HydroQual Laboratories Ltd.

Trout (single concentration) Test Report

Result Summary

Client: TAH102
Reference: 06-1055-01-TRS

Client: Tahera Diamond Corporation; operation Yellowknife

Sample: PKCTOX01

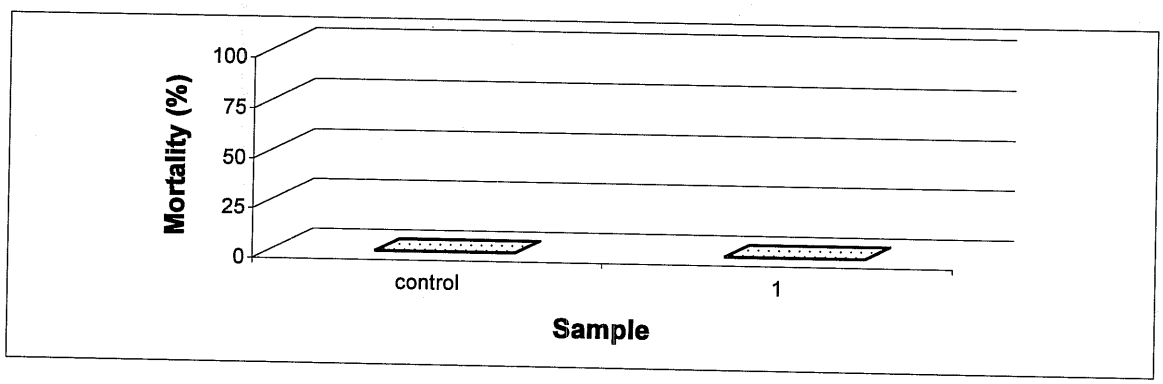
Collection: collected on 2006/05/30 at not given by CW
Receipt: received on 2006/05/31 at 1410 by L. Lamantange
Containers: received 1 x 20 L pail at 18 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2006/06/01 ; ended on 2006/06/05

Contents

Result:

Sample	Client Code	Mortality (%)	Comment
control	lab control	0	
1	PKCTOX01	0	not toxic as tested



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

HydroQual Laboratories Ltd., #4, 6125 12th Street SE, Calgary, Alberta, Canada T2H 2K1
tel (403) 253-7121 fax (403) 252-9363 www.hydroqual.ca

Test Conditions

Client: TAH102
Reference: 06-1055-01-TRS

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. (amended 1996 and 2000)

Test type: Trout 96-h Static Acute Test (HQ 4.4.4.1)
Species: *Oncorhynchus mykiss*
Organism source: Ackenberry Trout Farms (Batch 20060529TR)
Acclimation: 3 days
Stock mortality: 0.6% (seven days preceeding testing)

Sample initial chemistry: pH: 7.5; EC: 176 (µS/cm); DO: 7.6 (mg/L); temperature: 18 °C
hardness (mg CaC03/L): 35; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 5)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 19 Litres
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes
Dissolved oxygen in full strength sample was 8.8 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.21 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 100% survival (must ≥ 90%)

Reference toxicant: 96-h test with Phenol (C_6H_5OH) initiated June 5, 2006; current results (96-h LC50 and 95% confidence limits) = 12.3 (10.4-14.4) mg/L Phenol

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

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Test Data

Client: TAH102
Reference: 06-1055-01-TRS

Test Log:

Date	Day	Time	Technician	Comment/Observation
2006/06/01	0	1100	B. Denny/M. Luong/A. Vogstad	test fish loaded at 1100 h
2006/06/02	1	1545	B. Denny/M. Luong	all test fish appear normal
2006/06/03	2	1300	B. Denny/S. Ford	all test fish appear normal
2006/06/04	3	1200	B. Denny/C.A. Martens	all test fish appear normal
2006/06/05	4	1200	S. Ford/M. Luong	all test fish appear normal

Chemistry:

Sample	control	1						

pH (units)

