

## Appendix M

From: **Jim King** <JKing@maxxam.ca>  
Date: Tue, Nov 28, 2017 at 3:02 PM  
Subject: FW: C16.05 TP Concentration in Sea Water  
To: "lionel@soreng.ca" <lionel@soreng.ca>  
Cc: Rachael Mansfield <RMansfield@maxxam.ca>

Lionel:

As discussed with you by phone I've looked into your question about the detection limit for Total Phosphorous (TP).

Example:

Job = B7B8697, sample ENI378 (Edge of Mixing)

TP = 0.037 mg/L, RDL = 0.02 mg/L, MU = 0.02 mg/L

The ideal way to represent this data would be, TP = 0.04 +/- 0.02 mg/L. The error associated with a measurement dictates the number of significant figures. Thus, in this case, at the RDL there is only one significant figure.

Salt does not interfere with our Total Phosphorous method at the levels typically in seawater. Our method is based on EPA 365.1 which states

"4.2 The salt error for samples ranging from 5-20% salt content was found to be less than 1%." Testing by our method has confirmed this.

We perform a spot test on every sample to estimate the phosphorous in the sample prior to digestion. Samples that have high levels of phosphorous are diluted prior to digestion.

For samples ENI374, 375, 377, 378 and 381 no pre-dilution was required and the RDLs reported were 0.02 mg/L. For samples ENI375 and ENI381 they were diluted by a factor of 2.5 and they were reported with an RDL = 0.05 mg/L.

The normal detection limit for our method is 0.02 mg/L. Should you require detection limits lower than this Rachael should be able to help you.

Please let me know if you have any further questions.

Thanks,

**JIM KING, Ph.D.**  
Inorganics Manager

Office 902 420 0203, ext. 242

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Your Project #: Regulatory Testing  
Your C.O.C. #: 613617-01-01

**Attention: Brian Donnelly**

Oak Bay Hatchery  
Oak Bay Hatchery  
93 Oak Haven Rd  
Oak Haven, NB  
Canada E3L 3S7

**Report Date: 2017/06/21**  
Report #: R4553132  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B7B8697**

**Received: 2017/06/07, 09:14**

Sample Matrix: Water  
# Samples Received: 10

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Chemical Oxygen Demand (COD)	2	N/A	2017/06/14	ATL SOP 00042	SM 22 5220D m
Total Nitrogen - Water (1)	6	2017/06/14	2017/06/14		
Nitrogen Ammonia - water	2	N/A	2017/06/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water	8	N/A	2017/06/15	ATL SOP 00015	EPA 350.1 R2 m
Phosphorus Total Colourimetry	6	2017/06/12	2017/06/14	ATL SOP 00057	EPA 365.1 R2 m
Total Suspended Solids	2	2017/06/12	2017/06/14	ATL SOP 00007	SM 22 2540D m
Total Suspended Solids	3	2017/06/12	2017/06/16	ATL SOP 00007	SM 22 2540D m

**Remarks:**

**Scope Statement:**

The analysis detailed in this document is intended to assist you, the Client, in your efforts and responsibility to produce safe food. The analysis may be for contaminants or adulterants that are known to be or may potentially be harmful, or that may impact on the quality or desired characteristics of the product. The results are representative of the samples at the time and condition of submission, and as determined by the indicated method(s). Any inference as to their applicability to any particular product, production lot, intermediate, ingredient or facility should be made by an individual with relevant expertise, based on an understanding of the product and the suitability of the sampling protocol.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bedford to Burnaby Env

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Katie Campbell, Project Manager

Email: kcampbell@maxxam.ca

Phone# (902)420-0203 Ext:298

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**RESULTS OF ANALYSES OF WATER**

Maxxam ID		ENI374			ENI375		ENI376			
Sampling Date		2017/06/05 10:00			2017/06/05 10:00		2017/06/05 10:00			
COC Number		613617-01-01			613617-01-01		613617-01-01			
	UNITS	INTAKE	MU	RDL	BEFORE DRUM	MU	AFTER DRUM	MU	RDL	QC Batch

Inorganics										
Nitrogen (Ammonia Nitrogen)	mg/L	ND	N/A	0.050	0.67	N/A	1.0	N/A	0.050	5027698
Total Phosphorus	mg/L	0.021	+/- 0.020	0.020	0.69	+/- 0.087	0.65	+/- 0.083	0.050	5023682
Total Suspended Solids	mg/L				13	N/A	4.6	N/A	0.50	5023412

