

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.

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

Sincerely,

Karing. Voypene ptn 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 Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

# 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

Vista Project: 1701328

Client Project: L1734124

# ANALYTICAL RESULTS



Sample ID: Me	thod Blank										VAL	- PFAS
	Alpha Analytical Laboratory L1734124		Matrix:	Tissue		Labor: Lab Sa	<b>atory Data</b> mple:	B7J0104-F	3LK1	Column:	BEH C18	
Analyte			Conc. (ng/g)			RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFPeA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFBS			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFHxA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFHpA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	. 1
PFHxS			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFOA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFOS			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
PFNA			ND		2	2.00		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:41	1
Labeled Standards	s Typ	De	% Recovery	L	imits		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	1	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.



VAL - PFAS

1											
Client Data					La	boratory Data					
Name: Project:	Alpha Analytical Laboratory L1734124	Matrix:	Tissue		La	b 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 Stand	ards	Туре		% 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	
18O2-PFHxS		IS		87.5	60-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	
13C2-PFOA		IS		85.9	60-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	
13C8-PFOS		IS		81.6	60-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	
13C5-PFNA		IS		79.8	50-130		B7J0104	18-Oct-17	1.00 g	20-Oct-17 20:16	1

Sample ID: OPR



Sample ID: Br	ackett Road Bridge								VAL	- PFAS
Client Data Name: Project:	Alpha Analytical Laboratory L1734124	Matrix: Date Collected:	Tissue 25-Sep-17 09:00	Lab	oratory Data Sample: e Received:	1701328-0 26-Sep-17		Column:	BEH C18	
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 Standard	ls 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**

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

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	EPA 23
Dibenzofurans	

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

SUB UPS: V	/ista Analytical								17			2							
	CHAIN OF	CUSTO	DY	PAGE OF		Date	Rec'd	in Lab:	14	013	A	8	0.7	GALF	РНА Ј	ob #	L173	4124	
ALPH	A	Project Infor	mation			Rep	oort li	nform	ation	Data	Deli	verat	oles	Billi	ing In	form	ation		
ANALYTICAL						G FAX X EMAIL								Same as Client info PO #:					
	TEL: 508-822-9300 FAX: 508-822-3288	Project Name:				ADEx Add'I Deliverables													
Client Information Project Location: ME						Regulatory Requirements/Report Limits           State/Fed Program         Criteria													
Client: Alpha Analy	tical Lab	Project #:				ME					200								
Address: 8 Walkup	Drive	Project Manage	er: Melissa Gulli							E CEI								DENCE PROTOCOL	S
_Westborough, Ma (	01581	ALPHA Quote	<b>#</b> :						□ No □ No					ical Methods Required? easonable Confidence Protocols) Required?					
Phone: 508-898-92	20	Turn-Around	Time			AN	ALYS								N				T O
Fax:		_ X Standard	🗌 Rush (	ONLY IF PRE-	APPROVED)	6												SAMPLE HANDLING Filtration	O T A L
Email: mgulli@alph subreports@alphal																		Done Done	L #
	been Previously analyzed by Alpha	- Due Date: 10	/10/17 Time:			n- NHDES						2							В
Other Project Sp	ecific Requirements/Comments	s/Detection Limi	ts:			dilution-												Preservation	T T
Please reference A	lpha Job #L1734124 on this report					Isotpe d	tpe d											(Please specify below)	BOTTLES
						y Isot													2
	1				1	37 by													
ALPHA Lab ID (Lab Use Only)	Sample ID	Coll	ection Time	Sample Matrix	Sampler's Initials	Mod-537												Sample Specific	
																		Comments	1
	Brackett Road Bridge	9/25/17	09:00	oyster		X													
																吕			
PLEASE ANSWER QUESTIONS ABOVE! Container Type			ntainer Type	Р		-	-	-	-	-	-	-	-	-	-				
			Preservative			A	-	-									Please print clearly, legibly and completely. Samples can not be logged in and		
	PROJECT	11	Relinquished By:			Da 9/25	Received By:					Date/Time 925/17-13:15 09/01-17-10-32				<ul> <li>not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.</li> </ul>			
MA MCP or CT RCP?			1/10m																117
(rev. 30-JUL-07)			0				Altred proceed						parq13 1000						



