

MDMER Toxicity Testing on 11A-Runoff

Sample collected on May 14, 2019

Final Report

June 21, 2019

Submitted to: **Nyrstar Myra Falls Ltd**Campbell River, BC



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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.



SUMMARY

Sample Information and Test Type

11A-Runoff
May 14, 2019
May 15, 2019
14.2°C
Ceriodaphnia dubia survival and reproduction
7-d rainbow trout (Oncorhynchus mykiss) embryo viability
7-d <i>Lemna minor</i> growth inhibition
72-h Pseudokirchneriella subcapitata growth inhibition

Summary of Results

Endpoint	% v/v (95% CL)
Ceriodaphnia. dubia	
Survival LC50	>100
Reproduction IC25	>100
Reproduction IC50	>100
Oncorhynchus mykiss	
Embryo viability EC25	>100
Embryo viability EC50	>100
Lemna minor	
Frond count IC25	83.2 (60.5 – 97)
Frond count IC50	>97
Dry weight IC25	>97
Dry weight IC50	>97
Pseudokirchneriella subcapitata	
Growth IC25	>95.2
Growth IC50	>95.2

LC = Lethal Concentration, IC = Inhibition Concentration, EC = Effective Concentration, CL = Confidence Limits



1.0 INTRODUCTION

Nautilus Environmental Company Inc. conducted sub-lethal toxicity tests for Nyrstar Myra Falls Ltd. as part of their requirements under the Metal Diamond Mining Effluent Regulations (MDMER) program. Sample 11A-Runoff was collected on May 14, 2019 and delivered to the Nautilus Environmental laboratory in Burnaby, BC on May 15, 2019. The sample was transported in seven 20-L plastic containers and were received at a temperature of 14.2°C. The sample was stored in the dark at 4 ± 2 °C prior to testing. The following sub-lethal toxicity tests were performed:

- Ceriodaphnia dubia survival and reproduction
- 7-d rainbow trout (Oncorhynchus mykiss) embryo viability
- 7-d *Lemna minor* growth inhibition
- 72-h Pseudokirchneriella subcapitata growth inhibition

Testing for *C. dubia* and *O. mykiss* were initiated on May 15, 2019. Testing for *L. minor* and *P. subcapitata* were initiated on May 16 and May 17, 2019, respectively This report describes the results of these toxicity tests. Copies of raw laboratory data sheets and statistical analyses for each test species are provided in Appendices A to D. The chain-of-custody form is provided in Appendix E.

2.0 METHODS

Methods for the toxicity tests are summarized in Tables 1 to 4. Testing using *C. dubia*, *L. minor* and *P. subcapitata* were conducted according to procedures described by Environment Canada (2007a, 2007b and 2007c). The rainbow trout embryo viability test followed procedures described by Environment Canada (1998) and modified by Canaria et al. (1999). Statistical analyses for all the tests were performed using CETIS (Tidepool Scientific Software, 2013).



Table 1. Summary of test conditions: *Ceriodaphnia dubia* survival and reproduction test.

Test species Ceriodaphnia dubia

Organism source In-house culture

Organism age <24 hour old neonates, produced within a 12 hour window

Test type Static-renewal Test duration $7 \pm 1 \text{ day}$

Test vessel 20-mL glass test tube

Test volume 15 mL
Test solution depth 10 cm

Test concentrations Seven concentrations, plus laboratory control

Test replicates 10 per treatment
Number of organisms 1 per replicate

20% Perrier water and 80% deionized water + 5 μ g/L Se and 2

μg/L vitamin B12

Test solution renewal Daily (100% renewal)

Test temperature $25 \pm 1^{\circ}\text{C}$

Control/dilution water

Feeding Daily with Pseudokirchneriella subcapitata and TCC (3:1 ratio)

Light intensity 100 to 600 lux at water surface Photoperiod 16 hours light / 8 hours dark

Aeration None

Temperature, dissolved oxygen, pH and conductivity measured

Test measurements daily; hardness and alkalinity of undiluted sample measured at

test initiation; survival and reproduction checked daily

Test protocol Environment Canada (2007a), EPS 1/RM/21

Statistical software CETIS Version 1.9.4

Test endpoints Survival and reproduction

≥80% survival; ≥15 young per surviving control producing

Test acceptability criteria for controls three broods; ≥60% of controls producing three or more

broods; no ephippia present

Reference toxicant Sodium chloride (NaCl)



Table 2. Summary of test conditions: rainbow trout (*Oncorhynchus mykiss*) embryo viability test.

Test species Oncorhynchus mykiss

Organism source Hatchery

Organism age <30 minutes post fertilization, <24 hour old gametes

Test type Static-renewal

Test duration 7 days

Test vessel 2-L plastic container

Test volume 2 L
Test solution depth 17 cm

Test concentrations Five concentrations, plus laboratory control

Test replicates 4 per treatment
Number of organisms 30 per replicate

Control/dilution water Dechlorinated Metro Vancouver municipal tapwater

Test solution renewal Daily (80% renewal)

Test temperature $14 \pm 1^{\circ}$ C Feeding None Light intensity Dark

Photoperiod 24 hours dark

Aeration Continuous gentle aeration

Temperature, dissolved oxygen, pH and conductivity measured

Test measurements daily; hardness and alkalinity of undiluted sample measured at

test initiation; survival checked daily

Test protocol Environment Canada (1998), EPS 1/RM/28; Canaria et al. (1999)

Statistical software CETIS Version 1.9.4
Test endpoint Embryo viability

Reference toxicant Sodium dodecyl sulphate (SDS)



Table 3. Summary of test conditions: *Lemna minor* growth inhibition test.

Test species Lemna minor, strain CPCC# 490

In-house axenic culture, obtained from Canadian Phycological

Organism source Culture Centre, and originally isolated from Wainfleet, Stinking

Barn, Niagara Peninsula, Ontario, Canada

Organism age 7- to 10-day old culture

Test type Static
Test duration 7 days

Test vessel 250-mL glass container

Test volume 100 mL
Test solution depth 4 cm

Test concentrations Seven concentrations, plus laboratory control

Test replicates 4 per treatment

Number of organisms Two 3-frond plants per replicate

Control/dilution water Modified APHA media (deionized water plus 1% of each APHA

stock solution A, B and C)

Test solution renewal None
Test temperature $25 \pm 2^{\circ}$ C
Feeding None

Light intensity 4000 to 5600 lux Photoperiod 24 hours light

Aeration None

Test area temperature measured daily; temperature, pH and

Test measurements conductivity measured in all concentrations at test initiation; dissolved oxygen of highest concentration measured at test

initiation; temperature and pH measured at test termination

Test protocol Environment Canada (2007b), EPS 1/RM/37

Statistical software CETIS Version 1.9.4

Test endpoints Number of fronds and dry weight

Test acceptability criterion for controls \geq 8-fold increase in number of fronds

Reference toxicant Potassium chloride (KCI)



Table 4. Summary of test conditions: *Pseudokirchneriella subcapitata* growth inhibition test.

Test species Pseudokirchneriella subcapitata, strain CPCC# 37

In-house axenic culture, obtained from Canadian Phycological

Organism source Culture Center, and originally isolated from Nivelta River,

Norway.

Organism age 3-to 7-day old culture in logarithmic growth phase

Test type Static
Test duration 72 hours
Test vessel Microplate
Test volume 220 µL

Test concentrations Seven concentrations, plus laboratory control
Test replicates 4 per treatment; 8 for laboratory control

Number of organisms 10,000 cells/mL

Control/dilution water Deionized water supplemented with nutrients

Test solution renewal None
Test temperature $24 \pm 2^{\circ}$ C
Feeding None

Light intensity 3600 to 4400 lux Photoperiod 24 hours light

Aeration None

Test area temperature measured daily; temperature and pH

Test measurements measured at test initiation; pH of two control wells measured

at test termination

Test protocol Environment Canada (2007c), EPS 1/RM/25

Statistical software CETIS Version 1.9.4

Test endpoint Algal cell growth inhibition

Test acceptability criteria for controls >16-fold increase in number of algal cells; CV ≤ 20%; no trend

when analyzed using Mann-Kendall test

Reference toxicant Zinc (added as ZnSO₄)



3.0 RESULTS

Results of the toxicity tests are summarized in Tables 5 to 8. There were no adverse effects observed on any of the endpoints for *C. dubia* (Table 5), embryo viability of *O. mykiss* (Table 6), dry weight of *L. minor* (Table 7) or cell yield of *P. subcapitata* (Table 8), resulting in LC and IC values greater than the highest concentration tested. Significant stimulation was observed in *P. subcapitata* cell yield between test concentrations 6% and 95.2% (v/v); percent stimulation ranged between 7.6% and 96.4%.

Inhibitory effects were observed in *L. minor* frond count (Table 7), the IC25 and IC50 were 83.2% and >97% (v/v), respectively.

Table 5. Results: Ceriodaphnia dubia survival and reproduction test.

Consontration (% v/v)	Survival (%)	Reproduction
Concentration (% v/v)	Survivai (%)	(Mean ± SD)
Laboratory Control	100	18.6 ± 3.1
1.56	100	20.0 ± 2.7
3.12	90	17.1 ± 6.9
6.25	100	20.5 ± 1.8
12.5	100	19.7 ± 5.6
25	100	20.1 ± 2.1
50	100	19.5 ± 3.3
100	90	19.6 ± 3.4
Test endpoint (% v/v)		
LC50	>100	
IC25		>100
IC50		>100

SD = Standard Deviation, LC = Lethal Concentration, IC = Inhibition Concentration



Table 6. Results: rainbow trout (Oncorhynchus mykiss) embryo viability test.

Concentration (% v/v)	Embryo Viability (%) (Mean ± SD)
Laboratory Control	93.3 ± 4.7
6.25	90.8 ± 7.4
12.5	92.5 ± 5.0
25	90.0 ± 8.6
50	93.3 ± 6.1
100	86.7 ± 4.7
Test Endpoint (% v/v)	
EC25	>100
EC50	>100

SD = Standard Deviation, EC = Effective Concentration

Table 7.Results: Lemna minor growth inhibition test.

Concentration (% v/v)	Frond Growth (No. of Fronds) (Mean ± SD)	Dry Weight (mg) (Mean ± SD)
Laboratory Control	93.8 ± 16.3	7.8 ± 1.2
1.5	100.8 ± 7.3	7.8 ± 0.8
3.0	87.0 ± 6.5	7.0 ± 0.5
6.1	92.2 ± 12.5	7.5 ± 0.8
12.1	83.0 ± 13.9	6.9 ± 0.7
24.2	88.5 ± 7.7	7.0 ± 1.1
48.5	87.5 ± 8.7	6.6 ± 1.3
97	56.2 ± 11.3	5.7 ± 0.8
Test endpoint (% v/v)		
IC25 (95% CL)	83.2 (60.5 – 97)	>97
IC50	>97	>97

SD = Standard Deviation, IC = Inhibition Concentration, CL = Confidence Limits



Table 8. Results: Pseudokirchneriella subcapitata growth inhibition test.

Concentration (% v/v)	Cell Yield (x 10 ⁴ cells/mL)	Stimulation		
	(Mean ± SD)	(%)		
Laboratory Control	34.4 ± 3.0			
1.5	32.8 ± 3.1			
3.0	37.0 ± 2.9	7.6		
6.0	47.8 ± 6.9*	38.9		
11.9	54.2 ± 5.5*	57.8		
23.8	60.5 ± 2.1*	76.0		
47.6	67.5 ± 5.4*	96.4		
95.2	51.8 ± 3.9*	50.6		
Test endpoint (% v/v)				
IC25	>95.2			
IC50	>95.2			

SD = Standard Deviation, IC = Inhibition Concentration

4.0 QA/QC

The health history of the test organisms used in the exposures were acceptable and met the requirements of the Environment Canada protocols. The tests met all control acceptability criteria and water quality parameters remained within ranges specified in the protocols throughout the tests. Uncertainty associated with these tests is best described by the standard deviation around the mean and/or the confidence intervals around the point estimates.

There was a planned deviation from the 7-d rainbow trout embryo viability test methodology. The eggs were exposed using a blocked design (i.e., eggs from one fish was used for replicate A of each test concentration, eggs from the second fish for replicate B, and so on); this approach deviates from the Environment Canada test method, which indicates that the eggs should be pooled prior to testing. However, this modification is considered appropriate because it reduces the risk of non-viable eggs affecting the test results, since in the event that one of the batches of eggs had been non-viable, it would have been possible to exclude data for that replicate. There were no other deviations from the test methodologies.

