



EDI ENVIRONMENTAL DYNAMICS INC.  
ATTN: Meghan Marjanovic  
2195 - 2nd Ave  
Whitehorse YT Y1A 3T8

Date Received: 14-JAN-16  
Report Date: 29-JAN-16 17:35 (MT)  
Version: FINAL

Client Phone: 867-393-4882

## Certificate of Analysis

Lab Work Order #: L1723350  
Project P.O. #: NOT SUBMITTED  
Job Reference: MOUNT NANSEN 15-Y-0148  
C of C Numbers: 1  
Legal Site Desc:

Comments: Addendum.  
The client sample ID on the container was different than what was noted on the chain of custody form. The Client ID was noted on the container was used instead.

Can Dang  
Senior Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID					
Grouping	Analyte				

## Reference Information

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
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### Chain of Custody Numbers:

1

### GLOSSARY OF REPORT TERMS

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*

*mg/kg - milligrams per kilogram based on dry weight of sample.*

*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*

*mg/L - milligrams per litre.*

*< - Less than.*

*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*

*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*

**UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.**

*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*



**ALS Environmental**  
ATTN: Can Dang  
Suite 100-8081 Lougheed Hwy.  
Burnaby, BC  
V5A 1W9

Report Date: January 27, 2016  
Work Order: 16118

## Data Report

Species: Rainbow trout (*Oncorhynchus mykiss*)  
Protocol: EPS 1/RM/13 (Second Ed. with 2007 amendments)

**Table 1.** Results for the 96-h rainbow trout acute toxicity test.

Sample ID	Collection Date and Time	96-h LC50 (%v/v)
L1723350-1 (WQ-SEEP)	January 13, 2016 @ N/A	> 100

N/A = Not Available.

The test met performance criterion and there were no deviations from the test method. The results relate only to the sample tested.

Josh Baker, M.Sc., P.Chem.  
Environmental Chemist

Reviewed By:  
Edmund Canaria, R.P.Bio  
Senior Reviewer

Rainbow Trout Summary Sheet

Client: ALS

Start Date/Time: Jan 18/16 @ 1430h

Work Order No.: 16118

Test Species: Oncorhynchus mykiss

Sample Information:

Sample ID: L1723350-1 WQ-SEEP  
Sample Date: Jan 13/16  
Date Received: Jan 18/16  
Sample Volume: 2 x 20L  
Other: /

Test Validity Criteria:

≥ 90% control survival

WQ Ranges:

T (°C) = 15 ± 1; DO (mg/L) = 7.0 to 10.3; pH = 5.5 to 8.5

Dilution Water:

Type: Dechlorinated Municipal Tap Water  
Hardness (mg/L CaCO<sub>3</sub>): 8  
Alkalinity (mg/L CaCO<sub>3</sub>): 6

Test Organism Information:

Batch No.: 121815  
Source: Aqua Farms  
No. Fish/Volume (L): 10/12L  
Loading Density (g/L): 0.44  
Mean Length ± SD (mm): 32 ± 2  
Mean Weight ± SD (g): 0.52 ± 0.04

Range: 30-35  
Range: 0.46-0.59  
EC

Zinc Reference Toxicant Results:

Reference Toxicant ID: RTZn32  
Stock Solution ID: 15Zn05  
Date Initiated: Jan 6/16  
96-h LC50 (95% CL): 45.9 (34.3 - 61.5) mg/L Zn

Reference Toxicant Mean and Historical Range: 72.0 (35.3 - 147.0) mg/L Zn  
Reference Toxicant CV (%): 42.8%

Test Results: The 96-hr LC50 > 100% (v/v)

Reviewed by: [Signature]

Date reviewed: January 26, 2016

### 96-Hour Rainbow Trout Toxicity Test Data Sheet

Client/Project#: ALS  
 Sample I.D. L1723350-1 WQ-SEEP  
 W.O. # 16118  
 RBT Batch #: 121815  
 Date Collected/Time: Jan 13/16 @ N/A  
 Date Setup/Time: Jan 18/16 @ 1430L  
 Sample Setup By: EC

Number Fish/Volume: 10/12 L  
 7-d % Mortality: 02  
 Total Pre-aeration Time (mins): 30 mins  
 Aeration rate adjusted to 6.5 ± 1 mL/min/L? (Y/N): X

D.O. meter: 2  
 pH meter: 1  
 Cond. Meter: 2

Undiluted Sample WQ			
Parameters	Initial WQ	Adjustment	30 min WQ
Temp °C	14.0	/	14.0
pH	6.7	/	6.7
D.O. (mg/L)	8.0	/	8.5
Cond. (µS/cm)	1627	/	1624

