SEP-24 12:19; however, the collection date/time on the container label was 11-SEP-24 14:25. At the client's request, the collection date/time is reported as 11-SEP-24 12:19.

L2452128-03: The collection date and time on the chain of custody was 11-SEP-24 14:25; however, the collection date/time on the container label was 11-SEP-24 12:19. At the client's request, the collection date/time is reported as 11-SEP-24 14:25.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Caitlin Walukevich

Title: Technical Director/Representative

Date: 09/13/24

METALS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452128-01
Client ID: T1-20-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 11:13
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.0013		mg/l	0.0010	--	1	09/12/24 10:23	09/13/24 11:23	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452128-02
Client ID: T1-40-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 12:19
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	ND		mg/l	0.0010	--	1	09/12/24 10:23	09/13/24 11:37	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452128-03
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 14:25
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	ND		mg/l	0.0010	--	1	09/12/24 10:23	09/13/24 11:42	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1970771-1										
Arsenic, Total	ND		mg/l	0.0010	--	1	09/12/24 10:23	09/13/24 10:58	3,200.8	NTB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2452128

Report Date: 09/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1970771-2								
Arsenic, Total	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1970771-3 QC Sample: L2452128-01 Client ID: T1-20-B-T/0												
Arsenic, Total	0.0013	0.12	0.1210	100		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1970771-4 QC Sample: L2452128-01 Client ID: T1-20-B-T/0						
Arsenic, Total	0.0013	0.0013	mg/l	3		20

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452128
Report Date: 09/13/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452128-01A	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		AS-2008T(180)
L2452128-02A	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		AS-2008T(180)
L2452128-03A	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		AS-2008T(180)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY) **Lab Number:** L2452128

Project Number: Not Specified **Report Date:** 09/13/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452128
Project Number:	Not Specified	**Report Date:**	09/13/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452128
Project Number:	Not Specified	**Report Date:**	09/13/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 09/11/24

L2452128 13SEP24
NATTLEB – GWA

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: North Attleboro
Address: 49 Whiting St
North Attleboro Ma 02760
Phone: 508-216-4490
Fax:
Email: WWanberg@Nattleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFas (Kelly)
Project Location: MC Keon T.F
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☐ Standard ☑ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Samples OFFline to North Attleboro Drinking water *

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS Arsenic	Sample Specific Comments	TOTAL # BOTTLES
52128-01	TI-20-B-T/O	9/11/24	11:13	DW	JM	X		1
-02	TI-40-B-T/O	9/11/24	12:19	DW	JM	X		1
-03	TI-60-B-T/O	9/11/24	14:25	DW	JM	X		1

Sampled by: Joseph McCarthy

Container Type P
Preservative C

Relinquished By:	Date/Time	Received By:	Date/Time
	9/11/24 15:38		9/11/24 1515
	9/11/24 1715		9/11/24 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO. 01-08 (rev. 14-OCT-07)

JOB: L2452136 REPORT STYLE: Data Usability Report
0010: Alpha Analytical Report Cover Page - OK
0015: Sample Cross Reference Summary - OK
0060: Case Narrative - OK
1180: Inorganics Cover Page - OK
1200: Wet Chemistry Sample Results - OK
1210: Wet Chemistry Method Blank Report - OK
1220: Wet Chemistry LCS Report - OK
1250: Wet Chemistry Duplicate Report - OK
5100: Sample Receipt & Container Information Report - OK
5200: Glossary - OK
5400: References - OK

No results found for sample L2452136-01 for product 524.2
No results found for sample L2452136-01 for product AG-UI
No results found for sample L2452136-01 for product AL-UI
No results found for sample L2452136-01 for product ALK-T-2320
No results found for sample L2452136-01 for product AS-2008T
No results found for sample L2452136-01 for product BA-2008T
No results found for sample L2452136-01 for product BE-2008T
No results found for sample L2452136-01 for product CA-UI
No results found for sample L2452136-01 for product CD-2008T
No results found for sample L2452136-01 for product CL-300
No results found for sample L2452136-01 for product COLOR-A-2120
No results found for sample L2452136-01 for product CR-2008T
No results found for sample L2452136-01 for product CU-2008T
No results found for sample L2452136-01 for product CU-UI
No results found for sample L2452136-01 for product F-4500
No results found for sample L2452136-01 for product FE-UI
No results found for sample L2452136-01 for product HARDU
No results found for sample L2452136-01 for product HG-U
No results found for sample L2452136-01 for product K-UI
No results found for sample L2452136-01 for product MG-UI
No results found for sample L2452136-01 for product MN-UI
No results found for sample L2452136-01 for product NA-UI
No results found for sample L2452136-01 for product NI-2008T
No results found for sample L2452136-01 for product ODOR-2150
No results found for sample L2452136-01 for product PB-2008T
No results found for sample L2452136-01 for product SB-2008T
No results found for sample L2452136-01 for product SE-2008T
No results found for sample L2452136-01 for product SO4-300
No results found for sample L2452136-01 for product TCN-4500
No results found for sample L2452136-01 for product TDS-2540
No results found for sample L2452136-01 for product TL-2008T

No results found for sample L2452136-01 for product TURB-180
No results found for sample L2452136-01 for product ZN-UI

ANALYTICAL REPORT

Lab Number:	L2452136
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/13/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2452136-01	T1-60-B-T/0	DW	MCKEON T. F	09/11/24 15:01	09/11/24
L2452136-02	RAW IN MAIN	DW	MCKEON T. F	09/11/24 15:06	09/11/24
L2452136-03	T1-LEAD LINE	DW	MCKEON T. F	09/11/24 15:10	09/11/24
L2452136-04	TRIP BLANK	WATER	MCKEON T. F	08/26/24 00:00	09/11/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/13/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Case Narrative (continued)

Report Submission

September 13, 2024: This is a preliminary report.

Sample Receipt

L2452136-04: A sample identified as "TRIP BLANK" was received, but not listed on the chain of custody. At the client's request, this sample was not analyzed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 09/13/24

INORGANICS
&
MISCELLANEOUS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452136-01
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:01
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.70		SU	-	NA	1	-	09/12/24 16:56	121,4500H+-B	AAS
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452136-02
Client ID: RAW IN MAIN
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:06
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

SAMPLE RESULTS

Lab ID: L2452136-03
Client ID: T1-LEAD LINE
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:10
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab for sample(s): 01-03 Batch: WG1970506-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2452136

Report Date: 09/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1970978-1								
pH	99		-		99-101	-		5

Lab Duplicate Analysis

Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970978-2 QC Sample: L2451524-01 Client ID: DUP Sample						
pH	7.03	7.17	SU	2		5

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452136-01A	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		524.2(14)
L2452136-01B	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		524.2(14)
L2452136-01D	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)
L2452136-01E	Plastic 250ml unpreserved/No Headspace	A	NA		2.7	Y	Absent		ALK-T-2320(14)
L2452136-01F	Plastic 250ml NaOH preserved	A	>12	>12	2.7	Y	Absent		TCN-4500(14)
L2452136-01G	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01H	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01I	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01J	Plastic 950ml unpreserved	A	7	7	2.7	Y	Absent		F-4500(28),SO4-300(28),CL-300(28),TURB-180(2),PH-4500(.01),TDS-2540(7)
L2452136-01K	Plastic 950ml unpreserved	A	7	7	2.7	Y	Absent		F-4500(28),SO4-300(28),CL-300(28),TURB-180(2),PH-4500(.01),TDS-2540(7)
L2452136-01L	Amber 950ml unpreserved	A	6	6	2.7	Y	Absent		COLOR-A-2120(2),ODOR-2150(1)
L2452136-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/13/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452136-03A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)
L2452136-04A	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		HOLD-524.2(14)

*Values in parentheses indicate holding time in days

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/13/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/13/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/13/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:09182412249 L2452136 13SEP24 NATTLEB – GWA

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 09/11/24

ALPHA J

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: North Attleboro
Address: 49 Whiting St.
North Attleboro, Ma 02760
Phone: 508-216-4490
Fax:
Email: wwanberg@Nattleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFas (Kelly)
Project Location: McKeon
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Samples OFFline to North Attleboro Drinking System *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC	IOC	Secondary Cont.	Total Coliform	Lead & Copper	Sample Specific Comments	TOTAL # BOTTLES
52136-01	T1-60-B-T/O	9/11/24	14:28	DW	MB	X						2
	T1-60-B-T/O	9/11/24	14:35	DW	MB		X					3
	T1-60-B-T/O	9/11/24	14:44	DW	MB			X				4
	T1-60-B-T/O	9/11/24	15:01	DW	MB				X			1
	T1-60-B-T/O	9/11/24	14:50	DW	MB					X		1
-02	Raw in main	9/11/24	15:06	DW	MB				X			1
-03	T1-Lead line	9/11/24	15:10	DW	MB				X			1

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do (Please specify below)

Sampled by: Matthew Barlow

Container Type	V											
Preservative	B/I											

Relinquished By:	Date/Time	Received By:	Date/Time
	9/11/24 15:20		9/11/24 15:20
	9/11/24 15:38		9/11/24 15:38
	9/11/24 1715		9/11/24 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ANALYTICAL REPORT

Lab Number:	L2452134
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/23/24

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (9110), MN (025-999-495), NJ (MA015), NY (11627), NC (685), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708A1), USFWS (Permit #A24920).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2452134-01	T1-60-B-T10	DW	MCKEON	09/11/24 15:15	09/11/24
L2452134-02	T1-60-B-T10 FIELD BLANK	DW	MCKEON	09/11/24 15:12	09/11/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452134
Project Number:	Not Specified	**Report Date:**	09/23/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kim L. Bailey Kim L. Bailey

Title: Technical Director/Representative Date: 09/23/24

ORGANICS

SEMIVOLATILES

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2452134-01
Client ID: T1-60-B-T10
Sample Location: MCKEON

Date Collected: 09/11/24 15:15
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 09/21/24 14:16
Analyst: EFC

Extraction Method: EPA 537.1
Extraction Date: 09/19/24 08:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--	1
PFAS, Total (6)	ND		ng/l	2.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	87		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	79		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	101		70-130

Project Name: PFAS (KELLY)
Lab Number: L2452134
Project Number: Not Specified
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2452134-02
Client ID: T1-60-B-T10 FIELD BLANK
Sample Location: MCKEON

Date Collected: 09/11/24 15:12
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 09/21/24 14:25
Analyst: EFC

Extraction Method: EPA 537.1
Extraction Date: 09/19/24 08:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--	1
PFAS, Total (6)	ND		ng/l	2.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	85		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	81		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	92		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		70-130

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 09/21/24 13:15
Analyst: EFC

