

APPENDIX E

Laboratory Toxicity Results, 2008



AquaTox Testing & Consulting Inc.
11B Nicholas Beaver Rd.
RR 3
Guelph ON N1H 6H9
Tel: (519) 763-4412 Fax: (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna

Page 1 of 2

Work Order : 213479

Sample Number : 21795

SAMPLE IDENTIFICATION

Company :	Nanisivik Mine (a Division of CanZinco Ltd.)	Time Collected :	15:30
Location :	Nanisivik NU	Date Collected :	2008-06-23
Substance :	159-4	Date Received :	2008-06-30
Sampling Method :	Grab	Date Tested :	2008-06-30
Sampled By :	C. Lavallee	Temp. on arrival :	21.0° C
Sample Description:	Clear, colourless, odourless.		
Test Method :	Reference Method for Determining Acute Lethality of Effluents to <i>Daphnia magna</i> . Environment Canada EPS 1/RM/14 (Second Edition, December 2000).		

TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested.

SODIUM CHLORIDE REFERENCE TOXICANT DATA

Organism Batch :	Dm08-12		
Date Tested (y/m/d) :	2008-07-01	Historical Mean LC50 :	6.2 g/L
LC50 (95% Confidence Limits) :	6.3 g/L (5.9 - 6.8)	Warning Limits (\pm 2SD) :	5.4 - 7.0 g/L
Statistical Method :	Probit	Analyst(s) :	NK

Daphnia magna CULTURE HEALTH DATA

Time to First Brood :	10 days	Mean Young Per Brood :	29.0
Culture Mortality :	0% (previous 7 days)		

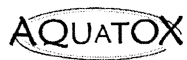
TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Test Organisms / Replicate :	10
Test Aeration :	None	Total Organisms / Test Level :	30
Organism Batch :	Dm08-12	Organism Loading Rate :	15.0 mL/organism

Noted Deviation(s): The maximum 5 day sample holding time as specified by the test method was exceeded. Testing was initiated as per the client's request.

Date: 2008-07-14
yyyy-mm-dd

Approved by: 
Project Manager



Work Order: 213479

Sample Number: 21795

	Hardness (mg/L as CaCO ₃)	Hardness Adjustment	pH	D.O. (mg/L)	Cond. (µmhos/cm)	Temp. (°C)	O ₂ Sat. (%) [*]	Total Pre-Aeration Time (h) @ 30 mL/min/L
Initial Water Chemistry:	410	None	7.2	8.5	793	21.0	98	0:00

0 hoursDate & Time 2008-06-30 14:35
Technician: SM

Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	O ₂ Sat. (%) [*]	Hardness
100A	0	0	7.2	8.5	793	21.0	98	410
100B	0	0	7.2	8.5	793	21.0		
100C	0	0	7.2	8.5	793	21.0		
Control A	0	0	8.5	8.7	399	20.0		
Control B	0	0	8.5	8.7	399	20.0		
Control C	0	0	8.5	8.7	399	20.0	99	200

Notes:

24 hoursDate & Time 2008-07-01 14:35
Technician: NK

Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.
100A	0	0	—	—	—	20.0
100B	0	0	—	—	—	20.0
100C	0	0	—	—	—	20.0
Control A	0	0	—	—	—	20.0
Control B	0	0	—	—	—	20.0
Control C	0	0	—	—	—	20.0

Notes:

48 hoursDate & Time 2008-07-02 14:35
Technician: NK

Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.
100A	0	0	8.0	8.8	799	20.0
100B	0	0	8.0	8.7	803	20.0
100C	0	0	7.9	8.7	805	20.0
Control A	0	0	8.4	8.7	401	20.0
Control B	0	0	8.4	8.8	401	20.0
Control C	0	0	8.4	8.8	402	20.0

Notes:

of control organisms showing stress: 0

Daphnia Batch #: Dm08-12

Number immobile does not include number of mortalities.

— = not measured

^{*} adjusted for actual temp. & barometric pressureTest Data Reviewed By: RJ
Date: 2008-07-08



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TOXICITY TEST REPORT

Rainbow Trout

Page 1 of 2

Work Order : 213479

Sample Number : 21795

SAMPLE IDENTIFICATION

Company :	Nanisivik Mine (a Division of CanZinco Ltd.)	Time Collected :	15:30
Location :	Nanisivik NU	Date Collected :	2008-06-23
Substance :	159-4	Date Received :	2008-06-30
Sampling Method :	Grab	Date Tested :	2008-06-30
Sampled By :	C. Lavallee	Temp. on arrival :	21.0°C
Sample Description :	Clear, colourless, odourless.		
Test Method :	Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 amendments).		

TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested.

POTASSIUM CHLORIDE REFERENCE TOXICANT DATA

Organism Batch :	T08-11	Historical Mean LC50 :	3824 mg/L
Date Tested (y/m/d) :	2008-06-21	Warning Limits ($\pm 2SD$) :	3148 - 4651 mg/L
LC50 (95% Confidence Limits) :	3185 mg/L (2674 - 3684)	Analyst(s) :	FS/EB/JGG
Statistical Method :	Probit		

TEST FISH

Control Fish Sample Size :	10	Cumulative stock tank mortality:	0 % (prev. 7 days)
Mean Fish Weight ($\pm 2 SD$) :	0.58 ± 0.29 g	Mean Fish Fork Length ($\pm 2 SD$) :	39.8 ± 5.8 mm
Range of Weights :	0.29 - 0.75 g	Range of Fork Lengths (mm) :	33 - 43 mm
Fish Loading Rate :	0.29 g/L		

TEST CONDITIONS

Sample Treatment :	None	Volume Tested (L) :	20
pH Adjustment :	None	Number of Replicates :	1
Test Aeration :	Yes	Organisms Per Replicate :	10
Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Total Organisms Per Test Level :	10
Organism Batch :	T08-11		

Noted Deviation(s): The maximum 5 day sample holding time as specified by the test method was exceeded. Testing was initiated as per the client's request.

Date: 2008-07-14
yyyy-mm-dd

Approved by: [Signature]
Project Manager

Work Order: 213479
 Sample Number: 21795

Total Pre-Aeration Time (h)		pH	D.O. (mg/L)	Cond. (µmhos/cm)	Temp. (°C)	O ₂ Sat. (%) [*]
0:30	Initial Water Chemistry:	7.9	6.2	780	16.0	—
	Chemistry after 30min air:	7.9	7.7	787	15.5	81

0 hours

Date & Time	2008-06-30	14:30					
Technician:	EB/TL						
Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	O₂ Sat. (%)[*]
100	0	0	7.9	7.7	787	15.5	81
Control	0	0	8.0	9.2	606	15.0	94

Notes:

24 hours

Date & Time	2008-07-01	14:30					
Technician:	EB/TL						
Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	15.0	
Control	0	0	—	—	—	15.0	

Notes:

48 hours

Date & Time	2008-07-02	14:30					
Technician:	EB/TL						
Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	15.0	
Control	0	0	—	—	—	15.0	

Notes:

72 hours

Date & Time	2008-07-03	14:30					
Technician:	EB(JGG)						
Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	15.0	
Control	0	0	—	—	—	15.0	

Notes:

96 hours

Date & Time	2008-07-04	14:30					
Technician:	EB(JGG)						
Test Conc. (%)	Mortality	Immobility	pH	D.O.	Cond.	Temp.	
100	0	0	8.0	9.0	796	15.5	
Control	0	0	8.4	9.2	596	15.5	

Notes:

of control organisms showing stress: 0

Trout Batch #: T08-11

"—" = not measured

Number immobile does not include number of mortalities.

* adjusted for actual temp. & barometric pressure

Test Data Reviewed By: JP
 Date: 2008-07-07

AQUATOX

P.O. Number:

D-3003

Field Sampler Name (print):

Glaude Laya llee

Signature:

Sublo

Affiliation:

Nanisivik Mine

Sample Storage (prior to shipping):

9

Custody Relinquished by:

First Visit

Date/Time Shipped:

2008-06-24 - 8:30 A.M.

AquaTox Testing & Consulting Inc.
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Client:

Nanisivik Mine - Carzincro Ltd.
c/o Breakwater Resources

25 Wellington St. W.

Total, ON M5-2N7

Phone:

Phone: 416-363-4798 ext 267

Fax:

416-363-1315

Contact:

Contact: Bob Carreau

Sample Identification

[illegible]

For Lab Use Only

Received By:

Date: _____

Time:

Storage Location:

Storage Temp. (°C)

Please list any special requests or instructions:

only
T-68

2008-06-30

1330

Storage Location:

Storage Temp. (°C)



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TOXICITY TEST REPORT

Daphnia magna

Page 1 of 2

Work Order : 213664
Sample Number : 22126

SAMPLE IDENTIFICATION

Company :	Nanisivik Mine (a Division of CanZinco Ltd.)	Time Collected :	13:30
Location :	Nanisivik NU	Date Collected :	2008-07-27
Substance :	159-4	Date Received :	2008-08-05
Sampling Method :	Grab	Date Tested :	2008-08-06
Sampled By :	C. Lavalee	Temp. on arrival :	23.5° C
Sample Description:	Clear, colourless, odourless.		
Test Method :	Reference Method for Determining Acute Lethality of Effluents to <i>Daphnia magna</i> . Environment Canada EPS 1/RM/14 (Second Edition, December 2000) with deviation(s) as noted below.		

TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested.

SODIUM CHLORIDE REFERENCE TOXICANT DATA

Organism Batch :	Dm08-14		
Date Tested (y/m/d) :	2008-07-29	Historical Mean LC50 :	6.2 g/L
LC50 (95% Confidence Limits) :	6.2 g/L (5.7 - 6.6)	Warning Limits (\pm 2SD) :	5.5 - 6.9 g/L
Statistical Method :	Probit	Analyst(s) :	SM/NK

Daphnia magna CULTURE HEALTH DATA

Time to First Brood :	7.8 days	Mean Young Per Brood :	26.7
Culture Mortality :	0% (previous 7 days)		

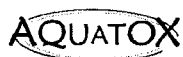
TEST CONDITIONS

Sample Treatment :	None	Number of Replicates :	3
pH Adjustment :	None	Test Organisms / Replicate :	10
Test Aeration :	None	Total Organisms / Test Level :	30
Organism Batch :	Dm08-14	Organism Loading Rate :	15.0 mL/organism

Noted Deviation(s): The maximum 5 day sample holding time as specified by the test method was exceeded.

Date: 2008-08-12
yyyy-mm-dd

Approved by: SA White
Project Manager



Daphnia magna TOXICITY TEST REPORT

Page 2 of 2

Work Order: 213664
Sample Number: 22126

	Hardness (mg/L as CaCO ₃)	Hardness Adjustment	pH	D.O. (mg/L)	Cond. (µmhos/cm)	Temp. (°C)	O ₂ Sat. (%)*	Total Pre-Aeration Time (h) @ 30 mL/min/L
Initial Water Chemistry:	840	None	7.8	8.6	1930	20.5	98	0:00

0 hours

Date & Time	2008-08-06	8:40						
Technician:	SM							
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	O ₂ Sat. (%)*	Hardness
100A	0	0	7.8	8.6	1930	20.5	98	840
100B	0	0	7.8	8.6	1930	20.5		
100C	0	0	7.8	8.6	1930	20.5		
Control A	0	0	8.3	8.7	405	21.0		
Control B	0	0	8.3	8.7	405	21.0		
Control C	0	0	8.3	8.7	405	21.0	100	190

Notes:

24 hours

Date & Time	2008-08-07	8:40				
Technician:	SM					
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.
100A	0	0	-	-	-	20.0
100B	0	0	-	-	-	20.0
100C	0	0	-	-	-	20.0
Control A	0	0	-	-	-	20.0
Control B	0	0	-	-	-	20.0
Control C	0	0	-	-	-	20.0

Notes:

48 hours

Date & Time	2008-08-08	8:40				
Technician:	CL/SM					
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.
100A	0	0	8.2	8.7	1971	20.0
100B	0	0	8.2	8.7	1957	20.0
100C	0	0	8.1	8.7	1942	20.0
Control A	0	0	8.5	8.7	429	20.0
Control B	0	0	8.5	8.7	424	20.0
Control C	0	0	8.5	8.7	410	20.0

Notes:


of control organisms showing stress: 0

Daphnia Batch #: Dm08-14

Number immobile does not include number of mortalities.

- = not measured

* adjusted for actual temp. & barometric pressure

Test Data Reviewed By: 
Date: 2008-08-11



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11B Nicholas Beaver Rd.
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TOXICITY TEST REPORT

Rainbow Trout

Page 1 of 2

Work Order : 213664

Sample Number : 22126

SAMPLE IDENTIFICATION

Company :	Nanisivik Mine (a Division of CanZinco Ltd.)	Time Collected :	13:30
Location :	Nanisivik NU	Date Collected :	2008-07-27
Substance :	159-4	Date Received :	2008-08-05
Sampling Method :	Grab	Date Tested :	2008-08-06
Sampled By :	C. Lavalee	Temp. on arrival :	23.5°C
Sample Description :	Clear, colourless, odourless.		
Test Method :	Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 amendments), with deviation(s) as noted below.		

TEST RESULTS

Substance	Effect	Value
Control	Mean Immobility	0.0 %
	Mean Mortality	0.0 %
100%	Mean Immobility	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested.