^{* =} Indicates cell yield that are significantly greater than the laboratory control



Results of the reference toxicant tests conducted during the testing program are summarized in Table 9. Results for these tests fell within the range for organism performance of the mean and two standard deviations, based on historical results obtained by the laboratory with these tests. Thus, the sensitivity of the organisms used in these tests was appropriate. The reference toxicant tests were performed under the same conditions as those used for the samples.

Table 9. Reference toxicant test results.

Test Species	Endpoint	Historical Mean (2 SD Range)	CV (%)	Test Date
C. dubia	Survival (LC50): 2.0 g/L NaCl	2.0 (1.8 – 2.2)	5	May 1, 2010
C. aabta	Reproduction (IC50): 1.2 g/L NaCl	1.6 (1.1 – 2.3)	19	May 1, 2019
O. mykiss	Viability (EC50): 6.6 mg/L SDS	4.1 (2.0 – 8.3)	37	May 15, 2019
L. minor	No. Fronds (IC50): 3.8 g/L KCl	3.5 (2.9 – 4.2)	9	May 25, 2019
P. subcapitata	Growth (IC50): 32.9 μg/L Zn	31.0 (25.2 – 38.1)	10	May 28, 2019

SD = Standard Deviation, CV = Coefficient of Variation, LC = Lethal Concentration, IC = Inhibition Concentration, 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.
- Environment Canada. 2007a. Biological test method: test of reproduction and survival using the cladoceran *Ceriodaphnia dubia*. Environmental Protection Series. Report EPS 1/RM/21, Second Edition, February 2007. Environment Canada, Method Development and Application Section, Environmental Science and Technology Centre, Science and Technology Branch, Ottawa, ON. 74 pp.
- Environment Canada. 2007b. Biological test method: tests for measuring the inhibition of growth using the freshwater macrophyte, *Lemna minor*. Environmental Protection Series, Report EPS 1/RM/37. Second Edition. January 2007. Environment Canada, Method Development and Application Section, Environmental Technology Centre, Ottawa, ON. 112 pp.
- Environment Canada. 2007c. Biological test method: growth inhibition test using the freshwater alga. Environmental Protection Series, Report EPS 1/RM/25. Second Edition, March 2007. Environment Canada, Method Development and Application Section, Environmental Science and Technology Centre, Science and Technology Branch, Ottawa, ON. 53 pp.
- Tidepool Scientific Software. 2013. CETIS comprehensive environmental toxicity information system, version 1.9.4.11 Tidepool Scientific Software, McKinleyville, CA. 275 pp.



APPENDIX A – Ceriodaphnia dubia Toxicity Test Data

Ceriodaphnia dubia Summary Sheet

Client: Work Order No.:	190967		May 15/19/21200h
Sample Information	on:	Test Validity Criteria:	
Sample ID: Sample Date: Date Received: Sample Volume: Test Organism Inf	MA-funct May 14 119 May 15 19 7x20L	3) An average of ≥15 live you control solutions during the fi	ave produced three broods within 8 days ung produced per surviving female in the irst three broods. In any control solution at any time.
Mortality (%) in prev	st 3 broods of previous 7 d	3	
NaCl Reference To	oxicant Results:		
Reference Toxicant Stock Solution ID: Date Initiated:	10: <u>Was</u> <u>(BNash (100g1)</u> May 1/19	(NaCl)	
7-d LC50 (95% CL) 7-d IC50 (95% CL):		g/L NaCL	
	e Toxicant Mean and Histor Toxicant Mean and Histori		g/L NaCL CV (%): S g/L NaCL CV (%): [9]
Test Results:	r		
	LC50 % (v/v) (95% CL) IC25 % (v/v) (95% CL) IC50 % (v/v) (95% CL)	Survival	Reproduction >\oo >\oo
Reviewed by:			My 20 20

Chronic Freshwater Toxicity Test Initial and Final Water Quality Measurements

Client: Sample ID: Work Order #:	NUT IIA 190	Star Rui	NOF F			Start Date & Time: Stop Date & Time: CER #: Test Species: MAY 1519 C 1201 MAY 21 19 0 1600 Ceriodaphnia dubia								
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Temperature (°C)	24.0		52.0	24.0	52.0	25.2	NB	26-3	242	uno	Des	24.0	/_	_/_
DO (mg/L)	8.0	7.3	8.0	73	8.1	자연	5,2	7,3	RZ	7.0	8.3	7.1		
pH	82	8.0	8.3	8.0	8.3	7.9	52	29	ムレ	7.7	8.9	7.0	′	
Cond. (µS/cm)	216	21	6	2	16	2	. 14	2	-15	2	10	21	5	1
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DO (mg/L)			<u> </u>	7.3	82	7-2	£.'	7-3	FI	1-5		7.1	/	
pH	8.3	8.0	8.1	8-0	8.2	7.9	Fr	18	81	7.8	84	7.8	,	/
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Concentration	0 1			2 3			4 5			6	;	7		
12-5	init.	old	new	old	new	old	new	old	new	old	new	old	new	final
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Chronic Freshwater Toxicity Test C. dubia Reproduction Data

Client: Sample ID: Work Order:	Nyrstar NA - Runoff 190967	, ,	pp Date & Time: MAY 15 19 6 hod pp Date & Time: MAY 10 A 1600. Set up by: KLISCK
Days Concentr A B 1 / / 2 3 3 2 4 6 6 5 7 7 6 10 /	C D E F G H I J Init A	4 3 5 4 4 7 4 3 4 6 3 7 6 6 7 6 7 8 9 7 7 7 11 8 10 6 7	Concentration: 3 3 3 3 3 3 3 3 3
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Reviewed by:	- COV		Date reviewed: May 30, 219

Report Date: Test Code/ID: 22 May-19 14:51 (p 1 of 2) 190967 / 00-0525-7267

									Test Code/II):	190967 / 0	0-0525-72
Ceriod	laphnia	7-d Survival an	d Repr	oduction Te	est			,			Nautilus Env	ironment
Analys	is ID:	20-7793-0447		Endpoint:	6d Survival Rat	e			CETIS Versi	on: CETIS	v1.9.4	
Analyz		22 May-19 14:5		Analysis:	Linear Interpola)	;	Status Level	1: 1		
Batch	ID:	06-8138-5398		Test Type:	Reproduction-S	Survival (7d)			Analyst:	Kania Lywe		
Start Date: 15 May-19 12:00				Protocol:	EC/EPS 1/RM/				-	20% Perrier V	Vater	
Ending		21 May-19 16:00		Species:	Ceriodaphnia d	ubia		-	Brine:			
-	ength:	· ·		Taxon:	Branchiopoda			,	Source:	In-House Cult	ture	Age: <
Sample	e ID:	11-6202-5560		Code:	45431A58				Project:			
Sample	e Date:	14 May-19 12:30)	Material:	Water Sample				Source:	Nyrstar Myra	Falls	
Receip	t Date:	15 May-19 08:51	1	CAS (PC):					Station:	11A-Runoff		
Sample	e Age:	23h (14.2 °C)		Client:	Nyrstar Myra Fa	alls						
Linear	Interpo	lation Options										
	sform	Y Transform	1	Seed	Resamples	Exp 95%	CL Me	thod				
_og(X+	-1)	Linear		150079	200	Yes		o-Point Ir	nterpolation			
Point E	Estimate	es	· · · · · · · · · · · · · · · · · · ·									
_evel	%	95% LCL	95% l	JCL TU	95% LCL	95% UCL						
C5	64.89		n/a	1.541	n/a	35.64				· · · · · · · · · · · · · · · · · · ·		
EC10	100	60.99	n/a	1	n/a	1.639						
EC15	>100	n/a	n/a	<1	n/a	n/a						
EC20	>100	n/a	n/a	<1	n/a	n/a						
EC25	>100	n/a	n/a	<1	n/a	n/a						
EC40	>100	n/a	n/a	<1	n/a	n/a						
EC50	>100	n/a	n/a	<1	n/a	n/a						
6d Sur	vival Ra	ate Summary				Calcu	ılated Var	iate(A/B)			Isoto	nic Variat
Conc-%	%	Code	Coun	t Mean	Min	Max	Std Dev	/ CV%	%Effe	ct A/B	Mean	%Effe
)		N ·	10	1.000		1.0000	0.0000	0.009	6 0.0%	10/10	1	0.0%
1.56			10	1.000		1.0000	0.0000	0.00%		10/10	1	0.0%
3.12			10	0.900		1.0000	0.3162	35.14			0.98	2.0%
5.25			10	1.000		1.0000	0.0000	0.009		10/10	0.98	2.0%
12.5			10	1.000		1.0000	0.0000	0.009		10/10	0.98	2.0%
25			10	1.000		1.0000	0.0000	0.009		10/10	0.98	2.0%
50 100			10	1.000		1.0000	0.0000	0.009		10/10	0.98	2.0%
			10	0.900	0.0000	1.0000	0.3162	35.14	·% 10.0%	9/10	0.9	10.0%
		ate Detail	- 4									
Conc-9	/0	Code N	Rep 1			Rep 4 1.0000	Rep 5 1.0000	1.000			Rep 9 1.0000	1.0000
, 1.56		14	1.000			1.0000	1.0000	1.000			1.0000	1.0000
3.12			1.000			1.0000	1.0000	0.000			1.0000	1.0000
5.25			1.000			1.0000	1.0000	1.000			1.0000	1.0000
2.5			1.000			1.0000	1.0000	1.000			1.0000	1.0000
2.5			1.000			1.0000	1.0000	1.000			1.0000	1.0000
50			1.000			1.0000	1.0000	1.000				
00			1.000			1.0000	1.0000	1.000			1.0000 0.0000	1.0000 1.0000
	vival Ra	ate Binomials									2.27	
Conc-9		Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep (Rep 7	Rep 8	Rep 9	Rep 1
)	-	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
.56		•	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
3.12			1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1
3.12			1/1	1/1	1/ (1/1	1/1	-0/1	.1/1	1/1	1/1	1/1

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1/1

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6.25

12.5

25

50

100

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Report Date:

22 May-19 14:51 (p 2 of 2)

Test Code/ID:

190967 / 00-0525-7267

Ceriodaphnia 7-d Survival and Reproduction Test

Nautilus Environmental

Analyzed:

Analysis ID: 20-7793-0447 22 May-19 14:51 Endpoint: 6d Survival Rate

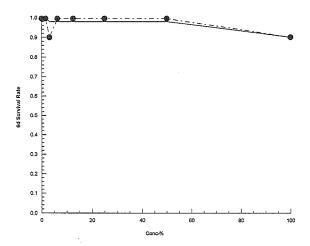
Linear Interpolation (ICPIN) Analysis:

CETIS Version:

CETISv1.9.4

Status Level:

Graphics



Analyst:____

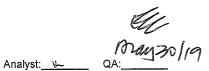
6.25

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Report Date:

22 May-19 14:52 (p 1 of 2)

SEIIC	Alla	nyucai Repo	DΓΈ						T(est Code/ID): 	190967 / 0	00-0525-726
Ceriod	aphnia	7-d Survival an	d Repr	oduc	tion Te	est					N	autilus En	vironmenta
Analys	is ID:	13-2944-8192		End	ooint:	Reproduction				ETIS Versi		1.9.4	
Analyz	ed:	22 May-19 14:5	1 .	Anal	ysis:	Linear Interpola	ation (ICPIN))	S	tatus Level	: 1		
Batch I	D:	06-8138-5398		Test	Туре:	Reproduction-S	Survival (7d)		А	nalyst:	Kania Lywe		
Start D	ate:	15 May-19 12:00)	Prot	ocol:	EC/EPS 1/RM/	21		D	iluent:	20% Perrier W	ater	
Ending	Date:	21 May-19 16:00	0	Spec	cies:	Ceriodaphnia o	lubia		В	rine:			
Γest Le	ength:	6d 4h		Taxo	n:	Branchiopoda			S	ource:	n-House Cultu	ıre	Age: <24
Sample	e ID:	11-6202-5560		Code	e:	45431A58			Р	roject:			
Sample	e Date:	14 May-19 12:30	0	Mate	rial:	Water Sample			s	ource:	Nyrstar Myra F	alls	
Receip	t Date:	15 May-19 08:51	1	CAS	(PC):				S	tation:	11A-Runoff	٠	
Sample	e Age:	23h (14.2 °C)		Clier	nt:	Nyrstar Myra F	alls						
_inear	Interpo	olation Options						,					
X Trans	sform	Y Transform	1	Seed	i	Resamples	Exp 95%	CL Me	ethod				
_og(X+	1)	Linear		9837	26	200	Yes	Tw	o-Point Int	erpolation			
oint E	stimat	es											
_evel	%	95% LCL	95% เ	UCL	TU	95% LCL	95% UCL						
C5	>100	n/a	n/a		<1	n/a	n/a						
C10	>100	n/a	n/a		<1	n/a	n/a						
C15	>100		n/a		<1	n/a	n/a						
C20	>100		n/a		<1	n/a	n/a						
C25	>100		n/a		<1	n/a	n/a						
C40	>100		n/a		<1	n/a	n/a						
C50	>100	n/a	n/a		<1	n/a	n/a						
Reprod	duction	Summary					Cai	Iculated \	/ariate			Isoto	nic Variate
Conc-9	6	Code	Coun	t	Mean	Min	Max	Std Dev	CV%	%Effe	ct	Mean	%Effect
)		N	10		18.6	15	26	3.062	16.46%	6 0.0%		19.39	0.0%
1.56			10		20	15	23	2.708	13.54%	6 -7.53%	6	19.39	0.0%
3.12			10		17.1	0	23	6.887	40.28%			19.39	0.0% ೣ
5.25			10		20.5	18	23	1.78	8.68%	-10.22		19.39	0.0%
12.5			10		19.7	10	28	5.599	28.42%			19.39	0.0%
25			10		20.1	16	22	2.132	10.619			19.39	0.0%
50			10		19.5	14	24	3.342	17.149			19.39	0.0%
100			10		19.6	13	24	3.373	17.219	6 -5.38% 	6	19.39	0.0%
-		Detail											
Conc-%	6	Code	Rep 1	l	Rep 2		Rep 4	Rep 5	Rep 6	Rep 7		Rep 9	Rep 10
)		N	19		15	17	18	17	19	21	26	17	17
1.56			22		19	17	23	22	21	15	20	18	23
3.12			18		16	23	20	22	0	23	18	12	19



Report Date: Test Code/ID: 22 May-19 14:52 (p 2 of 2) 190967 / 00-0525-7267

Ceriodaphnia 7-d Survival and Reproduction Test

Nautilus Environmental

Analyzed:

Analysis ID: 13-2944-8192 22 May-19 14:51 Endpoint: Analysis:

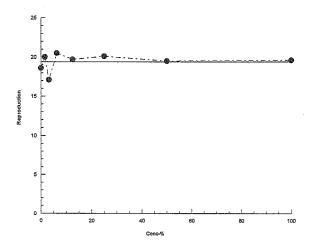
Reproduction

Linear Interpolation (ICPIN)

CETIS Version: Status Level:

CETISv1.9.4

Graphics



000-184-496-8

CETIS™ v1.9.4.11

Analyst:

Client:	Mistur	
W.O.#:_	190967	

Hardness and Alkalinity Datasheet

			Alkal	inity						
Sample ID	Subsample Date	Date Measured	Sample Volume (mL)	(mL) 0.02N HCL/H₂SO ₄ used to pH 4.5	(mL) of 0.02N HCL/H ₂ SO ₄ used to pH 4.2	Total Alkalinity (mg/LCaCO₃)	Sample Volume (mL)	Volume of 0.01M EDTA Used (mL)	Total Hardness (mg/L CaCO ₃)	Technicia
NA-Run eff	may 15/19	Nos 15/19	50	. 66	14	-30	So	13-3	166	S۲
20% pernier	May isig		COS	10-8	lle	106	50	5-0	(00	× -
	1.20		7.00		V C-E					

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	-			, , , , , , , , , , , , , , , , , , , ,			:			
										
Notes:										
			-					1/)		
Reviewed by:		Ell				Date Reviewed	l :	May	30, 2019	7



APPENDIX B – Oncorhynchus mykiss Toxicity Test Data

Rainbow Trout Early Life Stage Summary Sheet

Client:	Mynster Myra Falls	Start Date/Time	: May 15, 2019 @ 1735h
Work Order No.:	190966	Test Species:	Oncorhynchus mykiss
Sample Informat	ion:		
Sample ID: Sample Date: Date Received: Sample Volume:	11A-Runoff May 14, 2019 May 15, 2019 7x 201		
Dilution Water:	•		
Type: Hardness (mg/L C Alkalinity (mg/L Ca		p Water	
Test Organism Ir	nformation:		
Batch No.: Source: Loading Density:	OSISI9 Tedis Trout, Campbel 1.16 SIL	Leke, BC	
Number of male b Number of female Sperm motility che	broodstock used:	motility using a com	pound microscope
SDS Reference T	oxicant Results:		
Reference Toxica Stock Solution ID: Date Initiated: 7-d EC50 (95% C	19501 May 15, 2019	ngil SDS	
Reference Toxica	nt Mean and Range: 4\\(1) nt CV (%): 37	20-83) mg/	L SØS
Test Results:	EC25 % (v/v) (95% CL) EC50 % (v/v) (95% CL)	SE 11A-Rmoft >100 >100	ample ID
Reviewed by:	JOL	Date rev	riewed: June 20/19

7-d Chronic Freshwater Toxicity Test Initial and Final Water Quality Measurements

	Initial and Final Water Quality Measurements													
Client: Sample ID: Work Order #:	NY NA NA NA	rstu - <u>Ru</u> 0966	north	yra	Falls	<u>}</u>	Stop	Date 8	Time: CER #:	Mai	1 22	1201	@17°	3 <u>54</u> 58434
	T													
Contro 1	<u> </u>				_			ys						
Concentration	0		1		2	250	3				old	new	6 old	final
,	init.	13.5	old \35	new 140	old 13.5	new	old 13.5	14,0	old 136	wen CPI	136	14-0		140
Temperature (°C) DO (mg/L)	10:1	(a)	10.0	10,2	10,1	99	12,1		124	10.2	10.3	10.2	103	10.1
pH	20	67	0.0	70	7.1	68	71	10.1	7.1	69	6 S	6.1	1.0	6.80
Cond. (µS/cm)	32	32		71	1. 1	3 2			2	22	1	3	1	33
Initials	3 <u></u>	w		- W	~	P		n-	<u> </u>	W		W	<u>`</u>	un
<u> </u>						, ,				<u> </u>				
625	Days													
Concentration	0		1		2	;	3	4	1		5		6	7
	init.	new	old	new	old	new	old	new	old	new	old	new	old	final
Temperature (°C)	140	135	B	135	13-5	14,0	136	14,0	135	140	13:5	14.0	142	140
DO (mg/L)	7,9	29	107	10.2	10,3	100.3	9,9	101	10.2	10-1	10,2	100	(0.2	10-1
pН	3,0	7.1	16-9	7.1	7.1	7,2	22	Fex	7.1	7.1	63	6.5	10	7,0
Cond. (µS/cm)	70	,	<u>, 8 .</u>	lok	2	6:	γ	(, 6	6			<u> ප</u>	89
Initials	<u>a-</u>	V	W	<u>u</u>	LALA	<u></u>	<u>s</u>			u	W	W	<u> </u>	un
	1	Days												1
25		I		1		Γ		1	•			1		-
25 Concentration	0		1	CONTRACTOR AND ADMINISTRA	2		3	4	1		5	50 m 28 m	6	7
	init.	new	old	new	old	new	old j	new	old	new	old	new	old	final
Temperature (°C)	init.	new 13-5	old (3.5	new_	old 135	new 142	ાર ંટ્ડ old	new (4,9	old 136	new 160	old ।ऽऽ	new (40	old (4.0	final
Temperature (°C) DO (mg/L)	init.	new 135	old (3.5)	new 13/5 ip.v	old 135	new 1922 00,0	old 13.5 9.8	new (4,0	old	new 4-0 10-1	01d 135 122	new (40	old 14.0	final 140
Temperature (°C) DO (mg/L) pH	init. 14プ 10プ テン	new 135 95 7.1	01d	new 13.0 10.2 7.2	old 135 191 1.2	new 14.0 いい トユ	3 old 13.5 9.8 7.3	new (4,9	old 136	new 160 10.1	01d 135 1022	new (40 (01	old 14.0 10.7	final 140 (0.2) 7.2
Temperature (°C) DO (mg/L) pH Cond. (µS/cm)	init. 14/2 10/2 10/2 10/2 16/2	new 13.5 9.8 7.1	old 135 1030 67	new 13 イ 10.ン フ.ン	old 135 191 1.2	new 1922 00,0	old (3.5 9.8 7.3	new (4,0	old 136	new 14-0 10-1 1	01d 135 122 121	new (40 (01	old 140 121 1.1	final 140
Temperature (°C) DO (mg/L) pH	init. 14プ 10プ テン	new 135 95 7.1	old 135 1030 67	new 13 イ 10.ン フ.ン	old 13.5 19.1 7.2 5	new 14.0 いい トユ	3 old 13.5 9.8 7.3	new (4,9 /2)1 2 2	old 136	new 14-0 10-1 1	01d 135 1022	new 140 (01 7.1	old 140 121 1.1	final 140 102 7.2 165
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials	init. 14/2 10/2 10/2 10/2 16/2	new 13.5 9.8 7.1	old 135 1030 67	new 13 イ 10.ン フ.ン	old 13.5 19.1 7.2 5	new 14.0 いい トユ	old 12,5 9.5 7.3 6	new (4,9 /2)1 2 2	old 136	new 14-0 10-1 1	01d 135 122 121	new 140 (01 7.1	old 140 121 1.1	final 140 102 7.2 165
Temperature (°C) DO (mg/L) pH Cond. (µS/cm)	init. 14,2 10,2 10,2 16,2 16,2	new 13.5 9.8 7.1	old 135 1030 67	new 13.7 16.2 16.2	old 13.5 19.1 7.2 5	new 14.5 い,3 トル 14	old 12,5 9.5 7.3 6	14,9 19,1 1,2 19,1	old 136	new 19-0 10-1 7-4	01d 135 122 121	new (40) (01) 7.1	old 140 121 1.1	final 140 102 7.2 165
Temperature (°C) DO (mg/L) pH Cond. (μS/cm) Initials	init. 14/2 10/2 10/2 16/2 16/2 0 init.	new 13.5 9.8 7.1	old 134 10 mg	new 13.7 16.2 16.2	old 135 191 7.2	new 14.5 い,3 トル 14	old (13.5 9.8 7.3 6	14,9 19,1 1,2 19,1	old (36) (22) (22) (3) (4) (4)	new 19-0 10-1 7-4	old 135 122 121 62	new (4) (0) (1) (W) new	old 140 101 111	final 140 (a 2 7.2 165 www.
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials	init. 4/P 10/P	new 35 98 7.1	old 135 10 at 2 10 a	new 13.7	old 185 121 1.2 5	new 14.2 1 に new 14.2	3 old (3.5) 9 % 7.3 % 6	new (4,2) (2,1) (2,1) (3,1) (4,2) (4,2) (4,2)	old 136 182 1.1 1.1 old 12.5	16-0 10-1 10-1 1.4	old 13.5 (2.2 1) (2.2 1) (2.2 1) (3.5 1) (6.2	new (4)	old 140 121 1.1	final 140 102 7.2 165
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L)	init. 14,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12 16,12	new 13-5 9.8 7.1 15 W	old 134 10 mg	new 15 / 16 / 16 / 16 / 16 / 16 / 16 / 16 /	old 135 121 1.2 5 122 0ld 135 1.0.1	new 14/2 に 14/2 に 14/2 に 14/2 に 17/2	3 old (3,5) 9.6 P	new (4,0) 12,1	old (36) (22) (22) (3) (4) (4)	new 19-0 10.1 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1	old 13.5 12.1 12.1 13.5 13.5 19.2	new (40)	old 140 12.1 1.1	final 140 165 140 140 102
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH	init. 14,0 10,0 16,0 16,0	new 135 98 1.1 15 W	1 old 134	new 13 / 160 / 100	old 135 121 2 2 old 135 1.3	new 14/2 17/3 17/3 17/3 17/3 17/3 17/3 17/3 17/3	old 13,5 98 43 6 12,5 Da 3 old 13,5 98 78	new 14,0 P	old 136 (22 7.1) (6)	new 160 10.1 1.4 w	old 13.5 12.2 17.1 16.2 13.5 13.5 19.2 7.3	new (40) (01) (10) (10) (10) (10) (10) (10) (1	old 140 12.1 16 6 old 140 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12.	final 140 165 165 140 140 140 140 140 140 140 140 140 140
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm)	init. 4/2 10/2	new 135 98 7.1 15 W	old 135 1025 10 10 10 10 10 10 10 10 10 10 10 10 10	new 13.7 160 7.7 17.7 4	old 135 121 2 0ld 135 1.2 87	new 14/2 17/3 17/3 17/3 17/3 17/3 17/3 17/3 17/3	3 old (3,5) 9.6 P. Da 3 old (3,5) 9.8 P.3 1490	new 14,2 121 14,2 14,2 15,2 15,2 15,2 15,2 15,2 15,2 15,2 15	old 136 (22 7.1) (6)	new 190 10.1 1.4 10.1 10.1 10.1 10.1 10.1 10.1	old 13.5 12.2 12.1 15.2 13.5 19.2 13.3	new 140 mew 140 wal 76 49	0ld 140 11.1 11.1 11.1 11.1 11.1 11.1 11.1	final 140 165 140 140 122 171 491
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH	init. 14,0 10,0 16,0 16,0	new 135 98 1.1 15 W	old 135 1025 10 10 10 10 10 10 10 10 10 10 10 10 10	new 13 / 160 / 100	old 135 121 2 0ld 135 1.2 87	new 14/2 17/3 17/3 17/3 17/3 17/3 17/3 17/3 17/3	old 13,5 98 43 6 12,5 Da 3 old 13,5 98 78	new 14,0 P	old 136 (22 7.1) (6)	new 160 10.1 1.4 w	old 13.5 12.2 12.1 15.2 13.5 19.2 13.3	new (40) (01) (10) (10) (10) (10) (10) (10) (1	0ld 140 11.1 11.1 11.1 11.1 11.1 11.1 11.1	final 140 165 165 140 140 140 140 140 140 140 140 140 140
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm)	init. 14/2 10/2 10/2 16/2 16/2 16/2 10/2 10/2 10/2 10/2 10/2 10/2 10/2	new 135 W	old 135 10 ac 10	new (3 / 1, 2) 16 (0.マ) 7.フ (0.マ) 7.フ (4) (4)	old 135 121 1.2 5 12 12 12 12 12 12 12 12 12 12 12 12 12	new 14/2 17/3 17/3 17/3 17/3 17/3 17/3 17/3 17/3	old 13.5 9.6 7.3 6 12.5 9.6 12	new (4,2) 12:11 P (ys) 14:2 14:2 13:2 7:6 40 40	old 136 182 7.1 60 10 11 60 12.5 82 7.1	new 190 10.1 1.4 10.1 10.1 10.1 10.1 10.1 10.1	old 13.5 12.2 12.1 15.5 19.2 17.3 80	new 140 mew 14	0ld 140 11.1 11.1 11.1 11.1 11.1 11.1 11.1	final 140 165 140 140 122 171 491
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials	init. 14,12 16,22 16,22 16,22 16,22 17	new 135 W	old 135 1025 1035 1035 1035 1035 1035 1035 1035 103	new 13 / 16 / 16 / 16 / 16 / 16 / 16 / 16 /	old 135 121 1.2 5 12 12 12 12 12 12 12 12 12 12 12 12 12	new 14/2 11/3 14/2 17/3 子 C	old 13.5 9.6 7.3 6 12.5 9.6 12	new (4,2) 12:11 P (ys) 14:2 14:2 13:2 7:6 40 40	old 136 182 7.1 60 10 11 60 12.5 82 7.1	new 190 10.1 1.4 10.1 10.1 10.1 10.1 10.1 10.1	old 13.5 (2.2 1.3 8 6 A ter/probable 15 6 15 6 15 6 15 6 15 6 15 6 15 6 15	new 140 mew 14	old 140 11.1 11.1 11.1 11.1 11.1 11.1 11.1	final 140 165 140 140 122 171 491
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials	init. 14,2 16,2 16,2 16,2 16,2 17,2	new 13-5 15 15 W new 13-5 15 W er/probe	Old 135 10 m2	new 13/2 160 17.7 160 17.7 160 17.7 160 17.7 17.7 17.7 17.7 17.7 17.7 17.7 17.	old 135 121 1.2 5 12 12 12 12 12 12 12 12 12 12 12 12 12	new 14/2 11/3 14/2 17/3 子 C	old 13.5 9.6 7.3 6 12.5 9.6 12	new (4,2) 12:11 P (ys) 14:2 14:2 13:2 7:6 40 40	old 136 182 7.1 60 10 11 60 12.5 82 7.1	new 19-0 10.1 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1	old 13.5 (2.2 1.3 8 6 A ter/probable 15 6 15 6 15 6 15 6 15 6 15 6 15 6 15	new 140 121 16 170 170 170 170 170 170 170 170 170 170	0ld 140 12.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.	final 140 165 140 140 122 171 491
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Thermometer: 🛣	init. 14/2 10/2	new 135 98 1.1 15 W new 135 26 W er/probe	Old 135 10 m2	new 13/2 160 17.7 160 17.7 160 17.7 17.7 17.7 17.7 17.7 17.7 17.7 17.	old 135 121 1.2 5 12 12 12 12 12 12 12 12 12 12 12 12 12	new 14/2 11/3 14/2 17/3 子 C	old 13:5 9:6 7:3 6 10 10 10 10 10 10 10 10 10 10 10 10 10	new (4,2) 12:11 P (ys) 14:2 14:2 13:2 7:6 40 40	old 136 182 7.1 old 17.5 82 7.1	new 190 10.1 1.4 W 190 10.1 1.4 W tivity me Analys	old 13.5 10.2 17.1 10.2 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3	new 140 120 120 120 120 120 120 120 120 120 12	0ld 140 121 121 121 121 121 121 121 121 121 12	final 140 102 165 www.
Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Concentration Temperature (°C) DO (mg/L) pH Cond. (µS/cm) Initials Thermometer: CR3	init. 14/2 10/2	new 135 98 7. 15 W new 135 99 15 wer/probe	Old 135 10 m2	new 13/2 160 17.7 160 17.7 160 17.7 160 17.7 17.7 17.7 17.7 17.7 17.7 17.7 17.	old 135 121 1.2 5 12 12 12 12 12 12 12 12 12 12 12 12 12	new 14/2 11/3 14/2 17/3 子 C	old 13:5 9:6 7:3 6 10 10 10 10 10 10 10 10 10 10 10 10 10	new (4,2) 12:11 P (ys) 14:2 14:2 13:2 7:6 40 40	old 136 182 7.1 old 17.5 82 7.1	new 160 10.1 1.4 W 160 10.1 1.7 W tivity me	old 13.5 10.2 17.1 10.2 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3	new 140 120 120 120 120 120 120 120 120 120 12	0ld 140 12.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.	final 140 102 165 www.

