



# Mount Polley Mining Corporation

an Imperial Metals company

February 10, 2015

## Early Life Stage Toxicity Test – Quesnel River Test Results

Mount Polley received results on January 29, 2015 for an early life stage toxicity test carried out using water samples from the Quesnel River taken at a monitoring station near the Quesnel River Research Centre. This 30-day test, which was carried out in accordance with Environment Canada protocol at an accredited laboratory, concluded that the water from the Quesnel River had no effect on the survival or normal development of rainbow trout eggs that were exposed to that water. The test starts immediately after fertilization and continues throughout embryo development up to the point of hatching and emergence as an alevin (a young hatchling that still has a yolk sac attached; *Figure 1*). Rainbow trout are members of the same family as all five species of pacific salmon (family Salmonidae) and share similar sensitivities to copper.



Figure 1. The embryo-alevin test measures the effect of test substances on the survival and normal development of a salmonid from the stage of a fertilized egg (left photo), a developing embryo (centre photo) and through to a hatched alevin (right photo).

Early life stage toxicity tests are used because of the sensitivity of these life stages to potentially toxic substances. During this susceptible period, there are numerous developmental events occurring at the cellular and subcellular level, providing many “targets” for toxic substances to interfere with those processes. However, using full strength Quesnel River water, the eggs developed normally through to hatched alevins.

The water samples were collected to coincide with egg availability which happened to also coincide with the period of greatest turbidity (cloudiness) in the Quesnel River, making this test particularly informative. The test was carried out during the approximate time frame as shown by the black bar on the turbidity data chart (*Figure 2*). Several members of the local community, First Nations and government officials expressed legitimate concerns about incubating eggs in the Quesnel River, particularly after lake overturn resulted in cloudy water in the river. The test results attached are part of our efforts to provide answers to those questions. This test has exposed incubating eggs directly to Quesnel River water during the peak turbidity period measured to date, and their development was unaffected by this water through to hatching. These data are directly relevant to the questions raised.

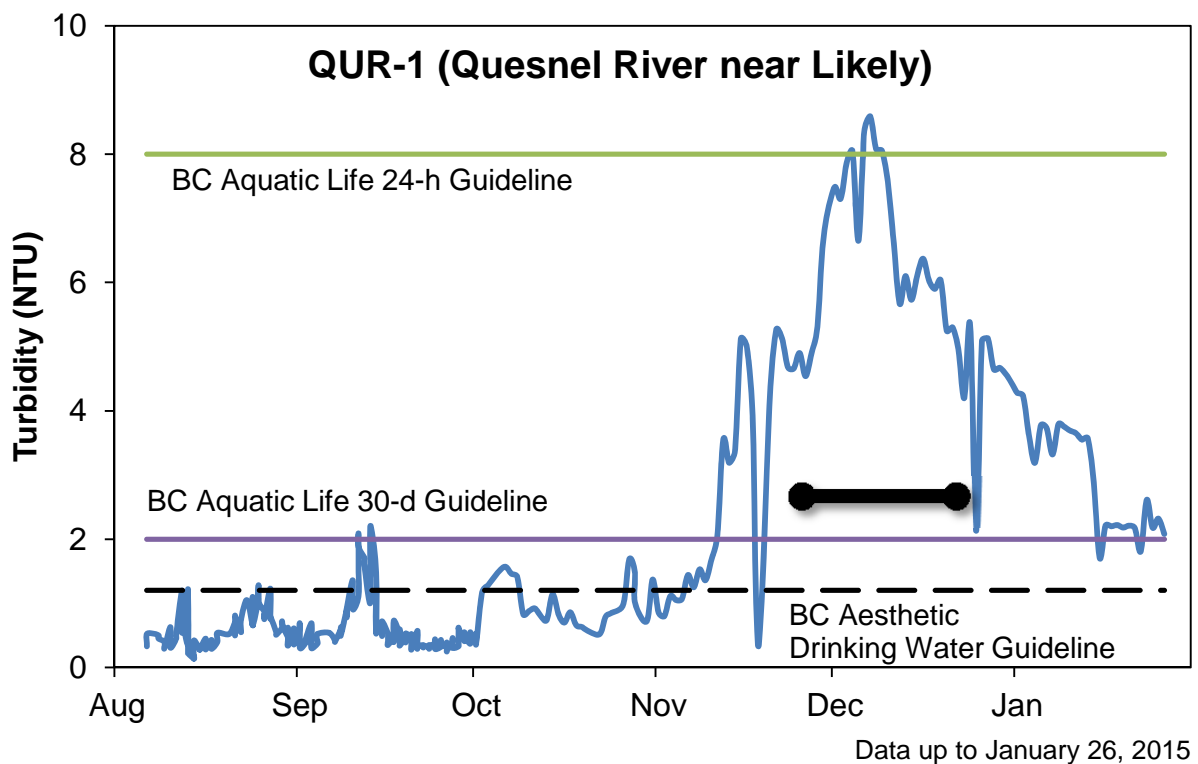


Figure 2. Turbidity data from water samples collected at the Quesnel River Research Centre since August. The black bar indicates the approximate period over which samples were collected for the early life stage toxicity test.

While the cloudiness of the water in the Quesnel River has been visually overt, the levels of turbidity in the river, even at the peak measured turbidity values, are similar to or lower than turbidity levels naturally present in many rivers in British Columbia where vigorous salmon populations exist. It is also lower than turbidity values measured downstream in the Quesnel River at the Gravelle Ferry site, which is influenced by an erosional section of the Quesnel River downstream of the Quesnel River Research Centre and other sources of turbidity. Similarly, sampling by Mount Polley and others shows that copper concentrations in the dissolved form have been below water quality guidelines. While total copper, associated with particulates, is above the guideline, this form is unlikely to be bioavailable (i.e., present in a form that is not absorbed). Thus, the results of this test showing no effect of the river water on early life stage development are not surprising based on the exposure data collected by Mount Polley.

*Attachment:* [Nautilus Environmental Report dated January 29, 2015](#)



Nautilus Environmental

## **Toxicity Testing of Sample QUR-1**

Collected November 25 – December 22, 2014

Report date:

January 29, 2015

Submitted to:

**Mount Polley Mining Corporation**

Likely, BC

8664 Commerce Court  
Burnaby, BC  
V5A 4N7

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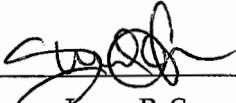
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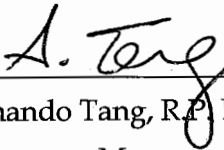
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**SIGNATURE PAGE**



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This report has been prepared by Nautilus Environmental Company Inc. based on data and/or samples provided by our client and the results of this study are for their sole benefit. Any reliance on the data by a third party is at the sole and exclusive risk of that party. The results presented here relate only to the samples tested.