Subcontracted Analysis										
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	ATTACHED	N/A	ATTACHED	N/A	N/A	5023975

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch  
MU = Measurement Uncertainty  
ND = Not detected  
N/A = Not Applicable

Maxxam ID		ENI377			ENI378				
Sampling Date		2017/06/05 10:00			2017/06/05 10:00				
COC Number		613617-01-01			613617-01-01				
	UNITS	EFFLUENT	MU	QC Batch	EDGE OF MIXING 1	MU	RDL	QC Batch	

Inorganics									
Total Chemical Oxygen Demand	mg/L	1100	N/A	5025279			200	5025279	
Nitrogen (Ammonia Nitrogen)	mg/L	0.082	N/A	5027712	ND	N/A	0.050	5027712	
Total Phosphorus	mg/L	0.072	+/- 0.023	5023682	0.037	+/- 0.021	0.020	5023682	
Total Suspended Solids	mg/L	8.0	N/A	5023412	2.7	N/A	0.50	5023261	

Subcontracted Analysis									
Subcontract Parameter	N/A	ATTACHED	N/A	5023975	ATTACHED	N/A	N/A	5023975	

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch  
MU = Measurement Uncertainty  
N/A = Not Applicable  
ND = Not detected

**RESULTS OF ANALYSES OF WATER**

Maxxam ID		ENI379		ENI380		ENI381			
Sampling Date		2017/06/05 10:00		2017/06/05 10:00		2017/06/05 10:00			
COC Number		613617-01-01		613617-01-01		613617-01-01			
	UNITS	EDGE OF MIXING 2	MU	EDGE OF MIXING 3	MU	CONTROL 1	MU	RDL	QC Batch
<b>Inorganics</b>									
Total Chemical Oxygen Demand	mg/L					1100	N/A	200	5025279
Nitrogen (Ammonia Nitrogen)	mg/L	0.18	N/A	0.074	N/A	ND	N/A	0.050	5027712
Total Phosphorus	mg/L					0.036	+/- 0.021	0.020	5023682
Total Suspended Solids	mg/L					2.5	N/A	0.50	5023261
<b>Subcontracted Analysis</b>									
Subcontract Parameter	N/A					ATTACHED	N/A	N/A	5023975
RDL = Reportable Detection Limit QC Batch = Quality Control Batch MU = Measurement Uncertainty N/A = Not Applicable ND = Not detected									

Maxxam ID		ENI382		ENI383			
Sampling Date		2017/06/05 10:00		2017/06/05 10:00			
COC Number		613617-01-01		613617-01-01			
	UNITS	CONTROL 2	MU	CONTROL 3	MU	RDL	QC Batch
<b>Inorganics</b>							
Nitrogen (Ammonia Nitrogen)	mg/L	0.067	N/A	ND	N/A	0.050	5027712
RDL = Reportable Detection Limit QC Batch = Quality Control Batch MU = Measurement Uncertainty N/A = Not Applicable ND = Not detected							

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C
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Revised report issued to include measurement of uncertainty results for Total Nitrogen. 2017/06/21 KCA

**The estimate of uncertainty has been reported as an expanded uncertainty and calculated using a coverage factor of 2, which gives a level of confidence of 95%.**

