

Whole Effluent Toxicity Testing reports required to be submitted to IDEM by permittees with WETT requirements based on **CHRONIC** toxicity will need to include the following summary table of the results for each species tested:

<b>Permittee/Location:</b> City of Washington, IN				<b>Permit number:</b> IN0025658 <b>Daviess Co.</b>			<b>Outfall number: 001</b>	
<b>Laboratory Name and Contact:</b> Pace Analytical Services, LLC. Kentucky Jeton Wilkes, Team Lead <a href="mailto:jeton.wilkes@pacelabs.com">jeton.wilkes@pacelabs.com</a>				<b>Report Due Date:</b>			<b>Report Date: <u>June 14, 2024</u></b>	
<b>WETT Reporting Frequency or Type: (mark which one)</b>	Monthly	Quarterly	Semi-annual	Annual	TRE	Post TRE	(Per Reporting Frequency)? <b>First</b>	
			X				<u>Re-take</u> (per Reporting Frequency)? 1	

11Test Organism	Test Type	Endpoint [1]	Units	Result	Compliance Limit*	Pass/Fail [7]	Reporting
<i>Ceriodaphnia dubia</i>	7-day Survival and Reproduction Definitive Static-Renewal	48 hr. LC <sub>50</sub>	%	>100			Laboratory Report
			TU <sub>a</sub>	<1.0			
		NOEC Survival	%	100			
			TU <sub>c</sub>	1.0			
		NOEC Reproduction	%	100			
			TU <sub>c</sub>	1.0			
	IC <sub>25</sub> Reproduction	%	>100				
	TU <sub>c</sub>	<1.0					
	<b>Toxicity (acute) [2]</b>	TU <sub>a</sub>	<1.0	1.00	Pass	Laboratory Report and <b>NetDMR</b> (Parameter Code 61425)	
	<b>Toxicity (chronic) [3]</b>	TU <sub>c</sub>	<1.0	1.00	Pass	Laboratory Report and <b>NetDMR</b> (Parameter Code 61426)	
<i>Pimephales promelas</i>	7-day Larval Survival and Growth Definitive Static-Renewal	96 hr. LC <sub>50</sub>	%	2351			Laboratory Report
			TU <sub>a</sub>	0.043			
		NOEC Survival	%	100			
			TU <sub>c</sub>	1.0			
		NOEC Growth	%	100			
			TU <sub>c</sub>	1.0			
	IC <sub>25</sub> Growth	%	<1.0				
	TU <sub>c</sub>	>100					
	<b>Toxicity (acute) [4]</b>	TU <sub>a</sub>	0.043	1.00	Pass	Laboratory Report and <b>NetDMR</b> (Parameter Code 61427)	
	<b>Toxicity (chronic) [5]</b>	TU <sub>c</sub>	<1.0	1.00	Pass	Laboratory Report and <b>NetDMR</b> (Parameter Code 61428)	

\* Include here the specific WETT compliance limitation value established in the NPDES permit.

(Revised December 14, 2018)

PAGE ANALYTICAL SERVICES, LLC. KENTUCKY  
P.O. BOX 907  
MADISONVILLE, KY 42431  
270-821-7375

# ***WHOLE EFFLUENT TOXICITY TEST***

City of Washington  
IN0025658  
Washington, IN  
June 2024

Attached are the results of the static-renewal Whole Effluent Toxicity (WET) test conducted with samples of Outfall 001 final effluent. Testing was conducted per NPDES permit number (IN0025658) and effluent samples were received on June 04, 2024 at sample receipt temperatures below 6.0 °C and all samples were used within 36 hours of collection. The samples were utilized for testing with Ceriodaphnia dubia and Pimephales promelas at Pace Analytical Services, LLC Kentucky. The tests were initiated on June 04, 2024. Organisms were exposed at 25.0 ± 1 °C to an effluent concentration of 6.25, 12.5, 25, 50, and 100 percent effluent and a moderately hard synthetic water control.