## 1.0 INTRODUCTION

Nautilus Environmental conducted a rainbow trout (*Oncorhynchus mykiss*) embryo-alevin toxicity test for Mount Polley Mining on a sample identified as QUR-1. The initial and refresh samples were collected between November 25 to December 22, 2014 and delivered on a weekly basis to the Nautilus Environmental laboratory in Burnaby, BC. The samples were collected in 20-L plastic containers. The samples were received at temperatures ranging from 3.0 to 6.9°C and were stored at  $4 \pm 2^\circ\text{C}$  in the dark prior to and during testing.

This report describes the results of the toxicity test. Copies of laboratory data sheets and printouts of statistical analyses are provided in Appendix A. The chain-of-custody forms are provided in Appendix B.

## 2.0 METHODS

The methodology for the early life stage embryo-alevin test is summarized in Table 1. Testing was conducted according to procedures described by Environment Canada (1998) and Canaria et al. (1999). Statistical analyses were performed using CETIS (Tidepool Scientific Software, 2013).

**Table 1.** Summary of test conditions: rainbow trout embryo-alevin test.

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Test organism	<i>Oncorhynchus mykiss</i>
Test organism source	Vancouver Island Trout Hatchery, Duncan, BC
Test organism age	<30 min post fertilization, <24 h old gametes
Test type	Static-renewal
Test duration	30 days
Test vessel	2-L plastic containers
Test solution volume	2L
Test treatments	Laboratory control, 6.25, 12.5, 25, 50, and 100% sample
Test replicates	4 test replicates per treatment
No. of organisms	30 eggs per container
Control water	Dechlorinated water (hardness 9-12 mg/L CaCO <sub>3</sub> )
Test solution renewal	Daily
Test temperature	14 ± 1°C
Feeding	None
Light intensity	Dark (low light during solution renewals)
Photoperiod	24-h dark
Aeration	6.5 ± 1 mL/min/L
Test protocol	Environment Canada (1998), EPS 1/RM/28; Canaria et al. (1999)
Statistical software	CETIS (2013)
Test endpoint	Survival, normal alevins
Test acceptability criteria for controls	≥65% normal alevins
Reference toxicant	Sodium Dodecyl Sulphate (SDS)

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### 3.0 RESULTS

Results of the embryo-alevin test with sample QUR-1 are provided below in Table 2. There were no adverse effects exhibited for either test endpoint, with embryo survival and normal hatched alevins in all the test treatments at >87% and >85%, respectively. Consequently, the EC25 and EC50 values for both survival and normality were >100% (v/v).

**Table 2.** Results: rainbow trout embryo-alevin test.

<b>Concentration</b> <b>(% v/v)</b>	<b>Survival (%)</b> <b>[Mean ± SD]</b>	<b>Normal Alevins (%)</b> <b>[Mean ± SD]</b>
Control	87.5 ± 16.2	85.0 ± 19.2
6.25	92.5 ± 7.4	92.5 ± 7.4
12.5	92.5 ± 6.9	88.3 ± 4.3
25	90.8 ± 5.7	87.5 ± 5.0
50	94.8 ± 4.6	93.2 ± 4.1
100	92.5 ± 6.3	92.5 ± 6.3
<b>Test Endpoint</b>	<b>Survival (%)</b>	<b>Normal Alevins (%)</b>
EC25	>100	>100
EC50	>100	>100

v/v = volume per volume, SD = Standard Deviation, EC = Effective Concentration.



#### 4.0 QA/QC

The tests met control passing criterion of  $\geq 65\%$  normal hatched alevins specified in the Environment Canada protocol (1998). Water quality parameters remained within ranges specified in the protocol and there were no deviations from the test methodology. Uncertainty associated with these tests is best described by the standard deviation around the mean and/or where applicable, the confidence interval for point estimates.

Results of the reference toxicant test conducted during the testing program are summarized in Table 3. Results for this test fell within the range for organism performance of mean and range, based on historical results obtained by the laboratory with this test. Thus, the sensitivity of the embryos used in the toxicity test and evaluated with the concurrent SDS reference toxicant test was appropriate.

**Table 3.** Reference toxicant result.

Test Species	Endpoint	Historical Mean (2 SD Range)	CV (%)	Test Date
<i>O.mykiss</i> (embryo)	Viability (EC50): 2.7 mg/L SDS	3.9 (2.0 – 7.3)	37	November 26, 2014

SD = Standard Deviation, CV = Coefficient of Variation, EC = Effective Concentration.

## 5.0 REFERENCES

- Canaria, E.C., J.R. Elphick and H.C. Bailey. 1999. A simplified procedure for conducting small-scale short-term embryo toxicity tests with salmonids. *Environ. Toxicol.* 14:301-307.
- Environment Canada. 1998. Biological test method: toxicity tests using early life stages of salmonid fish (rainbow trout). Environmental Protection Series EPS 1/RM/28. Second Edition, July 1998. Environment Canada, Method Development and Application Section, Environmental Technology Centre, Ottawa, ON. 102 pp.
- Tidepool Scientific Software. 2013. CETIS comprehensive environmental toxicity information system, version 1.8.7.16 Tidepool Scientific Software, McKinleyville, CA. 222 pp.

**APPENDIX A - Embryo-alevin (*Oncorhynchus mykiss*) Test Data**

## Rainbow Trout Embryo Summary Sheet

Client: Mount Polley

Start Date/Time: November 26, 2014 @ 1600

Work Order No.: 14928

Test Species: Oncorhynchus mykiss

**Sample Information:**

Sample ID: QUR-1

Sample Date: Nov. 25, Dec. 2, Dec. 9, Dec. 10, Dec. 16/14, Dec. 22/14

Date Received: Nov. 26, Dec. 3, Dec. 10, Dec. 11, Dec. 17/14, Dec. 23/14

Sample Volume: 6, 5x20L, 6x20L, 6x20L, 15 x 20L, 6 x 20L  
2x20L

**Dilution Water:**

Type: Dechlorinated Tap Water  
 Hardness (mg/L CaCO<sub>3</sub>): 9-12  
 Alkalinity (mg/L CaCO<sub>3</sub>): 7-10

**Test Organism Information:**

Batch No.: 112614  
 Source: Vancouver Island Trout Hatchery, Duncan BC  
 Loading Density: 1.04 g/L