Extraction Method: EPA 537.1
Extraction Date: 09/19/24 08:15

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-02 Batch: WG1973625-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	--
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--
PFAS, Total (6)	ND		ng/l	2.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	93		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	100		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1973625-2								
Perfluorobutanesulfonic Acid (PFBS)	89		-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	92		-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	85		-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	97		-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	96		-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	106		-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	106		-		70-130	-		30
Perfluorononanoic Acid (PFNA)	112		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	101		-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	106		-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	104		-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	94		-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	109		-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	103		-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	108		-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	110		-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	123		-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	115		-		70-130	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1973625-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	91				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	85				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99				70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1973625-3 QC Sample: L2451937-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	4.61	128	106	79		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	4.59	144	131	88		-	-		70-130	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	144	111	77		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	2.08	144	137	94		-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	132	116	88		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	136	137	101		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	7.73	144	151	100		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	ND	144	145	101		-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	5.99	134	128	91		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	ND	144	140	97		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	134	127	95		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	144	132	92		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	144	137	95		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	144	142	99		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	144	145	101		-	-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	136	132	97		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	144	162	113		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	144	153	106		-	-		70-130	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1973625-3 QC Sample: L2451937-01 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	80				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	91				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	86				70-130

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1973625-4 QC Sample: L2451939-01 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	3.13	3.00	ng/l	4		30
Perfluorohexanoic Acid (PFHxA)	4.41	4.11	ng/l	7		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	5.83	5.61	ng/l	4		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	3.70	3.56	ng/l	4		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1973625-4 QC Sample: L2451939-01 Client ID: DUP Sample

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	91		85		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	85		82		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	106		100		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99		100		70-130

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452134
Report Date: 09/23/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452134-01A	Plastic 250ml Trizma preserved	A	NA		2.1	Y	Absent		A2-MA-537.1(14)
L2452134-01B	Plastic 250ml Trizma preserved	A	NA		2.1	Y	Absent		A2-MA-537.1(14)
L2452134-02A	Plastic 250ml Trizma preserved	A	NA		2.1	Y	Absent		A2-MA-537.1(14)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY)
Project Number:

Lab Number: L2452134
Report Date: 09/23/24

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: PFAS (KELLY)
Project Number:

Lab Number: L2452134
Report Date: 09/23/24

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name: PFAS (KELLY) **Lab Number:** L2452134

Project Number: Not Specified **Report Date:** 09/23/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452134
Project Number:	Not Specified	**Report Date:**	09/23/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452134
Project Number:	Not Specified	**Report Date:**	09/23/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/11/24

ALPHA Job #: L2452134

Client Information

Client: North Attleboro
Address: 49 Whitney St
North Attleboro Ma 02760
Phone: 508-216-4490
Fax:
Email: wwanberg@Nattleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFas (Kelly)
Project Location: McKeon
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Sample's OFFline to North Attleboro Drinking Water *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: PFAS	ANALYSIS: Field Blank	Sample Specific Comments	TOTAL # BOTTLES
52134-01	T1-60-B-T/O	9/11/24	15:15	DW	MB	X			2
-02	T1-60-B-T/O	9/11/24	15:12	DW	MB		X		2

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sampled by: Matthew Barlow

Container Type	P	P
Preservative	0	0 (CTrizma)

Relinquished By:	Date/Time	Received By:	Date/Time
	9/11/24 15:20		9/11/24 15:20
	9/11/24 15:38		9/11/24 15:38

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2452136
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/18/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2452136-01	T1-60-B-T/0	DW	MCKEON T. F	09/11/24 15:01	09/11/24
L2452136-02	RAW IN MAIN	DW	MCKEON T. F	09/11/24 15:06	09/11/24
L2452136-03	T1-LEAD LINE	DW	MCKEON T. F	09/11/24 15:10	09/11/24
L2452136-04	TRIP BLANK	WATER	MCKEON T. F	08/26/24 00:00	09/11/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/18/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/18/24

Case Narrative (continued)

Report Submission

September 18, 2024: This final report includes the results of all requested analyses.

September 13, 2024: This is a preliminary report.

Sample Receipt

L2452136-04: A sample identified as "TRIP BLANK" was received, but not listed on the chain of custody. At the client's request, this sample was not analyzed.

Turbidity

The WG1970511-3 Laboratory Duplicate RPD for turbidity (31%), performed on L2452136-01, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 09/18/24

ORGANICS

VOLATILES

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-01
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:01
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 16,524.2
Analytical Date: 09/13/24 12:19
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	0.50	--	1
Vinyl chloride	ND		ug/l	0.50	--	1
Bromomethane	ND		ug/l	0.50	--	1
Chloroethane	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	0.50	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
Methylene chloride	ND		ug/l	0.50	--	1
Methyl tert butyl ether	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	--	1
1,1-Dichloroethane	ND		ug/l	0.50	--	1
2,2-Dichloropropane	ND		ug/l	0.50	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Chloroform	ND		ug/l	0.50	--	1
Bromochloromethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	0.50	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.50	--	1

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-01 Date Collected: 09/11/24 15:01

Client ID: T1-60-B-T/0 Date Received: 09/11/24

Sample Location: MCKEON T. F Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,2-Dibromoethane	ND		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
p/m-Xylene	ND		ug/l	0.50	--	1
o-Xylene	ND		ug/l	0.50	--	1
Styrene	ND		ug/l	0.50	--	1
Isopropylbenzene	ND		ug/l	0.50	--	1
Bromoform	ND		ug/l	0.50	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Xylenes, Total[1]	ND		ug/l	0.50	--	1
1,2,3-Trichloropropane	ND		ug/l	0.50	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	0.50	--	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	--	1
o-Chlorotoluene	ND		ug/l	0.50	--	1
p-Chlorotoluene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	0.50	--	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
1,3-Dichlorobenzene	ND		ug/l	0.50	--	1
1,4-Dichlorobenzene	ND		ug/l	0.50	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	0.50	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	--	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	--	1

Project Name: PFAS (KELLY)
Lab Number: L2452136
Project Number: Not Specified
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-01
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:01
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	100		80-120
4-Bromofluorobenzene	87		80-120

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/13/24 11:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1972050-4					
Dichlorodifluoromethane	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	0.50	--
Vinyl chloride	ND		ug/l	0.50	--
Bromomethane	ND		ug/l	0.50	--
Chloroethane	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	0.50	--
1,1-Dichloroethene	ND		ug/l	0.50	--
Methylene chloride	ND		ug/l	0.50	--
Methyl tert butyl ether	ND		ug/l	0.50	--
trans-1,2-Dichloroethene	ND		ug/l	0.50	--
1,1-Dichloroethane	ND		ug/l	0.50	--
2,2-Dichloropropane	ND		ug/l	0.50	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Chloroform	ND		ug/l	0.50	--
Bromochloromethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	0.50	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.50	--
1,3-Dichloropropane	ND		ug/l	0.50	--

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/13/24 11:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1972050-4					
Tetrachloroethene	ND		ug/l	0.50	--
Dibromochloromethane	ND		ug/l	0.50	--
1,2-Dibromoethane	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Ethylbenzene	ND		ug/l	0.50	--
p/m-Xylene	ND		ug/l	0.50	--
o-Xylene	ND		ug/l	0.50	--
Styrene	ND		ug/l	0.50	--
Xylenes, Total[1]	ND		ug/l	0.50	--
Isopropylbenzene	ND		ug/l	0.50	--
Bromoform	ND		ug/l	0.50	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
1,2,3-Trichloropropane	ND		ug/l	0.50	--
n-Propylbenzene	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	0.50	--
1,3,5-Trimethylbenzene	ND		ug/l	0.50	--
o-Chlorotoluene	ND		ug/l	0.50	--
p-Chlorotoluene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	0.50	--
1,2,4-Trimethylbenzene	ND		ug/l	0.50	--
sec-Butylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
1,3-Dichlorobenzene	ND		ug/l	0.50	--
1,4-Dichlorobenzene	ND		ug/l	0.50	--
n-Butylbenzene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	0.50	--
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	--
1,2,4-Trichlorobenzene	ND		ug/l	0.50	--

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/13/24 11:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1972050-4					
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	0.50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	107		80-120
4-Bromofluorobenzene	84		80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1972050-3								
Dichlorodifluoromethane	125		-		70-130	-		20
Chloromethane	118		-		70-130	-		20
Vinyl chloride	110		-		70-130	-		20
Bromomethane	105		-		70-130	-		20
Chloroethane	115		-		70-130	-		20
Trichlorofluoromethane	108		-		70-130	-		20
1,1-Dichloroethene	100		-		70-130	-		20
Methylene chloride	112		-		70-130	-		20
Methyl tert butyl ether	100		-		70-130	-		20
trans-1,2-Dichloroethene	98		-		70-130	-		20
1,1-Dichloroethane	102		-		70-130	-		20
2,2-Dichloropropane	100		-		70-130	-		20
cis-1,2-Dichloroethene	100		-		70-130	-		20
Chloroform	95		-		70-130	-		20
Bromochloromethane	110		-		70-130	-		20
1,1,1-Trichloroethane	95		-		70-130	-		20
1,1-Dichloropropene	98		-		70-130	-		20
Carbon tetrachloride	92		-		70-130	-		20
1,2-Dichloroethane	102		-		70-130	-		20
Benzene	100		-		70-130	-		20
Trichloroethene	100		-		70-130	-		20
1,2-Dichloropropane	98		-		70-130	-		20
Bromodichloromethane	95		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1972050-3								
Dibromomethane	100		-		70-130	-		20
cis-1,3-Dichloropropene	90		-		70-130	-		20
Toluene	98		-		70-130	-		20
trans-1,3-Dichloropropene	88		-		70-130	-		20
1,1,2-Trichloroethane	102		-		70-130	-		20
1,3-Dichloropropane	100		-		70-130	-		20
Tetrachloroethene	100		-		70-130	-		20
Dibromochloromethane	95		-		70-130	-		20
1,2-Dibromoethane	98		-		70-130	-		20
Chlorobenzene	98		-		70-130	-		20
1,1,1,2-Tetrachloroethane	88		-		70-130	-		20
Ethylbenzene	95		-		70-130	-		20
p/m-Xylene	98		-		70-130	-		20
o-Xylene	95		-		70-130	-		20
Styrene	98		-		70-130	-		20
Isopropylbenzene	92		-		70-130	-		20
Bromoform	90		-		70-130	-		20
1,1,2,2-Tetrachloroethane	92		-		70-130	-		20
1,2,3-Trichloropropane	90		-		70-130	-		20
n-Propylbenzene	95		-		70-130	-		20
Bromobenzene	102		-		70-130	-		20
1,3,5-Trimethylbenzene	90		-		70-130	-		20
o-Chlorotoluene	100		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1972050-3								
p-Chlorotoluene	98		-		70-130	-		20
tert-Butylbenzene	90		-		70-130	-		20
1,2,4-Trimethylbenzene	98		-		70-130	-		20
sec-Butylbenzene	92		-		70-130	-		20
p-Isopropyltoluene	92		-		70-130	-		20
1,3-Dichlorobenzene	100		-		70-130	-		20
1,4-Dichlorobenzene	102		-		70-130	-		20
n-Butylbenzene	95		-		70-130	-		20
1,2-Dichlorobenzene	105		-		70-130	-		20
1,2-Dibromo-3-chloropropane	88		-		70-130	-		20
1,2,4-Trichlorobenzene	108		-		70-130	-		20
Hexachlorobutadiene	98		-		70-130	-		20
Naphthalene	95		-		70-130	-		20
1,2,3-Trichlorobenzene	100		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	100				80-120
4-Bromofluorobenzene	96				80-120

