



CALIFORNIA LABORATORY SERVICES

Committed. Responsive. Flexible.

October 24, 2018

CLS Work Order #: 18J1147

COC #: 192919

Darin Brenner
Aquatic Environments Inc.
345 Industrial Way
Benicia, CA 94510

Project Name: Glenshire-Devonshire Lake

Enclosed are the results of analyses for samples received by the laboratory on 10/17/18 12:44. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233



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10/24/18 14:53

Aquatic Environments Inc.
345 Industrial Way
Benicia, CA 94510

Project: Glenshire-Devonshire Lake
Project Number: Glenshire-Lake
Project Manager: Darin Brenner

CLS Work Order #: 18J1147
COC #: 192919

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Glenshire 1 (18J1147-01) FW Sampled: 10/16/18 12:06 Received: 10/17/18 12:44										
Bicarbonate as CaCO3	45	0.50	5.0	mg/L	1	1808867	10/18/18	10/18/18	SM2320B	
Carbonate as CaCO3	28	0.50	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	0.50	5.0	"	"	"	"	"	"	
Nitrate as N	0.12	0.053	0.40	"	"	1808848	10/18/18	10/18/18	EPA 300.0	J
Orthophosphate as PO4	0.12	0.0051	0.15	"	"	1808852	10/18/18	10/18/18	SM4500-P E	J
Total Alkalinity	73	1.0	5.0	"	"	1808867	10/18/18	10/18/18	SM2320B	
Total Kjeldahl Nitrogen	1.3	0.20	1.0	"	5	1808925	10/19/18	10/19/18	SM4500-NH3F-1997	
Total Phosphorus as P	0.10	0.023	0.050	"	1	1808868	10/18/18	10/18/18	SM4500-P E	
Glenshire 2 (18J1147-02) Soil Sampled: 10/16/18 12:08 Received: 10/17/18 12:44										
Nitrate as N	1.1	0.73	5.0	mg/kg	1	1808900	10/19/18	10/19/18	EPA 300.0	J
Total Kjeldahl Nitrogen	850	43	200	"	5	1808927	10/19/18	10/19/18	SM4500-NH3F-1997	
Total Phosphorus as P	87	2.5	5.0	"	1	1808869	10/18/18	10/18/18	SM4500-P E	



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Project Manager: Darin Brenner

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Microbiological Parameters by APHA Standard Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Glenshire 1 (18J1147-01) FW Sampled: 10/16/18 12:06 Received: 10/17/18 12:44										
E. Coli	<1	1.0	1.0	MPN/100 mL	1	1808857	10/17/18	10/18/18	SM9223	
Total Coliforms	114.5	1.0	1.0	"	"	"	"	"	"	



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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1808848 - General Prep

Blank (1808848-BLK1)					Prepared & Analyzed: 10/18/18						
Nitrate as N	0.0533	0.053	0.40	mg/L							J

LCS (1808848-BS1)					Prepared & Analyzed: 10/18/18						
Nitrate as N	1.89	0.053	0.40	mg/L	2.00		95	80-120			

LCS Dup (1808848-BSD1)					Prepared & Analyzed: 10/18/18						
Nitrate as N	1.91	0.053	0.40	mg/L	2.00		95	80-120	1	20	

Matrix Spike (1808848-MS1)					Source: 18J1147-01 Prepared & Analyzed: 10/18/18						
Nitrate as N	1.90	0.053	0.40	mg/L	2.00	0.124	89	80-120			

Matrix Spike Dup (1808848-MSD1)					Source: 18J1147-01 Prepared & Analyzed: 10/18/18						
Nitrate as N	1.98	0.053	0.40	mg/L	2.00	0.124	93	80-120	4	20	

Batch 1808852 - General Preparation

Blank (1808852-BLK1)					Prepared & Analyzed: 10/18/18						
Orthophosphate as PO4	ND	0.0051	0.15	mg/L							

LCS (1808852-BS1)					Prepared & Analyzed: 10/18/18						
Orthophosphate as PO4	0.951	0.0051	0.15	mg/L	0.918		104	80-120			

LCS Dup (1808852-BSD1)					Prepared & Analyzed: 10/18/18						
Orthophosphate as PO4	0.917	0.0051	0.15	mg/L	0.918		100	80-120	4	20	

Matrix Spike (1808852-MS1)					Source: 18J1147-01 Prepared & Analyzed: 10/18/18						
Orthophosphate as PO4	1.01	0.0051	0.15	mg/L	0.918	0.122	96	75-125			



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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1808852 - General Preparation

Matrix Spike Dup (1808852-MSD1)

Source: 18J1147-01 Prepared & Analyzed: 10/18/18

Orthophosphate as PO4	1.01	0.0051	0.15	mg/L	0.918	0.122	97	75-125	0.8	25	
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Batch 1808867 - General Preparation