**SDS Reference Toxicant Results:**

Reference Toxicant ID: RTE66  
 Stock Solution ID: 14503  
 Date Initiated: November 26, 2014  
 7-d EC50 (95% CL): 2.7 (2.6 - 2.8 mg/L SDS)

Reference Toxicant Mean and Range: 3.9 (2.0-7.3) mg/L SDS  
 Reference Toxicant CV (%): 37

**Test Results:**

	Sample ID - QUR-1		
	Survival	Normal	
EC25 % (v/v) (95% CL)	>100	>100	/
EC50 % (v/v) (95% CL)	>100	>100	

Reviewed by: JGh

Date reviewed: Jan. 27/15

# Chronic Freshwater Toxicity Test Initial and Final Water Quality Measurements

Client: Mt. Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date & Time: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration Control	Days														
	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
Temperature (°C)	13.5	13.5	14.5	14.0	14.5	14.0	15.0	14.0	15.0	14.0	14.5	14.5	14.0	14.5	14.0
DO (mg/L)	10.0	9.9	9.8	9.9	9.9	9.8	9.9	9.8	9.8	9.9	9.8	9.9	9.8	9.8	9.9
pH	6.7	6.8	6.8	6.8	6.8	6.8	7.0	6.8	7.0	6.8	6.8	6.8	6.8	6.8	6.8
Cond. (µS/cm)	28	28	29			29	29			29		30			29
Initials	UWL	SSD	SSD			A			A	SSD		SSD			SSD

Concentration 6.25	Days														
	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
Temperature (°C)	13.5	13.5	14.5	14.0	14.5	14.0	15.0	14.0	15.0	14.5	14.5	14.0	14.5	14.5	
DO (mg/L)	10.1	10.0	9.8	10.0	10.1	9.9	9.8	9.8	9.9	9.9	9.8	9.8	9.9	9.9	
pH	6.8	6.8	6.8	6.8	6.9	7.0	7.1	7.0	7.1	6.8	7.0	7.2	7.1	6.9	
Cond. (µS/cm)	35	35	35			34			35	36		37			36
Initials	UWL	SSD	SSD			A			A	SSD		SSD			SSD

Concentration 25	Days														
	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
Temperature (°C)	13.5	13.5	14.5	14.0	14.5	14.0	15.0	14.0	15.0	14.5	14.5	14.0	14.5	14.5	
DO (mg/L)	10.1	10.0	9.9	10.0	10.1	9.9	9.9	9.8	9.9	9.9	9.8	9.9	9.9	9.8	
pH	7.1	6.8	6.9	6.8	6.9	7.1	7.1	7.1	7.2	6.8	7.0	7.2	7.1	7.0	
Cond. (µS/cm)	52	56	51			50			51	51		51			50
Initials	UWL	SSD	SSD			A			A	SSD		SSD			SSD

Concentration 100	Days														
	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6
Temperature (°C)	13.0	13.5	14.5	14.0	14.5	14.0	15.0	14.0	15.0	14.0	14.5	14.0	14.5	14.5	
DO (mg/L)	10.3	10.1	9.9	10.0	10.1	9.9	9.9	9.9	9.8	9.9	9.8	9.9	9.9	9.9	
pH	7.7	7.5	7.5	7.4	7.5	7.5	7.6	7.4	7.6	7.3	7.5	7.4	7.4	7.4	
Cond. (µS/cm)	117	117	120			118			119	126		119			118
Initials	UWL	SSD	SSD			A			A	SSD		SSD			SSD

DO meter: DO-1/3      pH meter: pH-1/3      Conductivity meter: C-1/3

	Control	100%		
Hardness*	12	66		
Alkalinity*	10	44		

Analysts: AWD, SSD, YYL

Reviewed by: JGU

Date reviewed: Jan. 26/15

Sample Description: clear, light yellow colour no colour

Comments: \_\_\_\_\_

# Chronic Freshwater Toxicity Test Water Quality Measurements

Client: Mouf Pdley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date & Time: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (4.0/v/v) Control	Days													
	7	8		9		10		11		12		13		14
	init.	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	15.0	13.5	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0
DO (mg/L)	9.8	9.8	9.9	6.0	9.9	9.9	9.9	9.9	9.8	9.8	9.8	9.8	9.9	9.8
pH	6.8	6.7	6.8	6.7	6.8	6.8	7.1	6.8	7.0	6.7	6.8	6.8	6.9	6.8
Cond. (µS/cm)	✓	30		27		28		28		28		27		27
Initials	SSD	SSD		WML		A		A		SSD		SSD		SSD

Concentration (p.25)	Days													
	7	8		9		10		11		12		13		14
	init.	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	15.0	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.5	14.0	14.0
DO (mg/L)	9.9	9.8	9.9	9.3	9.8	9.9	9.7	9.7	9.7	9.9	9.8	9.9	9.9	9.8
pH	7.0	6.8	7.1	6.8	6.8	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.1	7.0
Cond. (µS/cm)	✓	36		35		35		35		33		33		32
Initials	SSD	SSD		WML		A		A		SSD		SSD		SSD

Concentration 25	Days													
	7	8		9		10		11		12		13		14
	init.	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	15.0	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.5	14.0	14.0
DO (mg/L)	9.8	9.9	9.9	9.9	9.9	9.9	9.8	9.9	9.8	9.9	9.8	9.8	9.9	9.9
pH	7.1	7.0	7.1	7.1	7.1	7.2	7.2	7.1	7.2	7.0	7.1	7.1	7.1	7.0
Cond. (µS/cm)	✓	52		54		54		55		54		53		50
Initials	SSD	SSD		WML		A		A		SSD		SSD		SSD

Concentration 100	Days													
	7	8		9		10		11		12		13		14
	init.	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	15.0	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.5	14.0	14.0
DO (mg/L)	9.9	10.0	9.9	9.6	9.8	9.8	9.8	9.9	9.9	9.8	9.9	9.8	9.9	9.9
pH	7.5	7.6	7.5	7.5	7.4	7.4	7.5	7.3	7.5	7.4	7.4	7.5	7.4	7.3
Cond. (µS/cm)	✓	119		125		126		125		126		124		124
Initials	SSD	SSD		WML		A		A		SSD		SSD		SSD