Comments:

Embryo Toxicity Test Daily Mortality

Client:	Nyrstor Myra Falls	Start Date & Time: May 15, 2019 @ 1735h	Date & Time: May 15, 2019 @ 1735h	
Sample ID:	11A-Runatt	Stop Date & Time: My 22, 2018 @ 09454	Date & Time: 144 22, 2018 @ 09454	
Work Order #:	190966	Test Species: Oncorhynchus mykiss	Test Species: Oncorhynchus mykiss	

Concentration	Rep		Day of Test - No. of Mortalities				es	Total	Total	Total No.	Total	
(% 414)		1	2	3	4	5	6	7	Dead Eggs	Undeveloped	Embryo	Exposed
control	1	ð	0	0	0	0	0	0	0	2	28	30 30 30 30
1	2		Compa		f		ď	f	- Caracter	3	26	<u>ვ</u> ა
	3) moleculary						0	0	1	291	30
	4	our designation of		-	*		20.57	3	0	(29	30
6.25	1		The state of the s				200	Ð	0	2	28	
	2						1	2	2	4	24	30
	3			-				0	0	2	28	30
	4	-					and the same of	۵	0	. 4	28	30
12.5	1	NAME OF TAXABLE PARTY.			- Constant			Ö	0	1	29	30
	2	OTENSES.			1	The state of the s	Contribute		0	3	27	25
	3	DATESTON			T-MANAGE		and the same	- Signatura	0	-4	26	30 30
	4		1				Table Control		0	Athan	23	30
25	1	and the second			- Confirmation		THE OWNER.	1	0	0	30	9-0
	2				-		TO SERVICE SER	2	V	4	24	30 30 30
	3				NO COLUMN			0	٥.	4	26	30
	4	-	444					ס	0	2	28	30
SO	1		The state of the s					i	0	0	30	30
	2							П	0	4	26	30
	3	The same of the sa	1000000						0	3	27	30
	4				dances				0		28	30
100	1		and the same					[60		28 25	22
	2		- Carterior Cart					2	2	3	25	30
	3		- American		- Steams	1		0	0	4	26	30 30
	4	V	V	1	W.	2	V	ı	3	2	26	30
	1											
	2										·	
	3						·					
	4											
	1											
	2											
	3											
	4											
Tech Initials		bw-	This	R	W	w	W	w	an	w	nn	hn

Tech Initials	Eur Will	& M	w	Ww	ller	ww	un	m
Comments:								
Reviewed by:	Thi			Date r	eviewed:	Jun	ne 20/19	
Version 1.0 Issued June	26, 2006	·				Nautilus E	Environmental Con	npany Inc.

Report Date: Test Code/ID:

14 Jun-19 12:18 (p 1 of 2)

190966 / 04-8269-2095

									Tes	st Code/II	D:		190966 / 0	4-8269-209
Salmon	nid Emb	oryo Survival an	d Develop	ment T	est							Na	utilus Env	ironmental
Analysi	s ID:	06-1572-6838	End	point:	Proportion Non	mal			CE	TIS Versi	ion:	CETISv1	.9.4	
Analyze		14 Jun-19 12:18		lysis:	Linear Interpola)		Sta	tus Leve	l:	1		
Batch I	D:	10-5761-4155	Tes	t Type:	Development				Ana	alyst:	Yvon	ine Lam		
Start Da	ate:	15 May-19 17:35	Pro	tocol:	EC/EPS 1/RM/	28			Dil	uent:	Dech	lorinated T	ap Water	
_		22 May-19 09:45	Spe	cies:	Oncorhynchus	mykiss			Bri	ne:				
Test Le	ngth:	6d 16h	Tax	on:	Actinopterygii				So	urce:	Ted's	Trout, Ca	mpbell Lake	e Age:
Sample		11-6202-5560	Cod	le:	45431A58					oject:				
-		14 May-19 12:30		erial:	Water Sample						•	tar Myra Fa	ills	
-		15 May-19 08:51		(PC):		11.			Sta	ition:	11A-	Runoff		
Sample	Age:	29h (14.2 °C)	Clie	nt:	Nyrstar Myra F	alls								
	-	lation Options												
X Trans		Y Transform			Resamples	Exp 95%	CL	Method						
Log(X+	1) 	Linear	171	4175	200	Yes		Two-Po	oint Inter	polation				
Residu	al Anal	ysis												u
Attribut		Method			Test Stat	Critical				n(α:5%)				
Control	Trend	Mann-Ken	dall Trend	Γest			0.73	391	Non-Sig	nificant T	rend	in Controls		
Point E	stimate	es												
Level	%	95% LCL	95% UCL		95% LCL									
EC5	75.85		n/a	1.318		n/a								
EC10	>100	n/a	n/a	<1 -1	n/a	n/a								
EC15 EC20	>100 >100	n/a n/a	n/a n/a	<1 <1	n/a n/a	n/a n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
Propor	tion No	rmal Summary				Calcu	ılated	Variate	(A/B)				Isotor	ic Variate
Conc-%	6	Code	Count	Mear	Min Min	Max	Std	Dev	CV%	%Effe	ect	A/B	Mean	%Effect
0		N	4	0.933	3 0.8667	0.9667	0.04	471	5.05%	0.0%		112/120	0.9333	0.0%
6.25			4	0.908	0.8000	0.9667	0.07	739	8.14%	2.68%	6	109/120	0.9167	1.79%
12.5			4	0.925		0.9667	0.0		5.41%	0.89%		111/120	0.9167	1.79%
25			4	0.900		1.0000	0.08		9.56%	3.57%	6	108/120	0.9167	1.79%
50			4	0.933		1.0000	0.0		6.52%	0.0%	,	112/120	0.9167	1.79% 7.14%
100			4	0.866	0.8333	0.9333	0.04	4/1	5.44%	7.14%	0	104/120	0.8667	7.1470
		rmal Detail												
Conc-%	<u>′</u> 6	Code	Rep 1	Rep		Rep 4		-						
0		N	0.9333	0.866		0.9667								
6.25			0.9333	0.800		0.9667								
12.5 25			0.9667	0.900		0.9667								
50 50			1.0000	0.800		0.9333								
100			1.0000 0.9333	0.833		0.9667 0.8333								
	tion N-	rmal Dinamiala		3.300	- 0.0001					************				
		rmal Binomials Code		Pa-) Dan 1	Don 4								
Conc-%	0	N	Rep 1 28/30	26/30	****	Rep 4 29/30							·	
6.25		IV	28/30	24/30		29/30 29/30								
12.5			29/30	27/30		29/30								
25			30/30	24/30		28/30								
50			30/30	26/30		29/30								
100			28/30	25/30		25/30								
			20/00	20/00	20/30	20100								