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1972050-6	QC Sample: L2452443-01	Client ID: MS Sample								
Dichlorodifluoromethane	ND	4	4.9	123		-	-		70-130	-		20
Chloromethane	ND	4	4.1	103		-	-		70-130	-		20
Vinyl chloride	ND	4	4.4	110		-	-		70-130	-		20
Bromomethane	ND	4	1.4	**35**	Q	-	-		70-130	-		20
Chloroethane	ND	4	4.4	110		-	-		70-130	-		20
Trichlorofluoromethane	ND	4	4.4	110		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	4.1	103		-	-		70-130	-		20
Methylene chloride	ND	4	4.0	100		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	3.6	90		-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	4.0	100		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	4.2	105		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	3.9	98		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	3.9	98		-	-		70-130	-		20
Chloroform	ND	4	4.1	103		-	-		70-130	-		20
Bromochloromethane	ND	4	4.2	105		-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	4.2	105		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	4.0	100		-	-		70-130	-		20
Carbon tetrachloride	ND	4	4.3	108		-	-		70-130	-		20
1,2-Dichloroethane	ND	4	4.0	100		-	-		70-130	-		20
Benzene	ND	4	3.8	95		-	-		70-130	-		20
Trichloroethene	ND	4	3.5	88		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	3.9	98		-	-		70-130	-		20
Bromodichloromethane	ND	4	4.0	100		-	-		70-130	-		20
Dibromomethane	ND	4	4.2	105		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1972050-6	QC Sample: L2452443-01	Client ID: MS Sample								
cis-1,3-Dichloropropene	ND	4	3.5	88		-	-		70-130	-		20
Toluene	ND	4	3.7	92		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	3.4	85		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	3.9	98		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	3.8	95		-	-		70-130	-		20
Tetrachloroethene	ND	4	3.9	98		-	-		70-130	-		20
Dibromochloromethane	ND	4	3.9	98		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	4.0	100		-	-		70-130	-		20
Chlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	3.7	92		-	-		70-130	-		20
Ethylbenzene	ND	4	3.6	90		-	-		70-130	-		20
p/m-Xylene	ND	8	7.6	95		-	-		70-130	-		20
o-Xylene	ND	4	3.6	90		-	-		70-130	-		20
Styrene	ND	4	3.6	90		-	-		70-130	-		20
Isopropylbenzene	ND	4	3.6	90		-	-		70-130	-		20
Bromoform	ND	4	3.8	95		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	4.8	120		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	3.5	88		-	-		70-130	-		20
n-Propylbenzene	ND	4	3.7	92		-	-		70-130	-		20
Bromobenzene	ND	4	3.6	90		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	3.6	90		-	-		70-130	-		20
o-Chlorotoluene	ND	4	3.9	98		-	-		70-130	-		20
p-Chlorotoluene	ND	4	3.7	92		-	-		70-130	-		20
tert-Butylbenzene	ND	4	3.6	90		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1972050-6	QC Sample: L2452443-01	Client ID: MS Sample								
1,2,4-Trimethylbenzene	ND	4	3.7	92		-	-		70-130	-		20
sec-Butylbenzene	ND	4	3.8	95		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	3.6	90		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	3.7	92		-	-		70-130	-		20
n-Butylbenzene	ND	4	3.8	95		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	3.7	92		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	4.0	100		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.6	90		-	-		70-130	-		20
Naphthalene	ND	4	3.4	85		-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	100				80-120
4-Bromofluorobenzene	99				80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972050-5 QC Sample: L2452445-01 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	ND	ND	ug/l	NC		20
Chloroform	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972050-5 QC Sample: L2452445-01 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Xylene (Total)[1]	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972050-5 QC Sample: L2452445-01 Client ID: DUP Sample						
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
Trihalomethanes, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972050-5 QC Sample: L2452445-01 Client ID: DUP Sample

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	106		105		80-120
4-Bromofluorobenzene	86		89		80-120

METALS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-01
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:01
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Antimony, Total	ND		mg/l	0.0040	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Arsenic, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Barium, Total	0.3082		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Cadmium, Total	ND		mg/l	0.0002	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Calcium, Total	22.8		mg/l	0.100	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Chromium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Copper, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Copper, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Iron, Total	ND		mg/l	0.0500	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Lead, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Magnesium, Total	4.06		mg/l	0.100	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Manganese, Total	0.0233		mg/l	0.0100	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Mercury, Total	ND		mg/l	0.0002	--	1	09/15/24 21:03	09/16/24 12:42	EPA 245.1	3,245.1	MJR
Nickel, Total	ND		mg/l	0.0020	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Potassium, Total	45.6		mg/l	2.50	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Selenium, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Silver, Total	ND		mg/l	0.0070	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Sodium, Total	52.8		mg/l	2.00	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Thallium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/18/24 11:30	EPA 3005A	3,200.8	NTB
Zinc, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	73.7		mg/l	0.660	NA	1	09/15/24 16:29	09/18/24 08:10	EPA 3005A	19,200.7	DHL

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971421-1										
Aluminum, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Calcium, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Copper, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Iron, Total	ND		mg/l	0.0500	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Magnesium, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Manganese, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Potassium, Total	ND		mg/l	2.50	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Silver, Total	ND		mg/l	0.0070	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Sodium, Total	ND		mg/l	2.00	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Zinc, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1971421-1										
Hardness	ND		mg/l	0.660	NA	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971424-1										
Antimony, Total	ND		mg/l	0.0040	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Arsenic, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Barium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Cadmium, Total	ND		mg/l	0.0002	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Chromium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

Method Blank Analysis
Batch Quality Control

Copper, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Lead, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Nickel, Total	ND	mg/l	0.0020	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Selenium, Total	ND	mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Thallium, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971428-1										
Mercury, Total	ND		mg/l	0.0002	--	1	09/15/24 21:03	09/16/24 12:09	3,245.1	MJR

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2452136

Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971421-2								
Aluminum, Total	100		-		85-115	-		
Calcium, Total	102		-		85-115	-		
Copper, Total	107		-		85-115	-		
Iron, Total	103		-		85-115	-		
Magnesium, Total	103		-		85-115	-		
Manganese, Total	103		-		85-115	-		
Potassium, Total	101		-		85-115	-		
Silver, Total	107		-		85-115	-		
Sodium, Total	102		-		85-115	-		
Zinc, Total	106		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1971421-2								
Hardness	103		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2452136

Report Date: 09/18/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971424-2					
Antimony, Total	88	-	85-115	-	
Arsenic, Total	104	-	85-115	-	
Barium, Total	101	-	85-115	-	
Beryllium, Total	112	-	85-115	-	
Cadmium, Total	100	-	85-115	-	
Chromium, Total	103	-	85-115	-	
Copper, Total	105	-	85-115	-	
Lead, Total	96	-	85-115	-	
Nickel, Total	101	-	85-115	-	
Selenium, Total	112	-	85-115	-	
Thallium, Total	100	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971428-2					
Mercury, Total	96	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-3 QC Sample: L2451436-01 Client ID: MS Sample												
Aluminum, Total	ND	2	2.02	101		-	-		75-125	-		20
Calcium, Total	23.6	10	33.7	101		-	-		75-125	-		20
Copper, Total	ND	0.25	0.275	110		-	-		75-125	-		20
Iron, Total	ND	1	1.04	104		-	-		75-125	-		20
Magnesium, Total	4.42	10	15.0	106		-	-		75-125	-		20
Manganese, Total	0.0153	0.5	0.534	104		-	-		75-125	-		20
Potassium, Total	44.5	10	54.0	95		-	-		75-125	-		20
Silver, Total	ND	0.05	0.0550	110		-	-		75-125	-		20
Sodium, Total	52.4	10	61.9	95		-	-		75-125	-		20
Zinc, Total	ND	0.5	0.554	111		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-3 QC Sample: L2451436-01 Client ID: MS Sample												
Hardness	77.2	66.2	146	104		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-7 QC Sample: L2451587-01 Client ID: MS Sample									
Aluminum, Total	ND	2	2.09	104	-	-	75-125	-	20
Calcium, Total	19.8	10	30.0	102	-	-	75-125	-	20
Copper, Total	ND	0.25	0.289	116	-	-	75-125	-	20
Iron, Total	ND	1	1.07	107	-	-	75-125	-	20
Magnesium, Total	4.61	10	15.5	109	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.531	106	-	-	75-125	-	20
Potassium, Total	ND	10	11.5	115	-	-	75-125	-	20
Silver, Total	ND	0.05	0.0559	112	-	-	75-125	-	20
Sodium, Total	4.46	10	14.9	104	-	-	75-125	-	20
Zinc, Total	0.008	0.5	0.571	112	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-7 QC Sample: L2451587-01 Client ID: MS Sample									
Hardness	68.4	66.2	139	107	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-3 QC Sample: L2451436-01 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.4082	82	-	-	70-130	-	20
Arsenic, Total	0.0011	0.12	0.1257	104	-	-	70-130	-	20
Barium, Total	0.2782	2	2.324	102	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0559	112	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0538	101	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2093	105	-	-	70-130	-	20
Copper, Total	ND	0.25	0.2715	109	-	-	70-130	-	20
Lead, Total	ND	0.53	0.5176	98	-	-	70-130	-	20
Nickel, Total	0.0022	0.5	0.5159	103	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1361	113	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1207	100	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-5 QC Sample: L2451587-01 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.4319	86	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1280	107	-	-	70-130	-	20
Barium, Total	0.0012	2	2.039	102	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0581	116	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0559	105	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2138	107	-	-	70-130	-	20
Copper, Total	0.0066	0.25	0.2743	107	-	-	70-130	-	20
Lead, Total	ND	0.53	0.5316	100	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5247	105	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1426	119	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1246	104	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971428-3 QC Sample: L2451794-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.0047	94	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-4 QC Sample: L2451436-01 Client ID: DUP Sample						
Aluminum, Total	ND	ND	mg/l	NC		20
Calcium, Total	23.6	23.8	mg/l	1		20
Copper, Total	ND	ND	mg/l	NC		20
Iron, Total	ND	ND	mg/l	NC		20
Magnesium, Total	4.42	4.44	mg/l	0		20
Manganese, Total	0.0153	0.0157	mg/l	3		20
Potassium, Total	44.5	44.6	mg/l	0		20
Silver, Total	ND	ND	mg/l	NC		20
Sodium, Total	52.4	53.2	mg/l	2		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-4 QC Sample: L2451436-01 Client ID: DUP Sample						
Hardness	77.2	77.8	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-8 QC Sample: L2451587-01 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-4 QC Sample: L2451436-01 Client ID: DUP Sample					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.0011	ND	mg/l	NC	20
Barium, Total	0.2782	0.2809	mg/l	1	20
Beryllium, Total	ND	ND	mg/l	NC	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	ND	ND	mg/l	NC	20
Copper, Total	ND	ND	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	0.0022	0.0021	mg/l	3	20
Selenium, Total	ND	ND	mg/l	NC	20
Thallium, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-6 QC Sample: L2451587-01 Client ID: DUP Sample					
Arsenic, Total	ND	ND	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971428-4 QC Sample: L2451794-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-01
Client ID: T1-60-B-T/0
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:01
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Turbidity	0.41		NTU	0.20	--	1	-	09/11/24 23:13	44,180.1	AAS
Odor @ 60 C	NO ODOR		TON	1	--	1	-	09/11/24 21:09	121,2150B	AAS
Color, Apparent	ND		A.P.C.U.	5.0	--	1	-	09/12/24 15:00	121,2120B	JBB
Alkalinity, Total	105.		mg CaCO3/L	2.00	NA	1	-	09/16/24 10:45	121,2320B	MKT
Solids, Total Dissolved	300		mg/l	10	--	1	-	09/17/24 17:26	121,2540C	REM
Cyanide, Total	ND		mg/l	0.005	--	1	09/15/24 11:35	09/16/24 13:09	121,4500CN-CE	JER
Fluoride	ND		mg/l	0.20	--	1	-	09/15/24 09:27	121,4500F-C	DTH
pH (H)	7.70		SU	-	NA	1	-	09/12/24 16:56	121,4500H+-B	AAS
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Anions by Ion Chromatography - Westborough Lab										
Chloride	101.		mg/l	5.00	--	10	-	09/12/24 23:24	44,300.0	AVT
Sulfate	14.4		mg/l	1.00	--	1	-	09/12/24 23:13	44,300.0	AVT

