



Environment Testing
America

AQUATIC TOXICOLOGY REPORT

Project Name: TRANSALTA CENTRALIA GENERATION

Location: CENTRALIA, WASHINGTON

Prepared by: Eurofins Environment Testing Northwest, LLC
(aka TestAmerica – ASL)

1100 NE Circle Boulevard, Suite 310
Corvallis, Oregon 97330
541-243-6137



Accredited in accordance
with NELAP

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Lab I.D. No. B5278

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Results relate only to the items tested and the sample(s) as received by the laboratory. The results included in this report have been reviewed for compliance and meet all requirements for accredited parameters. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in this report. For questions, please contact the Project Manager (contact info on next page).

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LABORATORY CONTACT: Michelle Bennett, Project Manager
Michelle.Bennett@eurofinset.com (541) 760-3031

INTRODUCTION

Eurofins Environment Testing Northwest, LLC Applied Sciences Laboratory (EETNW - ASL) conducted toxicity testing on sample(s) from TransAlta Centralia Generation LLC, Centralia, Washington.

Testing was initiated on: January 25, 2022

The test(s) were conducted using:

- the fathead minnow (*Pimephales promelas*)

OVERVIEW OF REGULATORY GUIDANCE

The following provides an overview and excerpts of applicable permit specifics, regulatory guidance, and other relevant information. This is intended only as a helpful guide, from a laboratory perspective, for understanding test outcomes. The final responsibility for interpretation of results remains with the client and/or regulatory agency.

The following guidance is taken from EETNW-ASL's reading of the NPDES permit for the Trans Alta, Centralia, Washington facility (permit #WA0001546, effective October 1, 2016, expires September 31, 2021).

Note: No subsequent permit had been received by EETNW - ASL at the time of testing.

Acute toxicity:

- *Testing When There Is No Permit Limit for Acute Toxicity:*
 - "Conduct acute toxicity testing on final effluent during the first and third quarters of 2019 and submit results/report with the permit renewal application."
 - "Conduct acute toxicity testing on a series of at least five concentrations of effluent, including 100% effluent and a control."
- *Sampling and Reporting Requirements:*
 - "The ACEC equals 100 percent effluent."

Chronic toxicity:

- *Effluent Limit for Chronic Toxicity:*
 - "The effluent limit for chronic toxicity is:"
 - "No toxicity detected in a test concentration representing the chronic critical effluent concentration (CCEC)."
 - "This permit does not authorize a mixing zone, therefore the ACEC and CCEC are 100 percent effluent. The CCEC equals 100 percent effluent."
- *Compliance Testing for chronic Toxicity:*
 - "Conduct twice a year chronic toxicity testing on final effluent, during the first and third quarter of every year for three years. Testing must begin in 2017."

- "Conduct chronic toxicity testing on a series of at least five concentrations of effluent and a control. This series of dilutions must include the acute critical effluent concentration (ACEC) and chronic critical effluent concentration (CCEC)."
- *Response to Noncompliance With the Effluent Limit for Chronic Toxicity:*
 - "If a [chronic] toxicity test ... determines a statistically significant difference in response between the CCEC and the control ... the permittee must begin additional testing within one week from the time of receiving the test results. The Permittee must:
 1. Conduct additional testing each month for three consecutive months using the same test and species as the failed compliance test.
 2. Use a series of at least five effluent concentrations ... The results of the test at the CCEC will determine compliance with the effluent limit...
 3. Return to the original monitoring frequency ... after completion of the additional compliance monitoring.
 - If the additional testing ... shows another violation of the chronic toxicity limit, the Permittee must submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to Ecology within 60 days after the sample date."
- *Sampling and Reporting Requirements:*
 - "The Permittee must collect 24-hour composite effluent samples or grab samples for toxicity testing ... The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed."
 - "All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent."
 - "The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent."

The following is taken from the WDOE guidance (WQ-R-95-80, Jun 2016 revision):

- "To reduce WET limit violations (and anomalous concentration-response relationships) due to statistical significance that is a Type I error [false positive], we lower alpha when differences in test organism response are small."
- "Alpha will be lowered from 0.05 to 0.01 if a 10% difference in an acute test is significant or a 20% difference in a chronic test is significant."

SUMMARY OF TEST RESULTS

Exhibits 1 and 2 provide a summary of the final test results.

EXHIBIT 1

Summary of Acute Test Results

Species	NOEC (%)	LOEC (%)	LC ₅₀ (%)	Was a statistically significant difference between control and ACEC shown?
<i>P. promelas</i>	100	> 100	> 100	No

Note: acronyms are as defined below.

From the NPDES permit – The ACEC equals 100%

More detailed information is provided in the Results and Discussion section.

EXHIBIT 2

Summary of Chronic Test Results

Species	NOEC (%)	LOEC (%)	IC ₂₅ (%)	Was a statistically significant difference between control and CCEC shown?
<i>P. promelas</i>	100	> 100	> 100	No

Note: acronyms are as defined below.

From the NPDES permit - “No toxicity detected in a test concentration representing the CCEC [100%]”

More detailed information is provided in the Results and Discussion section.

ACRONYM DEFINITIONS (from EPA guidance):

NOEC = No Observed Effect Concentration: The highest test concentration that causes no observable adverse effects on the test organisms (i.e. no statistically significant reduction from the control).

LOEC = Low Observed Effect Concentration: The lowest test concentration that does cause an observable adverse effect on the test organisms (i.e. is statistically significant reduction from the control).

LC₅₀ = Lethal Concentration (50%): A point estimate of the test concentration that would cause death in 50 percent of the test population.

IC₂₅ = Inhibition Concentration (25%): A point estimate of the test concentration that would cause a 25 percent reduction of a non-quantal biological measurement (i.e. growth, reproduction, etc.) for the test population.

SAMPLE INFORMATION

Exhibit 3 provides a summary of the sample conditions as received.

EXHIBIT 3

Sample Conditions on Receipt

Sample ID	001		
EETNW - ASL SDG + suffix	B5278		
	-01	-02	-03
Collection - Date and Time	01/24/2022 09:30	01/26/2022 10:00	01/28/2022 09:00
Receipt - Date and Time	01/25/2022 11:20	01/27/2022 11:08	01/28/2022 10:45
Temperature (°C)	0.9 to 1.5	0.8 to 1.2	1.1
Dissolved Oxygen (mg/L)	9.5	9.9	9.8
pH	7.4	7.2	7.3
Conductivity (µS/cm)	747	811	836
Total Residual Chlorine (mg/L)	0.03	0.03	0.02
Ammonia (mg/L as NH ₃ -N)	0.22	0.21	0.24
Total Hardness (mg/L as CaCO ₃)	244	261	250
Total Alkalinity (mg/L as CaCO ₃)	67	86	83

METHODS AND MATERIALS

TEST METHODS

The acute test methods were performed according to: *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water (2002), EPA-821-R-02-012.

The chronic test methods were performed according to: *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, (2002), EPA-821-R-02-013.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

DEVIATIONS FROM PROTOCOLS

Deviations from required procedures in the test methods:

- None noted.

Deviations from recommended procedures in the test methods:

- All subsequent uses of a sample did not occur within the WDOE recommended maximum holding time of 72 hours past the time of collection. See Sample Collection and Storage for further detail.

TEST DESIGN

The following summarizes the conditions used for both overall testing and the specifics for each test (observations and notations can be found on the datasheets in Appendix A):

Overall Test Design:

- Acute tests: 6.25, 12.5, 25, 50, and 100 percent sample + dilution water for the control.
- Chronic tests: 6.25, 12.5, 25, 50, and 100 percent sample + dilution water for the control.

Test Organism Conditions:

- All organisms tested were fed and maintained during culturing, acclimation, and testing as prescribed by the EPA (2002).
- The test organisms appeared vigorous and in good condition prior to testing.

P. promelas acute test (renewal):

- Source: Aquatox Inc., Hot Springs, Arkansas
- Age: 1 to 14 days old, within a 24 hour age range
- Design: Four test vessels per concentration, Ten organisms per vessel
- Test Solution Renewal: Once @ 48 hours (i.e. static-renewal test)
- Monitoring:
 - Daily: Survival, DO, pH, and temperature; all concentrations.
 - Pre and Post Renewal solutions: DO and pH, all concentrations.
 - Test Initiation, with each new sample use, and Termination:
 - Conductivity, all concentrations (WDOE)
- Termination: 96 hours.
- Endpoints: Survival (at termination)

P. promelas chronic test:

- Source: Aquatox Inc., Hot Springs, Arkansas
- Age: Less than 48 hours old and within an 24 hour age range
- Design: Four test vessels per concentration, ten organisms per vessel
- Test Solution Renewal: Daily
- Monitoring:
 - Daily: Survival
 - Daily: DO and pH in pre and post-renewal solutions, all concentrations
 - Daily: Temperature in pre-renewal solutions, all concentrations
 - With each new sample: Conductivity in post-renewal solutions, control and highest sample concentration

- Termination: 7 days after test initiation.
- Endpoints: Survival and Growth (average dry weight per organism added @ initiation)

DILUTION WATER

The dilution water used was the standard culture water used by EETNW - ASL:

- Reconstituted, moderately hard water (as per EPA protocol) with a total hardness of 75 to 105 mg/L as CaCO₃ and an alkalinity of 50 to 75 mg/L as CaCO₃.

SAMPLE COLLECTION AND STORAGE

Samples were collected by TransAlta personnel. The samples were accepted as scheduled by EETNW - ASL. Chain of Custody and Sample Receipt Records are provided in Appendix C.

- All samples were received within the EPA recommended 0 to 6 °C range.
- All samples were received within the WDOE required 0 to 6 °C range.
- All samples were initially used for test initiation or test solution renewal within the EPA recommended maximum holding time of 36 hours of sample collection.
- All subsequent uses of a sample occurred within the EPA recommended maximum holding time of 72 hours past the time of initial use of that sample.
- All subsequent uses of a sample did not occur within the WDOE recommended maximum holding time of 72 hours past the time of collection.
 - The subsequent use of the third sample was used past the WDOE recommended time. The sample was collected January 28th at 09:00 and was used January 31st (Day 6) at 15:45 (78 hours and 45 minutes past collection).
- All subsequent uses of a sample occurred within the WDOE recommended maximum holding time of 84 hours past the time of sample collection. (Extended for renewals of a 96 hour duration acute test).
- Following receipt, the samples were stored in the dark at 0 to 6 °C until test solutions were prepared and tested.