Analyst: No QA: Time 20/10

001-507-963-1

CETIS™ v1.9.4.11

Report Date: Test Code/ID: 14 Jun-19 12:18 (p 2 of 2)

190966 / 04-8269-2095

Salmonid Embryo Survival and Development Test

Nautilus Environmental

Analyzed:

Analysis ID: 06-1572-6838 14 Jun-19 12:18 **Endpoint:** Proportion Normal Analysis:

Linear Interpolation (ICPIN)

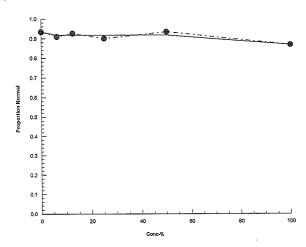
CETIS Version:

CETISv1.9.4

Status Level:

1

Graphics



Client:_	Myroter	Myra	Falls
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w.o.#: 190966

Hardness and Alkalinity Datasheet

	Alkalinity Hardness									
Sample ID	Subsample Date	Date Measured	Sample Volume (mL)	(mL) 0.02N HCL/H₂SO₄ used to pH 4.5	(mL) of 0.02N HCL/H ₂ SO ₄ used to pH 4.2	Total Alkalinity (mg/LCaCO ₃)	Sample Volume (mL)	Volume of 0.01M EDTA Used (mL)	Total Hardness (mg/L CaCO ₃)	Technician
11A-Runost	May 15/18	May 15/18	50	1.6	1.7	30	50	13,3	266	87
Dechlar	7	1	100	1.1	1.2	10	100	0.8	9	un
-										
			-	*****			ļ			
		···					:			
							-			
										:

Notes:										
Reviewed by:			Jih			Date Reviewed	i:	Jui	ie 20/19	

Version 1.1 Issued July 28, 2016

Nautilus Environmental Company Inc.



APPENDIX C – *Lemna minor* Toxicity Test Data

Lemna minor Summary Sheet

Client: Work Order No.:	Nyrstar Myre 190969	<u>LFal</u> ls	Start Date: Set up by:	May 16/19 M4/87	
Sample Information	:				
Sample ID: Sample Date: Date Received: Sample Volume:	11A-Runoff May 14/19 May 15/19 7420L	<u> </u>			
Test Organism Info	rmation:				
Culture Date: Age of culture (Day 0 >8X growth in APHA	•	050819 8 days y (46 Fronds)	<u> </u>		
KCI Reference Toxi	cant Results:	•			
Reference Toxicant I Date Initiated:		173 425/19	•		
7-d No. of Fronds IC	50 (95% CL): 3 <u>,8 (3</u>	.2-4.3) g/LKC1	· · · · · · · · · · · · · · · · · · ·		
7-d No. Fronds IC50	Reference Toxicant Mear	ı (2 SD Range):	5 (29-4.2) 91L KC	CV (%):	9.
		Number of Fi	ronds	Dry Weight	
Test Results:	IC25 %(v/v) (95% CL) IC50 %(v/v) (95% CL)	83.2 (60.5 797		797	
Reviewed by:		<u>.</u>	Date reviewe	d: June 11,	3119

Plant Growth Inhibition Toxicity Test Water Quality Measurements

Client :	V	lyritav 1	laura Fol	١ς	Setup by:		MLT/S	T	
Sample ID:		IIA-Run			Test Date:		May 16/19		
Work Order No.:		1900		-	CER #:		4		
		CPCC #4	· · · · · · · · · · · · · · · · · · ·	T	•	I amma mina			
Culture Source:								<u> </u>	
Test Culture Age:		~	3	_ > 8X Gro	wth? (Y/N):	y (46 Frond) May 15/19			
Light Intensity Range:	<u>, , , , , , , , , , , , , , , , , , , </u>		иХ	Date	Measured:		1/19		
Day	. 0	1	2	3	4	5	6	7	
Shelf Temp (°C)	250	25~	25/0	25.2	٥٠٥	25,0	25.0	25,0	
Initials	MO	MC	MU	MG	MY	MH	MA	Mh.	
Sample Characteristics: Temperature (°C) DO (mg/L) pH Conductivity (µS)	\$ \$	later Quality	- - -	Aeration?: Nutrients added? ¹ :	∂> min	Adjusted Water Quality $ \begin{array}{c} 24.0\\ 8.0\\ \hline 8.3\\ 1284 \end{array} $		D O 3	
		F		1 10 mL of ea	ich APHA stoo		added to 970		
Concentration		Tempera	ture (°C)	p	pH		Conductivity (µS)		
\$ /0 (V)V)	Day 0	Day 7	Day 0	Day 7				
Control		24.0	25.0	8.3	9.1				
1.5		246	25.0	8.3	9.0	859			
3	24.0	25.0	8.3	8.8	891				
6.1	24.0	25.0	8.3	8.7	902				
12.1	24.0	25.0	8-3	8.8	925				
24.2	24.0	25.0	8.3	8.7	961				
48,5	24.0	25.0	5.3	8.9		1062			
97	24.0	25.0	8,3	8.8	1284				
Initials	72	57	51	57		S 7			
Thermometer: Light m		oH meter/probe: _						1_/	
Comments:									
Reviewed:					Date Review	wed:	June 1	1,2019	

Lemna minor Toxicity Test Data Sheet - 7-d Frond Counts

Client: Sample ID: Work Order #:	Nyrotar Myra Falls 119-Runoff 190969									S Terminat Test s	May 16/19 May 23/19 May /st			
Concentration のつ(いし)	Rep	ļ	fronds Day 7	Chlorosis	Necrosis	Yellow	Abnormal size	Gibbosity	Single fronds	Root destruction	Loss of buoyancy	Comments	Init	tial
contro)	A B C	م د د	109 117 02 81										W	<u> </u>
1.5	A B C D	0	102 109 150 116											+
3	A B C	6 8 8	101 93 85 93											
6.1	A B C	6 6	117 93 92 91							*****************************				+
15/1	A B C	6 6 8	84 89 108											+
24.8	A B C D	6	90 86 102											1
Comments:														
Reviewed by:		G								Date R	Reviewed:	June 11,2019		

Lemna minor Toxicity Test Data Sheet - 7-d Frond Counts

			10	10969	irafa)	•				Terminat Test s	May 23/19 May 23/19 M9/57		
Concentratior りんい)	Rep	└	fronds Day 7	Chlorosis	Necrosis	Yellow	Abnormal size	Gibbosity	Single fronds	Root destruction	Loss of buoyancy	Comments	Initial
<u> </u>	A	6	<u>. </u>										.11/2
1(0 =	В	4	87										
48,5	C	6	814										
	D	6	102										
-	A	6	815 102 78										
02-	В	6	62										
97	С	4	52										
	D	4	57										
	Α		/										
	В									-			
	С											4 14	
	D												
	Α												
	В	Ì							***************************************				
	С												
	D												
-	Α												
	В												
	С												
	D												
	Α												
	В												
	С												
	D												
Comments:			<u></u>							Date F	Reviewed:	Juve 11, 2019	

7-d Lemna minor Weight Data Sheet

Client: Nyrstar Myra Fall Start Date: May 16/18
Sample ID: 11A Plunoff Termination Date: May 23/19
WO #: 19969 Balance ID: Bal - 1

0/0(v/v)		0 oran			
Concentration	Rep	Pan No.	Pan weight (mg)	Pan + plant (mg)	
	A	1	1035.04	1043.38	A/A
control	В	2	1066.25	1075.55	OH OF
Cormol	С	3	1086.96	1093 92	OH OH
	D	4	1056.83	1063.56	SH ST
,	Α	5	1069.91	1076.81	OH OF
	В	6	1057,97	1066.33	at at
1.5	С	7	1068.15	1075.55	HA
	D	8	1065.49	1074.21	HICH
	Α	9	1073.01	1080.55	at at
3	В	10	1058.97	1065.648	SHA
,	С		1079.05	1025.58	HA
	D	12	1051.76	1059.02	CH OF
	Α	13	1054.06	1062.70	HA
6.1	В	14	1061.73	1068.63	CHOL
	С	15	1041.77	1048.82	RH Q
	D	16	1057.19	1064.74	A A
	Α		1071.67	1078.18	AH OF
12.1	В	18	1074.98	1081.58	HA-
100.1	С	19	1068.35	1076.30	OH OF
	D	20	1063.16	1069.54	AH OF
	Α	21	1052,91	1060.71	HA
24.2	В	22	1062.48	1068.01	HOL
∞1.2	С	23	1064.823	1072.75	HIG.
	D	24	1064.98	1071.90	HOL
·	Α	25	1057.56	10684.00	HOL
48.5	В	26	1051.78	1059.64	MA
	С	27	1088.28	1093.12	OHA
·	D	28	1092.72	1099.84	CHA

Comments:	10% re-NeTyh: O pan: 7	weight: 1075.51 @pan: 12 weight: 1058.90
		метары: 1072.5+ Фран: 28 метары: 1099.6
Reviewed by:	- W	Date Reviewed: June 11, 3119

7-d Lemna minor Weight Data Sheet

Client:		Nyvotar	Myra Falls Runoff 0969	Start Date:	May 15/19 May 23/19
Sample ID:		11A-	Runoff	Termination Date:	May 23/19
WO #:		19	0969	Balance ID:	Bal - 1
0/0(v/v)		y orang	il.		
Concentration	Rep	Pan No.	Pan weight (i	mg) Pan + plai	nt (mg) Initials
	A	20	1085.89	1092.37	a de
07	В	30	10 85.43	1091.83	CH OF
97	С	3	1053.53	1058.64	CHO
	D	32	1059.69	1064.69	de
	Α				
	В				
	С			·	
	D				
	Α				
	В				
	С				
	D				
	Α				
	В				
	С				
	D				
	Α				
	В				
•	C				
	D				
	Α				
	В				
	С				
	D				·
	Α				·
	В				
	C				
	D				
Comments:					
•					
Reviewed by:		M		Date Reviewed:	June 11,2019