DO meter: 1/3      pH meter: 1/3      Conductivity meter: 1/3

	Control	100%	
Hardness*	10	62	
Alkalinity*	8	46	

Analysts: AWD, SSD, YRL  
 Reviewed by: JGU  
 Date reviewed: Jan. 26/15

\* mg/L as CaCO<sub>3</sub>

Sample Description: clear, no colour

Comments: \_\_\_\_\_

# Chronic Freshwater Toxicity Test Water Quality Measurements

Client: Mount Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date & Time: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v) Control	Days														
	14		15		16		17		18		19		20		21
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	new
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.5	14.5	14.0	14.5	14.0	
DO (mg/L)	9.8	9.8	9.9	9.8	9.9	9.8	9.8	9.9	9.8	9.8	9.8	9.8	9.7	9.8	
pH	6.9	6.7	6.8	6.7	6.8	6.8	7.0	6.9	7.0	6.7	6.8	6.7	6.8	6.8	
Cond. (µS/cm)	-	27		27		27		27		27		26		25	
Initials	SSD	SSD		SSD		m		m		SSD		SSD		SSD	

Concentration 6.25	Days														
	14		15		16		17		18		19		20		21
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	
DO (mg/L)	9.9	9.8	9.9	10.0	9.8	9.8	9.9	9.8	9.9	9.8	9.9	9.8	9.9	9.9	
pH	7.1	6.8	7.0	6.7	6.8	7.0	7.0	7.0	7.1	6.9	7.0	6.8	6.9	6.8	
Cond. (µS/cm)	-	33		32		35		36		30		34		30	
Initials	SSD	SSD		SSD		m		m		SSD		SSD		SSD	

Concentration 25	Days														
	14		15		16		17		18		19		20		21
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	
DO (mg/L)	9.9	9.9	9.8	9.9	9.9	9.8	9.8	9.9	9.8	9.8	9.8	9.9	9.8	9.9	
pH	7.1	6.9	7.1	6.9	7.0	7.0	7.1	7.1	7.1	7.0	7.1	6.9	7.0	6.9	
Cond. (µS/cm)	-	51		54		55		56		52		52		52	
Initials	SSD	SSD		SSD		m		m		SSD		SSD		SSD	

Concentration 100	Days														
	14		15		16		17		18		19		20		21
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	14.5	14.0	
DO (mg/L)	9.9	9.9	9.9	10.0	9.9	9.9	9.9	9.8	9.8	9.8	9.9	9.8	9.8	9.9	
pH	7.5	7.5	7.4	7.4	7.5	7.4	7.5	7.5	7.4	7.4	7.4	7.5	7.4	7.5	
Cond. (µS/cm)	-	126		129		126		127		127		127		126	
Initials	SSD	SSD		SSD		m		m		SSD		SSD		SSD	

DO meter: 1/3      pH meter: 1/3      Conductivity meter: 1/3

	Control	100%		
Hardness*	11	60		
Alkalinity*	9	44		

Analysts: AWD, SSD  
 Reviewed by: JOU  
 Date reviewed: Jan. 26/15

\* mg/L as CaCO3

Sample Description: clear, no colour  
 Comments: \_\_\_\_\_

# Chronic Freshwater Toxicity Test Water Quality Measurements

Client: Mt. Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date & Time: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v) Control	Days														
	21		22		23		24		25		26		27		28
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	new
Temperature (°C)	14.5	14.0	14.5	13.5	14.5	14.0	14.0	14.0	14.0	14.5	14.5	14.0	14.5	14.5	14.5
DO (mg/L)	9.8	9.9	9.8	9.9	9.9	10.1	9.8	10.1	9.7	9.9	9.8	9.9	9.7	9.9	9.9
pH	6.7	6.8	6.7	6.8	6.8	6.8	7.0	6.8	7.0	6.8	6.8	6.8	6.7	6.7	6.7
Cond. (µS/cm)	/	26		25		26		22		25		25		25	25
Initials	SSD	SSD		SSD		A		A		SSD		SSD		MM	MM

Concentration 6-25	Days														
	21		22		23		24		25		26		27		28
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	new
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.0	14.0	14.0	14.5	14.5	14.0	14.5	14.0	14.0
DO (mg/L)	9.9	9.9	9.8	9.9	9.8	10.1	9.9	10.1	9.8	9.9	9.9	9.9	9.8	9.9	10.0
pH	7.1	6.8	6.9	6.8	6.8	6.8	7.0	6.8	7.0	6.8	6.8	6.8	6.7	6.8	6.8
Cond. (µS/cm)	/	31		30		26		26		30		31		32	32
Initials	SSD	SSD		SSD		A		A		SSD		SSD		MM	MM

Concentration 25	Days														
	21		22		23		24		25		26		27		28
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	new
Temperature (°C)	14.5	14.0	14.5	14.0	14.5	14.0	14.0	14.0	14.0	14.5	14.5	14.0	14.5	14.0	14.0
DO (mg/L)	9.9	9.8	9.8	9.9	9.7	10.1	9.8	10.1	9.8	10.0	9.9	9.9	9.8	9.9	10.0
pH	7.2	6.9	7.0	7.0	6.9	6.9	7.0	6.8	7.0	7.0	6.9	6.9	6.9	7.1	7.1
Cond. (µS/cm)	/	52		51		55		52		52		51		52	52
Initials	SSD	SSD		SSD		A		A		SSD		SSD		MM	MM

Concentration 100	Days														
	21		22		23		24		25		26		27		28
	old	new	old	new	old	new	old	new	old	new	old	new	old	new	new
Temperature (°C)	14.5	14.0	14.5	14.5	14.5	14.0	14.0	14.0	14.0	14.5	14.5	14.0	14.5	14.0	14.0
DO (mg/L)	9.8	9.8	9.8	9.9	9.7	10.1	10.1	10.1	9.9	10.0	9.9	10.0	9.9	10.0	10.0
pH	7.4	7.5	7.4	7.3	7.3	7.2	7.4	7.4	7.3	7.2	7.3	7.4	7.3	7.4	7.5
Cond. (µS/cm)	/	126		126		127		127		127		120		126	126
Initials	SSD	SSD		SSD		A		A		SSD		SSD		MM	MM

DO meter: 113      pH meter: 113      Conductivity meter: 413

	Control	100%		
Hardness*	9	58		
Alkalinity*	7	44		

Analysts: AWD, SSD, YYL

Reviewed by: JOB

Date reviewed: Jan. 26/15

Sample Description: clear, no colour

Comments: \_\_\_\_\_



# Chronic Freshwater Toxicity Test Initial and Final Water Quality Measurements

Client: Mt. Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date & Time: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

(%v/v) Concentration Control	Days													
	28	29		30 <u>Final</u>		31	32		33		34		35	
	old	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	14.0	/	14.0									
DO (mg/L)	9.9	9.8	8.7	/	9.1									
pH	6.7	6.6	6.7	/	6.7									
Cond. (µS/cm)	-	26		31										
Initials	YML	JW		JAB										