Chronic toxicity test methods followed EPA-821-R-02-013, Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater (Fourth Edition). Test controls met USEPA criteria for test acceptability. The results of the toxicity tests are:

<b>TOXICITY TEST RESULTS FOR OUTFALL 001</b>			
Test endpoints	Permit Limit	C. dubia	P. promelas
TUa	100	<1.0	0.0017
TUc	1.00	< 1.0	<1.0
IC25	1.00	>100	>100
LC50 48-hr	----	>100	57460
LC50 96-hr	----	----	2351
NOEC reproduction	----	100	100
LOEC reproduction	----	>100	>100
TUa – Acute toxicity unit			
TUc – Chronic toxicity unit			
IC25 – Inhibition concentration to 25 percent of exposed organism			
LC50 – Median lethal concentration, calculated from 48-hr exposure in chronic test			
NOEC – No Observed Effect Concentration			
LOEC – Lowest Observed Effect Concentration			

Test results for Outfall 001 effluent displayed adequate reproduction in the Ceriodaphnia survival and reproduction test and adequate growth in the Fathead Minnow survival and growth test. The TUc value for Cerio and Fathead was less than 1.00, meeting the chronic permit limit of 1.00. The report includes this summary, the statistics and raw test data, chain-of-custody documentation, and reference toxicant data.

Your next sampling event is scheduled for **\_\_\_ December 02, December 04, and December 06, 2024\_\_\_**. As a reminder, this schedule must be followed to avoid rescheduling fees.

If you have any questions or concerns regarding this report, please feel free to contact me at (270) 821-7375.

Sincerely,

Je'Ton Wilkes  
 Team Lead  
[jeton.wilkes@pacelabs.com](mailto:jeton.wilkes@pacelabs.com)

<b><u>INTRODUCTORY INFORMATION</u></b>
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**Permit number:**

- IN0025658

**Toxicity testing permit requirements and Test Method:**

- Ceriodaphnia dubia survival and reproduction test
- Fathead minnow survival and growth test

**Plant location:**

- City of Washington  
169 S. 200 West,  
Washington, IN 47501

**Name of receiving water body:**

- Hawkins Creek

**Laboratory conducting the test (s):**

- Pace Analytical Services, LLC Kentucky  
825 Industrial Road  
Madisonville, Kentucky 42431

<b>SOURCE OF EFFLUENT AND DILUTION WATER</b>
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**Effluent samples:**

Sampling point:

- Outfall 001

Sample collection dates and times (24-hr Composite):

<u>Start Date:</u>		<u>End Date:</u>	
• June 03, 2024	07:00	June 04, 2024	07:00
• June 05, 2024	07:00	June 06, 2024	07:00
• June 07, 2024	07:00	June 08, 2024	07:00

Sample collection method:

- 24-hr composite samples

Were effluent samples modified prior to testing? (ex. Filtration, Aeration, Chem addition)

- No

**Dilution water samples:**

Source:

- Moderately hard synthetic water
  - Prepared in house

Date prepared:

- |                |                               |
|----------------|-------------------------------|
| • May 29, 2024 | LIMS: 4034432(Cerio)          |
| • May 21, 2024 | LIMS: 4033108(Fathead minnow) |

Pretreatment:

- None

<b>CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION 7-DAY CHRONIC TEST</b>
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**Toxicity test method used:**

- Static-Renewal Ceriodaphnia dubia survival and reproduction test

**Endpoints of Toxicity:**

- 48-hr LC50, IC25, NOEC and LOEC for both Survival and Reproduction

**Test method and deviations, if any:**

- EPA-821-R-02-013, October 2002.
- Test Method 1002.0

**Date and time test started:**

- June 04, 2024            12:08

**Date and time test terminated:**

- June 10, 2024            14:20

**Type of test chambers:**

- Plastic,            30ml

**Volume of solution used per chamber:**

- 15ml

**Number of organisms per chamber:**

- One

**Number of replicate chambers per treatment:**

- Ten

**Test Temperature:**

- 25 ± 1 degree

**Specific name:**

- Ceriodaphnia dubia (water fleas)