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-02
Client ID: RAW IN MAIN
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:06
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2452136-03
Client ID: T1-LEAD LINE
Sample Location: MCKEON T. F

Date Collected: 09/11/24 15:10
Date Received: 09/11/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1970487-1										
Odor	NO ODOR		TON	1	--	1	-	09/11/24 21:09	121,2150B	AAS
Bacteria in Water - Westborough Lab for sample(s): 01-03 Batch: WG1970506-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/11/24 22:31	121,9223B	MAW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1970511-1										
Turbidity	ND		NTU	0.20	--	1	-	09/11/24 23:13	44,180.1	AAS
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1971065-1										
Sulfate	ND		mg/l	1.00	--	1	-	09/12/24 16:29	44,300.0	AVT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1971065-1										
Chloride	ND		mg/l	0.500	--	1	-	09/12/24 16:29	44,300.0	AVT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1971764-1										
Fluoride	ND		mg/l	0.20	--	1	-	09/15/24 09:27	121,4500F-C	DTH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1971800-1										
Cyanide, Total	ND		mg/l	0.005	--	1	09/15/24 11:35	09/16/24 12:49	121,4500CN-CE	JER
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1972008-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	09/16/24 09:10	121,2320B	MKT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1972785-1										
Solids, Total Dissolved	ND		mg/l	10	--	1	-	09/17/24 17:26	121,2540C	REM

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1970511-2								
Turbidity	105		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1970978-1								
pH	99		-		99-101	-		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1971065-2								
Chloride	104		-		90-110	-		
Sulfate	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1971764-2								
Fluoride	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1971800-2								
Cyanide, Total	94		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1972008-2								
Alkalinity, Total	102		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1972785-2								
Solids, Total Dissolved	92		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971065-3 QC Sample: L2451794-01 Client ID: MS Sample												
Chloride	23.9	4	27.0	**77**	Q	-	-		90-110	-		18
Sulfate	5.10	8	12.9	98		-	-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971764-4 QC Sample: L2452136-01 Client ID: T1-60-B-T/0												
Fluoride	ND	2	1.7	84		-	-		69-124	-		13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971800-3 QC Sample: L2452125-02 Client ID: MS Sample												
Cyanide, Total	0.016	0.2	0.227	105		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972008-4 QC Sample: L2447023-80 Client ID: MS Sample												
Alkalinity, Total	52.0	100	156	104		-	-		86-116	-		10

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970487-2 QC Sample: L2452136-01 Client ID: T1-60-B-T/0						
Odor	NO ODOR	NO ODOR	TON	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970511-3 QC Sample: L2452136-01 Client ID: T1-60-B-T/0						
Turbidity	0.41	0.30	NTU	**31**	Q	13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970914-1 QC Sample: L2451844-09 Client ID: DUP Sample						
Color, Apparent	5.0	5.0	A.P.C.U.	0		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970914-2 QC Sample: L2451844-18 Client ID: DUP Sample						
Color, Apparent	ND	ND	A.P.C.U.	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970978-2 QC Sample: L2451524-01 Client ID: DUP Sample						
pH	7.03	7.17	SU	2		5
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971065-4 QC Sample: L2451794-01 Client ID: DUP Sample						
Chloride	23.9	23.9	mg/l	0		18
Sulfate	5.10	5.11	mg/l	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971764-3 QC Sample: L2452136-01 Client ID: T1-60-B-T/0						
Fluoride	ND	ND	mg/l	NC		13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971800-4 QC Sample: L2452125-02 Client ID: DUP Sample						
Cyanide, Total	0.016	0.020	mg/l	21		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972008-3 QC Sample: L2447023-80 Client ID: DUP Sample						
Alkalinity, Total	52.0	51.5	mg CaCO3/L	1		10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972785-3 QC Sample: L2452045-01 Client ID: DUP Sample						
Solids, Total Dissolved	65	54	mg/l	**18**	Q	10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1972785-4 QC Sample: L2452045-02 Client ID: DUP Sample						
Solids, Total Dissolved	250	240	mg/l	4		10

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452136-01A	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		524.2(14)
L2452136-01B	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		524.2(14)
L2452136-01D	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)
L2452136-01E	Plastic 250ml unpreserved/No Headspace	A	NA		2.7	Y	Absent		ALK-T-2320(14)
L2452136-01F	Plastic 250ml NaOH preserved	A	>12	>12	2.7	Y	Absent		TCN-4500(14)
L2452136-01G	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01H	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01I	Plastic 950ml HNO3 preserved	A	<2	<2	2.7	Y	Absent		CD-2008T(180),CA-UI(180),AG-UI(180),ZN-UI(180),NI-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),CU-2008T(180),MG-UI(180),AS-2008T(180),HG-U(28),SE-2008T(180),MN-UI(180),BA-2008T(180),NA-UI(180),AL-UI(180),CR-2008T(180),PB-2008T(180),TL-2008T(180),SB-2008T(180),CU-UI(180)
L2452136-01J	Plastic 950ml unpreserved	A	7	7	2.7	Y	Absent		F-4500(28),SO4-300(28),CL-300(28),TURB-180(2),PH-4500(.01),TDS-2540(7)
L2452136-01K	Plastic 950ml unpreserved	A	7	7	2.7	Y	Absent		F-4500(28),SO4-300(28),CL-300(28),TURB-180(2),PH-4500(.01),TDS-2540(7)
L2452136-01L	Amber 950ml unpreserved	A	6	6	2.7	Y	Absent		COLOR-A-2120(2),ODOR-2150(1)
L2452136-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2452136
Report Date: 09/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2452136-03A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		T-COLI-C(1.25)
L2452136-04A	Vial Ascorbic Acid/HCl preserved	A	NA		2.7	Y	Absent		HOLD-524.2(14)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/18/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2452136
Project Number:	Not Specified	**Report Date:**	09/18/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name: PFAS (KELLY) **Lab Number:** L2452136

Project Number: Not Specified **Report Date:** 09/18/24

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:09182417:22 L2452136 13SEP24
NATTLEB – GWA

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 09/11/24

ALPHA J

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: North Attleboro
Address: 49 Whiting St.
North Attleboro, Ma 02760
Phone: 508-216-4490
Fax:
Email: wwanberg@Nattleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFas (Kelly)
Project Location: McKeon
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Samples OFFline to North Attleboro Drinking System *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC	IOC	Secondary Cont.	Total Coliform	Lead & Copper	Sample Specific Comments	TOTAL # BOTTLES
52136-01	T1-60-B-T/O	9/11/24	14:28	DW	MB	X						2
	T1-60-B-T/O	9/11/24	14:35	DW	MB		X					3
	T1-60-B-T/O	9/11/24	14:44	DW	MB			X				4
	T1-60-B-T/O	9/11/24	15:01	DW	MB				X			1
	T1-60-B-T/O	9/11/24	14:50	DW	MB					X		1
-02	Raw in main	9/11/24	15:06	DW	MB				X			1
-03	T1-Lead line	9/11/24	15:10	DW	MB				X			1

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sampled by: Matthew Barlow

Container Type	V											
Preservative	B											

Relinquished By:	Date/Time	Received By:	Date/Time
	9/11/24 15:20		9/11/24 15:20
	9/11/24 15:38		9/11/24 15:38
	9/11/24 1715		9/11/24 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2451437
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/11/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2451437-01	T2-20-B-T/0	DW	MCKEON T.F.	09/09/24 10:37	09/09/24
L2451437-02	T2-40-B-T/0	DW	MCKEON T.F.	09/09/24 12:37	09/09/24
L2451437-03	T2-60-B-T/0	DW	MCKEON T.F.	09/09/24 15:21	09/09/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451437
Project Number:	Not Specified	**Report Date:**	09/11/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 09/11/24

METALS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

SAMPLE RESULTS

Lab ID: L2451437-01
Client ID: T2-20-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 10:37
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.0019		mg/l	0.0010	--	1	09/10/24 02:53	09/10/24 17:37	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

SAMPLE RESULTS

Lab ID: L2451437-02
Client ID: T2-40-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 12:37
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.0010		mg/l	0.0010	--	1	09/10/24 02:53	09/10/24 17:41	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

SAMPLE RESULTS

Lab ID: L2451437-03
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:21
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	ND		mg/l	0.0010	--	1	09/10/24 02:53	09/10/24 17:44	EPA 3005A	3,200.8	NTB

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1969417-1										
Arsenic, Total	ND		mg/l	0.0010	--	1	09/10/24 02:53	09/10/24 16:12	3,200.8	NTB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2451437

