

October 24, 2017

**Vista Work Order No. 1701328**

Ms. Melissa Gulli  
Alpha Analytical Laboratory  
8 Walkup Drive  
Westborough, MA 01581

Dear Ms. Gulli,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on September 26, 2017. This sample set was analyzed on a standard turn-around time, under your Project Name 'L1734124'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at [mmaier@vista-analytical.com](mailto:mmaier@vista-analytical.com).

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

*Karoly Wolpengetta*  
for

Martha Maier  
Laboratory Director



*Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.*

**Vista Work Order No. 1701328****Case Narrative****Sample Condition on Receipt:**

One oyster tissue sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

**Analytical Notes:****VAL-PFAS**

The sample was homogenized prior to analysis. The sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537.

**Holding Times**

The sample was extracted and analyzed within the method hold times.

**Quality Control**

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

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# Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701328-01	Brackett Road Bridge	25-Sep-17 09:00	26-Sep-17 10:22	Plastic Bag

## **ANALYTICAL RESULTS**

Sample ID: Method Blank					VAL - PFAS					
<b>Client Data</b>  Name: Alpha Analytical Laboratory Project: L1734124  Matrix: Tissue				<b>Laboratory Data</b>  Lab Sample: B7J0104-BLK1 Column: BEH C18						
Analyte	Conc. (ng/g)			RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFPeA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFBS	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFHxA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFHpA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFHxS	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFOA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFOS	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFNA	ND			2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
Labeled Standards	Type	% Recovery		Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.2		60 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C3-PFPeA	IS	89.1		60 - 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C3-PFBS	IS	102		60 - 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C2-PFHxA	IS	94.0		70 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C4-PFHpA	IS	102		60 - 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
18O2-PFHxS	IS	84.9		60 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C2-PFOA	IS	84.9		60 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C8-PFOS	IS	82.5		60 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
13C5-PFNA	IS	78.5		50 - 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit

Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: OPR					VAL - PFAS					
<b>Client Data</b> Name: Alpha Analytical Laboratory Project: L1734124					<b>Laboratory Data</b> Lab Sample: B7J0104-BS1 Column: BEH C18					
Analyte	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	9.56	10.0	95.6	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFPeA	10.1	10.0	101	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFBS	9.93	10.0	99.3	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFHxA	10.4	10.0	104	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFHpA	11.6	10.0	116	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFHxS	9.84	10.0	98.4	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFOA	10.8	10.0	108	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFOS	11.5	10.0	115	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
PFNA	10.7	10.0	107	70-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
Labeled Standards	Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS		98.5	60- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C3-PFPeA	IS		86.2	60- 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C3-PFBS	IS		84.3	60- 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C2-PFHxA	IS		80.9	70- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C4-PFHpA	IS		84.7	60- 150		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
18O2-PFHxS	IS		87.5	60- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C2-PFOA	IS		85.9	60- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C8-PFOS	IS		81.6	60- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1
13C5-PFNA	IS		79.8	50- 130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1

<b>Sample ID: Brackett Road Bridge</b>	<b>VAL - PFAS</b>
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<b>Client Data</b> Name: Alpha Analytical Laboratory Project: L1734124	<b>Laboratory Data</b> Lab Sample: 1701328-01 Date Received: 26-Sep-17 10:22 Matrix: Tissue Date Collected: 25-Sep-17 09:00 Column: BEH C18
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Analyte	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFPeA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFBS	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFHxA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFHpA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFHxS	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFOA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFOS	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
PFNA	ND	1.56		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.7	60 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C3-PFPeA	IS	81.1	60 - 150		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C3-PFBS	IS	95.9	60 - 150		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C2-PFHxA	IS	91.5	70 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C4-PFHpA	IS	96.1	60 - 150		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
18O2-PFHxS	IS	89.3	60 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C2-PFOA	IS	93.6	60 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C8-PFOS	IS	86.1	60 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1
13C5-PFNA	IS	91.9	50 - 130		B7J0104	18-Oct-17	1.28 g	20-Oct-17 20:53	1

RL - Reporting limit

LCL-UCL- Lower control limit - upper control limit

Results reported to RL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



## **DATA QUALIFIERS & ABBREVIATIONS**

<b>B</b>	<b>This compound was also detected in the method blank.</b>
<b>D</b>	<b>Dilution</b>
<b>E</b>	<b>The associated compound concentration exceeded the calibration range of the instrument.</b>
<b>H</b>	<b>Recovery and/or RPD was outside laboratory acceptance limits.</b>
<b>I</b>	<b>Chemical Interference</b>
<b>J</b>	<b>The amount detected is below the Reporting Limit/LOQ.</b>
<b>M</b>	<b>Estimated Maximum Possible Concentration. (CA Region 2 projects only)</b>
<b>*</b>	<b>See Cover Letter</b>
<b>Conc.</b>	<b>Concentration</b>
<b>NA</b>	<b>Not applicable</b>
<b>ND</b>	<b>Not Detected</b>
<b>TEQ</b>	<b>Toxic Equivalency</b>
<b>U</b>	<b>Not Detected (specific projects only)</b>

**Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.**

## CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A



# Sample Log-in Checklist

 Vista Work Order #: 1701328 TAT 28

<b>Samples Arrival:</b>	<b>Date/Time</b> 09/26/17 1022	<b>Initials:</b> BBB	<b>Location:</b> WR-2 <b>Shelf/Rack:</b> NA
<b>Logged In:</b>	<b>Date/Time</b> 09/29/17 0637	<b>Initials:</b> BBB	<b>Location:</b> WF-2 <b>Shelf/Rack:</b> C3
<b>Delivered By:</b>	FedEx <input checked="" type="radio"/> UPS <input type="radio"/> On Trac <input type="radio"/> GSO <input type="radio"/> DHL <input type="radio"/> Hand Delivered <input type="radio"/> Other <input type="radio"/>		
<b>Preservation:</b>	<input checked="" type="radio"/> Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice <input type="radio"/> None		
<b>Temp °C:</b> 0.6 (uncorrected)	<b>Time:</b> 1036	<b>Thermometer ID:</b> IR-1	
<b>Temp °C:</b> 0.7 (corrected)	<b>Probe used:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received?	<input checked="" type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>		
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?			<input checked="" type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>		
Airbill	<input checked="" type="checkbox"/>		
Trk #	17 E04 13301 99811901		
Sample Container Intact?	<input checked="" type="checkbox"/>		
Sample Custody Seals Intact?			<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>		
COC Anomaly/Sample Acceptance Form completed?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			<input checked="" type="checkbox"/>
Preservation Documented:	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> <input type="checkbox"/> Trizma <input type="checkbox"/> None <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping Container	Vista <input type="checkbox"/> Client <input checked="" type="checkbox"/> Retain <input type="checkbox"/> Return <input checked="" type="checkbox"/> Dispose <input type="checkbox"/>		

Comments: No sample ID on sample container