SAMPLE PREPARATION

Samples used during these tests were:

- Temperature adjusted prior to test initiation and each daily renewal.

DATA ANALYSIS

The statistical analyses performed for the acute tests were those outlined in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water, Fifth Edition (2002), EPA-821-R-02-012, using CETIS.

The statistical analyses performed for the chronic tests were those outlined in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, USEPA Office of Water, Fourth Edition (EPA 2002), EPA-821-R-02-013, using CETIS.

- The specific statistical analysis and CETIS version used for each endpoint evaluation is listed with the statistical outputs included with each test in Appendix A.
- If any additional analysis methods were also used, an explanation of the rationale and reference to the source method is included with the presentation of those results below.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

RESULTS AND DISCUSSION

The raw data sheets for all tests are presented in Appendix A.

ACUTE BIOASSAY

Table 1 summarizes the survival data for the *P. promelas* acute test.

Table 1 Summary of Acute Results <i>P. promelas</i>	
Sample Concentration (%)	Percent Survival (at Test Termination)
Control	100
6.25	100
12.5	100
25.0	100
50.0	92.5
100	100

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- LC₅₀ > 100 %

From the NPDES permit – The ACEC equals 100%

- No statistically significant difference between control and ACEC was shown.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained in the range of 20±1 °C.

The *P. promelas* acute test meets Test Acceptability Criteria (TAC) of a minimum 90 percent control survival. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered “valid”.

CHRONIC BIOASSAY

Table 2 summarizes the survival and growth data for the *P. promelas* chronic test.

Table 2 Summary of Chronic Results <i>P. promelas</i>		
Sample Concentration (%)	Percent Survival	Mean Dry Weight Per Organism Added (mg)
Control	100	0.868
6.25	97.5	0.767
12.5	97.5	0.764
25.0	95.0	0.833
50.0	95.0	0.769
100	90.0	0.774

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- IC₂₅ > 100 %

From the NPDES permit - “No toxicity detected in a test concentration representing the CCEC [100%].”

- No statistically significant difference between control and CCEC was shown.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained at 25±1°C.

The *P. promelas* test meets Test Acceptability Criteria (TAC) for a minimum 80 percent control survival and a minimum weight of 0.250 mg per surviving control organism. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered “valid”.

REFERENCE TOXICANT TESTS

Reference toxicant (reftox) testing is performed to document both initial and ongoing laboratory performance of the test method(s). While the health of the test organisms is primarily evaluated by the performance of the laboratory control, reftox test results also may be used to assess the health and sensitivity of the test organisms. Reftox test results within their respective cumulative summary (Cusum) chart limits are indicative of consistent laboratory performance and normal test organism sensitivity.

The results of the reftox tests indicate that the test organisms were within their respective cusum chart limits based on EPA guidelines. This demonstrates ongoing laboratory proficiency of the test methods and suggests normal test organism sensitivity in the associated client testing.

The *P. promelas* acute reftox test was conducted using sodium chloride. The *P. promelas* chronic reftox test was conducted using potassium chloride. The data sheets for the reference toxicant tests are provided in Appendix B.

Table 3 and 4 summarizes the reference toxicant test results and Cusum chart limits.

Table 3		
Acute Reference Toxicant Tests (g/L)		
Species	LC₅₀	Cusum Chart Limits
<i>P. promelas</i>	7.7	5.9 to 8.7

Table 4		
Chronic Reference Toxicant Tests (g/L)		
Species	IC₂₅	Cusum Chart Limits
<i>P. promelas</i> (survival)	0.63	0.58 to 0.67
<i>P. promelas</i> (growth)	0.56	0.44 to 0.72

APPENDIX A
RAW DATA SHEETS

FRESHWATER TOXICITY TEST: TEST ORGANISM INFORMATION

Client

Transalta Corporation

Sample Designation (SDG): B

5278

Test Species Information	FHM # 2200 <i>Pimephales promelas</i> Chronic	FHM # 2200 <i>Pimephales promelas</i> Acute			
Organism Age at Initiation	<48 hrs, all within a 24 hour window	1 Days, within a 24 hour window			
Test Container Size	400 ml	400 ml			
Test Volume	500 ml	250 ml			
Feeding: Type and Amount	0.15 ml <i>Artemia</i> , 2 x Daily	0.15 ml <i>Artemia</i> , @ 48 hrs			
Aeration:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Prior to use <input type="checkbox"/> @ _____ hrs	<input checked="" type="checkbox"/> None <input type="checkbox"/> Prior to use <input type="checkbox"/> @ _____ hrs			
In Test Chambers via Slow Bubble :					
Acclimation Period	<24 hrs	0 Days			
Organism Source	Aquatox	Aquatox			
Size	-	-			
Loading Rate	-	-			

Dissolved Oxygen aeration justifications (in test chambers):

Test(s): ☐ All ☐ _____

Date:

Comments:

Test Solution Preparation and Dilution Record

Client: Transalta Corporation

Note: ☐ Indicates task not done, ☒ Indicates task was done. Temp adj. = Temperature adjusted to ambient or test temp
Ditto marks (' ') indicate that the same SDG, batch of dilution water, or food as the previous day's entry was used.

Fathead minnow - Chronic

Test Concentration (%)	Sample Volume (mls)	Final Volume (mls)
Control	0.00 →	2000
6.25	125 →	2000
12.5	250 →	2000
25	500 →	2000
50	1,000 →	2000
100	2,000 →	2000

Total Sample volume needed per day = 3875 mls

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B67274-01	<input checked="" type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54433	1/29/2022	11:40	TC
1	B67274-01	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54433	1/29/22	05:50	TC
2	B67274-02	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54435	1/31/22	12:15	SLC
3	B67274-02	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54436	1/28/22	10:47	SLC
4	B67274-03	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54436	1/29/22	11:40	SLC
5	B67274-03	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54436	1/30/22	22:09:19	TC
6	B67274-03	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54437	1/31/22	09:37	TC

Fathead minnow - Acute

Test Concentration (%)	Sample Volume (mls)	Final Volume (mls)
Control	0.00 →	1000
6.25	62.5 →	1000
12.5	125 →	1000
25	250 →	1000
50	500 →	1000
100	1,000 →	1000

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B67274-01	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54433	1/24/2022	11:51	TC
2	B67274-01	<input type="checkbox"/> Temp adj, <input type="checkbox"/> Aerated	ID # 54433	1/27/2022	07:40	TC

Total Sample volume needed per day = 1938 mls

Random Template Used:

6 conc. x 4 reps. #

50

Waterbath/Incubator Used: #

1

Test Initiation

Date:

Time:

27

Sample Description

Initial Sample ID # B 52

0.

Termination

Date:

Time:

33

Client

Transalta C

moration

Time 0 hr

75

48 hr

50

2

Test Species

hales promelas

ID# FHM 2200

Therm. ID# 0 hr #

057

48 hr

22

1

23

[illegible]

96 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 8 Waterbath/Incubator Used: # 7 Date: 1 29 22 Time: 19:27

Sample Description: Initial Sample ID # B 6278-01 Termination Date: 1 29 22 Time: 14:35

Client: Transalta Corporation Technician: TC 24 hr TC 48 hr TC 72 hr TC 96 hr TC

Test Species: *Pimephales promelas* ID# FHM 2200 Therm. ID# 0 Time 14:27 0 hr TC 24 hr TC 48 hr TC 72 hr TC 96 hr TC

Percent	Test Container Number	Number of Live Organisms					Dissolved Oxygen (mg/l)					pH					Temperature (°C)					Conductivity (µmols/cm)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
25	A	10	10	10	10	10	8.5	8.3	8.4	8.4	7.6	7.5	7.4	7.6	7.7	19.3	19.7	19.5	20.0	19.8	447	469	442	481		
	B	10	10	10	10	10					20.6 TC 1125															
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
50	A	10	10	10	10	9	8.9	8.3	8.4	8.3	7.2	7.5	7.8	7.6	7.7	19.3	19.7	19.5	19.9	19.8	554	571	556	580		
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	8																				
100	A	10	10	10	10	10	9.1	8.4	8.4	8.3	7.0	7.5	7.7	7.6	7.7	19.3	19.6	19.6	19.9	19.7	704	784	772	814		
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				

CETIS Summary Report

Report Date: 08 Feb-22 09:49 (p 1 of 1)
Test Code/ID: B527801ppa / 17-4248-7290

Fathead Minnow 96-h Acute Survival Test

Eurofins TestAmerica - Corvallis

Batch ID: 15-3024-9927	Test Type: Survival (96h)	Analyst: Michelle Bennett
Start Date: 25 Jan-22 15:27	Protocol: EPA/821/R-02-012 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 29 Jan-22 14:35	Species: Pimephales promelas	Brine:
Test Length: 95h	Taxon: Actinopterygii	Source: Aquatox, AR Age: 1 D
Sample ID: 21-3874-5928	Code: B5278-01	Project:
Sample Date: 24 Jan-22 09:30	Material: Industrial Effluent	Source: Trans Alta (TRANS ALTA)
Receipt Date: 25 Jan-22 11:20	CAS (PC):	Station:
Sample Age: 30h (1.5 °C)	Client:	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
03-0651-8368	96h Survival Rate	Steel Many-One Rank Sum Test	100	>100	---	6.66%	1	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
08-8208-2244	96h Survival Rate	Linear Interpolation (ICPIN)	EC50	>100	---	---	<1	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
03-0651-8368	96h Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria
08-8208-2244	96h Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
25		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
50		4	0.9250	0.7727	1.0770	0.8000	1.0000	0.0479	0.0957	10.35%	7.50%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%

96h Survival Rate Detail

MD5: 9BC00A22C9BA5DD59DEF9A05E4D4988B

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		0.9000	1.0000	1.0000	0.8000
100		1.0000	1.0000	1.0000	1.0000

96h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		9/9	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		9/10	10/10	10/10	8/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date: 08 Feb-22 09:48 (p 1 of 2)
Test Code/ID: B527801ppa / 17-4248-7290