Report Date: 09/11/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1969417-2								
Arsenic, Total	93		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1969417-3 QC Sample: L2450337-01 Client ID: MS Sample												
Arsenic, Total	ND	0.12	0.1142	95		-	-		70-130	-		20

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451437
Report Date: 09/11/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2451437-01A	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		AS-2008T(180)
L2451437-02A	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		AS-2008T(180)
L2451437-03A	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		AS-2008T(180)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY) **Lab Number:** L2451437

Project Number: Not Specified **Report Date:** 09/11/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451437
Project Number:	Not Specified	**Report Date:**	09/11/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451437
Project Number:	Not Specified	**Report Date:**	09/11/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

L2451437 11SEP24
NATTLEB – GWA

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/9/24

Client Information

Client: North Attleboro
Address: 49 Whiting St.
North Attleboro, Ma 02760
Phone: 508-216-4490
Fax:
Email: WWanberg@NAttleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFAS (Kelly)
Project Location: McKeon T.F.
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☐ Standard ☑ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Samples: OFFline to North Attleboro Drinking water *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Arsenic	Sample Specific Comments	TOTAL # BOTTLES
51437-01	T2-20-B-T/O	9/9/24	10:37	DW	JB	X		1
02	T2-40-B-T/O	9/9/24	12:37	DW	JB	X		1
03	T2-60-B-T/O	9/9/24	3:21PM	DW	JB	X		1

SAMPLE HANDLING
Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	P
Preservative	C

Relinquished By:	Date/Time	Received By:	Date/Time
Matt Ruiz	9/9/24 15:53	Matt Ruiz	9/9/24 15:53
	9/9/24 17:13	Julie Cox	9/9/24 17:13

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ANALYTICAL REPORT

Lab Number:	L2453322
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/19/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2453322-01	T2-60-B-T/0	DW	NORTH ATTLEBORO	09/17/24 13:52	09/17/24
L2453322-02	RAW MAIN IN	DW	NORTH ATTLEBORO	09/17/24 13:56	09/17/24
L2453322-03	T2 LEAD IN	DW	NORTH ATTLEBORO	09/17/24 13:54	09/17/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2453322
Project Number:	Not Specified	**Report Date:**	09/19/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

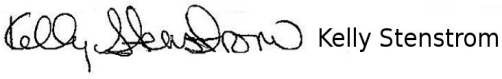
When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 09/19/24

INORGANICS
&
MISCELLANEOUS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

SAMPLE RESULTS

Lab ID: L2453322-01
Client ID: T2-60-B-T/0
Sample Location: NORTH ATTLEBORO

Date Collected: 09/17/24 13:52
Date Received: 09/17/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

SAMPLE RESULTS

Lab ID: L2453322-02
Client ID: RAW MAIN IN
Sample Location: NORTH ATTLEBORO

Date Collected: 09/17/24 13:56
Date Received: 09/17/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

SAMPLE RESULTS

Lab ID: L2453322-03
Client ID: T2 LEAD IN
Sample Location: NORTH ATTLEBORO

Date Collected: 09/17/24 13:54
Date Received: 09/17/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab for sample(s): 01-03 Batch: WG1972808-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/17/24 18:27	121,9223B	MAW

Field Data Summary

Field Data Summary

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

Parameter	Result	Units
Sample: L2453322-01 Client ID: T2-60-B-T/0		
Date & Time Of Analysis (Residual Chlorine)	9/17/24 13:52	NA
Residual Chlorine	0	mg/l
Sample: L2453322-02 Client ID: RAW MAIN IN		
Date & Time Of Analysis (Residual Chlorine)	9/17/24 13:56	NA
Residual Chlorine	.58	mg/l
Sample: L2453322-03 Client ID: T2 LEAD IN		
Date & Time Of Analysis (Residual Chlorine)	9/17/24 13:54	NA
Residual Chlorine	0	mg/l

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2453322
Report Date: 09/19/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2453322-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.0	Y	Absent		T-COLI-C(1.25)
L2453322-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.0	Y	Absent		T-COLI-C(1.25)
L2453322-03A	Bacteria Cup Na2S2O3 preserved	A	NA		2.0	Y	Absent		T-COLI-C(1.25)

*Values in parentheses indicate holding time in days

Project Name:	PFAS (KELLY)	**Lab Number:**	L2453322
Project Number:	Not Specified	**Report Date:**	09/19/24

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2453322
Project Number:	Not Specified	**Report Date:**	09/19/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2453322
Project Number:	Not Specified	**Report Date:**	09/19/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/17/24

ALPH

Client Information

Client: Town of North Attleboro
Address: 49 Whiting St.
North Attleboro, MA 02760
Phone: 508-216-4490
Fax: 508-643-0568
Email: wwanberg@NAttleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Kelly PFAS
Project Location: North Attleboro
Project #:
Project Manager: William Wanberg
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
"Special Samples" – off Line to No. Attleboro Distribution

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Total Coliform	SAMPLE HANDLING	TOTAL # BOTTLES
53322-01	T2-60-B-T/O	9/17/24	13:52	DW	JM	X	Cl2 Res. 0.00	1
-02	Row Main in	9/17/24	13:56	DW	JM	X	Cl2 Res. 0.58	1
-03	T2 Lead in	9/17/24	13:54	DW	JM	X	Cl2 Res. 0.00	1

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)
Sample Specific Comments

* Note: T2-Lead in is a repeat after TC positive result

Sampled by: Joseph McCarthy

Container Type	B
Preservative	H

Relinquished By:	Date/Time	Received By:	Date/Time
Joseph McCarthy	9/17/24 15:20	[illegible]	9/17/24 15:20
[illegible]	9/17/24 1520	[illegible]	9/17/24 1545
[illegible]	9/17/24 1645	[illegible]	9/17/24 16:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO. 01-01 (REV. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2451406
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/18/24

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (9110), MN (025-999-495), NJ (MA015), NY (11627), NC (685), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708A1), USFWS (Permit #A24920).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2451406-01	T2-60-B-T/O	DW	MCKEON T.F.	09/09/24 15:25	09/09/24
L2451406-02	T2-60-B-T/O-FIELD BLANK	DW	MCKEON T.F.	09/09/24 15:23	09/09/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451406
Project Number:	Not Specified	**Report Date:**	09/18/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451406
Project Number:	Not Specified	**Report Date:**	09/18/24

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Ashley Leitao Ashley Leitao

Title: Technical Director/Representative Date: 09/18/24

ORGANICS

SEMIVOLATILES

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2451406-01
Client ID: T2-60-B-T/O
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:25
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 09/17/24 16:41
Analyst: LMV

Extraction Method: EPA 537.1
Extraction Date: 09/16/24 10:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.696	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.696	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.696	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.696	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.696	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.696	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.696	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.696	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.696	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.696	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.696	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.696	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.696	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.696	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.696	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.696	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.696	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.696	1
PFAS, Total (6)	ND		ng/l	2.00	0.696	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	95		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	89		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	91		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		70-130

Project Name: PFAS (KELLY)
Project Number: Not Specified
Lab Number: L2451406
Report Date: 09/18/24

SAMPLE RESULTS

Lab ID: L2451406-02
Client ID: T2-60-B-T/O-FIELD BLANK
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:23
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 09/17/24 16:50
Analyst: LMV

Extraction Method: EPA 537.1
Extraction Date: 09/16/24 10:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.695	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.695	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.695	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.695	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.695	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.695	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.695	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.695	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.695	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.695	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.695	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.695	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.695	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.695	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.695	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.695	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.695	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.695	1
PFAS, Total (6)	ND		ng/l	2.00	0.695	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	89		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	94		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		70-130

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 09/17/24 12:45
Analyst: LMV

Extraction Method: EPA 537.1
Extraction Date: 09/16/24 10:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-02 Batch: WG1972034-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.668
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.668
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.668
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.668
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.668
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.668
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.668
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.668
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.668
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.668
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.668
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.668
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.668
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.668
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.668
PFAS, Total (6)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	108		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	107		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	112		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1972034-2								
Perfluorobutanesulfonic Acid (PFBS)	98		-		50-150	-		30
Perfluorohexanoic Acid (PFHxA)	109		-		50-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	106		-		50-150	-		30
Perfluoroheptanoic Acid (PFHpA)	109		-		50-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	107		-		50-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	109		-		50-150	-		30
Perfluorooctanoic Acid (PFOA)	106		-		50-150	-		30
Perfluorononanoic Acid (PFNA)	114		-		50-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	114		-		50-150	-		30
Perfluorodecanoic Acid (PFDA)	110		-		50-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	107		-		50-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	105		-		50-150	-		30
Perfluoroundecanoic Acid (PFUnA)	111		-		50-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	107		-		50-150	-		30
Perfluorododecanoic Acid (PFDoA)	106		-		50-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	95		-		50-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	104		-		50-150	-		30
Perfluorotetradecanoic Acid (PFTA)	118		-		50-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1972034-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	100				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	100				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	104				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	107				70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972034-3 QC Sample: L2451271-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	4.15	2	5.98	92		-	-		50-150	-		30
Perfluorohexanoic Acid (PFHxA)	1.01J	2.25	3.12	139		-	-		50-150	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	2.25	1.97J	88		-	-		50-150	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	2.25	2.92	130		-	-		50-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	24.7	2.06	27.0	112		-	-		50-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	2.12	2.29	108		-	-		50-150	-		30
Perfluorooctanoic Acid (PFOA)	1.54JZ	2.25	3.91	**174**	Q	-	-		50-150	-		30
Perfluorononanoic Acid (PFNA)	ND	2.25	2.16J	96		-	-		50-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	27.5	2.09	28.7	58		-	-		50-150	-		30
Perfluorodecanoic Acid (PFDA)	ND	2.25	2.25	100		-	-		50-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	2.1	1.65J	79		-	-		50-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	2.25	1.69J	75		-	-		50-150	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	2.25	1.98J	88		-	-		50-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.25	1.83J	81		-	-		50-150	-		30
Perfluorododecanoic Acid (PFDoA)	ND	2.25	1.74J	77		-	-		50-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	2.12	1.61J	76		-	-		50-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	2.25	2.02J	90		-	-		50-150	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	2.25	1.94J	86		-	-		50-150	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972034-3 QC Sample: L2451271-01 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	84				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	82				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	81				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	89				70-130

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972034-4 QC Sample: L2451271-03 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	1.08J	1.09J	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972034-4 QC Sample: L2451271-03 Client ID: DUP Sample

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	96		94		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	94		93		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97		78		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	89		72		70-130

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451406
Report Date: 09/18/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2451406-01A	Plastic 250ml Trizma preserved	A	NA		4.5	Y	Absent		A2-MA-537.1(14)
L2451406-01B	Plastic 250ml Trizma preserved	A	NA		4.5	Y	Absent		A2-MA-537.1(14)
L2451406-02A	Plastic 250ml Trizma preserved	A	NA		4.5	Y	Absent		A2-MA-537.1(14)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY)
Project Number:

Lab Number: L2451406
Report Date: 09/18/24

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: PFAS (KELLY)
Project Number:

Lab Number: L2451406
Report Date: 09/18/24

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name: PFAS (KELLY) **Lab Number:** L2451406

Project Number: Not Specified **Report Date:** 09/18/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451406
Project Number:	Not Specified	**Report Date:**	09/18/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name: PFAS (KELLY) **Lab Number:** L2451406

Project Number: Not Specified **Report Date:** 09/18/24

Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/9/24

ALPHA Job #: L2451406

Client Information

Client: North Attleboro
Address: 49 Whiting St
North Attleboro Ma 02760
Phone: 508-210-4490
Fax:
Email: WWanberg@Nattleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Pfas (Kelly)
Project Location: McKeon T.F.
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Sample: OFFline to North Attleboro Drinking Water *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Pfas	ANALYSIS: Field Blank	SAMPLE HANDLING	TOTAL # BOTTLES
5N06-01	T2-60-B-T/O	9/9/24	15:25	DW	JM	X			2
-02	T2-60-B-T/O	9/9/24	15:23	DW	JM		X		2

SAMPLE HANDLING: Filtration ☐ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below); Sample Specific Comments

Sampled by: Joseph McCarthy

Container Type	P	P
Preservative	0	0 (Trizma)

Relinquished By:	Date/Time	Received By:	Date/Time
Joseph McCarthy	9/9/24 15:41	[illegible]	9/9/24 15:41

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2451436
Client:	North Attleboro Water Department 49 Whiting St. North Attleboro, MA 02760
ATTN:	William Wanberg
Phone:	(508) 126-4490
Project Name:	PFAS (KELLY)
Project Number:	Not Specified
Report Date:	09/17/24

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2451436-01	T2-60-B-T/0	DW	MCKEON T.F.	09/09/24 15:43	09/09/24

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451436
Project Number:	Not Specified	**Report Date:**	09/17/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451436
Project Number:	Not Specified	**Report Date:**	09/17/24

Case Narrative (continued)

Report Submission

September 17, 2024: This final report includes the results of all requested analyses.

September 11, 2024: This is a preliminary report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 09/17/24

ORGANICS

VOLATILES

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

SAMPLE RESULTS

Lab ID: L2451436-01
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:43
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 16,524.2
Analytical Date: 09/10/24 20:10
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	0.50	--	1
Vinyl chloride	ND		ug/l	0.50	--	1
Bromomethane	ND		ug/l	0.50	--	1
Chloroethane	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	0.50	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
Methylene chloride	ND		ug/l	0.50	--	1
Methyl tert butyl ether	ND		ug/l	0.50	--	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	--	1
1,1-Dichloroethane	ND		ug/l	0.50	--	1
2,2-Dichloropropane	ND		ug/l	0.50	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Chloroform	ND		ug/l	0.50	--	1
Bromochloromethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	0.50	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.50	--	1

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

SAMPLE RESULTS

Lab ID: L2451436-01
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:43
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,2-Dibromoethane	ND		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
p/m-Xylene	ND		ug/l	0.50	--	1
o-Xylene	ND		ug/l	0.50	--	1
Styrene	ND		ug/l	0.50	--	1
Isopropylbenzene	ND		ug/l	0.50	--	1
Bromoform	ND		ug/l	0.50	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Xylenes, Total[1]	ND		ug/l	0.50	--	1
1,2,3-Trichloropropane	ND		ug/l	0.50	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	0.50	--	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	--	1
o-Chlorotoluene	ND		ug/l	0.50	--	1
p-Chlorotoluene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	0.50	--	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
1,3-Dichlorobenzene	ND		ug/l	0.50	--	1
1,4-Dichlorobenzene	ND		ug/l	0.50	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	0.50	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	--	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	--	1

Project Name: PFAS (KELLY)
Lab Number: L2451436
Project Number: Not Specified
Report Date: 09/17/24

SAMPLE RESULTS

Lab ID: L2451436-01
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:43
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	109		80-120
4-Bromofluorobenzene	86		80-120

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/10/24 11:32
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1969859-4					
Dichlorodifluoromethane	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	0.50	--
Vinyl chloride	ND		ug/l	0.50	--
Bromomethane	ND		ug/l	0.50	--
Chloroethane	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	0.50	--
1,1-Dichloroethene	ND		ug/l	0.50	--
Methylene chloride	ND		ug/l	0.50	--
Methyl tert butyl ether	ND		ug/l	0.50	--
trans-1,2-Dichloroethene	ND		ug/l	0.50	--
1,1-Dichloroethane	ND		ug/l	0.50	--
2,2-Dichloropropane	ND		ug/l	0.50	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Chloroform	ND		ug/l	0.50	--
Bromochloromethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	0.50	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.50	--
1,3-Dichloropropane	ND		ug/l	0.50	--

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/10/24 11:32
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1969859-4					
Tetrachloroethene	ND		ug/l	0.50	--
Dibromochloromethane	ND		ug/l	0.50	--
1,2-Dibromoethane	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Ethylbenzene	ND		ug/l	0.50	--
p/m-Xylene	ND		ug/l	0.50	--
o-Xylene	ND		ug/l	0.50	--
Styrene	ND		ug/l	0.50	--
Xylenes, Total[1]	ND		ug/l	0.50	--
Isopropylbenzene	ND		ug/l	0.50	--
Bromoform	ND		ug/l	0.50	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
1,2,3-Trichloropropane	ND		ug/l	0.50	--
n-Propylbenzene	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	0.50	--
1,3,5-Trimethylbenzene	ND		ug/l	0.50	--
o-Chlorotoluene	ND		ug/l	0.50	--
p-Chlorotoluene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	0.50	--
1,2,4-Trimethylbenzene	ND		ug/l	0.50	--
sec-Butylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
1,3-Dichlorobenzene	ND		ug/l	0.50	--
1,4-Dichlorobenzene	ND		ug/l	0.50	--
n-Butylbenzene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	0.50	--
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	--
1,2,4-Trichlorobenzene	ND		ug/l	0.50	--

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 09/10/24 11:32
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1969859-4					
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	0.50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	103		80-120
4-Bromofluorobenzene	92		80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1969859-3								
Dichlorodifluoromethane	88		-		70-130	-		20
Chloromethane	98		-		70-130	-		20
Vinyl chloride	82		-		70-130	-		20
Bromomethane	92		-		70-130	-		20
Chloroethane	85		-		70-130	-		20
Trichlorofluoromethane	72		-		70-130	-		20
1,1-Dichloroethene	88		-		70-130	-		20
Methylene chloride	95		-		70-130	-		20
Methyl tert butyl ether	92		-		70-130	-		20
trans-1,2-Dichloroethene	95		-		70-130	-		20
1,1-Dichloroethane	92		-		70-130	-		20
2,2-Dichloropropane	95		-		70-130	-		20
cis-1,2-Dichloroethene	95		-		70-130	-		20
Chloroform	90		-		70-130	-		20
Bromochloromethane	105		-		70-130	-		20
1,1,1-Trichloroethane	88		-		70-130	-		20
1,1-Dichloropropene	90		-		70-130	-		20
Carbon tetrachloride	80		-		70-130	-		20
1,2-Dichloroethane	92		-		70-130	-		20
Benzene	90		-		70-130	-		20
Trichloroethene	90		-		70-130	-		20
1,2-Dichloropropane	90		-		70-130	-		20
Bromodichloromethane	80		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1969859-3								
Dibromomethane	90		-		70-130	-		20
cis-1,3-Dichloropropene	78		-		70-130	-		20
Toluene	88		-		70-130	-		20
trans-1,3-Dichloropropene	75		-		70-130	-		20
1,1,2-Trichloroethane	90		-		70-130	-		20
1,3-Dichloropropane	90		-		70-130	-		20
Tetrachloroethene	90		-		70-130	-		20
Dibromochloromethane	82		-		70-130	-		20
1,2-Dibromoethane	88		-		70-130	-		20
Chlorobenzene	95		-		70-130	-		20
1,1,1,2-Tetrachloroethane	85		-		70-130	-		20
Ethylbenzene	90		-		70-130	-		20
p/m-Xylene	92		-		70-130	-		20
o-Xylene	92		-		70-130	-		20
Styrene	92		-		70-130	-		20
Isopropylbenzene	90		-		70-130	-		20
Bromoform	75		-		70-130	-		20
1,1,2,2-Tetrachloroethane	100		-		70-130	-		20
1,2,3-Trichloropropane	92		-		70-130	-		20
n-Propylbenzene	90		-		70-130	-		20
Bromobenzene	92		-		70-130	-		20
1,3,5-Trimethylbenzene	90		-		70-130	-		20
o-Chlorotoluene	92		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1969859-3								
p-Chlorotoluene	95		-		70-130	-		20
tert-Butylbenzene	90		-		70-130	-		20
1,2,4-Trimethylbenzene	95		-		70-130	-		20
sec-Butylbenzene	90		-		70-130	-		20
p-Isopropyltoluene	90		-		70-130	-		20
1,3-Dichlorobenzene	95		-		70-130	-		20
1,4-Dichlorobenzene	102		-		70-130	-		20
n-Butylbenzene	92		-		70-130	-		20
1,2-Dichlorobenzene	98		-		70-130	-		20
1,2-Dibromo-3-chloropropane	88		-		70-130	-		20
1,2,4-Trichlorobenzene	100		-		70-130	-		20
Hexachlorobutadiene	98		-		70-130	-		20
Naphthalene	92		-		70-130	-		20
1,2,3-Trichlorobenzene	105		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	96				80-120
4-Bromofluorobenzene	99				80-120

