

## Result Summary

Client: MIS202  
 Reference: 06-2220-01-TRS

**Client:** Shac Environmental

**Sample:** Ponder (10L / 500,000gal)

**Collection:** not applicable

**Receipt:** received on 2006/08/10 at 0830 by C. Steele

**Containers:** received 1 x 1 L amber glass jar at 15 °C, in good condition with no seals and no initials

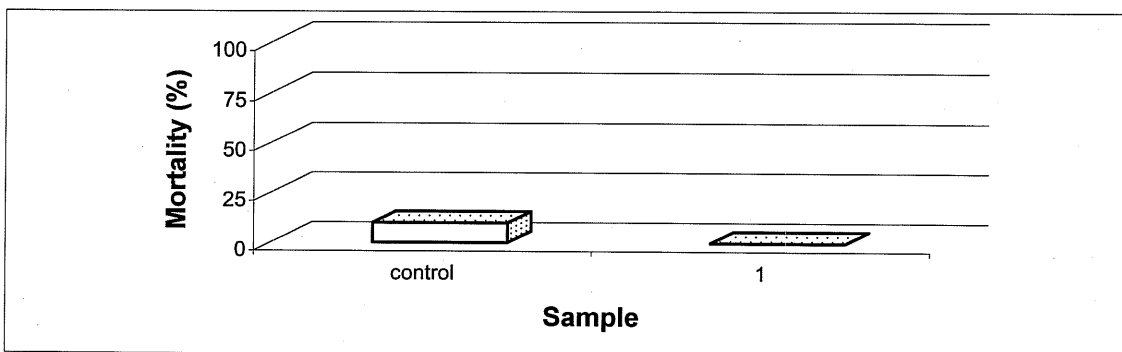
**Description:** type: liquid product, collection method: not given

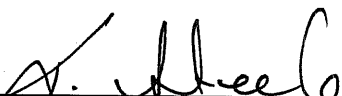
**Test:** started on 2006/11/03 ; ended on 2006/11/07

**Result:** \_\_\_\_\_

Contents	
Result Summary.....	1
Test Conditions.....	2
Test Data.....	3
Comments/Statistics..	5
QA/QC.....	6

Sample	Client Code	Mortality (%)	Comment
control	lab control	10	
1	Ponder	0	not toxic as tested



  
 Authorized by K.Steele, B.Sc., Quality Assurance Officer  
 The test data and results are verified correct.

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

## Test Conditions

Client: MIS202  
Reference: 06-2220-01-TRS

**Method:** Biological Test Method: Acute Lethality Test using Rainbow Trout 1990.  
Environment Canada, EPS 1/RM/9. (amended May 1996)

**Test type:** Trout 96-h Static Acute Test (HQ 4.4.4.1)

**Species:** *Oncorhynchus mykiss*

**Organism source:** Ackenberry Trout Farms (Batch 20061020TR)

**Acclimation:** 14 days

**Stock mortality:** 0.07% (seven days preceding testing)

**Sample initial chemistry:** n/a

**Sample holding time:** n/a

**Sample storage:** 4 ± 2°C in darkness

**Test vessel:** The test was conducted in 22 L plastic pails with polyethylene liners

**Test volume:** 20 Litres

**Sample pre-treatment:** The sample was not filtered or pH adjusted prior to or during testing.  
0.106 mL of water was taken from 20 L of lab dilution water and 0.106 mL of the product was added creating the 100% concentration (10L per 500,000 gallon as per client).

All test solutions and controls were pre-aerated for 30 minutes

Dissolved oxygen in full strength sample was 8.4 mg/L after pre-aeration

**Loading density:** 0.269 g/Litre (must be ≤ 0.5 g/Litre)

**Control water:** Dechlorinated City of Calgary water acclimated to test conditions

**Test concentrations:** Undiluted sample plus a negative control

**Test replicates:** One replicate per treatment; 10 fish per replicate

**Feeding:** Fish are not fed 24 hours before test initiation and no feeding during test

**Measurements:** pH, conductivity, dissolved oxygen and temperature measured daily

**Aeration:** All treatments aerated at 6.5 (± 1 mL/min/L)

**Lighting:** Overhead full spectrum fluorescent lights; 100-500 lux at surface

**Photoperiod:** 16h light:8h dark

**Test temperature:** 15 ± 1°C

**Endpoint:** Mortality, % mortality at 96-h

**Test validity:** The control had 90% survival (must ≥ 90%)

**Reference toxicant:** 96-h test with Phenol (C<sub>6</sub>H<sub>5</sub>OH) initiated October 31, 2006; current results (96-h LC50 and 95% confidence limits) = 11.4 (10.3-12.7) mg/L Phenol

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

## Test Data

 Client: MIS202  
 Reference: 06-2220-01-TRS

**Test Log:**

Date	Day	Time	Technician	Comment/Observation
2006/11/03	0	1610	B.Denny/B.Loncman	test fish loaded at 1610 h
2006/11/04	1	1130	B.Denny/B.Loncman	all test fish appear normal
2006/11/05	2	1140	B.Denny/B.Loncman	all test fish appear normal
2006/11/06	3	1225	B.Denny/B.Loncman	all test fish appear normal
2006/11/07	4	1600	B.Denny/B.Loncman	all test fish appear normal