Fathead Minnow 96-h Acute Survival Test						Eurofins TestAmerica - Corvallis	
Analysis ID:	03-0651-8368	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.9.7		
Analyzed:	08 Feb-22 9:47	Analysis:	Nonparametric-Control vs Treatments	Status Level:	1		
Edit Date:	08 Feb-22 9:46	MD5 Hash:	9BC00A22C9BA5DD59DEF9A05E4D4988	Editor ID:	000-042-882-4		
Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Angular (Corrected)	C > T	100	>100	---	1	0.06656	6.66%

Steel Many-One Rank Sum Test									
Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	18	10	1	6	CDF	0.8333	Non-Significant Effect
		12.5	18	10	1	6	CDF	0.8333	Non-Significant Effect
		25	18	10	1	6	CDF	0.8333	Non-Significant Effect
		50	14	10	1	6	CDF	0.3451	Non-Significant Effect
		100	18	10	1	6	CDF	0.8333	Non-Significant Effect

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0452761	0.0090552	5	2.514	0.0680	Non-Significant Effect
Error	0.0648418	0.0036023	18			
Total	0.110118		23			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Bartlett Equality of Variance Test				Indeterminate	
Distribution	Shapiro-Wilk W Normality Test	0.5597	0.884	<1.0E-05	Non-Normal Distribution	

96h Survival Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
50		4	0.9250	0.7727	1.0000	0.9500	0.8000	1.0000	0.0479	10.35%	7.50%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

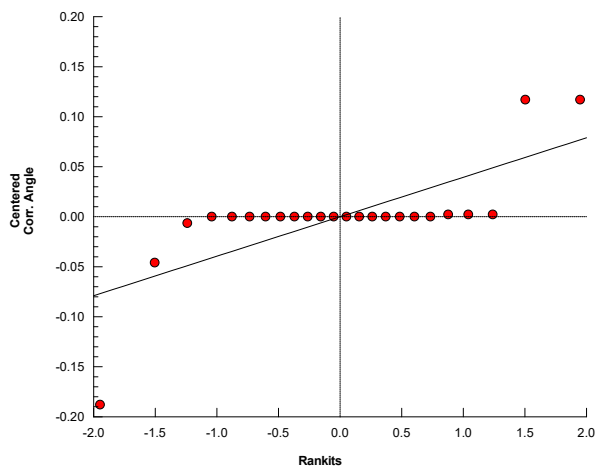
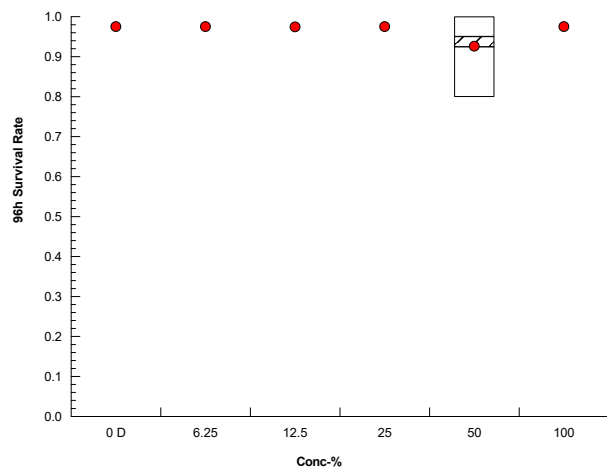
Angular (Corrected) Transformed Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
6.25		4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
12.5		4	1.4100	1.4030	1.4170	1.4120	1.4030	1.4120	0.0022	0.31%	0.15%
25		4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
50		4	1.2950	1.0610	1.5290	1.3310	1.1070	1.4120	0.0735	11.35%	8.28%
100		4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%

Fathead Minnow 96-h Acute Survival Test

Eurofins TestAmerica - Corvallis

Analysis ID: 03-0651-8368
Analyzed: 08 Feb-22 9:47
Edit Date: 08 Feb-22 9:46Endpoint: 96h Survival Rate
Analysis: Nonparametric-Control vs Treatments
MD5 Hash: 9BC00A22C9BA5DD59DEF9A05E4D4988CETIS Version: CETISv1.9.7
Status Level: 1
Editor ID: 000-042-882-4

Graphics



CETIS Analytical Report

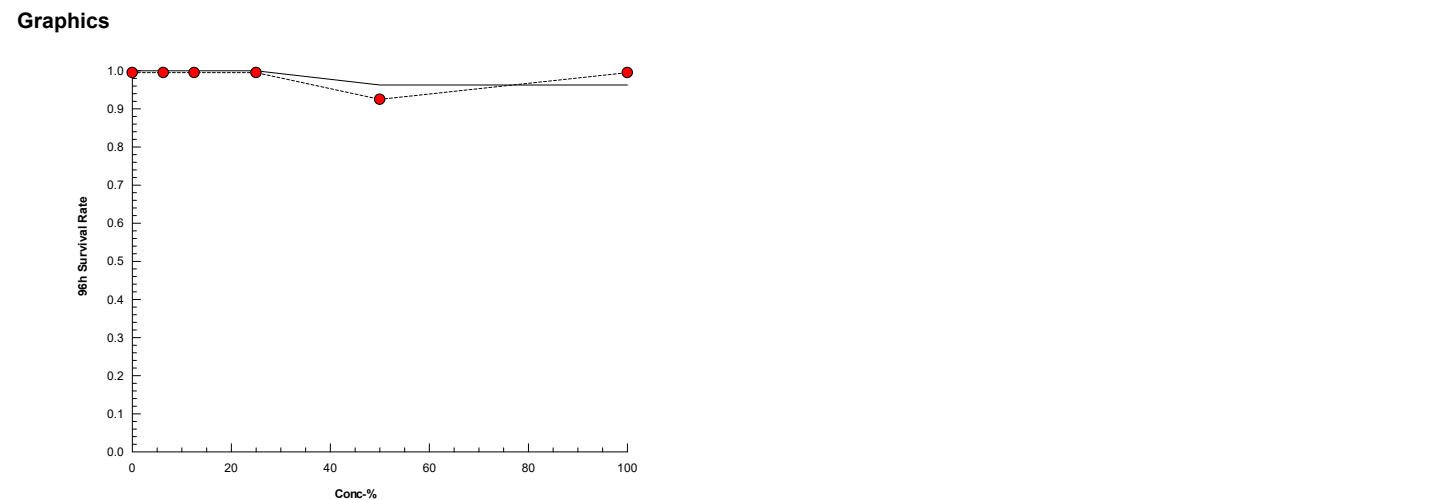
Report Date: 08 Feb-22 09:48 (p 1 of 1)
Test Code/ID: B527801ppa / 17-4248-7290

Fathead Minnow 96-h Acute Survival Test						Eurofins TestAmerica - Corvallis	
Analysis ID:	08-8208-2244	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.9.7		
Analyzed:	08 Feb-22 9:47	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1		
Edit Date:	08 Feb-22 9:46	MD5 Hash:	9BC00A22C9BA5DD59DEF9A05E4D4988	Editor ID:	000-042-882-4		

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	1256634	200	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC50	>100	---	---	<1	---	---

96h Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc.-%	Code	Count	Mean	Median	Min	Max	CV%	%Effect	A/B	Mean	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	40/40	1.0000	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	40/40	1.0000	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	39/39	1.0000	0.00%
25		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	40/40	1.0000	0.00%
50		4	0.9250	0.9500	0.8000	1.0000	10.35%	7.50%	37/40	0.9625	3.75%
100		4	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	40/40	0.9625	3.75%



FATHEAD MINNOW 7-DAY SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 7

Waterbath/incubator Used:

Date Initiated 1/25/2022 Time 16:15

Date Terminated 2/1/2022 Time 11:15

Initial sample ID B 5278 -01

4

Sample Description

Client Transalta Corporation

Tech: Day 0 KG Day 1 KG Day 2 TC Day 3 KG Day 4 KG Day 5 TC Day 6 KG Day 7 KG

Time Day 0 1615 Day 1 1319 Day 2 1553 Day 3 1455 Day 4 1417 Day 5 1037 Day 6 1545 Day 7 1115

Conc. or Percent	Day	Number of Live Organisms				Dissolved O ₂ (mg/l)		pH		Temp. (°C)	Therm. ID #	Conductivity (µS)
		A	B	C	D	Pre	Post	Pre	Post	Pre	Post	Post (1 st use)
Control	0	10	10	10	10		8.2		8.2	24.8	252	327
	1	10	10	10	10	7.4	8.5	7.7	7.8	24.5	250	
	2	10	10	10	10	7.1	8.7	7.9	8.0	24.8	250	330
	3	10	10	10	10	7.1	8.3	7.8	8.2	25.2	259	
	4	10	10	10	10	6.9	8.1	8.0	8.2	24.7	250	324
	5	10	10	10	10	6.7	8.5	7.7	8.0	24.4	250	
	6	10	10	10	10	7.0	7.8	7.8	8.1	25.1	259	
	7	10	10	10	10	6.9		7.9		24.8	259	
6.25 %	0	10	10	10	10		8.1		8.1	Post: 25.0		
	1	10	10	10	10	7.4	8.5	7.7	7.8	24.2		
	2	10	10	10	10	7.1	8.3	7.8	8.0	24.7		3100
	3	10	10	10	9	6.7	8.2	7.5	8.1	25.3		
	4	10	10	10	9	6.7	8.1	7.8	8.1	24.6		350
	5	10	10	10	9	6.8	8.7	7.7	8.0	24.2		
	6	10	10	10	9	6.5	7.9	7.7	8.1	25.1		
	7	10	10	10	8	6.8		7.7		24.8		
12.5 %	0	10	10	10	10		8.2		8.0	Post: 25.0		
	1	10	10	10	10	7.3	8.10	7.6	7.7	24.5		
	2	10	10	10	10	6.9	8.7	7.9	7.9	24.6		388
	3	10	10	10	10	6.5	8.3	7.4	8.0	25.3		
	4	10	10	10	10	6.7	8.2	7.7	8.0	25.0		392
	5	10	10	10	9F	6.5	8.5	7.7	7.9	24.2		
	6	10	10	10	9	6.2	8.0	7.6	8.1	25.1		
	7	10	10	10	9	6.7		7.7		25.0		
25 %	0	10	10	10	10		8.2		7.8	Post: 24.8		
	1	10	9	10	10	7.3	8.10	7.6	7.6	24.4		
	2	10	9	10	10	6.8	8.9	7.7	7.8	24.5		444
	3	10	8	10	10	6.5	8.4	7.4	7.9	25.1		
	4	10	8	10	10	6.7	8.3	7.7	7.9	24.9		454
	5	10	8	10	10	6.8	8.10	7.6	7.8	24.1		
	6	10	8	10	10	6.2	8.0	7.6	8.0	25.1		
	7	10	8	10	10	6.6		7.6		24.8		
50 %	0	10	10	10	10		8.2		7.6	Post: 24.9		
	1	10	10	10	10	7.2	8.7	7.5	7.5	24.4		
	2	10	10	10	10	6.9	8.0	7.7	7.7	24.8		556
	3	10	10	10	10	6.7	8.5	7.4	7.7	25.2		
	4	10	10	10	10	6.6	8.4	7.7	7.8	24.9		563
	5	10	10	10	9	6.6	8.5	7.6	7.6	24.5		
	6	10	9	10	7F	6.3	8.2	7.6	7.8	25.1		
	7	10	9	10	7	6.5		7.6		25.0		
100 %	0	10	10	10	10		8.5		7.4	Post: 24.8		
	1	10	10	10	10	7.2	8.7	7.5	7.3	24.3		
	2	10	10	10	10	7.0	8.0	7.7	7.5	24.6		765
	3	10	10	10	10	6.8	8.6	7.4	7.5	25.2		
	4	10	10	10	7	6.7	8.5	7.6	7.6	24.8		792
	5	10	10	10	7	6.6	8.7	7.6	7.4	24.2		
	6	10	10	10	7	6.4	8.2	7.6	7.6	25.2		
	7	10	10	9	7	6.6		7.6		24.9		