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1969859-6	QC Sample: L2450284-01	Client ID: MS Sample								
Dichlorodifluoromethane	ND	4	5.1	128		-	-		70-130	-		20
Chloromethane	ND	4	4.4	110		-	-		70-130	-		20
Vinyl chloride	ND	4	4.4	110		-	-		70-130	-		20
Bromomethane	ND	4	3.9	98		-	-		70-130	-		20
Chloroethane	ND	4	4.1	103		-	-		70-130	-		20
Trichlorofluoromethane	ND	4	4.4	110		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	4.0	100		-	-		70-130	-		20
Methylene chloride	ND	4	4.1	103		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	3.7	92		-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	4.2	105		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	3.9	98		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	4.0	100		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	3.9	98		-	-		70-130	-		20
Chloroform	ND	4	3.9	98		-	-		70-130	-		20
Bromochloromethane	ND	4	3.9	98		-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	4.0	100		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	3.8	95		-	-		70-130	-		20
Carbon tetrachloride	ND	4	4.0	100		-	-		70-130	-		20
1,2-Dichloroethane	ND	4	3.8	95		-	-		70-130	-		20
Benzene	ND	4	3.7	92		-	-		70-130	-		20
Trichloroethene	ND	4	3.4	85		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	4.0	100		-	-		70-130	-		20
Bromodichloromethane	ND	4	3.6	90		-	-		70-130	-		20
Dibromomethane	ND	4	3.6	90		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1969859-6	QC Sample: L2450284-01	Client ID: MS Sample								
cis-1,3-Dichloropropene	ND	4	3.4	85		-	-		70-130	-		20
Toluene	ND	4	3.7	92		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	3.3	82		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	3.9	98		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	3.6	90		-	-		70-130	-		20
Tetrachloroethene	ND	4	3.8	95		-	-		70-130	-		20
Dibromochloromethane	ND	4	3.5	88		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	3.5	88		-	-		70-130	-		20
Chlorobenzene	ND	4	3.8	95		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	3.6	90		-	-		70-130	-		20
Ethylbenzene	ND	4	3.7	92		-	-		70-130	-		20
p/m-Xylene	ND	8	7.6	95		-	-		70-130	-		20
o-Xylene	ND	4	3.6	90		-	-		70-130	-		20
Styrene	ND	4	3.7	92		-	-		70-130	-		20
Isopropylbenzene	ND	4	3.6	90		-	-		70-130	-		20
Bromoform	ND	4	3.3	82		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	4.3	108		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	3.7	92		-	-		70-130	-		20
n-Propylbenzene	ND	4	3.7	92		-	-		70-130	-		20
Bromobenzene	ND	4	3.7	92		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	3.6	90		-	-		70-130	-		20
o-Chlorotoluene	ND	4	3.9	98		-	-		70-130	-		20
p-Chlorotoluene	ND	4	3.6	90		-	-		70-130	-		20
tert-Butylbenzene	ND	4	3.7	92		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1969859-6	QC Sample: L2450284-01	Client ID: MS Sample								
1,2,4-Trimethylbenzene	ND	4	3.7	92		-	-		70-130	-		20
sec-Butylbenzene	ND	4	3.7	92		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	3.6	90		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	3.7	92		-	-		70-130	-		20
n-Butylbenzene	ND	4	3.7	92		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	3.8	95		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	3.6	90		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.9	98		-	-		70-130	-		20
Naphthalene	ND	4	3.4	85		-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	3.5	88		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	106				80-120
4-Bromofluorobenzene	103				80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969859-5 QC Sample: L2450000-03 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	2.0	2.1	ug/l	5		20
Chloroform	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969859-5 QC Sample: L2450000-03 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Xylene (Total)[1]	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969859-5 QC Sample: L2450000-03 Client ID: DUP Sample						
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
Trihalomethanes, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969859-5 QC Sample: L2450000-03 Client ID: DUP Sample

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	110		104		80-120
4-Bromofluorobenzene	92		88		80-120

METALS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

SAMPLE RESULTS

Lab ID: L2451436-01
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:43
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Antimony, Total	ND		mg/l	0.0040	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Arsenic, Total	0.0011		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Barium, Total	0.2782		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Cadmium, Total	ND		mg/l	0.0002	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Calcium, Total	23.6		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Chromium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Copper, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Copper, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Iron, Total	ND		mg/l	0.0500	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Lead, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Magnesium, Total	4.42		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Manganese, Total	0.0153		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Mercury, Total	ND		mg/l	0.0002	--	1	09/15/24 21:03	09/16/24 12:26	EPA 245.1	3,245.1	MJR
Nickel, Total	0.0022		mg/l	0.0020	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Potassium, Total	44.5		mg/l	2.50	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Selenium, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Silver, Total	ND		mg/l	0.0070	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Sodium, Total	52.4		mg/l	2.00	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Thallium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:23	EPA 3005A	3,200.8	NTB
Zinc, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	77.2		mg/l	0.660	NA	1	09/15/24 16:29	09/16/24 16:02	EPA 3005A	19,200.7	DMC

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971421-1										
Aluminum, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Calcium, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Copper, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Iron, Total	ND		mg/l	0.0500	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Magnesium, Total	ND		mg/l	0.100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Manganese, Total	ND		mg/l	0.0100	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Potassium, Total	ND		mg/l	2.50	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Silver, Total	ND		mg/l	0.0070	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Sodium, Total	ND		mg/l	2.00	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC
Zinc, Total	ND		mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1971421-1										
Hardness	ND		mg/l	0.660	NA	1	09/15/24 16:29	09/16/24 15:50	19,200.7	DMC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971424-1										
Antimony, Total	ND		mg/l	0.0040	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Arsenic, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Barium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Cadmium, Total	ND		mg/l	0.0002	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Chromium, Total	ND		mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

Method Blank Analysis
Batch Quality Control

Copper, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Lead, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Nickel, Total	ND	mg/l	0.0020	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Selenium, Total	ND	mg/l	0.0050	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB
Thallium, Total	ND	mg/l	0.0010	--	1	09/15/24 16:29	09/16/24 13:36	3,200.8	NTB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1971428-1										
Mercury, Total	ND		mg/l	0.0002	--	1	09/15/24 21:03	09/16/24 12:09	3,245.1	MJR

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: PFAS (KELLY)

Project Number: Not Specified

Lab Number: L2451436

Report Date: 09/17/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971421-2								
Aluminum, Total	100		-		85-115	-		
Calcium, Total	102		-		85-115	-		
Copper, Total	107		-		85-115	-		
Iron, Total	103		-		85-115	-		
Magnesium, Total	103		-		85-115	-		
Manganese, Total	103		-		85-115	-		
Potassium, Total	101		-		85-115	-		
Silver, Total	107		-		85-115	-		
Sodium, Total	102		-		85-115	-		
Zinc, Total	106		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1971421-2								
Hardness	103		-		85-115	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971424-2					
Antimony, Total	88	-	85-115	-	
Arsenic, Total	104	-	85-115	-	
Barium, Total	101	-	85-115	-	
Beryllium, Total	112	-	85-115	-	
Cadmium, Total	100	-	85-115	-	
Chromium, Total	103	-	85-115	-	
Copper, Total	105	-	85-115	-	
Lead, Total	96	-	85-115	-	
Nickel, Total	101	-	85-115	-	
Selenium, Total	112	-	85-115	-	
Thallium, Total	100	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1971428-2					
Mercury, Total	96	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-3 QC Sample: L2451436-01 Client ID: T2-60-B-T/0												
Aluminum, Total	ND	2	2.02	101		-	-		75-125	-		20
Calcium, Total	23.6	10	33.7	101		-	-		75-125	-		20
Copper, Total	ND	0.25	0.275	110		-	-		75-125	-		20
Iron, Total	ND	1	1.04	104		-	-		75-125	-		20
Magnesium, Total	4.42	10	15.0	106		-	-		75-125	-		20
Manganese, Total	0.0153	0.5	0.534	104		-	-		75-125	-		20
Potassium, Total	44.5	10	54.0	95		-	-		75-125	-		20
Silver, Total	ND	0.05	0.0550	110		-	-		75-125	-		20
Sodium, Total	52.4	10	61.9	95		-	-		75-125	-		20
Zinc, Total	ND	0.5	0.554	111		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-3 QC Sample: L2451436-01 Client ID: T2-60-B-T/0												
Hardness	77.2	66.2	146	104		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-7 QC Sample: L2451587-01 Client ID: MS Sample									
Aluminum, Total	ND	2	2.09	104	-	-	75-125	-	20
Calcium, Total	19.8	10	30.0	102	-	-	75-125	-	20
Copper, Total	ND	0.25	0.289	116	-	-	75-125	-	20
Iron, Total	ND	1	1.07	107	-	-	75-125	-	20
Magnesium, Total	4.61	10	15.5	109	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.531	106	-	-	75-125	-	20
Potassium, Total	ND	10	11.5	115	-	-	75-125	-	20
Silver, Total	ND	0.05	0.0559	112	-	-	75-125	-	20
Sodium, Total	4.46	10	14.9	104	-	-	75-125	-	20
Zinc, Total	0.008	0.5	0.571	112	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-7 QC Sample: L2451587-01 Client ID: MS Sample									
Hardness	68.4	66.2	139	107	-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-3 QC Sample: L2451436-01 Client ID: T2-60-B-T/0									
Antimony, Total	ND	0.5	0.4082	82	-	-	70-130	-	20
Arsenic, Total	0.0011	0.12	0.1257	104	-	-	70-130	-	20
Barium, Total	0.2782	2	2.324	102	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0559	112	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0538	101	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2093	105	-	-	70-130	-	20
Copper, Total	ND	0.25	0.2715	109	-	-	70-130	-	20
Lead, Total	ND	0.53	0.5176	98	-	-	70-130	-	20
Nickel, Total	0.0022	0.5	0.5159	103	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1361	113	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1207	100	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-5 QC Sample: L2451587-01 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.4319	86	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1280	107	-	-	70-130	-	20
Barium, Total	0.0012	2	2.039	102	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0581	116	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0559	105	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2138	107	-	-	70-130	-	20
Copper, Total	0.0066	0.25	0.2743	107	-	-	70-130	-	20
Lead, Total	ND	0.53	0.5316	100	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.5247	105	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1426	119	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1246	104	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971428-3 QC Sample: L2451794-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.0047	94	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-4 QC Sample: L2451436-01 Client ID: T2-60-B-T/0						
Aluminum, Total	ND	ND	mg/l	NC		20
Calcium, Total	23.6	23.8	mg/l	1		20
Copper, Total	ND	ND	mg/l	NC		20
Iron, Total	ND	ND	mg/l	NC		20
Magnesium, Total	4.42	4.44	mg/l	0		20
Manganese, Total	0.0153	0.0157	mg/l	3		20
Potassium, Total	44.5	44.6	mg/l	0		20
Silver, Total	ND	ND	mg/l	NC		20
Sodium, Total	52.4	53.2	mg/l	2		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-4 QC Sample: L2451436-01 Client ID: T2-60-B-T/0						
Hardness	77.2	77.8	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971421-8 QC Sample: L2451587-01 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-4 QC Sample: L2451436-01 Client ID: T2-60-B-T/0					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.0011	ND	mg/l	NC	20
Barium, Total	0.2782	0.2809	mg/l	1	20
Beryllium, Total	ND	ND	mg/l	NC	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	ND	ND	mg/l	NC	20
Copper, Total	ND	ND	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	0.0022	0.0021	mg/l	3	20
Selenium, Total	ND	ND	mg/l	NC	20
Thallium, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971424-6 QC Sample: L2451587-01 Client ID: DUP Sample					
Arsenic, Total	ND	ND	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1971428-4 QC Sample: L2451794-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

SAMPLE RESULTS

Lab ID: L2451436-01
Client ID: T2-60-B-T/0
Sample Location: MCKEON T.F.