Concentration (% v/v)	# Survivors							Temperature (°C)					Dissolved Oxygen (mg/L)					pH					Conductivity (µS/cm)	
	1	2	4	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96
C+1				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.0	9.7	10.0	9.9	9.9	6.7	6.9	6.7	7.0	6.9	27	33
6.25				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.0	9.7	10.0	9.8	9.8	6.8	7.3	7.2	7.3	7.3	149	151
12.5				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.0	9.8	9.9	9.9	9.8	6.8	7.5	7.5	7.5	7.5	299	302
25				10	10	10	10	14.0	14.0	14.0	14.0	14.0	9.9	9.9	10.1	9.9	9.9	6.7	7.9	7.8	7.9	7.9	539	541
50				10	10	10	10	14.0	14.0	14.0	14.0	14.0	9.8	10.0	10.2	10.1	9.9	6.7	8.1	8.1	8.1	8.1	949	948.5
100				10	10	10	10	14.0	14.0	14.0	14.0	14.0	8.5	10.0	10.2	10.0	10.0	6.7	8.2	8.2	8.3	8.3	1624	1604
Initials				EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC

WQ Ranges: T (°C) = 15 ± 1; DO (mg/L) = 7.0 to 10.3; pH = 5.5 to 8.5

Sample Description/Comments: Orange, Opaque, Odourless, No ppt Fish surfacing @ 70.

Fish Description at 96 h OK Number of Stressed Fish at 96 h 0

Other Observations: \_\_\_\_\_

Reviewed by: EC

Date Reviewed: January 26, 2016



L1723350

VANCOUVER

Subcontract Request Form

Subcontract To:

NAUTILUS ENVIRONMENTAL

8664 COMMERCE COURT
BURNABY, BC V5A 4N7

NOTES: Please reference on final report and invoice: PO# L1723350
ALS requires QC data to be provided with your final results.
wo# 16118

Please see enclosed 1 sample(s) in 2 Container(s)

Table with columns: SAMPLE NUMBER, ANALYTICAL REQUIRED, DATE SAMPLED, DUE DATE, Priority Flag. Row 1: L1723350-1 WQ-SEEP, Trout Bioassay LC50 (96 Hour) - Nautilus (TROUT-LC50-96HR-NL 1), 1/13/2016, 1/25/2016

Subcontract Info Contact: Walter Lin (604) 253-4188
Analysis and reporting info contact: Can Dang
8081 LOUGHEED HWY
SUITE 100
BURNABY, BC V5A 1W9
Phone: (604) 253-4188 Email: can.dang@alsglobal.com

Please email confirmation of receipt to: can.dang@alsglobal.com

Shipped By: Date Shipped:
Received By: Nautilus Date Received: Jan 18/16 @ 09:40
Verified By: NY- Mai Yamamoto Date Verified:
Temperature: 5.6 °C
Sample Integrity Issues: 2x20L blue jugs.

Sample Description:
Orange, Opaque,
Odorless, No ppt.



L1723350-COFC

<b>Report To</b>		<b>Report Format / D</b>		Rush Turnaround Time (TAT) is not available for all tests)																			
Company: EDI		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)																			
Contact: Meghan Marjanovic		Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT																			
Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		<input type="checkbox"/> Criteria on Report - provide details below if box checked		E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT																			
Phone: 867-393-4882		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																			
		Email 1 or Fax: <a href="mailto:mmarianovic@edynamics.com">mmarianovic@edynamics.com</a>		Specify Date Required for E2, E or P:																			
		Email 2: <a href="mailto:erik.plt@gov.yk.ca">erik.plt@gov.yk.ca</a>																					
		Email 3: <a href="mailto:Emilie.Hamm@gov.yk.ca">Emilie.Hamm@gov.yk.ca</a>																					
<b>Invoice To</b>		<b>Invoice Distribution</b>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																			
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																					
Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Email 1 or Fax: <a href="mailto:sjenner@edynamics.com">sjenner@edynamics.com</a>																					
Company: EDI		Email 2: <a href="mailto:mmarianovic@edynamics.com">mmarianovic@edynamics.com</a>																					
Contact: S Jenner																							
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>																					
ALS Quote #: Q49310		Approver ID:		Cost Center:																			
Job #: MOUNT NANSEN 15-Y-0146		GL Account:		Routing Code:																			
PO / AFE:		Activity Code:																					
LSD:		Location:																					
ALS Lab Work Order # (lab use only)		ALS Contact: Sean Sluggett		Sampler:																			
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mmm-yy)		Time (hh:mm)		Sample Type		Rainbow Trout LC50										Number of Containers			
		WR-PW		13-Jan-16		1115		Water		R												2	
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report (client Use)</b>																					
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No																							
Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No																							
<b>SHIPMENT RELEASE (client use)</b>		<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>																					
Released by:		Date:		Time:		Received by:		Date:		Time:		<b>FINAL SHIPMENT RECEPTION (lab use only)</b>											