✓ Indicates one organism inadvertently poured off during solution renewal, replaced into container.

"M" = organism missing, start count reduced. "Inj" = organism injured, remove from stats.

"F" = fungus noted on dead organisms.

□ Aeration in test chambers begun @ (Note observations on Test Organism Info sheet)

Post shake down TC 1/27 TC 1/30

Pre = Pre-renewal solutions. Post = Post-renewal solutions

Day 0 Temperatures = Post-renewal

Therm ID# = Thermometer ID used for all measurements that day.

(23.8) = Temp. out of recommended range

FATHEAD MINNOW 7-DAY GROWTH DATA

Client Transalta Tins Labeled As: Trans
 Lab ID: B5278 Start Date: _____
 Sample Description: _____

Technician: _____ TC
 Date: 1/25/2022
 Balance Serial #: B328543647 B328543647

Percent	Replicate	Total Weight (mg)	Tare Weight (mg)	No. of Fish
Control	A		1010.63	10
	B		1046.29	10
	C		1036.41	10
	D		1032.01	10
6.25 %	A		1029.31	10
	B		1011.53	10
	C		1032.51	10
	D		1002.65	9
10 %	A		1025.69	10
	B		1039.41	10
	C		1042.32	10
	D		1037.40	9
25 %	A		1019.59	10
	B		1012.69	8
	C		1045.69	10
	D		1041.58	10
50 %	A		1009.24	10
	B		1010.06	9
	C		1015.26	10
	D		1042.62	7
100 %	A		1019.22	10
	B		1028.01	10
	C		1013.60	9
	D		1038.81	7
	A			
	B			
	C			
	D			

weigh to 0.01 mg

FATHEAD MINNOW 7-DAY GROWTH DATA

Client Transalta Tins Labeled As: Trans
 Lab ID: B5278 Start Date: 1/25/2022
 Sample Description: _____

Technician: TC TC
 Date: 2/6/2022 1/25/2022
 Balance Serial #: B328543647 B328543647

Percent	Replicate	Total Weight (mg)	Tare Weight (mg)	No. of Fish
Control	A	1019.66	1010.63	10
	B	1054.12	1046.29	10
	C	1045.09	1036.41	10
	D	1041.18	1032.01	10
6.25 %	A	1037.55	1029.31	10
	B	1018.36	1011.53	10
	C	1040.97	1032.51	10
	D	1009.79	1002.65	9
12.5 %	A	1033.32	1025.69	10
	B	1047.65	1039.41	10
	C	1049.90	1042.32	10
	D	1044.50	1037.40	9
25 %	A	1029.40	1019.59	10
	B	1018.62	1012.69	8
	C	1054.00	1045.69	10
	D	1050.86	1041.58	10
50 %	A	1017.52	1009.24	10
	B	1018.13	1010.06	9
	C	1024.28	1015.26	10
	D	1048.00	1042.62	7
100 %	A	1028.48	1019.22	10
	B	1036.52	1028.01	10
	C	1021.51	1013.60	9
	D	1044.07	1038.81	7
	A			
	B			
	C			
	D			

weigh to 0.01 mg

CETIS Summary Report

Report Date: 08 Feb-22 09:57 (p 1 of 2)
Test Code/ID: B527801ppc / 10-9520-3150

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

Batch ID: 20-2006-0427	Test Type: Growth-Survival (7d)	Analyst: Michelle Bennett
Start Date: 25 Jan-22 16:15	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 01 Feb-22 11:15	Species: Pimephales promelas	Brine:
Test Length: 6d 19h	Taxon: Actinopterygii	Source: Aquatox, AR Age: 1d
Sample ID: 21-3874-5928	Code: B5278-01	Project:
Sample Date: 24 Jan-22 09:30	Material: Industrial Effluent	Source: Trans Alta (TRANS ALTA)
Receipt Date: 25 Jan-22 11:20	CAS (PC):	Station:
Sample Age: 31h (1.5 °C)	Client:	

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
12-3469-4558	7d Survival Rate	Steel Many-One Rank Sum Test	100	>100	---	14.8%	1	1
08-2409-5558	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	100	>100	---	25.0%	1	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
04-1995-7488	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	IC25	>100	---	---	<1	1

Test Acceptability

TAC Limits

Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
12-3469-4558	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
04-1995-7488	Mean Dry Biomass-mg	Control Resp	0.8677	0.25	>>	Yes	Passes Criteria
08-2409-5558	Mean Dry Biomass-mg	Control Resp	0.8677	0.25	>>	Yes	Passes Criteria
08-2409-5558	Mean Dry Biomass-mg	PMSD	0.2498	0.12	0.3	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
6.25		4	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%
12.5		4	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%
25		4	0.9500	0.7909	1.1090	0.8000	1.0000	0.0500	0.1000	10.53%	5.00%
50		4	0.9000	0.6750	1.1250	0.7000	1.0000	0.0707	0.1414	15.71%	10.00%
100		4	0.9000	0.6750	1.1250	0.7000	1.0000	0.0707	0.1414	15.71%	10.00%

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	0.8677	0.772	0.9634	0.783	0.917	0.03007	0.06014	6.93%	0.00%
6.25		4	0.7667	0.6389	0.8946	0.683	0.846	0.04016	0.08032	10.48%	11.64%
12.5		4	0.7638	0.6894	0.8381	0.71	0.824	0.02337	0.04674	6.12%	11.98%
25		4	0.8333	0.5599	1.107	0.593	0.981	0.08589	0.1718	20.62%	3.98%
50		4	0.7688	0.5155	1.022	0.538	0.902	0.07957	0.1591	20.70%	11.41%
100		4	0.7736	0.4969	1.05	0.5263	0.926	0.08693	0.1739	22.47%	10.85%

CETIS Summary Report

Report Date: 08 Feb-22 09:57 (p 2 of 2)
 Test Code/ID: B527801ppc / 10-9520-3150

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

7d Survival Rate Detail

MD5: E5CB6358D746BE0F87EEFA1E234E9660

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	0.9000
12.5		1.0000	1.0000	1.0000	0.9000
25		1.0000	0.8000	1.0000	1.0000
50		1.0000	0.9000	1.0000	0.7000
100		1.0000	1.0000	0.9000	0.7000

Mean Dry Biomass-mg Detail

MD5: 81607CE0BA843F78F1F7F7CC2EC2FF99

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.903	0.783	0.868	0.917
6.25		0.824	0.683	0.846	0.714
12.5		0.763	0.824	0.758	0.71
25		0.981	0.593	0.831	0.928
50		0.828	0.807	0.902	0.538
100		0.926	0.851	0.791	0.5263

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	9/10
12.5		10/10	10/10	10/10	9/10
25		10/10	8/10	10/10	10/10
50		10/10	9/10	10/10	7/10
100		10/10	10/10	9/10	7/10

CETIS Analytical Report

Report Date: 08 Feb-22 09:57 (p 1 of 3)
 Test Code/ID: B527801ppc / 10-9520-3150

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

Analysis ID: 12-3469-4558 Endpoint: 7d Survival Rate CETIS Version: CETISv1.9.7
 Analyzed: 08 Feb-22 9:54 Analysis: Nonparametric-Control vs Treatments Status Level: 1
 Edit Date: MD5 Hash: E5CB6358D746BE0F87EEFA1E234E9660 Editor ID:

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Angular (Corrected)	C > T	100	>100	---	1	0.148	14.80%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	16	10	1	6	CDF	0.6105	Non-Significant Effect
		12.5	16	10	1	6	CDF	0.6105	Non-Significant Effect
		25	16	10	1	6	CDF	0.6105	Non-Significant Effect
		50	14	10	1	6	CDF	0.3451	Non-Significant Effect
		100	14	10	1	6	CDF	0.3451	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0721741	0.0144348	5	0.7499	0.5968	Non-Significant Effect
Error	0.346483	0.019249	18			
Total	0.418657		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
Distribution	Shapiro-Wilk W Normality Test	0.8582	0.884	0.0031	Non-Normal Distribution

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	2.50%
12.5		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	2.50%
25		4	0.9500	0.7909	1.0000	1.0000	0.8000	1.0000	0.0500	10.53%	5.00%
50		4	0.9000	0.6750	1.0000	0.9500	0.7000	1.0000	0.0707	15.71%	10.00%
100		4	0.9000	0.6750	1.0000	0.9500	0.7000	1.0000	0.0707	15.71%	10.00%