**Age:**

- Less than 24 hours

**Life stage:**

- Neonates

**Source:**

- Laboratory culture 052224-01(In-House)

**Methods used to calculate endpoints:**

- Fisher Exact/Bonferroni-Holm Test for survival endpoint
- Dunnett Multiple Comparison Test for reproduction endpoint
- Linear Interpolation Test for reproduction endpoint

**Test Acceptability Criteria:**

- 80% or greater survival in the control group
- An average of 15 or more young ones per surviving female in the control group
- 60% of surviving control females must produce three broods

<b>QUALITY ASSURANCE</b>
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**Reference Toxicant used and source:**

- Sodium Chloride, reagent grade, from Fisher, ID # 4019335

**Reference Toxicant used and source:**

- May 07 – May 13, 2024

**Results for Ceriodaphnia dubia: (g/L)**

- IC25 = 1.06
  - NOEC (reproduction) = 1.00
  - LOEC (reproduction) = 1.35
- 48-hr LC<sub>50</sub> = 1.59
  - 95% Upper Confidence Limits: = 1.66
  - 95% Lower Confidence Limits: = 1.56

<b>FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST</b>
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**Toxicity test method used:**

- Static-Renewal Fathead minnow larval survival and growth test

**Endpoints of Toxicity:**

- 96-hr LC<sub>50</sub>, IC<sub>25</sub>, NOEC and LOEC for both survival and growth

**Test method and deviations, if any:**

- EPA-821-R-02-013, October 2002
- Test Method 1000.0

**Date and time test started:**

- June 04, 2024            15:46

**Date and time test terminated:**

- June 11, 2024            15:25

**Type of test chambers:**

- Plastic,            296ml

**Volume of solution used per chamber:**

- 250ml

**Number of organisms per chamber:**

- Ten

**Number of replicate chambers per treatment:**

- Four

**Test Temperature:**

- 25 ± 1 degree

**Specific name:**

- Pimephales promelas

**Age:**

- Less than 24 hours



- Batch: 4034444

**Life stage:**

- Larvae

**Source:**

- Aquatox, AR

**Methods used to calculate endpoints:**

- Steel Many-One Rank Sum Test for the survival endpoint
- Dunnett Multiple Test for the growth endpoint
- Linear Interpolation Test for the g

**Test Acceptability Criteria:**

- 80% or greater survival in the control group
- Average dry weight per surviving organisms in the control group

<b>QUALITY ASSURANCE</b>
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**Reference Toxicant used and source:**

- Sodium Chloride, reagent grade, from Fisher, ID# 4019335

**Date and time of most recent test:**

- May 07 - May 14, 2024

**Dilution water used in test:**

- Moderately hard synthetic water (In-house)