Day								
0	7.6	7.3						
1	7.9	7.5						
2	7.9	7.6						
3	7.9	7.5						
4	7.9	7.6						

Conductivity (µS/cm)

0	416	156						
1	407	147						
2	410	149						
3	416	149						
4	419	150						

Dissolved Oxygen (mg/L)

0	8.7	8.8						
1	8.5	8.5						
2	8.4	8.4						
3	8.5	8.6						
4	8.4	8.4						

Temperature (°C)

0	15	16						
1	15	15						
2	15	15						
3	15	15						
4	14	14						

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Test Data

Client: TAH102
Reference: 06-1055-01-TRS

Number Alive:

Sample	control	1						
Day								
0	10	10						
1	10	10						
2	10	10						
3	10	10						
4	10	10						
				Mortality (%)				
4	0	0						

Biology Summary Tables:

Control Fish	Length (cm)	Weight (g)
1	3.7	0.4
2	2.9	0.3
3	4.1	0.7
4	3.5	0.4
5	3.3	0.3
6	3.5	0.2
7	3.7	0.5
8	3.4	0.4
9	3.8	0.5
10	3.7	0.4
average	3.6	0.4
sd	0.3	0.1
cv(%)	9.1	34.2

Sample	Group Weight (g)
control	4.0
1	4.1

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

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Comments/Statistics

Client: TAH102
Reference: 06-1055-01-TRS

Test Result Comments:
None

Data Analysis:
None

Protocol Deviations:
Test fish were held less than 14 days prior to testing

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HydroQual Laboratories Ltd.

Trout Test Report

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:

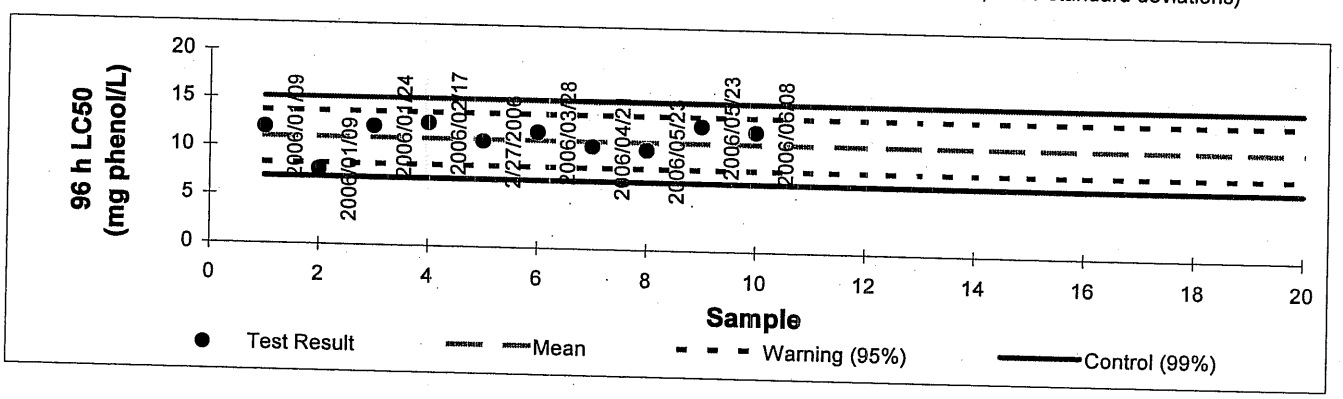
test species:	*Oncorhyncus mykiss*
culture source:	Ackenberry Trout Farms
temperature (°C):	15 ± 1
dissolved oxygen:	saturated
stock mortality (last 7d):	0.3%
batch number:	20060529TR

Test Design:

vol. of test vessel (L):	22
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_6H_5OH)

Current Test:	started on 2006/06/05	ended on 2006/06/08	
result (96 h LC50):	12.3	(10.4-14.4)	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)



Qualty Assurance Unit:

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

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HydroQual Laboratories Ltd.