Concentration 6.25	Days													
	28	29		30 <u>Final</u>		31	32		33		34		35	
	old	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	14.0	/	14.0									
DO (mg/L)	9.8	9.9	9.0	/	9.2									
pH	6.8	6.8	6.7	/	6.8									
Cond. (µS/cm)	-	32		39										
Initials	YML	JW		JAB										

Concentration 25	Days													
	28	29		30 <u>Final</u>		31	32		33		34		35	
	old	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	14.5	/	14.0									
DO (mg/L)	9.9	9.8	9.2	/	8.8									
pH	6.9	6.9	6.9	/	7.1									
Cond. (µS/cm)	-	50		4556										
Initials	YML	JW		JAB										

Concentration 100	Days													
	28	29		30 <u>Final</u>		31	32		33		34		35	
	old	new	old	new	old	new	old	new	old	new	old	new	old	new
Temperature (°C)	14.5	14.5	14.5	/	14.0									
DO (mg/L)	9.9	9.4	9.2	/	9.3									
pH	7.3	7.2	7.2	/	7.5									
Cond. (µS/cm)	-	121		132										
Initials	YML	JW		JAB										

DO meter: DO-113      pH meter: pH-113      Conductivity meter: C-113

	Control	100%
Hardness*	9	60
Alkalinity*	7	50

Analysts: JAB, JW, YYL  
 Reviewed by: JAB  
 Date reviewed: Jan-26/15

\* mg/L as CaCO3

Sample Description: clear, no colour

Comments: \_\_\_\_\_

# Embryo-Alevin Toxicity Test Daily Mortality

Client: Mt. Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 1600  
 Stop Date: December 26, 2014 @ 1100  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v)	Rep	Day of Test - No. of Mortalities							Total Dead Eggs	Total Undeveloped	Total No. Embryo	Total Exposed
		1	2	3	4	5	6	7				
Control	1	0	0	0	0	0	0	0	0			
	2								0			
	3								0			
	4						↓		0			
6.25	1								1			
	2								0			
	3								0			
	4		↓						0			
12.5	1		1						1			
	2		0						0			
	3								1			
	4							0	0			
25	1								0			
	2								0			
	3								0			
	4								0			
50	1								0			
	2								0			
	3								0			
	4								1			
100	1					0			0			
	2								0			
	3								0			
	4	↓	↓	↓	↓	↓	↓	↓	0			
	1											
	2											
	3											
	4											
	1											
	2											
	3											
	4											
Tech Initials		SSD	SSD	A	n	SSD	SSD	SSD	WML			

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed by: JOB Date reviewed: Jan. 26/15

# Embryo-Alevin Toxicity Test Daily Mortality

Client: Mount Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v)	Rep	Day of Test - No. of Mortalities							Total Dead Eggs	Total Undeveloped	Total No. Embryo	Total Exposed
		8	9	10	11	12	13	14				
Control	1	0	0	0	0	0	0	0	0			
	2		1						1			
	3		0						0			
	4								0			
6.25	1				1				0			
	2				1				1			
	3				0				0			
	4								0			
12.5	1								0			
	2		1						0			
	3		2						2			
	4		0						0			
25	1		1		1				0			
	2		1		1				2			
	3		0		0				0			
	4				0				0			
50	1								0			
	2								0			
	3								0			
	4								0			
100	1								0			
	2								0			
	3								0			
	4	1	1	1	1	1	1	1	6			
	1											
	2											
	3											
	4											
Tech Initials		SSD	MMW			SSD	SSD	SSD	MMW			

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed by: Jon

Date reviewed: Jan. 26/15

# Chronic Toxicity Test Daily Mortality

Client: Mt. Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Treatments (% v/v)	Rep	Day of Test - No. of Mortalities							Total Dead Eggs/ Embryos Alevins	Total Undeveloped/ Unhatched Embryos	Total No. Alevins	Total Exposed
		15	16	17	18	19	20	21				
Control	1	0	0	0	0	0	0	0	0			
	2								0			
	3								0			
	4								0			
6.25	1								0			
	2								0			
	3								0			
	4								0			
12.5	1								0			
	2								0			
	3								0			
	4								0			
25	1								0			
	2								0			
	3								0			
	4								0			
50	1								0			
	2								0			
	3								0			
	4								0			
100	1								0			
	2								0			
	3								0			
	4								0			
	1											
	2											
	3											
	4											
Tech Initials	1											
	2											
	3											
	4											
Tech Initials		SSD	SSD	A	~	SSD	SSD	SSD	MM			

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed by: JGU

Date reviewed: Jan. 26/15

## Chronic Toxicity Test Daily Mortality

Client: MT Polley  
 Sample ID: QUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 16:00  
 Stop Date: December 26, 2014 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v)	Rep	Day of Test - No. of Mortalities							Total Dead Eggs/ Embryos Alevins	Total Undeveloped/ Unhatched Embryos	Total No. Alevins	Total Exposed
		22	23	24	25	26	27	28				
Control	1	0	0	0	0	1	0	0	1			
	2					1			1			
	3					1	↓	↓	1			
	4					8	1	2	11			
0.25	1					0	0	0	0			
	2					1			1			
	3					0			0			
	4					5		↓	5			
12.5	1					2		↓	3			
	2					1		↓	1			
	3					0		↓	0			
	4					0		↓	0			
25	1					0	↓	↓	0			
	2					0	1	↓	2			
	3					1	0	↓	2			
	4					5	2	↓	2			
50	1					0		↓	0			
	2					0		↓	2			
	3					0		↓	0			
	4					0		↓	0			
100	1		4			1		↓	5			
	2		1			0		↓	1			
	3		0			0		↓	1			
	4		1			1		↓	2			
	1											
	2											
	3											
	4											
	1											
	2											
	3											
	4											
Tech Initials		SSD	SSD	A	~	SSD	SSD	nm	SSD			

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed by: JOU Date reviewed: Jan. 26/15

## Chronic Toxicity Test Daily Mortality

Client: Mt. polley  
 Sample ID: OUR-1  
 Work Order #: 14928

Start Date & Time: November 26, 2014 @ 16:00  
 Stop Date: December 26, 2014 @ 11:00  
 Test Species: Oncorhynchus mykiss