**Chemistry:**

Sample	control	1					
--------	---------	---	--	--	--	--	--

Day

pH (units)

Day	pH (units)	pH (units)				
0	7.8	7.7				
1	8.0	8.0				
2	8.0	7.9				
3	8.1	8.0				
4	7.9	7.9				

Conductivity (µS/cm)

Day	Conductivity (µS/cm)	Conductivity (µS/cm)				
0	443	460				
1	453	446				
2	440	447				
3	461	434				
4	461	453				

Dissolved Oxygen (mg/L)

Day	Dissolved Oxygen (mg/L)	Dissolved Oxygen (mg/L)				
0	8.4	8.4				
1	8.6	8.6				
2	8.9	8.9				
3	8.7	8.7				
4	8.7	8.8				

Temperature (°C)

Day	Temperature (°C)	Temperature (°C)				
0	14	15				
1	15	15				
2	15	15				
3	15	15				
4	15	15				

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

**Test Data**

Client: MIS202
Reference: 06-2220-01-TRS

**Number Alive:**

Sample	control	1						
--------	---------	---	--	--	--	--	--	--

**Day**

0	10	10						
1	10	10						
2	10	10						
3	10	10						
4	9	10						

**Mortality (%)**

4	10	0						
---	----	---	--	--	--	--	--	--

**Biology Summary Tables:**

Control Fish	Length (cm)	Weight (g)
1	4.1	0.6
2	4.7	0.7
3	4.3	0.7
4	4.0	0.6
5	3.5	0.3
6	3.8	0.5
7	4.2	0.7
8	3.5	0.3
9	4.2	0.5
10	3.9	0.5

Sample	Group Weight (g)
control	5.4
1	5.3

average	4.0	0.5
sd	0.4	0.2
cv(%)	9.1	29.0

Notes: nd, not done; na, not applicable;  
 sd, standard deviation; cv(%), coefficient  
 of variation

**Comments/Statistics**

Client: MIS202 Reference: 06-2220-01-TRS
---

**Test Result Comments:**

None

**Data Analysis:**

None

**Protocol Deviations:**

None

**Quality Assurance Information**

**Test Method:** Trout 96h Static Acute Test. (LC50, five or more treatments plus a control)  
HydroQual Test Method Manual, section: 4.4.4.1

**Reference:** Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

**Test Organism:**

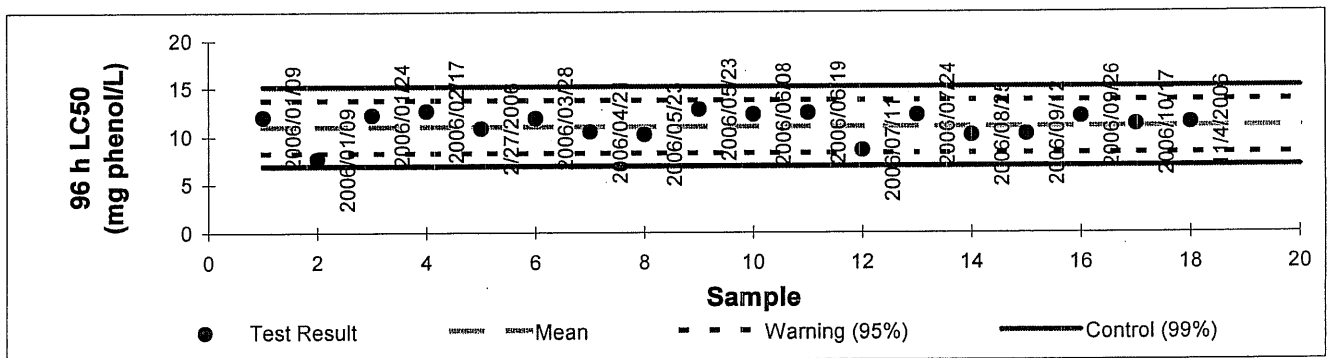
test species: *Oncorhynchus mykiss*  
culture source: Ackenberry Trout Farms  
temperature (°C): 15 ± 1  
dissolved oxygen: saturated  
stock mortality (last 7d): <0.01%  
batch number: 20061020TR

**Test Design:**

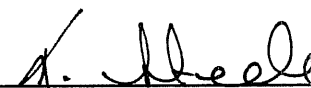
vol. of test vessel (L): 20  
test volume depth: >15 cm  
replicates per treatment: 1  
fingerlings per replicate: 10  
loading (g fish/L): <0.5  
temperature (°C): 15 ± 1  
photoperiod: 16h light: 8h dark  
light level (water surface): 100-500 lux  
control/dilution water: dechlorinated tap water

**Warning Chart:** mortality LC50 at 96 hours  
toxicant: Phenol (C<sub>6</sub>H<sub>5</sub>OH)

**Current Test:** started on 2006/10/31 ended on 2006/11/04  
result (96 h LC50): 11.4 (10.3-12.7) mg phenol/L (95% confidence limits are in brackets)  
**Historical:** mean: 11.0 std.dev: 1.4 cv(%): 12  
warning limits: 8.3 13.8 (lower and upper 95% confidence limit, two standard deviations)  
control limits: 6.9 15.1 (lower and upper 99% confidence limit, three standard deviations)



**Quality Assurance Unit:**

  
Authorized by K. Steele, B.Sc., Quality Assurance Officer  
The test data and results are verified correct.

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.