**Results relate only to the items tested.**

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5023261	LPW	QC Standard	Total Suspended Solids	2017/06/14		95	%	80 - 120
5023261	LPW	Method Blank	Total Suspended Solids	2017/06/14	ND, RDL=1.0		mg/L	
5023261	LPW	RPD	Total Suspended Solids	2017/06/14	NC		%	25
5023412	LPW	QC Standard	Total Suspended Solids	2017/06/16		99	%	80 - 120
5023412	LPW	Method Blank	Total Suspended Solids	2017/06/16	ND, RDL=1.0		mg/L	
5023412	LPW	RPD	Total Suspended Solids	2017/06/16	4.9		%	25
5023682	ZZH	Matrix Spike	Total Phosphorus	2017/06/14		96	%	80 - 120
5023682	ZZH	Spiked Blank	Total Phosphorus	2017/06/14		92	%	80 - 120
5023682	ZZH	Method Blank	Total Phosphorus	2017/06/14	ND, RDL=0.020		mg/L	
5023682	ZZH	RPD	Total Phosphorus	2017/06/14	3.6		%	25
5025279	ZZH	Matrix Spike	Total Chemical Oxygen Demand	2017/06/14		102	%	80 - 120
5025279	ZZH	QC Standard	Total Chemical Oxygen Demand	2017/06/14		99	%	80 - 120
5025279	ZZH	Spiked Blank	Total Chemical Oxygen Demand	2017/06/14		103	%	80 - 120
5025279	ZZH	Method Blank	Total Chemical Oxygen Demand	2017/06/14	ND, RDL=5.0		mg/L	
5025279	ZZH	RPD	Total Chemical Oxygen Demand	2017/06/14	NC		%	25
5027698	KBT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2017/06/15		104	%	80 - 120
5027698	KBT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2017/06/14		101	%	80 - 120
5027698	KBT	Method Blank	Nitrogen (Ammonia Nitrogen)	2017/06/14	ND, RDL=0.050		mg/L	
5027698	KBT	RPD	Nitrogen (Ammonia Nitrogen)	2017/06/15	NC		%	20
5027712	KBT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2017/06/14		119	%	80 - 120
5027712	KBT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2017/06/15		106	%	80 - 120
5027712	KBT	Method Blank	Nitrogen (Ammonia Nitrogen)	2017/06/15	ND, RDL=0.050		mg/L	
5027712	KBT	RPD	Nitrogen (Ammonia Nitrogen)	2017/06/15	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

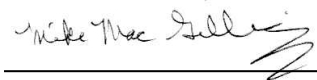
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

**VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Eric Dearman, Scientific Specialist



Mike MacGillivray, Scientific Specialist (Inorganics)

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<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
Company Name	#26939 Kelly Cove Salmon Ltd	Company Name	#19130 Oak Bay Hatchery	Quotation #		Maxxam Job #	Bottle Order #:
Contact Name	Holly Tucker	Contact Name	Brian Donnelly	P.O. #		137B 8697	
Address	874 Main St Blacks Harbour NB E2H 1E6	Address	93 Oak Haven Rd Oak Haven NB E3L 3S7	Project #	Regulatory Testing	Chain Of Custody Record	Project Manager
Phone	(506) 456-6600 x	Phone	(506) 467-1866 x	Project Name			Avery Withdraw - Inactive
Email	holly.tucker@cookeaqu.com	Email	bdonnelly@cookeaqu.com	Site #		C#613617-01-01	

Regulatory Criteria:	Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)						Turnaround Time (TAT) Required:	
** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal		Field Filtered & Preserved Lab Filtration Required	Total Nitrogen - Water	Phosphorus Total Colourimetry	Nitrogen Ammonia - water	Total Suspended Solids - Please filter entire 1L	Chemical Oxygen Demand (COD)	Please provide advance notice for rush projects	
			X	X	X			<b>Regular (Standard) TAT:</b> (will be applied if Rush TAT is not specified): <input type="checkbox"/> Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
			X	X	X	X	X	<b>Job Specific Rush TAT (if applies to entire submission)</b> Date Required: _____ Time Required: _____ <input type="checkbox"/>	
			X	X	X	X	X	# of Bottles: _____ Comments / Hazards / Other Required Analysis: _____	

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM										
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved Lab Filtration Required	Total Nitrogen - Water	Phosphorus Total Colourimetry	Nitrogen Ammonia - water	Total Suspended Solids - Please filter entire 1L	Chemical Oxygen Demand (COD)
SID#326076	INTAKE					X	X	X		
SID#326077	BEFORE DRUM					X	X	X	X	
SID#326078	AFTER DRUM					X	X	X	X	
SID#326079	EFFLUENT					X	X	X	X	X
SID#326080	EDGE OF MIXING 1					X	X	X	X	
SID#326081	EDGE OF MIXING 2							X		
SID#326082	EDGE OF MIXING 3							X		
SID#363474	CONTROL 1					X	X	X	X	X
SID#363475	CONTROL 2							X		
SID#363476	CONTROL 3							X		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only
	17/06/05	1:00pm					Time Sensitive <input type="checkbox"/> Temperature (°C) on Receipt: 4.5, 7 Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No

\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.  
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