Concentration (% v/v)	Rep	Day of Test - No. of Mortalities								Total Dead Eggs/Alevins	Total Abnormal Alevins	Total Normal Alevins	Total Exposed
		29	30	31	32	33	34	35					
Control	1	0	0						0	0	29	30	
	2								0	1 <sup>①</sup>	28	31	
	3								0	0	28	29	
	4								0	2 <sup>②</sup>	17	30	
6.25	1		↓						0	0	29	30	
	2		1						1	0	27	30	
	3		0						0	0	30	30	
	4								0	0	25	30	
12.5	1								0	1 <sup>①</sup>	25	30	
	2								0	1 <sup>①</sup>	28	30	
	3								0	0	26	30	
	4		↓						0	3 <sup>③</sup>	27	30	
25	1		1						1	2 <sup>②</sup>	27	30	
	2		0						0	0	25	30	
	3	↓	↓						0	0	28	30	
	4	1	↓						1	2 <sup>②</sup>	25	30	
50	1	1	1						2	1 <sup>①</sup>	27	30	
	2	1	0						1	0	25	28	
	3	0							0	1 <sup>①</sup>	29	30	
	4								0	0	29	30	
100	1								0	0	25	30	
	2								0	0	29	30	
	3								0	0	29	30	
	4	↓	↓						0	0	28	30	
	1												
	2												
	3												
	4												
	1												
	2												
	3												
	4												
Tech Initials		JW	JAB						mm	JAB	JAB	mm	

Comments: <sup>①</sup> skeletal <sup>②</sup> finfold, skeletal <sup>③</sup> finfold <sup>④</sup> 1: skeletal 2: finfold 3: finfold + skeletal

Reviewed by: JGW

Date reviewed: Jan. 26/15

**CETIS Analytical Report**

Report Date: 30 Dec-14 15:52 (p 1 of 2)  
 Test Code: 14928 | 20-1308-3890

**Salmonid Embryo-Alevin Survival and Development Test**

**Nautilus Environmental**

<b>Analysis ID:</b> 04-8978-2240	<b>Endpoint:</b> Survival Rate	<b>CETIS Version:</b> CETISv1.8.7
<b>Analyzed:</b> 30 Dec-14 15:51	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Official Results:</b> Yes
<b>Batch ID:</b> 17-9788-0111	<b>Test Type:</b> Survival-Development	<b>Analyst:</b> Yvonne Lam
<b>Start Date:</b> 26 Nov-14 16:00	<b>Protocol:</b> EC/EPS 1/RM/28	<b>Diluent:</b> Dechlorinated Tap Water
<b>Ending Date:</b> 26 Dec-14 11:00	<b>Species:</b> Oncorhynchus mykiss	<b>Brine:</b>
<b>Duration:</b> 29d 19h	<b>Source:</b> Vancouver Island Trout Hatchery	<b>Age:</b>
<b>Sample ID:</b> 12-7843-5699	<b>Code:</b> 4C336173	<b>Client:</b> Mount Polley
<b>Sample Date:</b> 25 Nov-14 10:30	<b>Material:</b> Effluent	<b>Project:</b>
<b>Receive Date:</b> 26 Nov-14 09:05	<b>Source:</b> Mount Polley (MT POLLEY)	
<b>Sample Age:</b> 29h	<b>Station:</b> QUR-1	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	1186027	200	Yes	Two-Point Interpolation

**Point Estimates**

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

**Survival Rate Summary**

**Calculated Variate(A/B)**

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.8753	0.6333	0.9667	0.08096	0.1619	18.5%	0.0%	105	120
6.25		4	0.925	0.8333	1	0.03696	0.07391	7.99%	-5.68%	111	120
12.5		4	0.925	0.8667	1	0.03436	0.06872	7.43%	-5.68%	111	120
25		4	0.9083	0.8333	0.9667	0.02846	0.05693	6.27%	-3.78%	109	120
50		4	0.9482	0.8929	1	0.02293	0.04586	4.84%	-8.34%	112	118
100		4	0.925	0.8333	0.9667	0.03155	0.0631	6.82%	-5.68%	111	120

**Survival Rate Detail**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9667	0.9355	0.9655	0.6333
6.25		0.9667	0.9	1	0.8333
12.5		0.8667	0.9667	0.8667	1
25		0.9667	0.8333	0.9333	0.9
50		0.9333	0.8929	1	0.9667
100		0.8333	0.9667	0.9667	0.9333

**Survival Rate Binomials**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	29/30	29/31	28/29	19/30
6.25		29/30	27/30	30/30	25/30
12.5		26/30	29/30	26/30	30/30
25		29/30	25/30	28/30	27/30
50		28/30	25/28	30/30	29/30
100		25/30	29/30	29/30	28/30

# CETIS Analytical Report

Report Date: 30 Dec-14 15:52 (p 2 of 2)  
Test Code: 14928 | 20-1308-3890

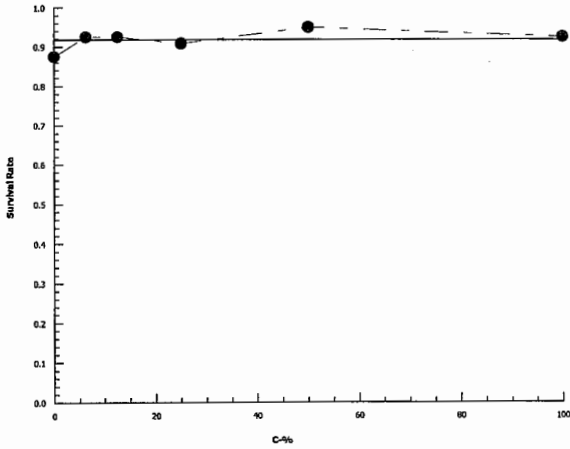
## Salmonid Embryo-Alevin Survival and Development Test

Nautilus Environmental

Analysis ID: 04-8978-2240      Endpoint: Survival Rate  
Analyzed: 30 Dec-14 15:51      Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7  
Official Results: Yes

### Graphics





# CETIS Analytical Report

Report Date: 30 Dec-14 15:52 (p 1 of 2)  
 Test Code: 14928 | 20-1308-3890

## Salmonid Embryo-Alevin Survival and Development Test

Nautilus Environmental

<b>Analysis ID:</b> 20-6708-2793	<b>Endpoint:</b> Proportion Normal	<b>CETIS Version:</b> CETISv1.8.7
<b>Analyzed:</b> 30 Dec-14 15:52	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Official Results:</b> Yes
<b>Batch ID:</b> 17-9788-0111	<b>Test Type:</b> Survival-Development	<b>Analyst:</b> Yvonne Lam
<b>Start Date:</b> 26 Nov-14 16:00	<b>Protocol:</b> EC/EPS 1/RM/28	<b>Diluent:</b> Dechlorinated Tap Water
<b>Ending Date:</b> 26 Dec-14 11:00	<b>Species:</b> Oncorhynchus mykiss	<b>Brine:</b>
<b>Duration:</b> 29d 19h	<b>Source:</b> Vancouver Island Trout Hatchery	<b>Age:</b>
<b>Sample ID:</b> 12-7843-5699	<b>Code:</b> 4C336173	<b>Client:</b> Mount Polley
<b>Sample Date:</b> 25 Nov-14 10:30	<b>Material:</b> Effluent	<b>Project:</b>
<b>Receive Date:</b> 26 Nov-14 09:05	<b>Source:</b> Mount Polley (MT POLLEY)	
<b>Sample Age:</b> 29h	<b>Station:</b> QUR-1	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	356308	200	Yes	Two-Point Interpolation