POTASSIUM CHLORIDE REFERENCE TOXICANT DATA

Organism Batch :	T08-13	Historical Mean LC50 :	3790 mg/L
Date Tested (y/m/d) :	2008-08-05	Warning Limits (\pm 2SD) :	3125 - 4601 mg/L
LC50 (95% Confidence Limits) :	4009 mg/L (3549 - 4490)	Analyst(s) :	EB/KLW/FS/JGG/JP
Statistical Method :	Probit		

TEST FISH

Control Fish Sample Size :	10	Cumulative stock tank mortality:	0 % (prev. 7 days)
Mean Fish Weight (\pm 2 SD) :	0.47 \pm 0.30 g	Mean Fish Fork Length (\pm 2 SD) :	38.1 \pm 7.6 mm
Range of Weights :	0.21 - 0.72 g	Range of Fork Lengths (mm) :	34 - 44 mm
Fish Loading Rate :	0.23 g/L		

TEST CONDITIONS

Sample Treatment :	None	Volume Tested (L) :	20
pH Adjustment :	None	Number of Replicates :	1
Test Aeration :	Yes	Organisms Per Replicate :	10
Pre-aeration/Aeration Rate :	6.5 \pm 1 mL/min/L	Total Organisms Per Test Level :	10
Organism Batch :	T08-13		

Noted Deviation(s): The maximum 5 day sample holding time as specified by the test method was exceeded.

Date: 2008-08-12
yyyy-mm-dd

Approved by: SR WTL
Project Manager

Work Order: 213664
Sample Number: 22126

Total Pre-Aeration Time (h)		pH	D.O. (mg/L)	Cond. (µmhos/cm)	Temp. (°C)	O ₂ Sat. (%) [*]
0:30	Initial Water Chemistry:	7.6	8.4	1790	16.0	—
	Chemistry after 30min air:	7.7	8.8	1771	16.0	92

0 hours

Date & Time	2008-08-06	11:30					
Technician:	KLW(JGG)						
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	O ₂ Sat. (%) [*]
100	0	0	7.7	8.8	1771	16.0	92
Control	0	0	8.1	9.6	568	15.5	97

Notes:

24 hours

Date & Time	2008-08-07	11:30					
Technician:	KLW(JGG)						
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	16.0	
Control	0	0	—	—	—	16.0	

Notes:

48 hours

Date & Time	2008-08-08	11:30					
Technician:	KLW(JP)						
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	15.0	
Control	0	0	—	—	—	15.0	

Notes:

72 hours

Date & Time	2008-08-09	11:30					
Technician:	FS						
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	
100	0	0	—	—	—	15.0	
Control	0	0	—	—	—	15.0	

Notes:

96 hours

Date & Time	2008-08-10	11:30					
Technician:	FS						
Test Conc. (%)	Mortality	Immortality	pH	D.O.	Cond.	Temp.	
100	0	0	8.1	9.3	1769	15.0	
Control	0	0	8.4	9.3	568	15.0	

Notes:

of control organisms showing stress: 0

Trout Batch #: T08-13

"—" = not measured

Number immobile does not include number of mortalities.

^{*} adjusted for actual temp. & barometric pressure

Test Data Reviewed By: JP
Date: 2008-08-11

CHAIN OF CUSTODY RECORD

AQUATOX

AquaTox Work Order No:

213664

Shipping Address: AquaTox Testing & Consulting Inc.
11B Nicholas Beaver Road, RR #3
Guelph, Ontario Canada N1H 6H9

Voice: (519) 763-4412

Fax: (519) 763-4419

P.O. Number:	D-0003
Field Sampler Name (print):	Claude Lavallee
Signature: *	<i>[Signature]</i>
Affiliation:	Nanisivik Mine
Sample Storage (prior to shipping):	No
Custody Relinquished by:	
Date/Time Shipped:	21/27/08 NEW ONE JULY 28/08

Client:	Nanisivik Mine c/o Breakwater Resources 95 Wellington St. West suite 950 Toronto, ON M5S 2N7
Phone:	416-363-4798 ext 267
Fax:	416-363-1315
Contact:	Bob Corbett

Sample Identification					Analyses Requested										Sample Method and Volume		
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	AquaTox Sample Number	Temp. on arrival (°C)	Rainbow Trout Single Concentration	Rainbow Trout LC50	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Lemna minor Growth	Selenastrum capricornutum Growth	RISS Data Entry	Other (please specify below)	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2008-07-26	1500	159-4			✓		✓								✓		1x23L
2008/7/27	13.30	159-4 NEW ONE!	22126	23.5	✓		✓								✓		1x23L
									</								

For Lab Use Only	
Received By:	Erika Williams
Date:	2008-08-05
Time:	11:45
Storage Location:	
Storage Temp (°C):	

Please list any special requests or instructions:
2008-08-05 - client notified of holding time exceeded. see attached email →