**Results for Fathead minnow: (g/L)**

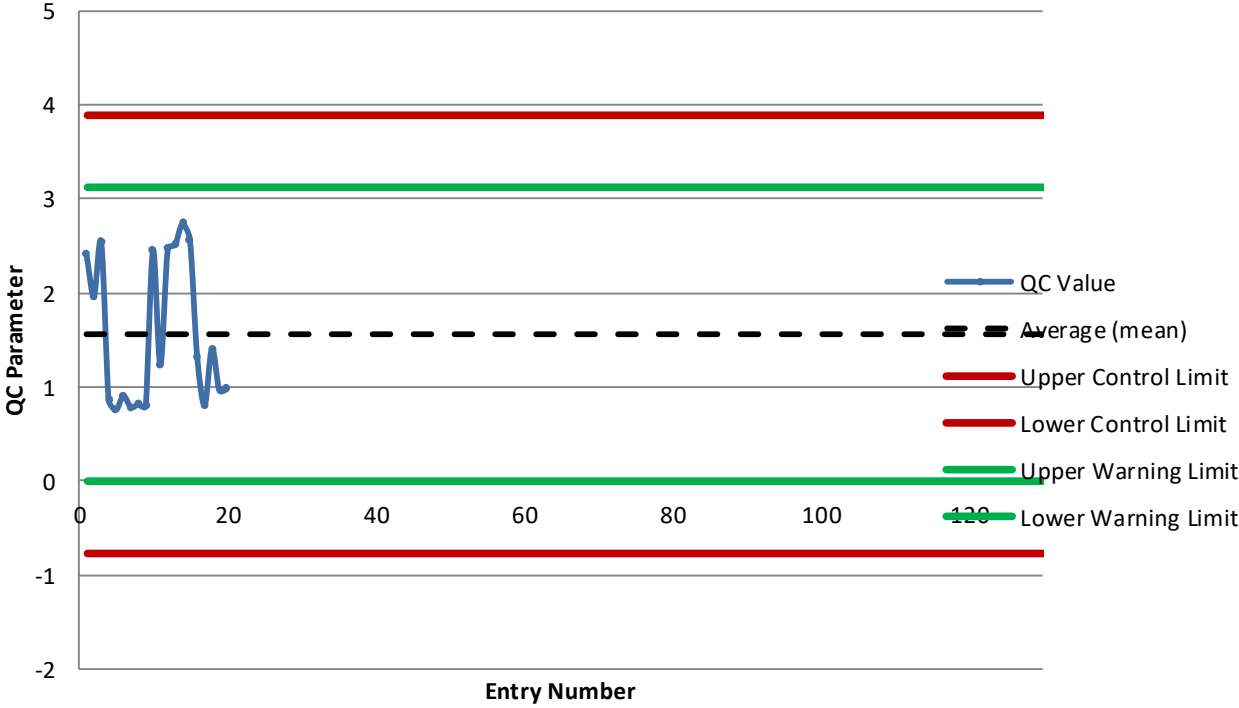
- IC<sub>25</sub> = 0.97
  - NOEC (growth) = <2.37
  - LOEC (growth) = 2.37
- 96-hr LC<sub>50</sub> = 3.90
  - 95% Upper Confidence Limit: = 4.29
  - 95% Lower Confidence Limit: = 3.50

## Reference Toxicity Data Summary

Laboratory Name: Pace Analytical Services, LLC Kentucky  
 Scientific Name: Fathead minnow  
 Reference Toxicant: NaCl  
 Test Type: Chronic  
 Dilution Series: 23.73, 31.64, 42.19, 56.25, 75.0 %  
 Control Water: MHSW (In-House)  
 Reporting Period: October 2022 – May 2024  
 Number Exposed: 40  
 Duration: 7-days  
 Organisms Age: <24-hr

Test Number	Test Date	LC50 96-h	96-hr LC50 Survival (g/L)		Growth		IC25 Value (g/L)	PMSD (%)
			95% Lower	95 % Upper	NOEC (g/L)	LOEC (g/L)		
1	10/04/22	5.68	5.38	6.00	<2.37	2.37	2.40	19.1
2	11/08/22	4.93	4.59	5.17	<2.37	2.37	1.96	16.8
3	12/06/22	6.56	6.22	6.87	<2.37	2.37	2.53	12.5
4	01/10/23	3.92	3.39	4.41	<2.37	2.37	0.86	15.9
5	02/07/23	6.39	6.16	6.54	<2.37	2.37	0.75	21.2
6	03/07/23	4.55	4.01	4.99	<2.37	2.37	0.90	31.6
7	04/04/23	3.96	3.15	4.79	<2.37	2.37	0.78	13.4
8	05/02/23	4.25	3.84	4.55	2.37	3.16	0.81	18.0
9	06/06/23	3.43	2.98	3.83	<2.37	2.37	0.79	24.3
10	07/11/23	3.60	3.38	3.82	2.37	3.16	2.45	20.8
11	08/08/23	5.35	4.87	5.71	<2.37	2.37	1.23	15.4
12	09/07/23	4.72	3.92	4.98	2.37	3.16	2.45	26.4
13	10/03/23	7.83	6.72	10.3	<2.37	2.37	2.50	21.2
14	11/07/23	5.43	5.06	5.75	2.37	3.16	2.73	39.4
15	12/05/23	5.05	4.69	5.38	2.37	3.16	2.56	22.1
16	01/09/24	5.28	4.70	5.80	<2.37	2.37	1.31	19.3
17	02/06/24	2.96	2.54	3.31	<2.37	2.37	0.80	12.9
18	03/05/24	5.43	4.82	6.23	<2.37	2.37	1.40	23.1
19	04/02/24	3.54	3.31	3.79	<2.37	2.37	0.96	15.8
20	05/07/24	3.90	3.50	4.29	<2.37	2.37	0.97	19.0