Blank (1808867-BLK1)

Prepared & Analyzed: 10/18/18

Total Alkalinity	ND	1.0	5.0	mg/L							
Bicarbonate as CaCO3	ND	0.50	5.0	"							
Carbonate as CaCO3	ND	0.50	5.0	"							
Hydroxide as CaCO3	ND	0.50	5.0	"							

Duplicate (1808867-DUP1)

Source: 18J1147-01 Prepared & Analyzed: 10/18/18

Total Alkalinity	119	1.0	5.0	mg/L		118			0.8	20	
Bicarbonate as CaCO3	119	0.50	5.0	"		118			0.8	20	
Carbonate as CaCO3	ND	0.50	5.0	"		ND				20	
Hydroxide as CaCO3	ND	0.50	5.0	"		ND				20	

Batch 1808868 - General Preparation

Blank (1808868-BLK1)

Prepared & Analyzed: 10/18/18

Total Phosphorus as P	ND	0.023	0.050	mg/L							
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LCS (1808868-BS1)

Prepared & Analyzed: 10/18/18

Total Phosphorus as P	0.299	0.023	0.050	mg/L	0.300		100	80-120			
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LCS Dup (1808868-BSD1)

Prepared & Analyzed: 10/18/18

Total Phosphorus as P	0.306	0.023	0.050	mg/L	0.300		102	80-120	2	25	
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Project Number: Glenshire-Lake
Project Manager: Darin Brenner

CLS Work Order #: 18J1147
COC #: 192919

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1808868 - General Preparation											
Matrix Spike (1808868-MS1) Source: 18J1147-01 Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	0.295	0.023	0.050	mg/L	0.300	0.101	65	75-125			QM-7
Matrix Spike Dup (1808868-MSD1) Source: 18J1147-01 Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	0.297	0.023	0.050	mg/L	0.300	0.101	65	75-125	0.5	30	QM-7
Batch 1808869 - General Preparation											
Blank (1808869-BLK1) Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	ND	2.5	5.0	mg/kg							
LCS (1808869-BS1) Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	29.9	2.5	5.0	mg/kg	30.0		100	75-125			
LCS Dup (1808869-BSD1) Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	30.6	2.5	5.0	mg/kg	30.0		102	75-125	2	25	
Matrix Spike (1808869-MS1) Source: 18J1147-02 Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	142	2.5	5.0	mg/kg	75.0	86.8	73	75-125			QM-7
Matrix Spike Dup (1808869-MSD1) Source: 18J1147-02 Prepared & Analyzed: 10/18/18											
Total Phosphorus as P	140	2.5	5.0	mg/kg	75.0	86.8	71	75-125	1	30	QM-7
Batch 1808900 - General Prep											
Blank (1808900-BLK1) Prepared & Analyzed: 10/19/18											
Nitrate as N	ND	0.73	5.0	mg/kg							



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Project: Glenshire-Devonshire Lake
Project Number: Glenshire-Lake
Project Manager: Darin Brenner

CLS Work Order #: 18J1147
COC #: 192919

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1808900 - General Prep

LCS (1808900-BS1)

Prepared & Analyzed: 10/19/18

Nitrate as N 18.9 0.73 5.0 mg/kg 20.0 95 75-125

LCS Dup (1808900-BSD1)

Prepared & Analyzed: 10/19/18

Nitrate as N 19.4 0.73 5.0 mg/kg 20.0 97 75-125 3 25

Matrix Spike (1808900-MS1)

Source: 18J1147-02 Prepared & Analyzed: 10/19/18

Nitrate as N 19.7 0.73 5.0 mg/kg 20.0 1.09 93 75-125

Matrix Spike Dup (1808900-MSD1)

Source: 18J1147-02 Prepared & Analyzed: 10/19/18

Nitrate as N 19.3 0.73 5.0 mg/kg 20.0 1.09 91 75-125 2 30

Batch 1808925 - General Preparation

Blank (1808925-BLK1)

Prepared & Analyzed: 10/19/18

Total Kjeldahl Nitrogen ND 0.040 0.20 mg/L

LCS (1808925-BS1)

Prepared & Analyzed: 10/19/18

Total Kjeldahl Nitrogen 0.494 0.040 0.20 mg/L 0.500 99 80-120

LCS Dup (1808925-BSD1)

Prepared & Analyzed: 10/19/18

Total Kjeldahl Nitrogen 0.496 0.040 0.20 mg/L 0.500 99 80-120 0.4 20

Matrix Spike (1808925-MS1)

Source: 18J1126-02 Prepared & Analyzed: 10/19/18

Total Kjeldahl Nitrogen 3.54 0.20 1.0 mg/L 2.50 2.86 27 75-125 QM-7

Matrix Spike Dup (1808925-MSD1)