Report Date: Test Code/ID: 28 May-19 16:36 (p 1 of 2) 190969 / 16-6149-8060

								Outerib.		
Lemna Growth In	hibition Test	t	-						Nautilus Env	ironmental
•	7326-0424 May-19 16:35			ond Count onlinear Regr	ession (NL	R)		IS Version: CE us Level: 1	TISv1.9.4	
	3538-3323 May 10		-	mna Growth	27		Anal	-		,
Ending Date: 23	May-19			C/EPS 1/RM/	31		Dilue		NPHA	
Test Length: 7d	•	•		mna minor			Brin			Amor Od
Test Length. 70	OII	Taxo)n;	acheophyta			Sour	rce: CPCC#49	·	Age: 8d
	6202-5560	Cod		431A58			Proj		*	
Sample Date: 14	•			ater Sample			Soul	•		
Receipt Date: 15	•		(PC):		.,	•	Stati	on: 11A-Runo	ff .	•
Sample Age: 35h	•	Clie	nt: Ny	rstar Myra F	alis 			· 		
Non-Linear Regre		ns								
Model Name and						ng Function		PTBS Function		Y Trans
3P Log-Gompertz:	µ=α·exp[log[0.5]·[x/δ]^γ]			Normal [ω=1]		Off [µ*=µ]	None .	None
Regression Summ	nary	<i>s</i> *								
Iters Log LL	AICc	BIC	Adj R2	Optimize	F Stat	Critical	P-Value	Decision(α:5%))	
17 -76.41	159.7	163.2	0.4964	Yes	1.237	2.621	0.3228	Non-Significant	Lack of Fit	
Point Estimates					,				,	
Level %	95% LCL	95% UCL	TU	95% LCL	95% UCI					
IC5 49.57	n/a	74.27	2.017	1.346	n/a					
IC10 61.52	n/a	85.95	1.626	1.163	n/a				•	
IC15 70.06	n/a	92.46	1.427	1.081	n/a			•		
IC20 77.05	39.29	96.51	1.298	1.036	2.545					
IC25 83.15	60.53	99.27	1.203	1.007	1.652	797:1.(VIV)				
IC40 98.79 IC50 <u>108.3</u>	84.77 85.01	111.6 131.4	1.012 0.9237	0.8959 0.7608	- 1.18**** 1.176	791 1111				
Regression Parar		101,4	0.0201		1.170					
		04-1 5	050/ 1 01	0=0/ 1101						
Parameter	Estimate 91.06	Std Error 2.389	86.17	.95% UCL	t Stat	P-Value	Decision(· · · · · · · · · · · · · · · · · · ·	
α	3.333	2.369	-1.026	95.95 7.692	38.11 1.564	<1.0E-37 0.1287	-	t Parameter ficant Parameter		•
γ δ	108.3	10.48	86.83	129.7	10.33	<1.0E-37		t Parameter,		
ANOVA Table										
Source	Sum Squa	res Mea	n Square	DF	F Stat	P-Value	Decision(α:5%)		
Model	241500	8050		3	635	<1.0E-37	Significant			
Lack of Fit	753.4	150.	7	5	1.237	0.3228	Non-Signi			
Pure Error	2923	121.8	3	24						
Residual	3676	126.8	3 	29						
Residual Analysis										**
Attribute	Method			Test Stat	Critical	P-Value	Decision(α:5%)		
Variances		uality of Var			14.07	0.7718	Equal Vari	ances		
B		e Equality o			2.423	0.6658	Equal Vari			
Distribution		ilk W Norma	•	0.963	0.9338	0.3306	Normal Di			
	Anderson-I	Darling A2 N	Iormality Te	e 0.5317	2.492	0.1779	Normal Di	stribution		

Report Date:

28 May-19 16:36 (p 2 of 2) 190969 / 16-6149-8060

Test Code/ID:

Nautilus Environmental

Lemna Growth Inhibition Test

Analysis ID:

Analyzed:

18-7326-0424 28 May-19 16:35

Analysis:

Endpoint: Frond Count

Nonlinear Regression (NLR)

CETIS Version:

CETISv1.9.4

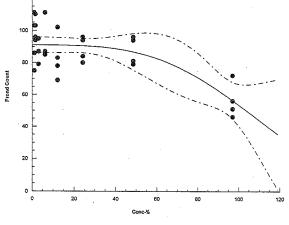
Frond Count Summary		Summary Calculated Variate								
Conc-%.	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	4 `	93.75	75	111	8.138	16.28	17.36%	0.0%	
1.5		4	100.8	94	110	3.637	7.274	7.22%	-7.47%	
3		4	87	79	95	3.266	6.532	7.51%	7.2%	
6.1		4	92.25	85	111	6.263	12.53	13.58%	1.6%	
12.1		4 .	83	69	102	6.964	13.93	16.78%	11.47%	
24.2		4 .	88.5	80	96	3.862	7.724	8.73%	5.6%	
48.5		4	87.5	79	96	4.368	8.737	9.99%	6.67%	
97		4	56.25	46	72	5.633	11.27	20.03%	40.0%	

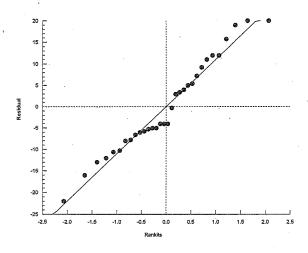
Frond Count Detail

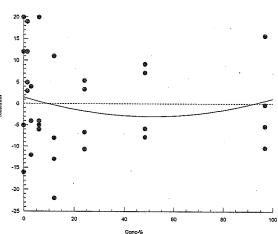
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	103	111	86	75
1.5		96	103	94	110
3		95	87	79	87
6.1		111	87	86	85
12.1		78	83	102	69
24.2		84	80	96	94
48.5		81	94	79	96
97	•	72	56	46	51

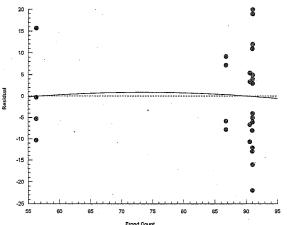
Graphics

Model: 3P Log-Gompertz: $\mu=\alpha\cdot exp[log[0.5]\cdot [x/\delta]^{\gamma}]$ Distribution: Normal [ω =1]









Report Date: Test Code/ID: 28 May-19 16:36 (p 1 of 2) 190969 / 16-6149-8060

Sample D: 11-6202-5550 Code: 45431458 Project: Sample Date: 14 May-19 12-30 Material: Water Sample Sample Age: 35h (14.2 °C) Cilent: Nyrstar Myra Falls Sample Age: 35h (14.2 °C) Cilent: Nyrstar Myra Falls Station: 11A-Runoff Station: 11A-Runoff Station: 11A-Runoff Station: 11A-Runoff Station: 11A-Runoff Station: Station: 11A-Runoff Station: 11A-Runoff Station: Station: 11A-Runoff Station: Station: 11A-Runoff Station: Station: Station: Station: Station: 11A-Runoff Station: Sta													
Batch 10 21-558-8-3323	Lemna	Growth In	hibition Tes	st		• .					N	autilus Env	ironment
Status Level 1 Level	Anaivs	is ID: 06-	5484-6893	Enc	ipoint: Tot	al Dry Weigl	nt-ma		CET	IS Version:	CETISV	1.9.4	
Start Date: 16 May-19 Proto-of: EC/EPS 1/RM/37 Species: Lemma milnor Species: Lemma milnor Species: Lemma milnor Species: Lemma milnor Species: Corner milnor	•				•		_	₹)			1		
Start Date: 16 May-19 Proto-of: EC/EPS 1/RM/37 Species: Lemma milnor Species: Lemma milnor Species: Lemma milnor Species: Lemma milnor Species: Corner milnor		ID. 04.1	2520 2222	T	4 Tames Low				Anal	vot. Mim	Tron		
Semiling Date: 23 May-19							. 77			•		`	
Age Source CPCC#490 Age Source CPCC#490 Age Sample Date May-19 12.30 Materials Water Sample May-19 12.30 Materials Water Sample Source Source Nyrstar Myra Falls Station: 11/A-Runoff Station: 11/A-Run			•				57				illed AFTIA	`	
Sample Dx 11-6202-5560	_		-	•	*						C#490		Age: 80
Sample Date: 14 May-19 12:30	1621 16	engun. 7u		Idx	.011. 11a					ice.			Agc. o.
Receipt Date: 18 May-19 08-51 CAS (PC): Citent: Nyrstar Myra Falls Station: 11A-Runoff Sample Age: 35h (14.2 °C) Citent: Nyrstar Myra Falls Station: 11A-Runoff Sample Age: 35h (14.2 °C) Citent: Nyrstar Myra Falls Station: 11A-Runoff Sample Age: 35h (14.2 °C) Citent: Nyrstar Myra Falls Station: 11A-Runoff Station: 11A-Runof	•								-				4
Sample Age: 38h (14.2 °C) Cilent: Nyrstar Myra Falls			-			iter Sample					•	alls	,
Mode Name and Function	-		•			: _		,	Stati	ion: 11A-	Runoff		
Normal Function Weighting Function Normal Nor	sampi	e Age: 35n	(14.2 'C)	Cile	ent: Nyr	star iviyra Fa	alis 			-		***	
Regression Summary Regress	Non-Li	near Regre	ssion Optic	ons									
Regression Summary Lers Log LL AICc BIC Adj R2 Optimize F Stat Critical P-Value Decision(c:5%)	Vlodel	Name and	Function				Weightin	g Function	•	PTBS Fur	ction	X Trans	Y Trans
	P Exp	onential: µ=	α·exp[log[0.	.5]·x/δ]			Normal [u	ບ=1 <u>]</u>		Off [µ*=µ]		None	None
	Regres	ssion Sumn	nary										
Part			-	BIC	Adi R2	Optimize	F Stat	Critical	P-Value	Decision(α:5%)		
Point Estimates Point Estimates Point Poi	_				7			····				of Fit	
Note	Onint F											·	A
CS										,			
C10								-					
C15 56.47 30.79 84.19 1.771 1.188 3.248 C20 77.53 42.26 116.8 1.29 0.8562 2.367 C50 240.8 131.5 401.3 0.4152 0.2492 0.7607 C50 240.8 67.84 102.3 379.4 3.55 0.0013 Significant Parameter Stimate Stider Stimate Stider					•								
C20													
C25 99.95 54.01 152.9 1 0.654 1.851 W 74.7 (./ v)													
C40								7	1				
Regression Parameter Estimate Std Error 95% LCL 95% UCL t Stat P-Value Decision(α:5%) α								797/1010	ı				
Regression Parameter Estimate Std Error 95% LCL 95% UCL t Stat P-Value Decision(α:5%) α 7.531 0.2035 7.115 7.946 37 <1.0E-37										ø			
Parameter Estimate Std Error 95% LCL 95% UCL t Stat P-Value Decision(α:5%) α													
Ca	_			04.15	050/ 1.01	050(110)							
Non-Significant Parameter Non-Significant Parameter		eter											
Nova Table Source Sum Squares Mean Square DF F Stat P-Value Decision(\(\alpha:\frac{5}{2}\) Model 1604 802 2 1018 <1.0E-37 Significant Lack of Fit 2.445 0.4075 6 0.4615 0.8297 Non-Significant Pure Error 21.19 0.883 24 Residual 23.64 0.7879 30 Residual Analysis Attribute Method Test Stat Critical P-Value Decision(\(\alpha:\frac{5}{2}\) Ariances Bartlett Equality of Variance Test 3.524 14.07 0.8327 Equal Variances Mod Levene Equality of Variance 0.7677 2.423 0.6196 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9604 0.9338 0.2809 Normal Distribution Anderson-Darling A2 Normality Te 0.6625 2.492 0.0840 Normal Distribution Total Dry Weight-mg Summary Calculated Variate Conc-% Code Count Mean Min Max Std Err Std Dev CV% %Effect O									•				
Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) Model 1604 802 2 1018 <1.0E-37					102.0	373.4		0.0010	Olgrinicari	- arameter			
Model	ANOVA	A Table											
Lack of Fit Pure Error 2.445 0.4075 6 0.4615 0.8297 Non-Significant Pure Error 21.19 0.883 24 Residual 23.64 0.7879 30 Residual Analysis Attribute Method Test Stat Critical P-Value Decision(α:5%) Variances Bartlett Equality of Variance Test 3.524 14.07 0.8327 Equal Variances Mod Levene Equality of Variance Distribution 0.7677 2.423 0.6196 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9604 0.9338 0.2809 Normal Distribution Fotal Dry Weight-mg Summary Calculated Variate Conc-% Code Count Mean Min Max Std Err Std Dev CV% %Effect 0 N 4 7.845 6.9 8.72 0.4205 0.841 10.72% -0.16% 3.1 4 7.535 6.9 8.64 0.3936 0.7873 1		9	· · · · · · · · · · · · · · · · · · ·										
Residual 23.64 0.7879 30		·							-				
Residual Analysis Attribute Method Test Stat Critical P-Value Decision(α:5%)					•		0.4615	0.8297	Non-Signi	ficant			
Note Method Test Stat Critical P-Value Decision(a:5%) Method Test Stat 14.07 0.8327 Equal Variances Equal Variances Mod Levene Equality of Variance 0.7677 2.423 0.6196 Equal Variances Equal Va													
Attribute Method Test Stat Critical P-Value Decision(α:5%) /ariances Bartlett Equality of Variance Test Mod Levene Equality of Variance Substribution 3.524 14.07 0.8327 Equal Variances Equal Variances Distribution Shapiro-Wilk W Normality Test Anderson-Darling A2 Normality Test A2 Normality				0.70	J1 9								
Agriances Bartlett Equality of Variance Test 3.524 14.07 0.8327 Equal Variances		-							*				
Mod Levene Equality of Variance 0.7677 2.423 0.6196 Equal Variances Shapiro-Wilk W Normality Test 0.9604 0.9338 0.2809 Normal Distribution Normal Distribu								 					
Shapiro-Wilk W Normality Test 0.9604 0.9338 0.2809 Normal Distribution Norma	/arianc	ces							•				
Anderson-Darling A2 Normality Te 0.6625 2.492 0.0840 Normal Distribution	المادة المادة	ıtion							· ·				
Cotal Dry Weight-mg Summary Calculated Variate Conc-% Code Count Mean Min Max Std Err Std Dev CV% %Effect 0 N 4 7.833 6.73 9.3 0.6047 1.209 15.44% 0.0% 1.5 4 7.845 6.9 8.72 0.4205 0.841 10.72% -0.16% 3.1 4 7.01 6.53 7.54 0.2352 0.4704 6.71% 10.5% 3.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 12.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%	JISTIDL	HOU	-		-								
Conc-% Code Count Mean Min Max Std Err Std Dev CV% %Effect 0 N 4 7.833 6.73 9.3 0.6047 1.209 15.44% 0.0% 5.5 4 7.845 6.9 8.72 0.4205 0.841 10.72% -0.16% 6.1 4 7.01 6.53 7.54 0.2352 0.4704 6.71% 10.5% 6.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 2.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%		•			Normality 16	5 U.0025	2.492	0.0040	Normai Di	เอนเมนเบท			
N 4 7.833 6.73 9.3 0.6047 1.209 15.44% 0.0% .5 4 7.845 6.9 8.72 0.4205 0.841 10.72% -0.16% 4 7.01 6.53 7.54 0.2352 0.4704 6.71% 10.5% 3.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 2.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 44.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%	otal D	ry Weight-	mg Summa	iry	,		Ca	Iculated Var	iate			_ ,	
4 7.845 6.9 8.72 0.4205 0.841 10.72% -0.16% 3 4 7.01 6.53 7.54 0.2352 0.4704 6.71% 10.5% 5.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 12.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%		%		·									
3 4 7.01 6.53 7.54 0.2352 0.4704 6.71% 10.5% 5.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 12.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%			N										
3.1 4 7.535 6.9 8.64 0.3936 0.7873 10.45% 3.8% 12.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%													
12.1 4 6.86 6.38 7.95 0.3661 0.7323 10.67% 12.42% 12.4.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%													
24.2 4 7.043 5.53 7.92 0.5512 1.102 15.65% 10.09%													
													۵
48 5													
1 0.000 1.01 1.000 1.010	48.5			4	6.565	4.84	7.86	0.644	1.288	19.62%	16.18%		1.