Angular (Corrected) Transformed Summary

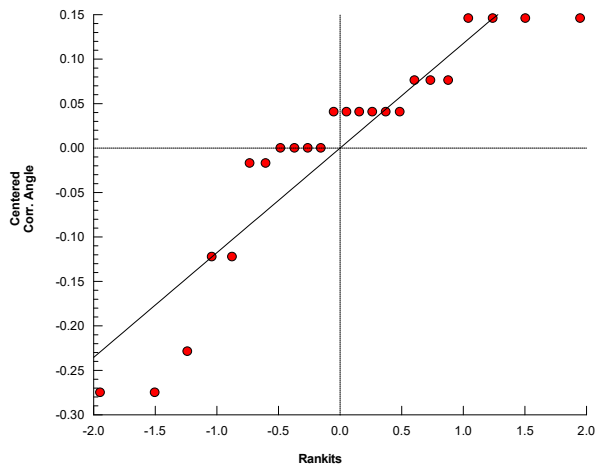
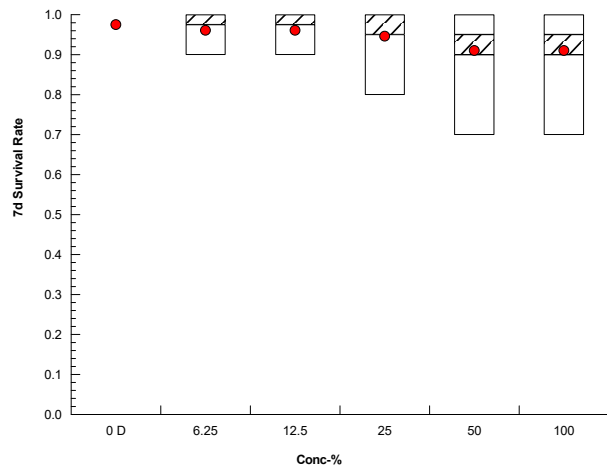
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
6.25		4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	2.89%
12.5		4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	2.89%
25		4	1.3360	1.0930	1.5780	1.4120	1.1070	1.4120	0.0762	11.41%	5.40%
50		4	1.2660	0.9499	1.5820	1.3310	0.9912	1.4120	0.0994	15.70%	10.34%
100		4	1.2660	0.9499	1.5820	1.3310	0.9912	1.4120	0.0994	15.70%	10.34%

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

Analysis ID: 12-3469-4558
Analyzed: 08 Feb-22 9:54
Edit Date:Endpoint: 7d Survival Rate
Analysis: Nonparametric-Control vs Treatments
MD5 Hash: E5CB6358D746BE0F87EEFA1E234E9660CETIS Version: CETISv1.9.7
Status Level: 1
Editor ID:

Graphics



CETIS Analytical Report

Report Date: 08 Feb-22 09:57 (p 3 of 3)
Test Code/ID: B527801ppc / 10-9520-3150

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

Analysis ID: 08-2409-5558 Endpoint: Mean Dry Biomass-mg CETIS Version: CETISv1.9.7
Analyzed: 08 Feb-22 9:54 Analysis: Parametric-Control vs Treatments Status Level: 1
Edit Date: MD5 Hash: 81607CE0BA843F78F1F7F7CC2EC2FF99 Editor ID:

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Untransformed	C > T	100	>100	---	1	0.2168	24.98%

Dunnett Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	1.122	2.407	0.217	6	CDF	0.3694	Non-Significant Effect
		12.5	1.155	2.407	0.217	6	CDF	0.3556	Non-Significant Effect
		25	0.3831	2.407	0.217	6	CDF	0.6970	Non-Significant Effect
		50	1.099	2.407	0.217	6	CDF	0.3788	Non-Significant Effect
		100	1.046	2.407	0.217	6	CDF	0.4018	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.038703	0.0077406	5	0.4772	0.7885	Non-Significant Effect
Error	0.291949	0.0162194	18			
Total	0.330652		23			

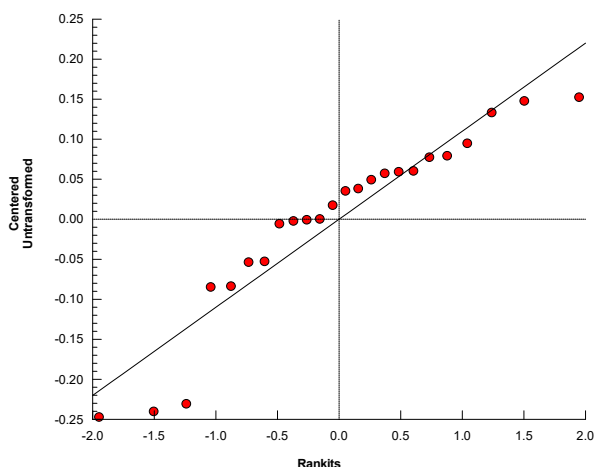
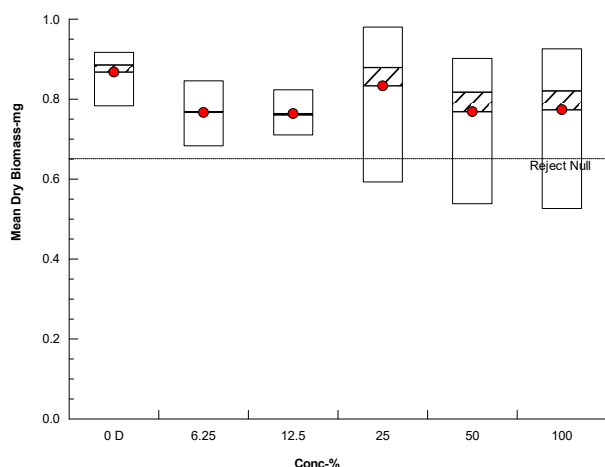
ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	7.331	15.09	0.1971	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8912	0.884	0.0141	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.8677	0.772	0.9634	0.8855	0.783	0.917	0.03007	6.93%	0.00%
6.25		4	0.7667	0.6389	0.8946	0.769	0.683	0.846	0.04016	10.48%	11.64%
12.5		4	0.7638	0.6894	0.8381	0.7605	0.71	0.824	0.02337	6.12%	11.98%
25		4	0.8333	0.5599	1.107	0.8795	0.593	0.981	0.08589	20.62%	3.98%
50		4	0.7688	0.5155	1.022	0.8175	0.538	0.902	0.07957	20.70%	11.41%
100		4	0.7736	0.4969	1.05	0.821	0.5263	0.926	0.08693	22.47%	10.85%

Graphics



CETIS Analytical Report

Report Date: 08 Feb-22 09:57 (p 1 of 1)
 Test Code/ID: B527801ppc / 10-9520-3150

Fathead Minnow 7-d Larval Survival and Growth Test

Eurofins TestAmerica - Corvallis

Analysis ID: 04-1995-7488 Endpoint: Mean Dry Biomass-mg CETIS Version: CETISv1.9.7
 Analyzed: 08 Feb-22 9:54 Analysis: Linear Interpolation (ICPIN) Status Level: 1
 Edit Date: MD5 Hash: 81607CE0BA843F78F1F7F7CC2EC2FF99 Editor ID:

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	906901	200	Yes	Two-Point Interpolation

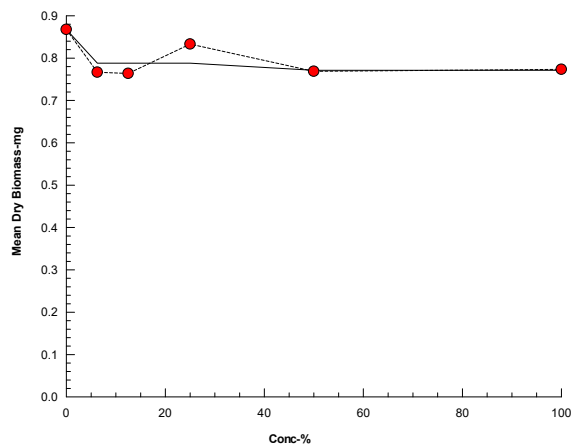
Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>100	---	---	<1	---	---

Mean Dry Biomass-mg Summary

			Calculated Variate							Isotonic Variate	
Conc-%	Code	Count	Mean	Median	Min	Max	CV%	%Effect		Mean	%Effect
0	D	4	0.8677	0.8855	0.783	0.917	6.93%	0.00%		0.8677	0.00%
6.25		4	0.7667	0.769	0.683	0.846	10.48%	11.64%		0.7879	9.20%
12.5		4	0.7638	0.7605	0.71	0.824	6.12%	11.98%		0.7879	9.20%
25		4	0.8333	0.8795	0.593	0.981	20.62%	3.98%		0.7879	9.20%
50		4	0.7688	0.8175	0.538	0.902	20.70%	11.41%		0.7712	11.13%
100		4	0.7736	0.821	0.5263	0.926	22.47%	10.85%		0.7712	11.13%

Graphics



APPENDIX B

REFERENCE TOXICANT DATA SHEETS

REFERENCE TOXICANT DATA SHEET

Client	QA / QC	Reference Toxicant	NaCl	Test Begin: Date	1 / 4 / 20	Time	13 : 50
Test Organism	<i>Pimephales promelas</i>	Stock Solution	20 g/L in DI (ASTM Type I) water	Test End: Date	1 / 4 / 20	Time	13 : 47
Source	<i>Aquatic</i>	Reagent Log ID #	2B091-082	*Dilution Water (Recon MH) ID#			
ID#	FHM 2197	Designed Test Temperature	20 ± 1 °C	Dilution Water Hardness (as CaCO ₃)			
Age	7 Days			Dilution Water Alkalinity (as CaCO ₃)			
Feeding:	none	Technician	0 hr 432 / TC	48 hr			
Test Chamber Size	800 ml	Time	0 hr 1350	48 hr			
Volume per Replicate	750 ml	Therm. ID #	0 hr 250	48 hr			

