



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

Date Received: 29-APR-16  
Report Date: 19-MAY-16 15:45 (MT)  
Version: FINAL

Client Phone: 867-393-4882

## Certificate of Analysis

Lab Work Order #: L1761990  
Project P.O. #: NOT SUBMITTED  
Job Reference: MOUNT NANSEN 16-Y-0089  
C of C Numbers: 1  
Legal Site Desc:

Comments: The bioassay analysis was subcontracted to Nautilus Environmental Ltd. 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: May 12, 2016  
Work Order: 16496

## 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)
L1761990-1 WQ-SEEP	April 28, 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

Start Date/Time: May 2/16 @ 1330 h

Work Order No.: 16496

Test Species: Oncorhynchus mykiss

#### Sample Information:

Sample ID: L1761990-1 WQ-SEEP  
Sample Date: Apr 28/16  
Date Received: May 2/16  
Sample Volume: 2x20L  
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.: 040716  
Source: El Mirador Springs  
No. Fish/Volume (L): 10/10L  
Loading Density (g/L): 0.32  
Mean Length ± SD (mm): 30 ± 2 Range: 26-34  
Mean Weight ± SD (g): 0.32 ± 0.08 Range: 0.22-0.48

#### Zinc Reference Toxicant Results:

Reference Toxicant ID: RTZn39  
Stock Solution ID: 15Zn05  
Date Initiated: Apr 28/16  
96-h LC50 (95% CL): 91.9 (68.7-123.5) µg/L Zn

Reference Toxicant Mean and Historical Range: 69.4 (34.1-141.3) µg/L Zn  
Reference Toxicant CV (%): 43%

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

Reviewed by: [Signature]

Date reviewed: May 11, 2016

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

Client/Project#: ALS (EDJ Env.)  
 Sample I.D.: L1761990-1 WR-SEEP  
 W.O. #: 16496  
 RBT Batch #: 040716  
 Date Collected/Time: Apr 28/16 @ Not available  
 Date Setup/Time: EC Apr May 2/16 @ 1330h  
 Sample Setup By: EC

Number Fish/Volume: 10/10L  
 7-d % Mortality: 0.1  
 Total Pre-aeration Time (mins): 30  
 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	14.0	/	14.0
pH	6.9	/	7.3
D.O. (mg/L)	9.0	/	9.6
Cond. (µS/cm)	1274	/	1274
Salinity (ppt)	0.6	/	0.6

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
Control				10	10	10	10	14.0	15.0	15.0	15.0	15.0	10.3	9.7	9.7	9.9	9.8	6.8	6.5	6.6	6.8	6.7	27	29
6.25				10	10	10	10	14.0	15.0	15.0	15.0	15.0	10.3	9.7	9.8	9.9	9.8	7.0	7.0	7.2	7.2	7.1	123	124
12.5				10	10	10	10	14.0	15.0	15.0	15.0	15.0	10.3	9.8	9.9	9.8	9.8	7.0	7.2	7.3	7.3	7.2	214	216
25				10	10	10	10	14.0	15.0	15.0	15.0	15.0	10.3	9.9	10.0	9.9	9.8	7.0	7.6	7.7	7.7	7.7	406	407
50				10	10	10	10	14.0	15.0	15.0	15.0	15.0	10.3	9.9	10.0	9.9	9.8	7.3	8.0	8.0	8.0	8.0	700	697
100				10	10	10	10	14.0	15.0	15.0	15.0	15.0	9.6	10.0	10.0	9.9	9.8	7.3	8.2	8.2	8.2	8.3	1274	1218
Initials				EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC	EC

Sample Description/Comments: Orange, Opaque, Odourless, some particulates

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

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

Reviewed by: EC

Date Reviewed: May 11, 2016

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

 8664 COMMERCE COURT  
 BURNABY, BC V5A 4N7

**NOTES:** Please reference on final report and invoice: PO# L1761990  
 ALS requires QC data to be provided with your final results.

WO# 16496

LC50

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

SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	Priority Flag
		DUE DATE	
L1761990-1 WQ-SEEP	Trout Bioassay LC50 (96 Hour) - Nautilus (TROUT-LC50-96HR-NL 1)	4/28/2016	
		5/10/2016	

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: Pam Date Shipped: MAY 2/16

 Received By: Nautilus Date Received: May 02/16 @ 08:30

 Verified By: NY - Nao Yamamoto Date Verified: \_\_\_\_\_

 Temperature: 5.3 °C

 Sample Integrity Issues: 2 x 20L

 Sample Description:  
 Orange, Opaque, Odourless, some particulates.