Daphnia (single concentration) Test Report

Result Summary

Client: TAH102
Reference: 06-1055-01-DAS

Contents

Client: Tahera Diamond Corporation; operation Yellowknife

Sample: PKCTOX01

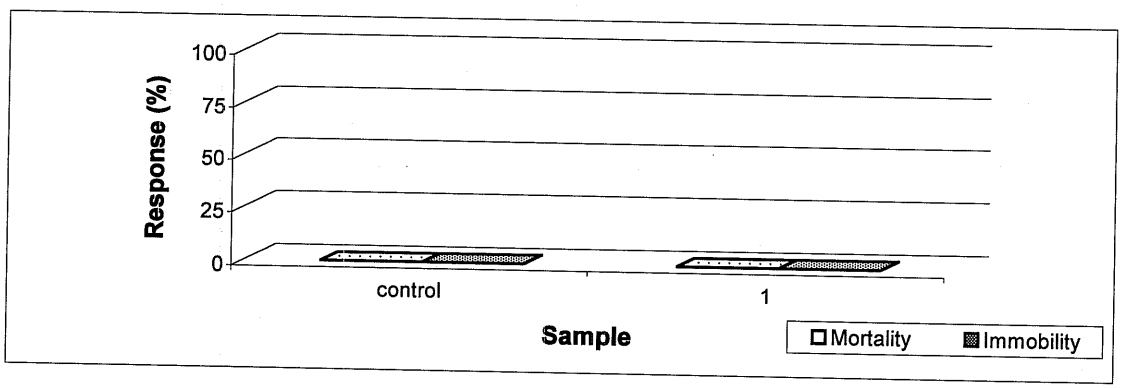
Collection: collected on 2006/05/30 at not given by CW
Receipt: received on 2006/05/31 at 1410 by L. Lamantange
Containers: received 1 x 20 L pail at 18 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2006/06/01 ; ended on 2006/06/03

Result:

Sample	Client Code	Average Mortality (%)	Average Immobility (%)	Comment
control	lab control	0	0	
1	PKCTOX01	0	0	not toxic as tested

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



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

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Test Conditions

Client: TAH102
Reference: 06-1055-01-DAS

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 1990. Environ. Can., EPS 1/RM/14. (amended 1996 and 2000)

Test type: *Daphnia* 48-h Static Acute Test (HQ 4.4.3.1)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 0%
Culture brood data: 10 days to first brood
25 neonates per average brood

Sample initial chemistry: pH: 7.5; EC: 176 (µS/cm); DO: 7.6 (mg/L); temperature: 18 °C
hardness (mg CaC03/L): 35; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 5)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 0 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 158 mg $CaCO_3$/L
Test concentrations: Undiluted sample plus a negative control
Test replicates: Three replicates per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Overhead full spectrum fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: TAH102
Reference: 06-1055-01-DAS

Endpoint: Mortality, % mortality at 48-h
Immobility, % immobility at 48-h

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0% abnormal behaviour (must < 10%), e.g. immobility

Reference toxicant: 48-h test with NaCl initiated May 30, 2006; current results
(48-h LC50 and 95% confidence limits) = 6.4 (5.7-7.5) g/L NaCl

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: TAH102
Reference: 06-1055-01-DAS

Test Log:

Date	Day	Time	Technician	Comment/Observation
2006/06/01	0	1600	B. Denny	test *Daphnia* appear normal
2006/06/02	1	1040	B.Denny	test *Daphnia* appear normal
2006/06/03	2	1430	B.Denny	test *Daphnia* appear normal

Chemistry:

Sample	control			1		
replicate	a	b	c	a	b	c
Day	**pH (units)**					
0	7.9	7.9	7.9	7.5	7.5	7.5
2	7.9	7.9	7.9	7.6	7.5	7.5
	Conductivity (µS/cm)					
0	431	431	431	178	178	178
2	405	401	401	180	154	152
	Dissolved Oxygen (mg/L)					
0	8.1	8.1	8.1	7.8	7.8	7.8
2	8.0	7.9	7.9	7.8	7.8	7.8
	Temperature (°C)					
0	18	18	18	20	20	20
2	20	20	20	20	20	20