97

6.48

0.4008

0.8015

13.95%

26.62%

5.747

5

Report Date: Test Code/ID: 28 May-19 16:36 (p 2 of 2) 190969 / 16-6149-8060

Nautilus Environmental

Lemna Growth Inhibition Test

Analysis ID: 06-5484-6893 28 May-19 16:36 Endpoint: Total Dry Weight-mg Analysis:

Nonlinear Regression (NLR)

CETIS Version: Status Level:

CETISv1.9.4

i otai	Dry	Weig	ht-mg	Detail
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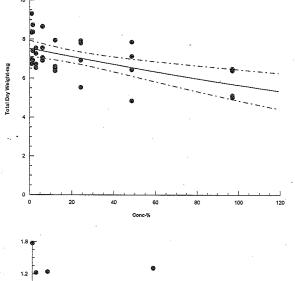
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	8.34	9.3	6.96	6.73
1.5		6.9	8.36	7.4	8.72
3		7.54	6.71	6.53	7.26
6.1		8.64	6.9	7.05	7.55
12.1		6.51	6.6	7.95	6.38
24.2		7.8	5.53	7.92	6.92
48.5		6.44	7.86	4.84	7.12
97		6.48	6.4	5.11	5

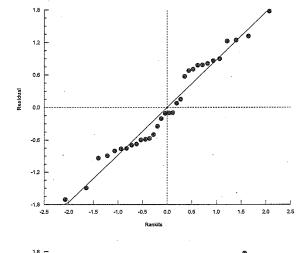
Graphics

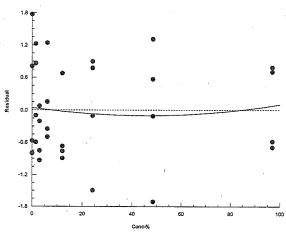
Analyzed:

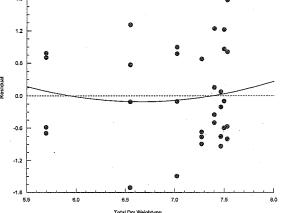
Model: 2P Exponential: $\mu = \alpha \cdot exp[log[0.5] \cdot x/\delta]$

Distribution: Normal [ω =1]









Analyst: M4



APPENDIX D – Pseudokirchneriella subcapitata Toxicity Test Data

Pseudokirchneriella subcapitata Summary Sheet

Client: Work Order No.:	Nyrstar 190968	Start Date: Set up by:	May 17/19 My
Sample Information	:		
Sample ID: Sample Date: Date Received: Sample Volume:	11A-Runoff May 14/19 May 15/19 7x20L	•	
Test Organism Info	rmation:		
Culture Date: Age of culture (Day 0		19 10/19 7d	
Zinc Reference Tox	icant Results:		
Reference Toxicant Stock Solution ID: Date Initiated:	197007 May 27 28	119	
72-h IC50 (95% CL):	32.9(29.9-36.0	») ug/L7n	
72-h IC50 Reference	Toxicant Mean and Range: 31.01	(25.2-38.1) cv(%):
Test Results:		Alga	l Growth
	IC25 %(v/v) (95% CL)		952
	IC50 %(v/v) (95% CL)		95.2
Reviewed by:	- Jou	_ Date reviewed	:_ June h/19

72-h Algal Growth Inhibition Toxicity Test Water Quality Measurements

Client :	Nyrstar				Setup by:M☐								
Sample ID:	***	11-0	Runof	₽		Test Date	417/190	7/19@ 1200h					
Work Order No.:		190	968			CER#:			14				
						Test Spec	ies:	Pseudokircl	hneriella sub	capitata			
Culture Date:),lC	WIOR		Age of Cul	lture:	7d	Culture He	alth:	GD	эф			
Culture Count:		2 420			「イジラ Min Culture Cell Densit			tがり c1):	435×10	od 4 cells/c	Y.		
	v1 =	220,000 ce	elis/ml x	[Do m]			_ = 15		_ 5.06mL				
				10° m1 35K104		cells/ml							
Time Zero Counts: 1			<i>30</i>	2 37	•	Average:		21 XN		· · · · ·			
No. of Cells/mL: ついまして こうしょうしょ			<u> </u>		Initial Density: # cells/mL + 220 µL x 10 µL = 9545 (e 4)								
Concentration	Water	Quality	ı	ncubator T	emperatur	е	Mici	day?					
%(v/v)	pН	Temp (°C)		1	C)			·	· · · · · · · · · · · · · · · · · · ·				
Control	0 h	0 h	0 h	24 h	48 h	72 h	0 h	24 h	48 h	72 h			
3.5	7.3	24.0	29,12	25,20	20,0	~ 2 C							
1.5	7.4	24.0					V						
3	<u> </u>	24.0					V	/	/	V			
Ь	7.5	24.0					<u></u>		/	~			
11.9	7.7	24,0					~		/	V			
23.8	7.7	240						/	/	V			
47.6	7.9	240						/	/	\(\sigma\)			
95.2	7.9	24,0	<u>↓</u>	\	<u></u>	1		1	/	~			
											,		
Initials	MU	MA	(UNI	MV		MA	MU	WE	6	MY			
Initial control pH:	Well 1:	;	7.3	7,3 Well 2: 7,3									
Final control pH: Well 1:			7.7		•	Well 2:		J.>	•				
Light intensity (lux):	42	30			Date mea	sured:	Ма	m 17/19		_		
Thermometer:	4	Light me	ter:	p-	l meter/pro	be:	/		J		,		
Sample Description	n:	clear,	colou	Vest, o	dowl	H, W	o parti	alate	2.8		-		
Comments:							¥						
Reviewed:		IG	i		- -	Dat	e reviewed:		June	12/19	_		

Pseudokirchneriella subcapitata Toxicity Test Data Sheet 72-h Algal Cell Counts

Client:	Nuvstav			Start D	ate/Time:	MRy 17/19@ 1200h MRy 20/19@ 1200h						
Work Order #:	190968 11-A Runoff		Terminat	tion Date:	Mayas							
			Test	set up by: _	Ma	····	,					
%(v/v)			- 7 - 3									
Concentration	Rep	Count 1	Count 2	Count 3	Count 4	C	omments		itials			
Control	Α	32						<u> </u>	10			
	В	39							1			
	С	36 M							<u> </u>			
	D				ļ.				 			
	E	40										
	F	35										
	G	36				·						
	Н	72										
	Α	31							or particular to the same of t			
	В	38										
1.7	С	38 34										
	D	32										
	Α	39				4						
3	В	41 338										
)	C	33										
	D	34										
6	Α	44										
	В	1 50										
	С	43										
	D	58										
	Α	49				***						
115	В	4										
8 4 . i	С	60										
11.5	D	59										
	Α	59'										
Sample ID: %(v/v) Concentration Control 1.5 3 6 11.7 23.8 47.4 95.7 Comments:	В	b 1										
	С	204										
	D	62										
į	Α	65										
47.6	В	76										
	C	104										
	D	69										
01 -1	<u> A</u>	54							-			
45.7	B C	50							-			
·	D	15 A T T T T T T T T T T T T T T T T T T			`							
		N E			<u> </u>							
Comments:		٥					^					
Reviewed by:		Tou		Date R	eviewed: _		June 12/19					

Pseudokirchneriella subcapitata Algal Counts

Client: Nyrstar Myra Falls Start Date/Time: 17-May-19 @ 1200h WO#: 190968 Termination Date/Time 20-May-19 @ 1200h Sample ID: 11A-Runoff 210000 9545 cell/mL Initial Cell Density: 0.22 0.01 Concentration Rep Count 1 Count 2 Count 3 Count 4 Mean Cell Yield 9545.455 %(v/v) $(x 10^4)$ $(x 10^4)$ $(x 10^4)$ $(x 10^4)$ $(x 10^4)$ $(x 10^4)$ cell/mL Control Α 32 32 31.0 34.4 mean 3.020761 В 39 38.0 SD 39 С 36 36 35.0 CV 8.776065 D 33 33 32.0 Ε 40 40 39.0 F 35 35 34.0 G 36 36 35.0 Н 32 32 31.0 1.5 Α 31 31 30.0 В 38 38 37.0 С 34 34 33.0 D 32 32 31.0 3 Α 39 39 38.0 В 41 41 40.0 С 38 38 37.0 D 34 34 33.0 6 Α 44 44 43.0 В 50 50 49.0 С 43 43 42.0 D 58 58 57.0 11.9 Α 48 48 47.0 В 54 54 53.0 C 60 60 59.0 D 59 59 58.0 23.8 Α 59 59 58.0 В 61 61 60.0 С 64 63.0 64 D 62 62 61.0 47.6 65 Α 65 64.0 В 76 76 75.0 С 64 64 63.0 D 69 69 68.0 95.2 Α 54 54 53.0 В 56 56 55.0 С 47 47 46.0 D 54 54 53.0

Reviewed by:	Tôn	Date reviewed:	,	Inne	{
<u>-</u>	······································		1		