Source: 18J1126-02 Prepared & Analyzed: 10/19/18

Total Kjeldahl Nitrogen 3.60 0.20 1.0 mg/L 2.50 2.86 29 75-125 2 25 QM-7



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Project Number: Glenshire-Lake
Project Manager: Darin Brenner

CLS Work Order #: 18J1147
COC #: 192919

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1808927 - General Preparation											
Blank (1808927-BLK1)					Prepared & Analyzed: 10/19/18						
Total Kjeldahl Nitrogen	ND	4.3	20	mg/kg							
LCS (1808927-BS1)					Prepared & Analyzed: 10/19/18						
Total Kjeldahl Nitrogen	61.8	4.3	20	mg/kg	62.5		99	80-120			
LCS Dup (1808927-BSD1)					Prepared & Analyzed: 10/19/18						
Total Kjeldahl Nitrogen	62.0	4.3	20	mg/kg	62.5		99	80-120	0.4	25	
Matrix Spike (1808927-MS1)					Source: 18J1147-02 Prepared & Analyzed: 10/19/18						
Total Kjeldahl Nitrogen	1090	43	200	mg/kg	125	850	194	75-125			QM-4X
Matrix Spike Dup (1808927-MSD1)					Source: 18J1147-02 Prepared & Analyzed: 10/19/18						
Total Kjeldahl Nitrogen	1040	43	200	mg/kg	125	850	149	75-125	5	30	QM-4X



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Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration.
BT-4	<1
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

This is a “MDL Report”, thus if the report denotes an “ND” for a particular analyte, it should be noted that the analyte was not detected at or above the MDL.



CHAIN OF CUSTODY

CLS ID No.: 1051147

LOG No 192919

REPORT TO:			CLIENT JOB NUMBER		ANALYSIS REQUESTED				GEOTRACKER: EDF REPORT <input type="checkbox"/> YES <input type="checkbox"/> NO GLOBAL ID: _____							
NAME AND ADDRESS <i>(account) Aquatic Environments 1345 Industrial Way Berkeley CA 94710</i>			<i>Glenshire - Lake</i>		PRESERVATIVES <i>Ortho-Phosphate Total P TKN / Nitrate F. Coli Alkalinity</i>				CDPH WRITE ON EDT TRANSMISSION? <input type="checkbox"/> YES <input type="checkbox"/> NO STATE SYSTEM NUMBER _____ IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).							
PROJECT MANAGER <i>Darin Brenner (916) 755-8022</i>			DESTINATION LABORATORY <input checked="" type="checkbox"/> CLS (916) 638-7301 3249 FITZGERALD RD. RANCHO CORDOVA, CA. 95742						COMPOSITE: _____				TURN AROUND TIME			
PROJECT NAME <i>Glenshire - Devenshire Lake</i>			<input type="checkbox"/> OTHER						SPECIAL INSTRUCTIONS				OR			
SAMPLED BY <i>Darin</i>									1 DAY				2 DAY			
JOB DESCRIPTION <i>Freshwater - pond / lake</i>					3 DAY				5 DAY							
SITE LOCATION <i>Glenshire, Placer Co. CA</i>									ALT. ID: <i>J Flaps Please</i>							
DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	TYPE											
<i>10/16</i>	<i>12:06</i>	<i>Glenshire 1</i>	<i>FW</i>	<i>2</i>												
<i>10/16</i>	<i>12:08</i>	<i>Glenshire 2</i>	<i>SOIL</i>	<i>1</i>												
SUSPECTED CONSTITUENTS						PRESERVATIVES: (1) HCL (2) HNO ₃ (3) = COLD (4) = NaOH (5) = H ₂ SO ₄ (6) = Na ₂ S ₂ O ₈ (7) = _____				INVOICE TO: <i>(same as "Report to")</i>						
RELINQUISHED BY (SIGN)		PRINT NAME / COMPANY		DATE / TIME		RECEIVED BY (SIGN)		PRINT NAME / COMPANY								
<i>[Signature]</i>		<i>DARIN A. BRENNER</i>		<i>10/17/18 12:44</i>		<i>[Signature]</i>										
REC'D AT LAB BY: <i>[Signature]</i>			DATE / TIME: <i>10/17/18</i>			CONDITIONS / COMMENTS: <i>1244</i>			<i>9-1</i>							
SHIPPED BY: <input type="checkbox"/> FED X <input type="checkbox"/> UPS <input checked="" type="checkbox"/> OTHER <i>bring in</i>		AIR BILL #														

White-Lab Terms and conditions Yellow-Lab file copy (Terms and Conditions) Pink-Original Terms and Conditions Gold-Project Mgr./Field Sanitizer/Terms and conditions