Biology:

Sample	control			1		
replicate	a	b	c	a	b	c
Day	**Number Alive and Behavior (behavior is in brackets)**					
1	10	10	10	10	10	10
2	10	10	10 (1F)	10	10	10

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris

	Mortality (%)					
2	0	0	0	0	0	0
	Immobility (%)					
2	0	0	0	0	0	0

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Comments/Statistics

Client: TAH102
Reference: 06-1055-01-DAS

Test Result Comments:
None

Data Analysis:
None

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Daphnia Test Report

Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, five or more treatments plus a control)
HydroQual Test Method Manual, section: 4.4.3.1

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna,* 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:

test species:	*Daphnia magna*
culture source:	in-house
original culture source:	Environment Canada
days to first brood:	10
mean brood size:	25
ephippia in stock culture:	no
age of test organisms:	<24 hours old
culture mortality (%):	0

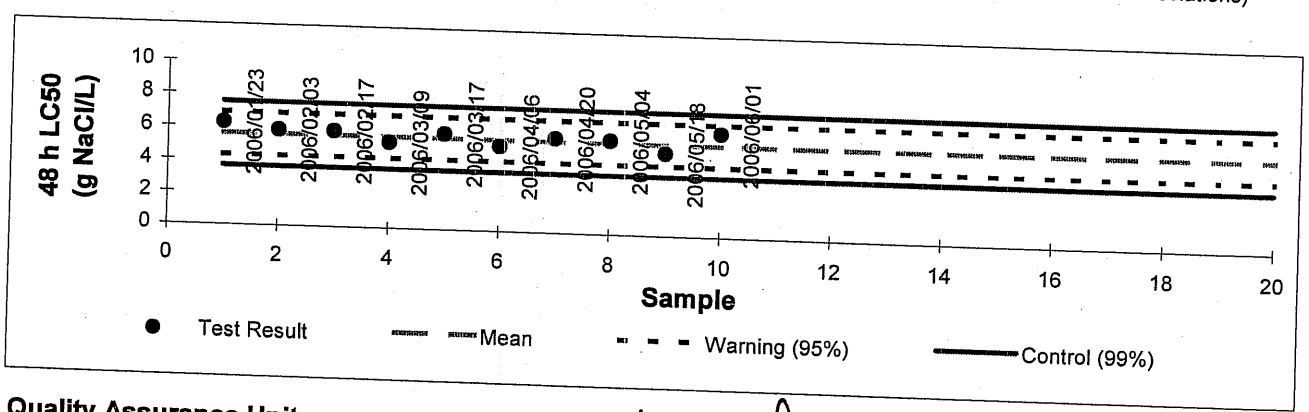
Test Design:

vol. of test vessel (mL):	500
toxicant:	sodium chloride
test volume (mL):	150
replicates per treatment:	1
neonates per replicate:	10
volume per neonate (mL):	15
samples preaerated:	no
hardness adjustment:	no
temperature (°C):	20
photoperiod:	16h light:8h dark
light level (water surface):	400-800 lux
control/dilution water:	dechlorinated tap water

Warning Chart: mortality LC50 at 48 hours
toxicant: Sodium Chloride (NaCl)

Current Test: started on 2006/05/30 ended on 2006/06/01

result (48 h LC50):	6.4	(5.7-7.5)	g NaCl/L	(95% confidence limits are in brackets)
Historical:	mean:	5.6	std. dev:	0.6 cv (%): 12
warning limits:	4.3	6.9	(lower and upper 95% confidence limit, two standard deviations)	
control limits:	3.7	7.6	(lower and upper 99% confidence limit, three standard deviations)	



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