Toxicant Concentration (g/L)	Test Chamber Number	Number of Live Organisms	Dissolved Oxygen (mg/l)			pH			Temperature (°C)			Conductivity (µS)		
			0	24	48	0	24	48	0	24	48	0	24	48
Control	A	10	8.6	8.6	8.4	7.9	7.7	7.7	19.8	19.3	19.3	330		337
4.0	A	10	8.6	8.6	8.4	8.0	7.9	7.8	19.7	19.3	19.3	7390		7330
6.0	A	10	8.7	8.5	8.4	8.0	7.9	7.9	19.6	19.3	19.7	10950		11250
8.0	A	9	8.7	8.5	8.4	8.0	7.9	7.9	19.7	19.3	19.7	14310		14050
10.0	A	0	8.7	8.5	—	7.9	7.9	—	19.6	19.3	—	17520	17920	—
12.0	A	0	8.8	8.5	—	7.9	7.9	—	19.6	19.3	—	20700	20500	—
Test Acceptability Criteria (TAC) or test condition:			Survival in Controls: ≥ 90% (required TAC)			pH: > 6.0 and < 9.0 (recommended)			Temperature + 1 °C (recommended)			(QA) none		

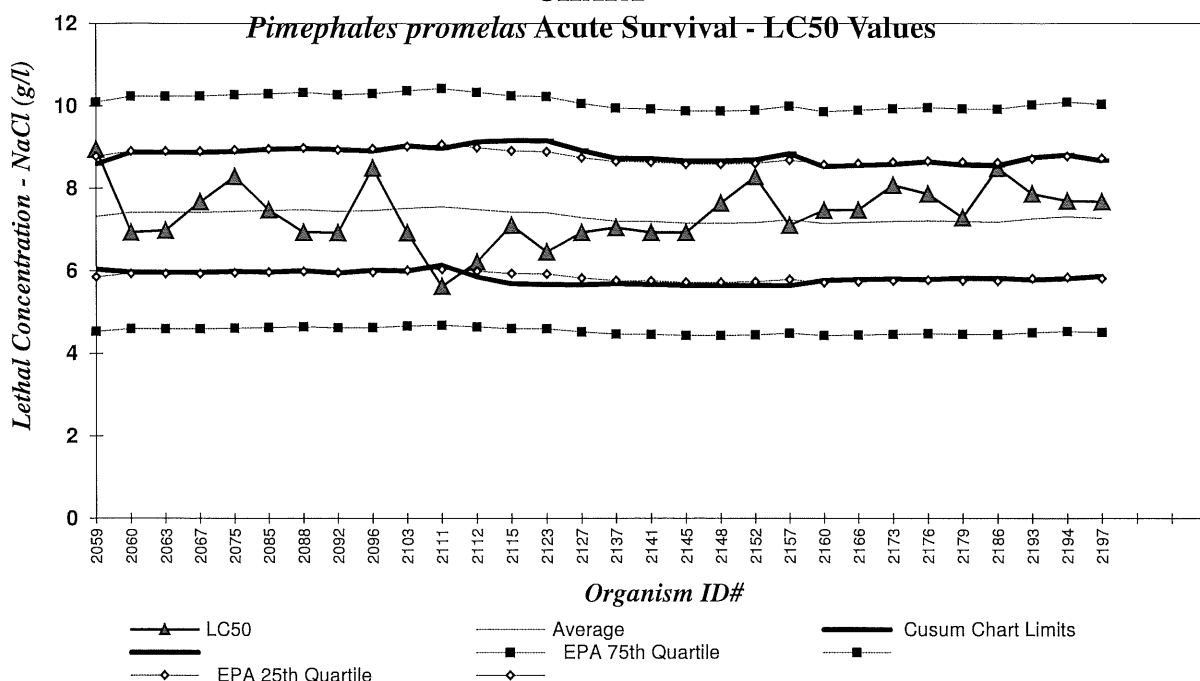
*Dilution Water Code
 Recon. - reconstituted water
 S - soft
 MH - moderately hard
 H - hard
 Art. Sea - Artificial Sea Water

We verify this data is true and correct.

Task Manager TOJA
 Project Manager Wagner
 QA Officer Mr. B

48 Hour LC₅₀ 7.7
 Cusum Chart Limits 5.9 to 8.7
 Statistical Method Spearmann-Kärker

REFERENCE TOXICANT CUMULATIVE SUMMARY (CUSUM) CHART



Pimephales promelas - ACUTE (EPA Test Method 2000.0)

SODIUM CHLORIDE (g/L)

From EPA 833-R-00-003:

Organism age: 1 to 14 days

10th Quartile CV (control limit) = 0.08

Endpoint: 48 hour Survival

25th Quartile CV (warning limit) = 0.10

Stats Method: Probit, Spearman-Kärber, Linear Interpolation

75th Quartile CV (warning limit) = 0.19

Test Conditions: Recon MH, 20 °C

90th Quartile CV (control limit) = 0.33

Intralab CV is compared to EPA Warning limits (25th and 75th CV's) and Control limits (10th and 90th CV's),

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	FHM ID #	Test Start Date	LC50	Running Average	Running SD	Cusum Chart Limits		Intralab CV
						AVG-2SD	AVG+2SD	
947	2137	12/8/2020	7.0	7.2	0.76	5.7	8.7	0.11
948	2141	1/6/2021	6.9	7.2	0.76	5.7	8.7	0.11
949	2145	2/2/2021	6.9	7.2	0.75	5.6	8.7	0.11
950	2148	3/3/2021	7.6	7.2	0.75	5.6	8.7	0.11
951	2152	4/1/2021	8.3	7.2	0.76	5.6	8.7	0.11
952	2157	5/11/2021	7.1	7.2	0.80	5.6	8.8	0.10
953	2160	6/1/2021	7.5	7.1	0.69	5.8	8.5	0.10
954	2166	7/7/2021	7.5	7.2	0.69	5.8	8.6	0.10
955	2173	8/10/2021	8.1	7.2	0.69	5.8	8.6	0.10
956	2176	8/25/2021	7.9	7.2	0.71	5.8	8.6	0.10
957	2179	9/21/2021	7.3	7.2	0.69	5.8	8.6	0.10
958	2186	10/21/2021	8.5	7.2	0.68	5.8	8.6	0.10
959	2193	11/23/2021	7.9	7.3	0.74	5.8	8.7	0.10
960	2194	12/7/2021	7.7	7.3	0.75	5.8	8.8	0.10
961	2197	1/4/2022	7.7	7.3	0.70	5.9	8.7	0.10

Random Template Used: 6 conc. x 4 reps. # 1

Waterbath/incubator Used:

Date Initiated 1/25/2022 Time 16:45

Stock Sol. ID 2B 095-01

10

Date Terminated 2/1/2022 Time 08:31

Organism ID: FHM 2200

Test Container Size: 800 ml

Solution Volume / rep: 500 ml

Client QA/QC - RefTox

Sample Description KCl (50 g/L stock)

 Tech: Day 0 KG Day 1 ~~KG~~/TC Day 2 TC/~~KG~~ Day 3 KG Day 4 KG Day 5 TC Day 6 KG Day 7 TC
 Time Day 0 16:45 Day 1 14:22 Day 2 14:33 Day 3 15:33 Day 4 16:00 Day 5 10:15 Day 6 16:20 Day 7 08:31

Conc. or Percent	Day	Number of Live Organisms				Dissolved O ₂ (mg/l)		pH		Temp. (°C)	Therm. ID #	Conductivity (µS)
		A	B	C	D	Pre	Post	Pre	Post	Pre		Post (daily)
Control	0	10	10	10	10		8.0		8.0	Post: 25.0	252	329
	1	10	10	10	10	7.4	8.4	7.6	7.8	25.0	250	4101
	2	10	10	10	10	6.8	8.4	7.6	7.8	25.1	250	3202
	3	10	10	10	10	7.3	8.4	7.4	8.1	25.1	250	319
	4	10	10	10	10	6.6	8.0	7.8	8.0	25.2	250	315
	5	10	10	10	10	6.4	8.4	7.5	7.9	25.0	250	322
	6	10	10	10	10	6.9	8.0	7.5	8.1	25.0	250	322
	7	10	10	10	10	10.9		7.4		25.1	252	
0.25 g/L	0	10	10	10	10		8.0		7.9	Post: 25.1		702
	1	10	10	10	10	7.6	8.4	7.5	7.8	24.8		759
	2	10	10	10	10	6.5	8.5	7.6	7.8	24.8		753
	3	10	11	10	10	7.2	8.3	7.4	8.2	24.8		794
	4	10	11	10	10	6.8	8.0	7.6	8.0	25.1		770
	5	10	11	10	10	10.5	8.5	7.6	7.9	24.9		760
	6	10	11	9	10	10.6	8.0	7.5	8.2	25.3		764
	7	10	11	9	10	7.0		7.6		24.9		
0.50 g/L	0	10	10	10	10		7.9		8.0	Post: 25.0		1257
	1	10	10	10	10	7.5	8.5	7.6	7.8	24.6		1249
	2	10	10	10	10	6.3	8.6	7.6	7.9	24.9		1240
	3	10	10	10	10	7.0	8.3	7.5	8.2	24.9		1246
	4	10	10	10	10	6.7	8.1	7.6	8.1	25.1		1274
	5	10	10	10	10	6.4	8.5	7.5	8.0	24.2		1234
	6	9	10	10	10	6.7	8.0	7.6	8.2	25.4		1234
	7	9	9	10	10	7.0		7.7		25.1		
1.0 g/L	0	10	10	10	10		7.9		8.1	Post: 25.0		2200
	1	3	9	4	9	7.6	8.6	7.6	7.9	24.8		2140
	2	2	9	4	8	7.3	8.6	7.7	7.9	24.8		2160
	3	2	8	4	6	7.1	8.4	7.7	8.3	24.8		2170
	4	2	7	3	5	6.8	8.1	7.7	8.2	24.9		2150
	5	2	6	3	5	6.7	8.6	7.6	8.0	25.0		2140
	6	2	3	1	4	6.8	8.0	7.7	8.3	25.1		2140
	7	2	3	1	4	7.1		7.8		24.8		
2.0 g/L	0	10	10	10	10		8.0		8.1	Post: 25.1		3910
	1	0	0	0	0	7.3	8.6	7.7	8.0	24.8		3870
	2											
	3											
	4											
	5											
	6											
	7											
4.0 g/L	0	10	10	10	10		7.8		8.1	Post: 25.1		7430
	1	0	0	0	0	7.5		7.8		24.8		
	2											
	3											
	4											
	5											
	6											
	7											

✓ Indicates one organism inadvertently poured off during solution renewal, replaced into container.

"M" = organism missing, start count reduced. "Inj" = organism injured, remove from stats.

