

APPENDIX J

APPENDIX J SURFACE EFFLUENT TESTING



Inspectorate IPL



Client: Process Research Associates Ltd

Shipment#:

No. of Samples: 15

Analysis #2: W Se Hg As Sb

Comment #1: As, Sb, Se, Hg may be lost on digestion.

Date In: Apr 09, 2010

Date Out: Apr 30, 2010

[illegible]



Inspector
11620 Horseshoe Way, Richmond
T:(604) 272-7818 F:(604) 272-0
www.inspect
ISO 9001:200

Certificate#: 10D1248(R)

Client: Process Research Associates Ltd

Project: 0907410

Shipment#:

PO#: 1848

No. of Samples: 15

Analysis #1: Ultratrace ICPMS Water Package

Analysis #2: W Se Hg As Sb

Analysis #3: Ref:10D1247

Comment #1: As, Sb, Se, Hg may be lost on digestion.

Comment #2: Results should be referred to the row RAW"

Date In: Apr 09, 2010

Date Out: Apr 30, 2010

[illegible]



Inspector:_____

Client: Process Research Associates Ltd

Shipment#:

No. of Samples: 15

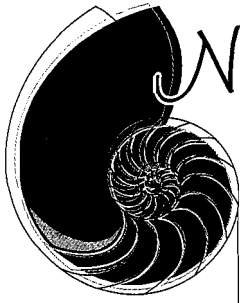
Analysis #2: W Se Hg As Sb

Comment #1: As, Sb, Se, Hg may be lost on digestion.

Date In: Apr 09, 2010

Date Out: Apr 30, 2010

[illegible]



Nautilus Environmental

8640 Connaught Court, Burnaby, BC V5A 4N7

WO#: 10133-134

Mr. Hugh Wilson
Tyhee Development Corp.
Suite 401-675 W. Hasting Street
Vancouver, BC
V6B 1N2

April 21, 2010

Dear Mr. Wilson:

Re: Toxicity testing on the sample identified as BFG-1 (Collected on April 7, 2010)- Project # 0907410

Nautilus Environmental is pleased to provide you the result of the 96-h LC50 rainbow trout toxicity test and 48-h LC50 *Daphnia magna* toxicity test on the above sample, received on April 7, 2010. Testing was conducted according to Environment Canada 1/RM/13, (Second Edition, 2000, with May 2007 amendments) and 1/RM/14, (Second Edition, 2000). The result of this test is provided in the tables below and is based on the appended data. All acceptability criteria outlined in the Environment Canada protocols were met.

Table A. Results for the 96-h Rainbow Trout test.

Sample ID	Collection Date and Time	96-h LC50 (with 95% confidence limits) [v/v] ¹
BFG-1	April 7, 2010 @ n/a	>100

¹ Results relate only to the sample tested.

Table B. Results for the 48-h *D. magna* test.

Sample ID	Collection Date and Time	48-h LC50 (with 95% confidence limits) [v/v] ¹
BFG-1	April 7, 2010 @ n/a	>100

¹ Results relate only to the sample tested.

Please feel free to contact the undersigned at 604-420-8773 should you have any questions or require any additional information.

Yours truly,
Nautilus Environmental

Andy Diwald, B.Sc.
Laboratory Supervisor

Rainbow Trout Summary Sheet

Typhoid Development (F⁺ strain)

Start Date/Time: Apr 9/10 @ 1315h

10133

Test Species: *Oncorhynchus mykiss*

Sample Information:

BF6-1

Apr 7/10

Apr 7/10 @ 1730h

 $2 \times 20 \text{ L}$

Other: _____

Dilution Water:

Dechlorinated Municipal Tap Water

11

11

Test Organism Information:

031910

Miracle Valley

102/10

0.50

$$38 \pm 5$$
 0.50 ± 0.14

31 to 46

0.30 to 0.71

SDS Reference Toxicant Results:

Rt58

10503

Apr 5/10

$$S.O(4.3 - 5.6)$$

5.4 (3.9 and 7.5)

17

The 96-h LC50 > 100% (v/v)

A. Teng

Date reviewed: April 21, 2017

96-Hour Rainbow Trout Toxicity Test Data Sheet

Client/Project#:

Sample I.D.