# QC Control Chart Fathead Minnows Chronic

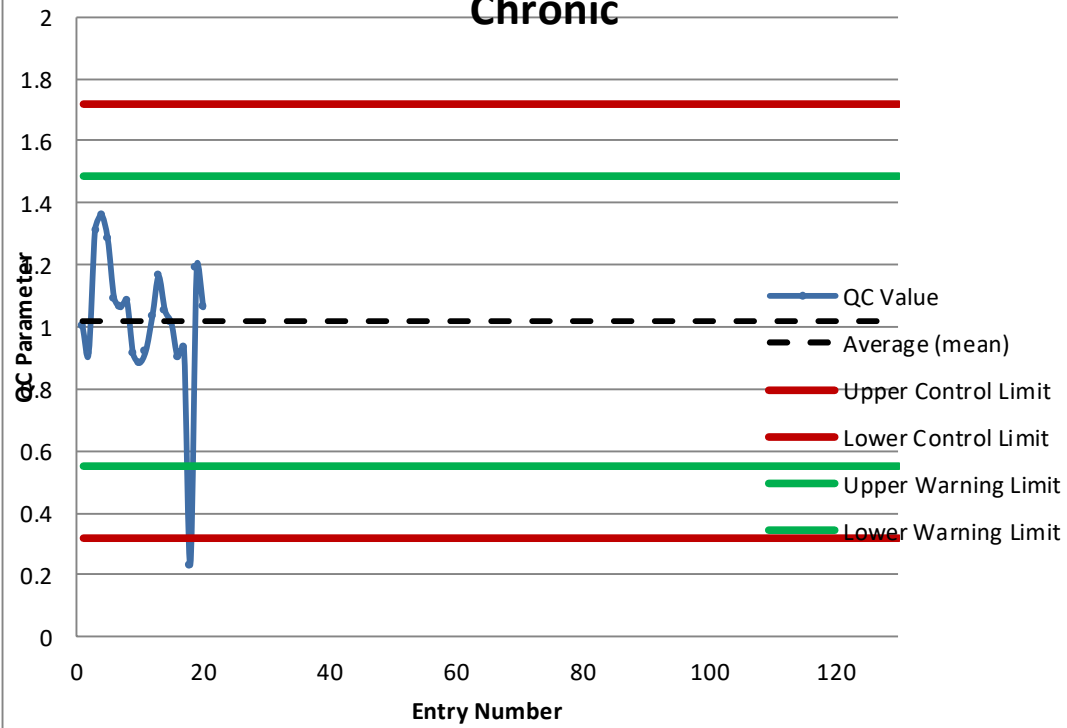


## 01Reference Toxicity Data Summary

Laboratory Name: Pace Analytical Services, LLC Kentucky  
 Scientific Name: Ceriodaphnia dubia  
 Reference Toxicant: NaCl  
 Test Type: Chronic  
 Dilution Series: 7.51, 10.01, 13.35, 17.80, 23.73 %  
 Control Water: MHSW (In-House)  
 Reporting Period: November 2022 –May 2024  
 Number Exposed: 20  
 Organisms Age: <24-hr