"F" = fungus noted on dead organisms.

Pre = Pre-renewal solutions. Post = Post-renewal solutions.

Day 0 Temperatures = Post-renewals

Therm ID# = Thermometer ID used for all measurements that day.

23.8 = Temp. out of recommended range

Endpoint

Cusum Chart Limits

Survival - EC₂₅ 0.63

0.58 to 0.67

Growth - IC₂₅ 0.56

0.44 to 0.72

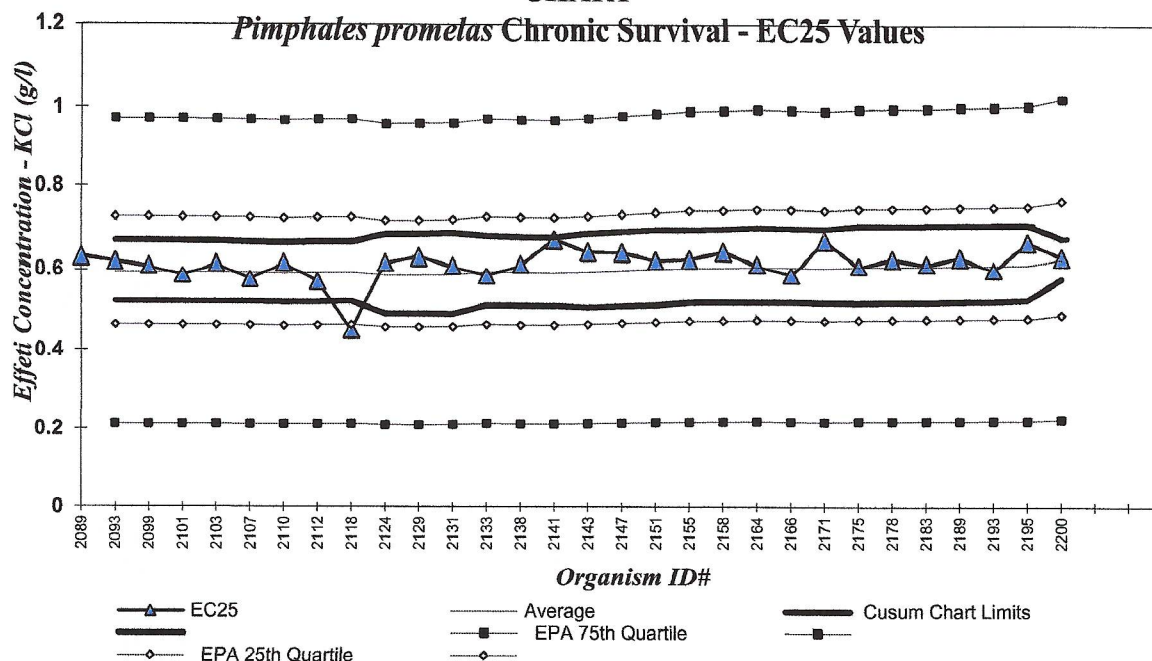
⊗ Measurement missed TC 1/31/22

Task Manager Kendalzyer

Project Manager Alyssa Lamp

QA Officer Mr. B

REFERENCE TOXICANT CUMULATIVE SUMMARY (CUSUM) CHART



***Pimephales promelas* - Chronic (EPA Test Method 1000.0)**

POTASSIUM CHLORIDE (g/L)

Endpoint: Chronic Survival

Stats Method: Linear Interpolation

Test Conditions: Recon MH, 25 oC

From EPA 833-R-00-003:

10th Quartile CV (*control limit*) = 0.03

25th Quartile CV (*warning limit*) = 0.11

75th Quartile CV (*warning limit*) = 0.32

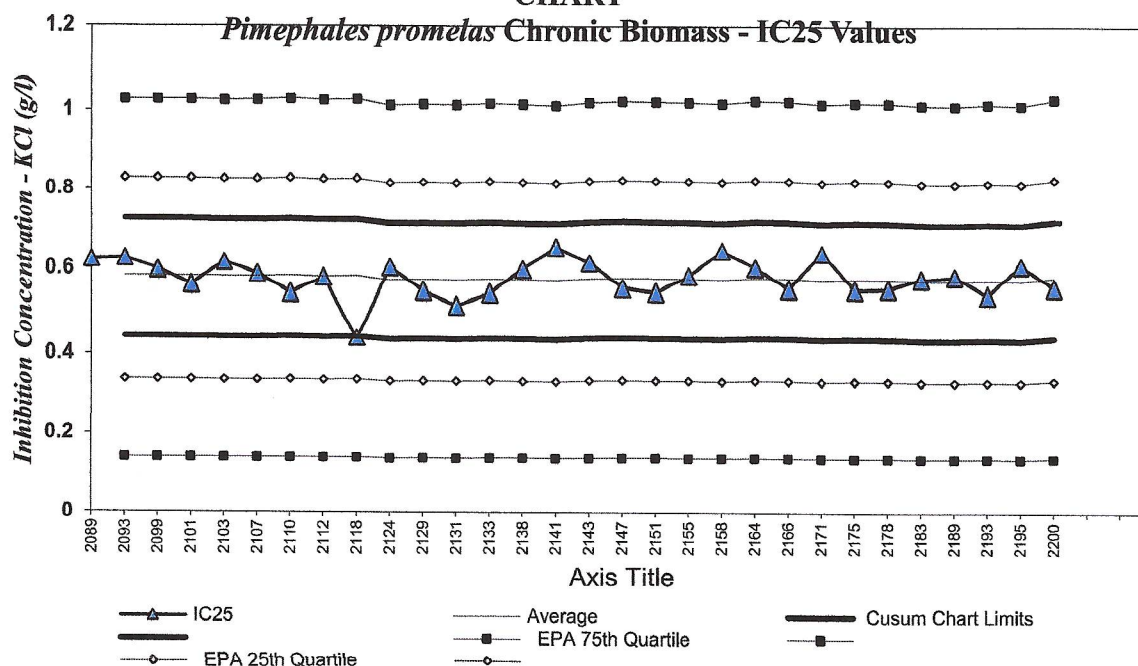
90th Quartile CV (*control limit*) = 0.52

Intralab CV is compared to EPA Warning limits (25th and 75th CV's) and Control limits (10th and 90th CV's).

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	FHM ID #	Test Start Date	EC25	Running Average	Running SD	Cusum Chart Limits		Intralab CV
						AVG-2SD	AVG+2SD	
75	2175	8/17/2021	0.61	0.6	0.05	0.52	0.70	0.08
76	2178	9/9/2021	0.63	0.6	0.05	0.52	0.70	0.08
77	2183	9/28/2021	0.61	0.6	0.05	0.52	0.70	0.07
78	2189	11/2/2021	0.63	0.6	0.05	0.52	0.70	0.07
79	2193	11/16/2021	0.60	0.6	0.05	0.52	0.70	0.07
80	2195	12/7/2021	0.66	0.6	0.04	0.52	0.70	0.04
81	2200	1/25/2022	0.63	0.6	0.02	0.58	0.67	0.04
82								
83								
84								

REFERENCE TOXICANT CUMULATIVE SUMMARY (CUSUM) CHART



***Pimephales promelas* - Chronic (EPA Test Method 1000.0)**

POTASSIUM CHLORIDE (g/L)

Endpoint: Chronic Growth (Biomass)

Stats Method: Linear Interpolation

Test Conditions: Recon MH, 25 oC

From EPA 833-R-00-003:

10th Quartile CV (*control limit*) = 0.12

25th Quartile CV (*warning limit*) = 0.21

75th Quartile CV (*warning limit*) = 0.38

90th Quartile CV (*control limit*) = 0.45

Intralab CV is compared to EPA Warning limits (25th and 75th CV's) and Control limits (10th and 90th CV's).

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	FHM ID #	Test Start Date	IC25	Running Average	Running SD	Cusum Chart Limits		Intralab CV
						AVG-2SD	AVG+2SD	
67	2143	1/12/2021	0.62	0.58	0.05	0.44	0.72	0.08
68	2147	2/2/2021	0.56	0.58	0.05	0.44	0.72	0.08
69	2151	3/23/2021	0.55	0.58	0.05	0.44	0.72	0.08
70	2155	4/15/2021	0.58	0.58	0.05	0.44	0.72	0.08
71	2158	5/11/2021	0.65	0.58	0.05	0.44	0.72	0.08
72	2164	6/22/2021	0.60	0.58	0.05	0.44	0.72	0.08
73	2166	7/1/2021	0.56	0.58	0.05	0.44	0.72	0.08
74	2171	7/20/2021	0.64	0.58	0.05	0.44	0.71	0.09
75	2175	8/17/2021	0.55	0.58	0.05	0.44	0.72	0.09
76	2178	9/9/2021	0.56	0.58	0.05	0.44	0.72	0.09
77	2183	9/28/2021	0.58	0.57	0.05	0.44	0.71	0.09
78	2189	11/2/2021	0.58	0.57	0.05	0.44	0.71	0.08
79	2193	11/16/2021	0.54	0.58	0.05	0.44	0.71	0.09
80	2195	12/7/2021	0.61	0.57	0.05	0.44	0.71	0.07
81	2200	1/25/2022	0.56	0.58	0.04	0.44	0.72	0.07

APPENDIX C
CHAIN OF CUSTODY



Environment Testing
TestAmerica

Sample Receipt Record

Batch Number: B5378-01
Client/Project: TransAlta

Date Received: 1/25/22
Received By: JBR

Were custody seals intact?

☒ Yes ☐ No ☐ N/A

Packing Material:

☒ Ice ☐ Blue Ice ☐ Box

Temp OK? ($\leq 6^{\circ}\text{C}$) Therm ID: 71169 Expires: 3/14/2022 Observed: 1.0 $^{\circ}\text{C}$, Actual Temp: 1.5 $^{\circ}\text{C}$ 0.9

☒ Yes ☐ No ☐ N/A

If sample is noted @ $\leq 0.0^{\circ}\text{C}$, is the sample frozen or partially frozen?

☐ Yes ☐ No ☒ N/A

Was a Chain of Custody (CoC) Provided?

☒ Yes ☐ No ☐ N/A

Was the CoC correctly filled out? (If No, document below)

☒ Yes ☐ No ☐ N/A

Were the sample containers in good condition (not broken or leaking)?