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

### Proportion Normal Summary

### Calculated Variate(A/B)

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.8505	0.5667	0.9667	0.09577	0.1915	22.52%	0.0%	102	120
6.25		4	0.925	0.8333	1	0.03696	0.07391	7.99%	-8.76%	111	120
12.5		4	0.8833	0.8333	0.9333	0.02152	0.04303	4.87%	-3.86%	106	120
25		4	0.875	0.8333	0.9333	0.025	0.05	5.71%	-2.88%	105	120
50		4	0.9315	0.8929	0.9667	0.02033	0.04066	4.36%	-9.53%	110	118
100		4	0.925	0.8333	0.9667	0.03155	0.0631	6.82%	-8.76%	111	120

### Proportion Normal Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9667	0.9032	0.9655	0.5667
6.25		0.9667	0.9	1	0.8333
12.5		0.8333	0.9333	0.8667	0.9
25		0.9	0.8333	0.9333	0.8333
50		0.9	0.8929	0.9667	0.9667
100		0.8333	0.9667	0.9667	0.9333

### Proportion Normal Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	29/30	28/31	28/29	17/30
6.25		29/30	27/30	30/30	25/30
12.5		25/30	28/30	26/30	27/30
25		27/30	25/30	28/30	25/30
50		27/30	25/28	29/30	29/30
100		25/30	29/30	29/30	28/30

# CETIS Analytical Report

Report Date: 30 Dec-14 15:52 (p 2 of 2)  
Test Code: 14928 | 20-1308-3890

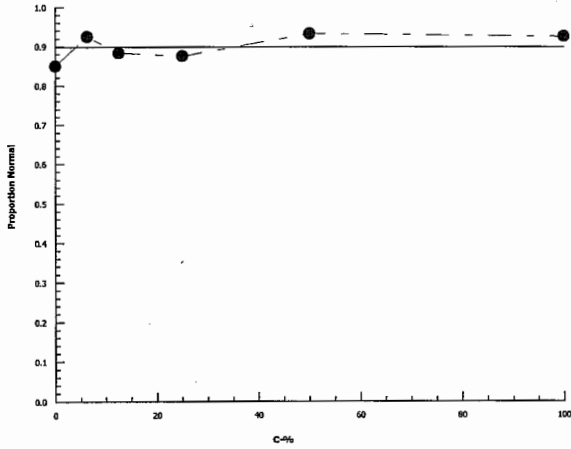
## Salmonid Embryo-Alevin Survival and Development Test

Nautilus Environmental

Analysis ID: 20-6708-2793      Endpoint: Proportion Normal  
Analyzed: 30 Dec-14 15:52      Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7  
Official Results: Yes

### Graphics



Client: Mourf Polky

W.O.#: 14928

### Hardness and Alkalinity Datasheet

Sample ID	Sample Date	Alkalinity				Hardness			Technician
		Sample Volume (mL)	(mL) 0.02N HCL/H <sub>2</sub> SO <sub>4</sub> used to pH 4.5	(mL) of 0.02N HCL/H <sub>2</sub> SO <sub>4</sub> used to pH 4.2	Total Alkalinity (mg/LCaCO <sub>3</sub> )	Sample Volume (mL)	Volume of 0.01M EDTA Used (mL)	Total Hardness (mg/L CaCO <sub>3</sub> )	
QUR-1	Nov 26/14	50	2.3	2.4	44	50	3.3	66	SSD
QUR-21	Dec 3/14	50	2.4	2.5	46	50	3.1	62	SSD
QUR-31	Dec 10/14	50	2.3	2.4	44	50	3.0	60	SSD
QUR-1	Dec 17/14	50	2.3	2.4	44	50	2.9	58	SSD
QUR-1	Dec 24/14	50	2.6	2.7	50	50	3.0	60	SSD
Rechlor	Nov 26/14	100	1.1	1.2	10	100	1.2	12	YML
↓	Dec 3/14	100	0.9	1.0	8	100	1.0	10	SSD
↓	Dec 10/14	100	1.0	1.1	9	100	1.1	11	YML
↓	Dec 17/14	↓	0.8	0.9	7	↓	0.9	9	YML
↓	Dec 24/14	↓	0.8	0.9	7	↓	0.9	9	YML

Notes:

Reviewed by:

Joh

Date Reviewed:

Jan. 26/15

**APPENDIX B - Chain of Custody Forms**

# Nautilus Environmental

## Chain of Custody (electronic)

British Columbia: 8664 Commerce Court, Burnaby, BC, V5A 4N7

25/11/2014 Page 1 of 1

wo #  
14927  
14928

Sample Collection By: McLean Donohoe		ANALYSES REQUIRED									
Report to:		Invoice to:									
Company	Mount Polley Mining Corporation	Mount Polley Mining Corporation									
Address	Box 12	Box 12									
City/Prov/Postal Code	Likely BC V0L 1N0	Likely BC V0L 1N0									
Contact	Colleen Hughes	Colleen Hughes/									
Phone	(250) 790-2617	(250) 790-2617									
Email	chughes@mountpolley.com	chughes@mountpolley.com									

SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS	7 Day Ceriodaphnia - Filtered	7 Day Ceriodaphnia - Unfiltered	RBT embryo/alevin EA Test	Receipt Temperature (°C)
45 PY/KLP QUL-66-40m-141125	25/11/2014	12:45	water	20L	1		X	X		3.5
QUL-66-20m-141125	25/11/2014	12:10	water	20L	1		X	X		3.3
QUL-66-0m-141125	25/11/2014	11:40	water	1L	15		X	X		3.7
QUR-1-141125	25/11/2014	10:30	water	20L	6			X	X	4.5

PROJECT INFORMATION		SAMPLE RECEIPT		RELIQUISHED BY (CLIENT)		RELIQUISHED BY (COURIER)	
Client: Mount Polley Mining Corporation		Total # Containers:	23	Signature:		Signature:	
P.O. No.:		Good Condition?	Y	Print: Katie McMahan		Print:	
Shipped Via: Greyhound		Matches Schedule?	Y	Company: MPMC		Company:	
SPECIAL INSTRUCTIONS/COMMENTS:				RECEIVED BY (COURIER)		RECEIVED BY (LABORATORY)	
				Signature:		Signature: NY	
				Print:		Print: NAIR YAMAMOTO	
				Company:		Company: NAUTILUS	
				Time/Date: 25/11/2014 15:30:00		Time/Date: Nov 26/14 @ 09:05	

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.