Date Collected: 09/09/24 15:43
Date Received: 09/09/24
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Turbidity	ND		NTU	0.20	--	1	-	09/10/24 00:45	44,180.1	CAR
Odor @ 60 C	NO ODOR		TON	1	--	1	-	09/09/24 20:38	121,2150B	AAS
Color, Apparent	ND		A.P.C.U.	5.0	--	1	-	09/10/24 04:05	121,2120B	CAR
Alkalinity, Total	107.		mg CaCO3/L	2.00	NA	1	-	09/12/24 15:26	121,2320B	MKT
Solids, Total Dissolved	260		mg/l	10	--	1	-	09/12/24 03:28	121,2540C	DEW
Cyanide, Total	ND		mg/l	0.005	--	1	09/12/24 12:25	09/13/24 16:49	121,4500CN-CE	JER
Fluoride	ND		mg/l	0.20	--	1	-	09/15/24 09:27	121,4500F-C	DTH
pH (H)	7.38		SU	-	NA	1	-	09/09/24 19:19	121,4500H+-B	AAS
Bacteria in Water - Westborough Lab										
Coliform, Total	Positive		col/100ml	-	NA	1	-	09/09/24 19:24	121,9223B	MEF
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/09/24 19:24	121,9223B	MEF
Anions by Ion Chromatography - Westborough Lab										
Chloride	94.1		mg/l	5.00	--	10	-	09/11/24 16:14	44,300.0	CVN
Sulfate	13.2		mg/l	1.00	--	1	-	09/12/24 11:36	44,300.0	CVN

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Bacteria in Water - Westborough Lab for sample(s): 01 Batch: WG1969380-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	09/09/24 19:24	121,9223B	MEF
Escherichia Coli	Negative		col/100ml	-	NA	1	-	09/09/24 19:24	121,9223B	MEF
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1969391-1										
Odor	NO ODOR		TON	1	--	1	-	09/09/24 20:38	121,2150B	AAS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1969429-1										
Turbidity	ND		NTU	0.20	--	1	-	09/10/24 00:45	44,180.1	CAR
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1970399-1										
Chloride	ND		mg/l	0.500	--	1	-	09/11/24 13:36	44,300.0	CVN
Sulfate	ND		mg/l	1.00	--	1	-	09/11/24 13:36	44,300.0	CVN
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1970557-1										
Solids, Total Dissolved	ND		mg/l	10	--	1	-	09/12/24 03:28	121,2540C	DEW
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1970708-1										
Chloride	ND		mg/l	0.500	--	1	-	09/12/24 09:35	44,300.0	CVN
Sulfate	ND		mg/l	1.00	--	1	-	09/12/24 09:35	44,300.0	CVN
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1970896-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	09/12/24 14:06	121,2320B	MKT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1971354-1										
Cyanide, Total	ND		mg/l	0.005	--	1	09/13/24 12:25	09/13/24 15:32	121,4500CN-CE	JER
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1971764-1										
Fluoride	ND		mg/l	0.20	--	1	-	09/15/24 09:27	121,4500F-C	DTH

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1969345-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1969429-2								
Turbidity	107		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1970399-2								
Chloride	105		-		90-110	-		
Sulfate	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1970557-2								
Solids, Total Dissolved	90		-		80-120	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1970708-2								
Chloride	105		-		90-110	-		
Sulfate	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1970896-2								
Alkalinity, Total	105		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1971354-2								
Cyanide, Total	94		-		90-110	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1971764-2					
Fluoride	92	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970399-3 QC Sample: L2451318-02 Client ID: MS Sample												
Chloride	0.554	4	4.42	97		-	-		90-110	-		18
Sulfate	ND	8	8.01	100		-	-		90-110	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970708-3 QC Sample: L2452229-01 Client ID: MS Sample												
Chloride	33.5	8	36.6	**78**	Q	-	-		90-110	-		18
Sulfate	11.5	8	19.5	100		-	-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970896-4 QC Sample: L2451318-01 Client ID: MS Sample												
Alkalinity, Total	64.7	100	171	106		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971354-3 QC Sample: L2451289-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.043	**22**	Q	-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971764-4 QC Sample: L2452136-01 Client ID: MS Sample												
Fluoride	ND	2	1.7	84		-	-		69-124	-		13

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969345-2 QC Sample: L2451004-01 Client ID: DUP Sample						
pH	7.06	7.02	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969391-2 QC Sample: L2451436-01 Client ID: T2-60-B-T/0						
Odor	NO ODOR	NO ODOR	TON	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969429-3 QC Sample: L2451264-01 Client ID: DUP Sample						
Turbidity	1.0	1.0	NTU	0		13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1969475-1 QC Sample: L2451391-04 Client ID: DUP Sample						
Color, Apparent	ND	ND	A.P.C.U.	NC		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970399-4 QC Sample: L2451318-02 Client ID: DUP Sample						
Chloride	0.554	0.555	mg/l	0		18
Sulfate	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970557-3 QC Sample: L2450594-02 Client ID: DUP Sample						
Solids, Total Dissolved	1100	1000	mg/l	10		10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970557-4 QC Sample: L2450594-04 Client ID: DUP Sample						
Solids, Total Dissolved	1200	1200	mg/l	0		10

Lab Duplicate Analysis
Batch Quality Control

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970708-4 QC Sample: L2452229-01 Client ID: DUP Sample					
Chloride	33.5	33.7	mg/l	1	18
Sulfate	11.5	11.5	mg/l	0	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1970896-3 QC Sample: L2451318-01 Client ID: DUP Sample					
Alkalinity, Total	64.7	65.6	mg CaCO3/L	1	10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971354-4 QC Sample: L2451289-01 Client ID: DUP Sample					
Cyanide, Total	ND	ND	mg/l	NC	30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1971764-3 QC Sample: L2452136-01 Client ID: DUP Sample					
Fluoride	ND	ND	mg/l	NC	13

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2451436-01A	Vial Ascorbic Acid/HCl preserved	A	NA		5.2	Y	Absent		524.2(14)
L2451436-01B	Vial Ascorbic Acid/HCl preserved	A	NA		5.2	Y	Absent		524.2(14)
L2451436-01C	Vial Ascorbic Acid/HCl preserved	A	NA		5.2	Y	Absent		524.2(14)
L2451436-01D	Bacteria Cup Na2S2O3 preserved	A	NA		5.2	Y	Absent		T-COLI-C(1.25)
L2451436-01E	Plastic 250ml unpreserved/No Headspace	A	NA		5.2	Y	Absent		ALK-T-2320(14)
L2451436-01F	Plastic 250ml NaOH preserved	A	>12	>12	5.2	Y	Absent		TCN-4500(14)
L2451436-01G	Plastic 950ml unpreserved	A	7	7	5.2	Y	Absent		SO4-300(28),F-4500(28),CL-300(28),TURB-180(2),TDS-2540(7),PH-4500(.01)
L2451436-01H	Plastic 950ml unpreserved	A	7	7	5.2	Y	Absent		SO4-300(28),F-4500(28),CL-300(28),TURB-180(2),TDS-2540(7),PH-4500(.01)
L2451436-01J	Plastic 950ml HNO3 preserved	A	<2	<2	5.2	Y	Absent		CD-2008T(180),AG-UI(180),NI-2008T(180),ZN-UI(180),CA-UI(180),BE-2008T(180),K-UI(180),MG-UI(180),CU-2008T(180),FE-UI(180),HARDU(180),SE-2008T(180),HG-U(28),AS-2008T(180),NA-UI(180),MN-UI(180),AL-UI(180),BA-2008T(180),CU-UI(180),CR-2008T(180),PB-2008T(180),SB-2008T(180),TL-2008T(180)
L2451436-01K	Plastic 950ml HNO3 preserved	A	<2	<2	5.2	Y	Absent		CD-2008T(180),AG-UI(180),NI-2008T(180),ZN-UI(180),CA-UI(180),BE-2008T(180),K-UI(180),MG-UI(180),CU-2008T(180),FE-UI(180),HARDU(180),SE-2008T(180),HG-U(28),AS-2008T(180),NA-UI(180),MN-UI(180),AL-UI(180),BA-2008T(180),CU-UI(180),CR-2008T(180),PB-2008T(180),SB-2008T(180),TL-2008T(180)
L2451436-01L	Plastic 950ml HNO3 preserved	A	<2	<2	5.2	Y	Absent		CD-2008T(180),AG-UI(180),NI-2008T(180),ZN-UI(180),CA-UI(180),BE-2008T(180),K-UI(180),MG-UI(180),CU-2008T(180),FE-UI(180),HARDU(180),SE-2008T(180),HG-U(28),AS-2008T(180),NA-UI(180),MN-UI(180),AL-UI(180),BA-2008T(180),CU-UI(180),CR-2008T(180),PB-2008T(180),SB-2008T(180),TL-2008T(180)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY)
Project Number: Not Specified

Lab Number: L2451436
Report Date: 09/17/24

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2451436-01M	Amber 1000ml unpreserved	A	7	7	5.2	Y	Absent		COLOR-A-2120(2),ODOR-2150(1)

*Values in parentheses indicate holding time in days

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451436
Project Number:	Not Specified	**Report Date:**	09/17/24

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	PFAS (KELLY)	**Lab Number:**	L2451436
Project Number:	Not Specified	**Report Date:**	09/17/24

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name: PFAS (KELLY) **Lab Number:** L2451436

Project Number: Not Specified **Report Date:** 09/17/24

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial No:09172410:40

CHAIN OF CUSTODY

PAGE _____ OF _____

Date Rec'd in Lab: 9/9/24

L2451436 11SEP24
NATTLEB – GWA

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: North Athleboro
Address: 49 Whiting St.
North Athlebord, Ma 02760
Phone: 508-216-4490
Fax:
Email: wwanberg@Nathleboro.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PFas (Kelly)
Project Location: McKeon T.F.
Project #:
Project Manager: Bill Wanberg
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL ☐ Same as Client info PO #:
☐ ADEx ☐ Add'l Deliverables

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
* Special Samples: OFFline to North Athleboro Drinking water *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Voc	IOC	Secondary Cont.	Lead + Copper	Total Coliform	SAMPLE HANDLING	TOTAL # BOTTLES
51436-01	T2-60-B-T/O	9/9/24	15:30	DW	JB	X					Sample Specific Comments	2
	T2-60-B-T/O	9/9/24	15:35	DW	JB		X					3
	T2-60-B-T/O	9/9/24	15:41	DW	JB			X				4
	T2-60-B-T/O	9/9/24	15:45	DW	JB				X			1
	T2-60-B-T/O	9/9/24		DW	JB					X		1

SAMPLE HANDLING
Filtration _____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	V											
Preservative	B/A											

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/9/24 15:52	[signature]	9/9/24 15:52
[signature]	9/9/24 17:13	[signature]	9/9/24 17:13

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.