☒ Yes ☐ No ☐ N/A

Are all samples within 36 hours of collection?

☒ Yes ☐ No ☐ N/A

Method of Shipment: ☐ Hand Delivered, ☒ FedEx, ☐ UPS, ☐ Greyhound, ☐ Other: _____ ☐ N/A

Sample Exception Report (The following exceptions were noted)

ORIGIN ID: OLMA (360) 736-9901
RENA OLSEN
TRANSALTA CENTRALIA GENERATION LLC
913 BIG HANAFORD
CENTRALIA, WA 98531
UNITED STATES US

SHIP DATE: 24-JAN-22
ACTUWT: 75.00 LB HHN
CAD: 0333675/CHFE3509

BILL SENDER

TO MICHELLE CARTWRIGHT
TEST AMERICA
1100 NE CIRCLE BLVD
SUITE 310
CORVALLIS OR 97330

PO: 35050
REF: LAB SAMPLES
DEPT: LAB

FedEx Express

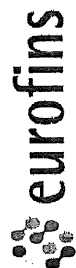
TUE - 25 JAN 12:00P
PRIORITY OVERNIGHT

97330 L
OR - US
PDX

86 CVOA

5614 9994 6178

Part # 156148-434 RIT EXP 02/19



Environment Testing
TestAmerica

Client: _____ NPDES# _____

Address: _____

Composite Sample Information

Samples/Hour _____ Volume/Sample _____

Total Hours _____ Total Volume _____

Initiated: Date _____ Time _____

Ended: Date _____ Time _____

Chilled During Collection _____

PO#

Analysis Required / Comments

[illegible]

Sampled By & Title	(Please sign and print name)	Date/Time	Relinquished By	(Please sign and print name)	Date/Time
Received By	(Please sign and print name)	Date/Time	Relinquished By	(Please sign and print name)	Date/Time
Received By	(Please sign and print name)	Date/Time	Relinquished By	(Please sign and print name)	Date/Time
Received By	(Please sign and print name)	Date/Time	Shipped Via	UPS _____ Bus _____ Fed-Ex _____ Hand _____ Other _____	Shipping #
Work Authorized By	(Please sign and print name)	Remarks	COC Bioassay Doc Control ID: ASL612-0519		



Environment Testing
TestAmerica

Sample Receipt Record

Batch Number: B9278-02
Client/Project: Transalta

Date Received: 1/27/22
Received By: TZ

Were custody seals intact?

☒ Yes ☐ No ☐ N/A

Packing Material:

☒ Ice ☐ Blue Ice ☐ Box

Temp OK? ($\leq 6^{\circ}\text{C}$) Therm ID: 109 Expires: 3/14/2022 Observed: 0.6 $^{\circ}\text{C}$, Actual Temp: 1.2 $^{\circ}\text{C}$
0.8

☒ Yes ☐ No ☐ N/A

If sample is noted @ $\leq 0.0^{\circ}\text{C}$, is the sample frozen or partially frozen?

☐ Yes ☐ No ☒ N/A

Was a Chain of Custody (CoC) Provided?

☒ Yes ☐ No ☐ N/A

Was the CoC correctly filled out? (If No, document below)

☒ Yes ☐ No ☐ N/A

Were the sample containers in good condition (not broken or leaking)?

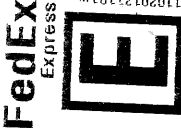
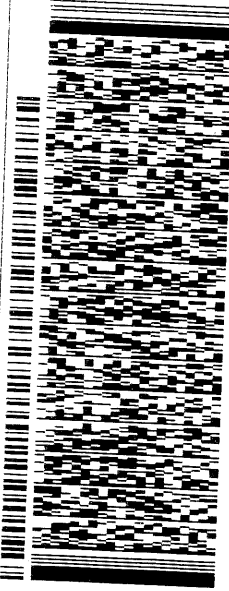
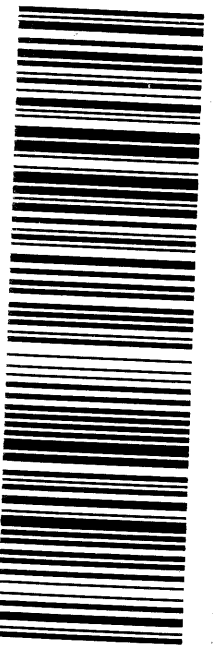
☒ Yes ☐ No ☐ N/A

Are all samples within 36 hours of collection?

☒ Yes ☐ No ☐ N/A

Method of Shipment: ☐ Hand Delivered, ☒ FedEx, ☐ UPS, ☐ Greyhound, ☐ Other: _____ ☐ N/A

Sample Exception Report (The following exceptions were noted)

Client was no	Resolution to	ORIGIN ID: OLMA (360) 736-9901 RENA OLSEN TRANSALTA CENTRAL IA GENERATION LLC 913 BIG HANFORD CENTRAL IA, IA 50531 UNITED STATES US	SHIP DATE: 26 JAN 22 ACTAGT: 80.00 LB MAN CAD: 0333675/CAFE3509	BILL SENDER	TO MICHELLE CARTWRIGHT TEST AMERICA 1100 NE CIRCLE BLVD SUITE 310 CORVALLIS OR 97330	P.O. LAB SAMPLES REF: SAMPLES DEPT: PLANT	 	TRK# 5614 9994 6226 0201	THU - 27 JAN 12:00P PRIORITY OVERNIGHT	97330 OR - US PDX	
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**Environment Testing
TestAmerica**

Address:

Phone: 360-330-2304

PO#

Composite Sample Information

Samples/Hour _____ Volume/Sample _____

Total Hours _____ Total Volume _____

Initiated: Date _____ Time _____

Ended: Date _____ Time _____

Chilled During Collection _____

Attention: Aquatic Toxicology Laboratory
1100 NE Circle Blvd. Suite 310
Corvallis, OR 97330
Phone: 541-243-6137

Analysis Required / Comments

[illegible]

Sampled By & Title <i>[Signature]</i>	(Please sign and print name) <i>Bob. K. G. Weeks</i>	Date/Time <i>1-26-22 1000</i>	Relinquished By	(Please sign and print name)	Date/Time
Received By <i>[Signature]</i>	(Please sign and print name) <i>1000 Crumline</i>	Date/Time <i>1/27/22 1103</i>	Relinquished By	(Please sign and print name)	Date/Time
Received By	(Please sign and print name)	Date/Time	Relinquished By	(Please sign and print name)	Date/Time
Received By	(Please sign and print name)	Date/Time	Shipped Via UPS Bus Fed-Ex Hand Other	Shipping #	COC Bioassay
Work Authorized By	(Please sign and print name)	Remarks	Doc Control ID: ASL612-0519		



Environment Testing
TestAmerica

Sample Receipt Record

Batch Number: B5278-03
Client/Project: Transalta

Date Received: 1-29-22
Received By: KG

Were custody seals intact?

Packing Material:

Temp OK? ($\leq 6^{\circ}\text{C}$) Therm ID: 109 Expires: 03/14/2022 Observed: 0.4 $^{\circ}\text{C}$, Actual Temp: 1.1 $^{\circ}\text{C}$

If sample is noted @ $\leq 0.0^{\circ}\text{C}$, is the sample frozen or partially frozen?

Was a Chain of Custody (CoC) Provided?

Was the CoC correctly filled out? (If No, document below)

Were the sample containers in good condition (not broken or leaking)?

Are all samples within 36 hours of collection?

Method of Shipment:

☐ Hand Delivered,

☒ FedEx,

☐ UPS,

☐ Greyhound,

☐ Other: _____

☒ Yes ☐ No ☐ N/A

☒ Ice ☐ Blue Ice ☐ Box

☒ Yes ☐ No ☐ N/A

☐ Yes ☐ No ☒ N/A

☒ Yes ☐ No ☐ N/A

☒ Yes ☐ No ☐ N/A

☒ Yes ☐ No ☐ N/A

☒ Yes ☐ No ☐ N/A

☐ N/A

Sample Exception Report (The following exceptions were noted)

Client was
Resolution



SEE INVOICE FOR POSTAGE AND INSURANCE CHARGES. If you are a business customer, please contact your account manager for more information. If you are a residential customer, please contact your local FedEx Office for more information.

SHIP DATE: 28 JAN 22
ACT WT: 80.00 LB
CWT: 1085.977
DIM: 27X15X15 IN

BILL SENDER

ORIGIN ID: 0LMZJ (360) 807-8941

TRANSALTA
C/O POSTNET WA119
1121 HARRISON AVE.
CENTRAL IA, WA 98531
UNITED STATES US

TO ATTN: MICHELLE CARTWRIGHT, INC.
TESTAMERICA LABORATORIES,
1100 NE CIRCLE BLVD
SUITE 310
CORVALLIS OR 97330

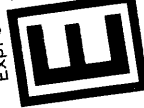
REF: 0196621

DEPT:

(360) 515-6400

INV:
PO:

FedEx
EXPRESS

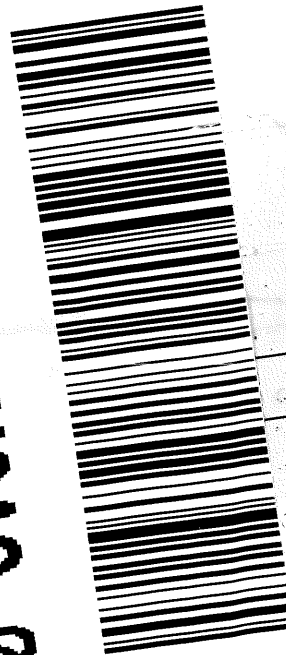


SATURDAY 1:30P
PRIORITY OVERNIGHT

TRK# 2892 4821 6667

97330
OR-US
PDX

W0 CVOA



Bioassay Receipt
Doc Control ID: A

Environment Testing
TestAmerica

Ship Samples to:

Eurofins TestAmerica

Attention: Aquatic Toxicology Laboratory
1100 NE Circle Blvd. Suite 310
Corvallis, OR 97330
Phone: 541-243-6137

#PO#

Analysis Required / Comments

[illegible]

Date/Time

Date/Time

Date/Time

Shipping #

Doc

Doc Control ID: ASI 612-0519