*wo # 14928*

British Columbia: 8664 Commerce Court, Burnaby, BC, V5A 4N7

Sample Collection By: Gabriel Holmes, Fernando John							ANALYSES REQUIRED							Receipt Temperature (°C)
Report to:			Invoice to:				7 Day Ceriodaphnia - Filtered	7 Day Ceriodaphnia - Unfiltered	RBT embryo/alevin EA Test					
Company: Mount Polley Mining Corporation			Mount Polley Mining Corporation											
Address: Box 12			Box 12											
City/Prov/Postal Code: Likely BC V0L 1N0			Likely BC V0L 1N0											
Contact: Colleen Hughes			Colleen Hughes/											
Phone: (250) 790-2617			(250) 790-2617											
Email: chughes@mountpolley.com			chughes@mountpolley.com											
SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS								
1 QUR-1	02/12/2014	9:51	water	20L	5	100L total			X					3.0
2														
3														
4														
5														
6														
7														
8														
9														
10														
PROJECT INFORMATION			SAMPLE RECEIPT		RELIQUINSHED BY (CLIENT)			RELIQUINSHED BY (COURIER)						
Client: Mount Polley Mining Corporation			Total # Containers:	5	Signature:			Signature:						
P.O. No.:			Good Condition?	Y	Print: Gabriel Holmes			Print:						
Shipped Via: Greyhound			Matches Schedule?	Y	Company: MPMC			Company:						
					Time/Date: 02/12/2014 15:30:00			Time/Date:						
SPECIAL INSTRUCTIONS/COMMENTS:						RECEIVED BY (COURIER)			RECEIVED BY (LABORATORY)					
<i>= refresh sample =</i>						Signature:			Signature: NY					
						Print:			Print: NAIR YAMAMOTO					
						Company:			Company: NAUTILUS					
						Time/Date:			Time/Date: DEC 03/14 @ 09:30					

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.

*(09:30) NY*



British Columbia: 8664 Commerce Court, Burnaby, BC, V5A 4N7

# 14928  
WO # 14972 (2)

Sample Collection By: Shauna Litke, Fernando John							ANALYSES REQUIRED										Receipt Temperature (°C)							
Report to:		Invoice to:					7 Day Ceriodaphnia - Filtered	7 Day Ceriodaphnia - Unfiltered	RBT embryo/alevin EA Test															
Company		Mount Polley Mining Corporation																						
Address		Box 12																						
City/Prov/Postal Code		Likely BC V0L 1N0																						
Contact		Colleen Hughes																						
Phone		(250) 790-2617																						
Email		chughes@mountpolley.com																						
SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS																		
1 ① QUR-1-141210	10/12/2014	12:00	water	20L	6	120L total																		6.9
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
PROJECT INFORMATION			SAMPLE RECEIPT			RELIQUISHED BY (CLIENT)				RELIQUISHED BY (COURIER)														
Client: Mount Polley Mining Corporation			Total # Containers:		6	Signature:				Signature:														
P.O. No.:			Good Condition?		Y	Print: Shauna Litke				Print:														
Shipped Via: Greyhound			Matches Schedule?		Y	Company: MPMC				Company:														
						Time/Date: 10/12/2014 15:30:00				Time/Date:														
SPECIAL INSTRUCTIONS/COMMENTS: 2nd EA Test (2) same sample for both tests. ① Refresh of sample "QUR-1" - same station, confirmed w/ client. MLC						RECEIVED BY (COURIER)				RECEIVED BY (LABORATORY)														
						Signature:				Signature: NY														
						Print:				Print: NAIR YAMAMOTO														
						Company:				Company: NAUTILUS														
				Time/Date:				Time/Date: Dec 11/14 @ 09:15																

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.



# Nautilus Environmental

British Columbia: 8664 Commerce Court, Burnaby, BC, V5A 4N7

wo #  
 14928  
 14972 (2nd EAT)  
 14983  
 14985  
 14984

## Chain of Custody (electronic)

Sample Collection By: Shauna Litke, Ira Pierce			<b>ANALYSES REQUIRED</b>													
Report to:		Invoice to:		Refill for "November" RBT EA tes		Refill for "December" RBT EA tes		Fathead minnow survival and growth		Rainbow trout survival and growth		C. dubia survival and reproduction		Receipt Temperature (°C)		
Company	Mount Polley Mining Corporation			Mount Polley Mining Corporation												
Address	Box 12			Box 12												
City/Prov/Postal Code	Likely BC V0L 1N0			Likely BC V0L 1N0												
Contact	Colleen Hughes			Colleen Hughes/												
Phone	(250) 790-2617			(250) 790-2617												
Email	chughes@mountpolley.com			chughes@mountpolley.com												

SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS	Refill for "November" RBT EA tes	Refill for "December" RBT EA tes	Fathead minnow survival and growth	Rainbow trout survival and growth	C. dubia survival and reproduction									Receipt Temperature (°C)	
1 QUR-1	16/12/2014	9:15	water	20L	15	300L total	X	X	X	X	X									4.5	
2 ③ POL-4	16/12/2014	9:45	water	20L	3	60L total			X	X	X									3.9	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

<b>PROJECT INFORMATION</b>		<b>SAMPLE RECEIPT</b>		<b>RELIQUISHED BY (CLIENT)</b>				<b>RELIQUISHED BY (COURIER)</b>			
Client: Mount Polley Mining Corporation		Total # Containers:	18	Signature:				Signature:			
P.O. No.:		Good Condition?	Y	Print: Shauna Litke				Print:			
Shipped Via: Greyhound		Matches Schedule?	Y	Company: MPMC				Company:			
				Time/Date: 16/12/2014 15:30:00				Time/Date:			
SPECIAL INSTRUCTIONS/COMMENTS:  ① One 20L carboy unlabelled ② QUR-1 - refresh water for NOV-EATest and DEC-EATest ③ POL-4 is replacing POL-2 - NY				<b>RECEIVED BY (COURIER)</b>				<b>RECEIVED BY (LABORATORY)</b>			
				Signature:				Signature:			
				Print:				Print: Josh Baker			
				Company:				Company: Nautilus Env			
				Time/Date:				Time/Date: Dec 17/14 @ 0830h			

Additional costs may be required for sample disposal or storage. Net 30 unless otherwise contracted.