Test Number	Test Date	Control Survival (%)	Std Dev	Control Average (%)	Survival		Reproduction		IC25 Value (g/L)	PMSD (%)	LC50 48-hr	48-hr LC50 Survival (g/L)	
					NOEC (g/L)	LOEC (g/L)	NOEC (g/L)	LOEC (g/L)				95% Lower	95% Upper
1	11/08/22	100	4.37	202	1.35	1.78	1.00	1.35	1.00	32.3	1.57	1.57	1.57
2	12/06/22	100	4.52	263	1.35	1.78	1.00	1.35	0.91	34.5	1.88	1.66	2.04
3	01/10/23	100	3.3	240	1.35	1.78	0.75	1.00	1.31	17.8	1.57	1.57	1.57
4	02/07/23	100	3.4	261	1.78	2.37	1.00	1.35	1.36	12.7	1.78	1.62	2.00
5	03/07/23	100	4.14	245	1.35	1.78	1.00	1.35	1.28	20.9	1.57	1.57	1.57
6	04/04/23	100	3.77	243	1.78	2.37	0.75	1.00	1.09	16.2	1.88	1.66	2.04
7	05/02/23	100	2.85	251	1.35	1.78	1.00	1.35	1.06	20.9	1.66	1.57	1.88
8	06/06/23	100	2.68	226	1.35	1.78	1.00	1.35	1.08	20.2	2.04	1.95	2.08
9	07/11/23	100	2.45	203	1.35	1.78	0.75	1.00	0.91	22.2	2.08	2.08	2.08
10	08/08/23	100	7.45	201	1.35	1.78	0.75	1.00	0.88	32.6	1.59	1.56	1.66
11	09/07/23	100	4.9	193	1.35	1.78	1.00	1.35	0.92	36.1	2.08	1.78	2.37
12	10/03/23	100	2.98	220	1.78	2.37	0.75	1.00	1.03	23.4	2.08	2.08	2.08
13	11/07/23	100	4.22	177	1.78	2.37	1.00	1.35	1.16	28.9	2.08	2.08	2.08
14	12/05/23	100	4.75	209	1.78	2.37	1.00	1.35	1.05	27.1	2.08	2.08	2.08
15	01/09/24	100	2.83	193	1.35	1.78	1.00	1.35	1.01	28.6	2.00	1.78	2.08
16	02/06/24	100	1.94	251	1.35	1.78	0.75	1.00	0.90	22.9	1.66	1.59	1.88
17	03/05/24	100	5.42	18.4	1.78	2.37	0.75	1.00	0.93	27.1	2.08	2.08	2.08
18	04/02/24	100	7.15	184	<0.75	0.75	---	---	0.23	2.08	2.08	2.08	2.08
19	04/11/24	100	9.59	213	1.35	1.78	1.00	1.35	1.19	42.5	1.59	1.56	1.66
20	05/07/24	100	4.31	221	1.35	1.78	1.00	1.35	1.06	24.0	1.59	1.56	1.66

# QC Control Chart Ceriodaphnia dubia Chronic



# CETIS Summary Report

Report Date: 11 Jun-24 10:25 (p 1 of 3)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington	

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
17-6854-0335	2d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	>100	---	---	1	1
10-1775-6747	4d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	>100	---	---	1	1
00-8598-8654	Reproduction	Dunnett Multiple Comparison Test	100	>100	---	28.2%	1	1

### Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
13-9314-9002	2d Survival Rate	Linear Interpolation (ICPIN)	LC10	>100	---	---	<1	1
			LC15	>100	---	---	<1	
			✓ LC20	>100	---	---	<1	
			✓ LC25	>100	---	---	<1	
			✓ LC40	>100	---	---	<1	
			✓ LC50	>100	---	---	<1	
06-2123-8042	4d Survival Rate	Linear Interpolation (ICPIN)	LC10	>100	---	---	<1	1
			LC15	>100	---	---	<1	
			✓ LC20	>100	---	---	<1	
			✓ LC25	>100	---	---	<1	
			✓ LC40	>100	---	---	<1	
			✓ LC50	>100	---	---	<1	
21-2920-2487	Reproduction	Linear Interpolation (ICPIN)	✓ IC10	12.3	3.922	---	8.128	1
			✓ IC15	81.7	5.883	---	1.224	
			✓ IC20	>100	---	---	<1	
			✓ IC25	>100	---	---	<1	
			✓ IC40	>100	---	---	<1	
			✓ IC50	>100	---	---	<1	

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Decision
				Lower	Upper	Overlap	
00-8598-8654	Reproduction	Control Resp	22.4	15	>>	Yes	Passes Criteria
21-2920-2487	Reproduction	Control Resp	22.4	15	>>	Yes	Passes Criteria
00-8598-8654	Reproduction	PMSD	0.2823	0.13	0.47	Yes	Passes Criteria

**CETIS Summary Report**

**Report Date:** 11 Jun-24 10:25 (p 2 of 3)  
**Test Code/ID:** 4062300-01/03CC / 14-0681-9680

**Ceriodaphnia 7-d Survival and Reproduction Test**

**Pace Analytical Services, LLC**

**2d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%

**4d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	22.4	18.31	26.49	12	28	1.809	5.719	25.53%	0.00%
6.25		10	22.8	18.83	26.77	10	29	1.756	5.554	24.36%	-1.79%
12.5		10	18.3	12.47	24.13	3	27	2.578	8.152	44.55%	18.30%
25		10	21.3	16.12	26.48	10	31	2.29	7.243	34.00%	4.91%
50		10	21.2	18.3	24.1	15	27	1.281	4.05	19.10%	5.36%
100		10	18.6	14.68	22.52	13	29	1.733	5.481	29.47%	16.96%

**2d Survival Rate Detail**

MD5: 6DFFCF255519977902535414E38EA216

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**4d Survival Rate Detail**

MD5: 6DFFCF255519977902535414E38EA216

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

MD5: 97EF1792BA776E307DA442C192040CE4

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	21	12	27	24	14	26	27	19	26	28
6.25		26	29	10	22	27	24	24	27	18	21
12.5		9	25	21	25	3	24	19	20	27	10
25		24	10	28	27	21	14	31	27	18	13
50		17	22	22	25	21	20	15	26	17	27
100		29	14	16	15	18	17	15	13	26	23

# CETIS Summary Report

Report Date: 11 Jun-24 10:25 (p 3 of 3)  
Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

### 2d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

### 4d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1



**CETIS Analytical Report**

**Report Date:** 11 Jun-24 10:25 (p 1 of 2)  
**Test Code/ID:** 4062300-01/03CC / 14-0681-9680

**Ceriodaphnia 7-d Survival and Reproduction Test**

**Pace Analytical Services, LLC**

<b>Analysis ID:</b> 00-8598-8654	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 60B583A3662CD5B89138390B236E222D	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Untransformed	C > T	100	>100	---	1	6.323	28.23%

**Dunnett Multiple Comparison Test**

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	-0.1448	2.289	6.323	18	CDF	0.8728	Non-Significant Effect
		12.5	1.484	2.289	6.323	18	CDF	0.2224	Non-Significant Effect
		25	0.3982	2.289	6.323	18	CDF	0.6896	Non-Significant Effect
		50	0.4344	2.289	6.323	18	CDF	0.6743	Non-Significant Effect
		100	1.376	2.289	6.323	18	CDF	0.2607	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	22.4	15	>>	Yes	Passes Criteria
PMSD	0.2823	0.13	0.47	Yes	Passes Criteria