W.O. #

RBT Batch #:

Date Collected/Time:

Date Setup/Time:

Sample Setup By:

D.O. meter:

pH meter:

Cond. Meter:

Tyhee Development / F. Wright
BFG-1
10133
031910
Apr 7/10 @ AM
Apr 9/10 @ 1356
JAB/AN

Number Fish/Volume:

7-d % Mortality:

Total Pre-aeration Time (mins):

Aeration rate adjusted to 6.5 ± 1 mL/min/L? (Y/N):

10/102

0.3%

30

Y

Undiluted Sample WQ

Parameters	Initial WQ	Adjustment	30 min WQ
Temp °C	14.0		14.0
pH	8.0		7.9
D.O. (mg/L)	2.38		9.7
Cond. (µS/cm)	256		257

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	14.0	14.0	14.0	14.0	10.2	9.9	9.7	10.0	9.6	7.1	7.1	7.2	7.2	7.1	38	46
6.25				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.2	9.5	9.8	9.9	9.7	7.2	7.2	7.1	7.2	7.2	36	63
12.5				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.2	9.6	9.8	9.7	9.6	7.2	7.2	7.2	7.2	7.2	64	69
25				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.2	9.5	9.9	9.7	9.5	7.4	7.4	7.4	7.4	7.3	98	103
50				10	10	10	10	14.0	14.0	14.0	14.0	14.0	10.1	9.6	9.8	9.8	9.5	7.6	7.6	7.6	7.5	7.5	143	148
100				10	10	10	10	14.0	14.0	14.0	14.0	14.0	9.7	9.6	9.9	9.8	9.6	7.9	7.9	7.9	7.9	7.9	257	264
Initials						JAB	JAB				JAB	JAB			JAB	JAB				JAB	JAB			

Sample Description/Comments:

Fish Description at 96?

Other Observations:

Reviewed by:

Date Reviewed:

Daphnia magna Summary Sheet

Client:

Work Order No.:

Tyhee Development
10134m

Start Date/Time:

Test Species: D. magna

Set up by:

Apr 9 / 10 @ 1600L

JJT

Sample Information:

Sample ID:

Sample Date:

Date Received:

Sample Volume:

BFG-1
April 7/10
April 7/10
222L

Test Organism Information:

Broodstock No.:

Age of young (Day 0):

Avg No. young per brood in previous 7 d:

Mortality (%) in previous 7 d:

Days to first brood:

031710 4
424-h
16
0
9

NaCl Reference Toxicant Results:

Reference Toxicant ID:

Stock Solution ID:

Date Initiated:

48-h LC50 (95% CL):

DM 57
09 NaOS
April 9/10
3.9 (3.2 - 4.9)

Reference Toxicant Mean (2SD Range):

Reference Toxicant CV (%):

4.0 (3.5 and 4.6)
7

Test Results:

The 48-h LC50 > 100% (4/2)

Reviewed by:

Date reviewed:

A. Terry

April 21, 2010

Freshwater Acute 48 Hour Toxicity Test Data Sheet

Client: Tyhee Development
 Sample ID: BFG-1
 Work Order No.: 10134

Start Date/Time: Apr 9/10 @ 1600 L
 No. Organisms/volume: 10/200mL
 Test Organism: D. magna
 Set up by: JST

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

Concentration (%w/v)	Number of Live Organisms Rep	No. Organisms		No. Immobilized	Temperature (°C)			Dissolved oxygen (mg/L)			pH			Conductivity (µS/cm)	
		24	48		0	24	48	0	24	48	0	24	48	0	48
Control	A	10	10	0	20.0	20.5	20.0	8.4		8.2	6.0		7.9	355	355
	B														
	C														
	D														
6.25	A	10	10	0	21.0	20.5	20.0	8.4		8.3	7.9		8.0	351	355
	B														
	C														
	D														
12.5	A	10	10	0	21.0	20.5	20.0	8.4		8.4	7.9		8.0	345	349
	B														
	C														
	D														
25	A	10	10	0	21.0	20.5	20.0	8.4		8.4	7.9		7.9	333	336
	B														
	C														
	D														
50	A	10	10	0	20.5	20.5	20.0	8.4		8.2	7.9		7.9	311	315
	B														
	C														
	D														
100	A	10	10	0	20.0	20.6	20.0	8.5		8.3	7.9		8.0	262	276
	B														
	C														
	D														
Technician Initials	~	~	~	~	JST	~	~	JST	~	~	JST	~	~	JST	~

Hardness*		Alkalinity*	
Conc.	(mg/L as CaCO ₃)		
Control (MHW)	100	74	
Highest conc.	72	80	

	Initial WQ	Adjustment	Adjusted WQ
Temp (°C)	20.0		
DO (mg/L)	8.5		
pH	7.9		
Cond (µS/cm)	262		

Sample Description: Clear

Comments: Batch # 03110A 7-d previous # young/brood: 16 Day of 1st Brood: 9 Previous 7-d % Mortality: 0

Reviewed by: A. Tong Date reviewed: April 21, 2010

W.O.#: 10134

W.O.#: 10134

W.O.#: 10134

Notes:

A. Terry

Date Reviewed: April 21, 2010



8664 Commerce Court
Burnaby British Columbia Canada V5A 4N7
Phone 604.420.8773
Fax 604.357.1361

Chain of Custody

0202

Date Apr 7/10 Page 1 of 1

[illegible]

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

DISTRIBUTION: WHITE - Nautilus Environmental, COLOR - Originator