Sample Log-in Checklist

Vista Work Order #: 1701328 TAT_28										
Samples	Date/Time		Initials:		Location: WR. J					
Arrival:	09/26/17	por	)	Shelf/Rack: NA						
	Date/Time	Initials:		Location: WF*7						
Logged In:	09/29/17	BSB		Shelf/Rack: <u>C3</u>						
Delivered By:	FedEx UPS		ac GSO	DHL	Hand Delivered	Other				
Preservation:			ue Ice	None						
Temp °C: 0,	0 (uncorrected)	Time: 10	36							
Temp °C: 0.7	(corrected)	Probe used: Yes Not								

					YES/	NO	NA
Adequate Sample Volume Re	eceived?				V	1	
Holding Time Acceptable?		V					
Shipping Container(s) Intact?		V					
Shipping Custody Seals Intac		• /		1			
Shipping Documentation Pres	sent?				V		
Airbill Trk #	17 E04 13	301 998	311901		$\checkmark$	,	
Sample Container Intact?		V		/			
Sample Custody Seals Intact		/		~			
Chain of Custody / Sample D	1						
COC Anomaly/Sample Accep			$\checkmark$	V			
If Chlorinated or Drinking Wa				6			
Preservation Documented:	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Trizma	None		Yes	No	NA
Shipping Container	Vista	Client	Retain	Ret	urn	) Disp	ose
	••••••••••••••••••••••••••••••••••••••	0					

comments: No sample ID on sample Confainer

ID.: LR - SLC

CHAIN OF CUSTODY PAGEOF Date Rec'd in Lab: ALPHA Job #:											
Project Information Project Information Billing Information											
8 Walkup Drive 320 Forbes Blvd Westboro, MA D1581 Mansfield, MA 02048 Tel: 508-839-9220 Tel: 508-832-9300 Project Name: Berroy (& Reack Outer DADEx DEMAIL DSAme as Client info PO #:											
Westborn MA 01581 Tel: 508-898-9220       Mansfield, MA 02048 Tel: 508-898-9220       Project Name: Berry's Brock Outser       Date: D											
Client: Ot Keen VATION (AL) B	ical Methods										
Address: 77 1/ D Much CL Project Manager: Mchice Poly Uses No GW1 Standards (Info Required for Metals & EPH with Targets)											
Concorred NH 0330/ ALPHA Quote #: Other State /Fed Program Criteria	Yes D No NPDES RGP     Other State / Fed Program     Criteria										
Phone: 603 5020798 Turn-Around Time Email: MPaly D c(f-0rg Standard D RUSH (only confirmed if pre-approved)											
AStandard D RUSH (only confirmed if pre-approvedi)											
Additional Project Information:											
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□ Fi □ La □ La	ervation										
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	E Comments S										
Brackett Road Bridge 9/25/17 9:00 Tissue MP X											
Structures in the product of the pro											
Container Type Preservative Container Type P											
	6.2.01										
G= Glass D= H <sub>2</sub> SO <sub>4</sub> B= Bacteria cup E= NaOH Pelinguished By: Date/Time Bacelyod By: Date/Time	Kamples tozen										
$\begin{array}{ccc} C = Cube & F = MeOH & Reinquisited by. \\ O = Other & G = NaHSO_4 \\ E = Encore & H = Na_5S_{03} \end{array}$ $\begin{array}{ccc} All samples submitted \\ \P/2S/17 & \P'2SOAA \\ Hold Mark & Pale \\ Pale &$	All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.										
D= BOD Bottle I= Ascorbic Acid J = NH <sub>2</sub> Cl K= Zn Acetate FORM NO: 01-01 (rev. 12-Ma											