



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

Date Received: 08-JUN-16  
Report Date: 22-JUN-16 19:12 (MT)  
Version: FINAL

Client Phone: 867-393-4882

## Certificate of Analysis

Lab Work Order #: L1780506  
Project P.O. #: NOT SUBMITTED  
Job Reference: MOUNT NANSEN 16Y0089  
C of C Numbers: 1  
Legal Site Desc:

Comments: Bioassay analysis was subcontracted to Nautilus Environmental in Burnaby, BC. Refer to their report appended for detail.

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: June 22, 2016  
Work Order: 16641

## Data Report

**Species:** Rainbow trout (*Oncorhynchus mykiss*)  
**Protocol:** EPS 1/RM/13 (Second Ed. 2000 with 2007 & 2016 amendments)

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

Sample ID	Collection Date and Time	96-h LC50 (%v/v)
L1780506-1 WQ-SEEP	June 6, 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.

Yvonne Lam, B.Sc.  
Laboratory Biologist

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

# Rainbow Trout Summary Sheet

Client: ALS (ED1)

Start Date/Time: Jun 10 / 16 @ 1300L

Work Order No.: 16641

Test Species: Oncorhynchus mykiss

### Sample Information:

Sample ID: L1780506-1-WQ-SEEP  
Sample Date: Jun 6 / 16  
Date Received: Jun 9 / 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>): 10  
Alkalinity (mg/L CaCO<sub>3</sub>): 8

### Test Organism Information:

Batch No.: 052416  
Source: Aqua Farms  
No. Fish/Volume (L): 10/10L  
Loading Density (g/L): 0.31  
Mean Length ± SD (mm): 29 ± 1      Range: 27 - 31  
Mean Weight ± SD (g): 0.31 ± 0.03      Range: 0.27 - 0.37

### Zinc Reference Toxicant Results:

Reference Toxicant ID: RTZn42  
Stock Solution ID: 15Zn05  
Date Initiated: Jun 9/15  
96-h LC50 (95% CL): 53.6 (43.2-66.4) µg/L Zn

Reference Toxicant Mean and Historical Range: 64.0 (27.3 - 149.8) µg/L Zn  
Reference Toxicant CV (%): 53.0%

Test Results: The 96h LC50 is estimated to be >100% (v/v).

Reviewed by: 

Date reviewed: June 17, 2016

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

Client/Project#: ALS (ED1)

Sample I.D. L1780506-1-WQ-SEEP

W.O. # 16641

RBT Batch #: 052416

Date Collected/Time: Jun 6/16 @ (Not available)

Date Setup/Time: Jun 10/16 @ 1300h

Sample Setup By: EC

Number Fish/Volume: 10/10 L

7-d % Mortality: 0.2

Total Pre-aeration Time (mins): 30 min

Aeration rate adjusted to 6.5 ± 1 mL/min/L? (Y/N): Y

Thermometer: CER# 2

D.O. meter: 2

Cond./Salinity: 2

pH meter: 1

Undiluted Sample WQ			
Parameters	Initial WQ	Adjustment	30 min WQ
Temp °C	15.0	/	15.0
pH	6.9		7.0
D.O. (mg/L)	9.5		9.8
Cond. (µS/cm)	1515		1515
Salinity (ppt)	0.8		0.8

Concentration	# 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
(% v/v)																								
Control				10	10	10	10	15.0	15.0	15.0	15.0	15.0	10.0	9.7	9.9	9.8	9.6	7.4	6.9	6.9	6.9	6.9	29	34
6.25				10	10	10	10	15.0	15.0	15.0	15.0	15.0	10.0	9.9	9.6	9.7	9.6	7.3	6.8	7.0	7.4	7.3	154	160
12.5				10	10	10	10	15.0	15.0	15.0	15.0	15.0	10.0	9.8	9.7	9.7	9.7	7.2	6.9	7.1	7.5	7.5	267	261
25				10	10	10	10	15.0	15.0	15.0	15.0	15.0	10.0	9.9	9.6	9.7	9.8	7.0	7.0	7.2	7.6	7.7	475	447
50				10	10	10	10	15.0	15.0	15.0	15.0	15.0	10.0	9.8	9.6	9.7	9.7	7.0	7.4	7.4	8.0	8.0	838	846
100				10	10	10	10	15.0	15.0	15.0	15.0	15.0	7.8	9.8	9.7	9.6	9.7	7.0	7.5	7.5	8.2	8.2	1515	1494
Initials				AS	AS	EL	EL	EC	AS	AS	EL	EL	EC	AS	AS	EL	EL	EC	AS	AS	EL	EL	EC	EL

Sample Description/Comments: Orange, turbid, some particulates, gasoline smell

Fish Description at 96 h All fish appear healthy Number of Stressed Fish at 96 h 0

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

Reviewed by: [Signature]

Date Reviewed: June 17, 2016

**Subcontract Request Form**
**Subcontract To:**
**NAUTILUS ENVIRONMENTAL**

 8664 COMMERCE COURT  
 BURNABY, BC V5A 4N7

**NOTES:** Please reference on final report and invoice: PO# L1780506  
 ALS requires QC data to be provided with your final results.

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

SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	Priority Flag
		DUE DATE	
L1780506-1 WQ-SEEP		6/6/2016	
<u>WO # 16641</u>	Trout Bioassay LC50 (96 Hour) - Nautilus (TROUT-LC50-96HR-NL 1)	6/20/2016	

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: [Signature] Date Shipped: June 09, 2016  
 Received By: [Signature] Nautilus Date Received: Jun 09/16 @ 15:20  
 Verified By: NY- Nan Yamamoto Date Verified: \_\_\_\_\_  
 Temperature: 13.7°C  
 Sample Integrity Issues: 2x 20L