Report Date: Test Code/ID: 28 May-19 17:51 (p 1 of 2) 190968 / 10-6613-1134

Sample ID: 11-6202-5560 Code: 45431A58 Project: Sample Date: 14 May-19 12:30 Material: Water Sample Source: Nyrstar Myra Falls Receipt Date: 15 May-19 08:51 CAS (PC): Station: 11A-Runoff Station: 11A-Runoff	Age: 7d
Start Date: 17 May-19 12:00 protocol: Protocol: EC/EPS 1/RM/25 protocol: Diluent: Decipolized Water + nutrients Ending Date: 20 May-19 12:00 Taxon: Species: Pseudokirchneriella subcapitata Brine: Decipolized Water + nutrients Sample ID: 11-6202-5560 Taxon: Code: 45431A58 Project: Project: Source: Nyrstar Myra Falls Receipt Date: 15 May-19 08:51 Taxon: CAS (PC): Station: 11A-Runoff Sample Age: 71h (14.2 °C) Client: Nyrstar Myra Falls Linear Interpolation Options X Transform Y Transform Seed Resamples Exp 95% CL Method Two-Point Interpolation Residual Analysis Attribute Method Test Stat Critical P-Value Decision(α:5%) Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL Without ICS >95.2 n/a n/a < 1.05 n/a n/a n/a <t< td=""><td></td></t<>	
Ending Date: 20 May-19 12:00 Species: Pseudokirchneriella subcapitata Brine: Test Length: 72h Taxon: Chlorophyta Source: In-House Culture	
Tason	Age: 7d
Sample ID: 11-6202-5560 Code: 45431A58 Project:	Age: 7d
Sample Date: 14 May-19 12:30	
Receipt Date: 15 May-19 08:51 CAS (PC): Station: 11A-Runoff	
Sample Age: 71h (14.2 °C) Client: Nyrstar Myra Falls	
Linear Interpolation Options X Transform Y Transform Seed Resamples Exp 95% CL Method Log(X+1) Linear 1158058 200 Yes Two-Point Interpolation Residual Analysis Attribute Method Test Stat Critical P-Value Decision(α:5%) Control Trend Mann-Kendall Trend Test 0.7232 Non-Significant Trend in Controls Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
X Transform Y Transform Seed Resamples Exp 95% CL Method	
Log(X+1) Linear 1158058 200 Yes Two-Point Interpolation Residual Analysis Attribute Method Test Stat Critical P-Value Decision(α:5%) Control Trend Mann-Kendall Trend Test 0.7232 Non-Significant Trend in Controls Point Estimates Level % 95% LCL 95% UCL 7U 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
Residual Analysis Attribut ► Method Test Stat Critical P-Value Decision(α:5%) Control Trend Mann-Kendall Trend Test 0.7232 Non-Significant Trend in Controls Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL 95% UCL 95% UCL 95%	
Attribute Method Test Stat Critical P-Value Decision(α:5%) Control Trend Mann-Kendall Trend Test 0.7232 Non-Significant Trend in Controls Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
Control Trend Mann-Kendall Trend Test 0.7232 Non-Significant Trend in Controls Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
Point Estimates Level % 95% LCL 95% UCL TU 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
Level % 95% LCL 95% UCL TU 95% LCL 95% UCL IC5 >95.2 n/a n/a <1.05	
IC5 >95.2 n/a n/a <1.05 n/a n/a IC10 >95.2 n/a n/a <1.05 n/a n/a	
IC10 >95.2 n/a n/a <1.05 n/a n/a	
IC15 >95.2 n/a n/a <1.05 n/a n/a	
IC20 >95.2 n/a n/a <1.05 n/a n/a IC25 >95.2 n/a n/a <1.05 n/a n/a	
IC40 >95.2 n/a n/a <1.05 n/a n/a	
IC50 >95.2 n/a n/a <1.05 n/a n/a	
Cell Yield Summary Calculated Variate Isotonic	ic Variate
Conc-% Code Count Mean Min Max Std Dev CV% %Effect Mean	%Effect
0 N 8 34.38 31 39 3.021 8.79% 0.0% 48.23	0.0%
1.5 4 32.75 30 37 3.096 9.45% 4.73% 48.23	0.0%
3 4 37 33 40 2.944 7.96% -7.64% 48.23	0.0%
6 4 47.75 42 57 6.898 14.45% -38.91% 48.23	0.0%
11.9 4 54.25 47 59 5.5 10.14% -57.82% 48.23	0.0%
23.8 4 60.5 58 63 2.082 3.44% -76.0% 48.23	0.0% 0.0%
47.6 4 67.5 63 75 5.447 8.07% -96.36% 48.23 95.2 4 51.75 46 55 3.948 7.63% -50.55% 48.23	0.0%
Cell Yield Detail	
Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 0 N 31 38 35 32 39 34 35 31	
1.5 30 37 33 31	
3 38 40 37 33	
6 43 49 42 57	
11.9 47 53 59 58	
23.8 58 60 63 61	
47.6 64 75 63 68	
95.2 53 55 46 53	

Report Date: Test Code/ID:

28 May-19 17:51 (p 2 of 2) 190968 / 10-6613-1134

EC Alga Growth Inhibition Test

Nautilus Environmental

Analysis ID: Analyzed:

20-3947-1346

28 May-19 17:50

Endpoint: Cell Yield

Analysis: Linear Interpolation (ICPIN)

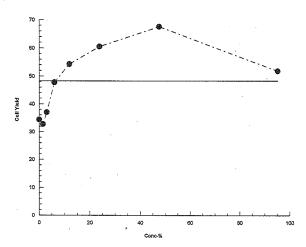
CETIS Version:

CETISv1.9.4

Status Level: 1

1

Graphics



Report Date: Test Code/ID:

28 May-19 17:51 (p 1 of 2) 190968 / 10-6613-1134

EC Alga Growth	Inhibition Test							Na	autilus Env	ironmental				
	-2324-7672 May-19 17:50	Endpoint: Analysis:	Cell Yield Parametric-Co	ntrol vs Trea	itments		S Version is Level:	: CETISv1	1.9.4					
Batch ID: 01	-1148-1374	Test Type:	Cell Growth			Anal	lyst: Mimi Tran							
Start Date: 17	May-19 12:00	Protocol:	EC/EPS 1/RM	/25		Dilue	ent: Deionized Water + nutrients							
Ending Date: 20	May-19 12:00	Species:	Pseudokirchne	riella subca	oitata	Brine	e:							
Test Length: 72	h	Taxon:	Chlorophyta			Sour	rce: In-House Culture Age:							
Sample ID: 11	-6202-5560	Code:	45431A58			Proje	ect:							
Sample Date: 14	May-19 12:30	Material:	Water Sample			Sour	urce: Nyrstar Myra Falls							
Receipt Date: 15	May-19 08:51	CAS (PC):				Stati	ation: 11A-Runoff							
Sample Age: 71	h (14.2 °C)	Client:	Nyrstar Myra F	alls		,								
Data Transform	Α	Alt Hyp				NOEL	LOEL	TOEL	TU	PMSD				
Untransformed	. 0	C < T		•		3	6	4.243	33.33	19.03%				
Dunnett Multiple	Comparison To	est												
Control vs	Conc-%	Test	Stat Critical	MSD DF	P-Type	P-Value	Decision	n(α:5%)						
Negative Control	1.5	-0.62	74 2.526	6.543 10	CDF	0.9890	Non-Sigr	nificant Effec	t					
	3	1.014	2.526	6.543 10	CDF	0.5445	Non-Sigr	nificant Effec	t					
	6*	5.164	2.526	6.543 10	CDF	5.9E-05	Significa	nt Effect						
	11.9*	7.674	2.526	6.543 10	CDF	<1.0E-37	Significa							
	23.8*	10.09	2.526	6.543 10	CDF	<1.0E-37	Significa	nt Effect						
	47.6*	12.79	9 2.526 6.543 10 CDF			<1.0E-37	Significa	nt Effect						
	95.2*	6.708	2.526	2.526 6.543 10 CDF			Significant Effect							
Auxiliary Tests								-		•				
Attribute	Test			Test Stat	Critical	P-Value	Decision	η(α:5%)						
Control Trend	Mann-Kenda	all Trend Test			,	0.7232	Non-Significant Trend in Controls							
ANOVA Table														
Source	Sum Square	s Mear	Square	DF .	F Stat	P-Value	Decision(α:5%)							
Between	5196.76	742.3	95	7 .	41.5	<1.0E-37	Significa	nt Effect						
Error	500.875	17.88	84	28	_				·					
Total	5697.64			35	- .									
Distributional Te	sts						*							
Attribute	Test			Test Stat	Critical	P-Value		0						
Variances	Bartlett Equa	lity of Variance	Гest	6.627	18.48	0.4687	Equal Va							
Distribution	Shapiro-Wilk	W Normality Te	st	0.9835	0.9166	0.8550	Normal Distribution							
Cell Yield Summ	ary	,												
Conc-%	Code C	ount Mear	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect				
0	N 8	34.38	31.85	36.9	34.5	31	39	1.068	8.79%	0.00%				
1.5	. 4	32.75	27.82	37.68	32	30	37	1.548	9.45%	4.73%				
3	4	37	32.32	41.68	37.5	33	40	1.472	7.96%	-7.64%				
6	4	47.75	36.77	58.73	46	42	57	3.449	14.45%	-38.91%				
11.9	4	54.25	45.5	63	55.5	47	59	2.75	10.14%	-57.82%				
23.8	4	60.5	57.19	63.81	60.5	58	63	1.041	3.44%	-76.00%				
47.6	4	67.5	58.83	76.17	66	63	75	2.723	8.07%	-96.36%				
95.2	4	51.75	45.47	58.03	53	46	55	1.974	7.63%	-50.55%				



APPENDIX E – Chain-of-Custody Form

autilus Envir	onmenta	1								Ch	ain	of	Cus	stod	ly (elec	tronic	3)
British Columbia: 8664 Com	merce Court, Burnab	y, BC V5A 4N3	Tel: 604-420-8773															
Washington: 5009 Pacific H	Washington: 5009 Pacific Highway East, Suite 2, Tacoma, WA 98424 California: 5550 Morehouse Drive, Suite 150, San Diego, CA 92121					Tel: 253-922-4296							Marc	ch 5 20)18 p	g 1/1		
California: 5550 Morehouse	Drive, Suite 150, Sar	Diego, CA 92	121		Tel: 858-587-7333													
Sample Collection By:		····			***************************************					ANAL	YSES	REC	UIRE	 ED				
	Report to:				Invoice to:				Aris .								,	7
Company	Nyrstar Myra F	alls I td		****	same				72-hr Selenastrum (or Pseudokirchneriella subcapitata)								Raceint Temperature (%)	-
Address	PO BOX 8000								api								1	Ś
City/State/Zip	e/Zip Campbell River, BC							_ r			50					2.5	5 5	
Contact	Craig Schweitz				Grace Augustin				n (o la s			LC 5					£	1
Phone	250-287-9271				250-287-9271 ext. 3221				trun								l l) -
Email					Grace.augustin@n		ج ا	nia	nas	Į		lagr					di.	-
	nicole.pesoner	@nyrstar.c	<u>om</u>		Nicole.pesonen@r		embryo	dap	Skirc	Ξ	250	a 🛚					Č	j
				T	1	I	ΞĘ Į	7-d Ceriodaphnia	hr S sudo	Lemna Minor	RBT LC50	Daphnia Magna						•
SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	# OF CONTAINERS	COMMENTS	7-d RBT) p-2	72- Pse	Len	RB	Dag						
1 0 11A-RUNOFF	2040.05.44	40.00			7 00/				v	,		X					14.	7
	2019-05-14	12:30	water	plastic	7×20L		X	X	Х	X	X	-^-		-	 	+-+	 	-
2													ļ		 	++		-
3										<u> </u>	ļ	<u> </u>	ļ	 	 	1	 	
4															<u> </u>	1		
5															<u> </u>			
6										<u> </u>								
7																		
8							133	19	89	89	20	10						
9							8	6-	60	50	20	0						
o							6-	2	<u>a</u>	6-	0	€3~						
PROJECT INFO	RMATION		SAMPLE R	ECEIPT	RELIQUINSHED BY (CLIENT)					RELIQUINSHED BY (COURIER)								7 200
Client: Nyrstar Myra	Falls	Total # Co	ntainers:	7	Signature: Signature:													
P.O. No.: 450174532	2	Good Con	ndition?	7	Print: Craig Schweitzer					Print:								
			N - 1 1 1 - 0	¥	Company: Nyrstar Myra Falls Ltd					Company:								
Shipped Via: Purolat	or	Matches 8	Schedule?	۲	Time/Date: March	5 15:00			Time/Date:									
SPECIAL INSTRUCTI	ONS/COMMEN	ΓS:			RECEIVED BY (COURIER)					ED BY	(LAE	BORA	TORY	()				
Please send results to	both emails liste	ed above.			Signature:					Signature: TA								
O llear, color			urtilulantes		Print:				Print: Ty	irone	Hom.	Nton						
					Company:				Compan									
		٥			Time/Date: May 15/19 @ 08; 5(f-						



END OF REPORT