**Auxiliary Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Outlier	Grubbs Extreme Value Test	2.589	3.2	0.4726	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	180.533	36.1067	5	0.9464	0.4588	Non-Significant Effect
Error	2060.2	38.1519	54			
Total	2240.73		59			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	4.972	15.09	0.4193	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.968	0.9459	0.1163	Normal Distribution

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	22.4	18.31	26.49	25	12	28	1.809	25.53%	0.00%
6.25		10	22.8	18.83	26.77	24	10	29	1.756	24.36%	-1.79%
12.5		10	18.3	12.47	24.13	20.5	3	27	2.578	44.55%	18.30%
25		10	21.3	16.12	26.48	22.5	10	31	2.29	34.00%	4.91%
50		10	21.2	18.3	24.1	21.5	15	27	1.281	19.10%	5.36%
100		10	18.6	14.68	22.52	16.5	13	29	1.733	29.47%	16.96%

Ceriodaphnia 7-d Survival and Reproduction Test

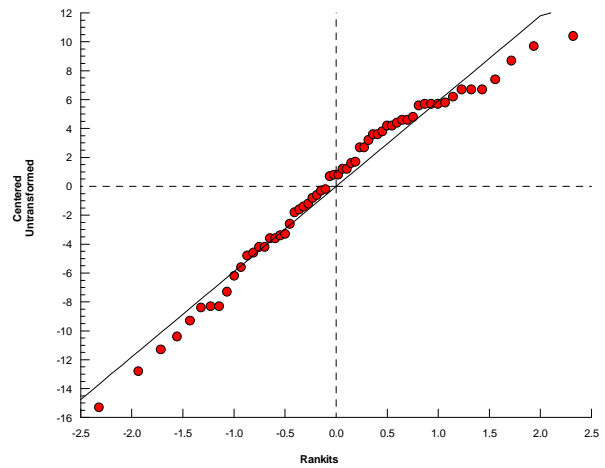
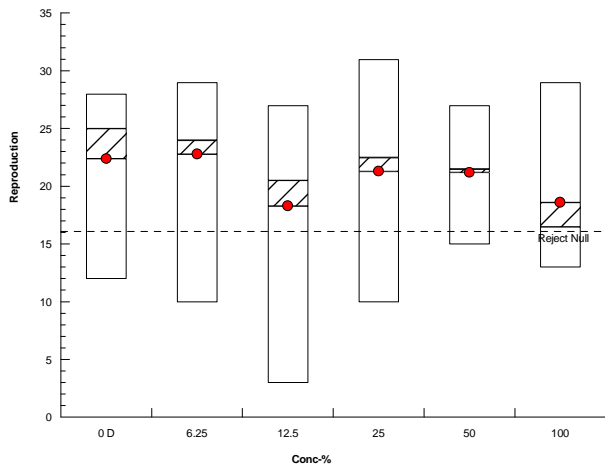
Pace Analytical Services, LLC

<b>Analysis ID:</b> 00-8598-8654	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 60B583A3662CD5B89138390B236E222D	<b>Editor ID:</b> 006-153-011-8

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	21	12	27	24	14	26	27	19	26	28
6.25		26	29	10	22	27	24	24	27	18	21
12.5		9	25	21	25	3	24	19	20	27	10
25		24	10	28	27	21	14	31	27	18	13
50		17	22	22	25	21	20	15	26	17	27
100		29	14	16	15	18	17	15	13	26	23

Graphics



**CETIS Analytical Report**

Report Date: 11 Jun-24 10:25 (p 1 of 6)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

Ceriodaphnia 7-d Survival and Reproduction Test				Pace Analytical Services, LLC			
<b>Analysis ID:</b> 13-9314-9002	<b>Endpoint:</b> 2d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7					
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1					
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 6DFFCF255519977902535414E38EA216	<b>Editor ID:</b> 006-153-011-8					
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech					
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water					
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable					
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR	<b>Age:</b> <24				
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)					
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658					
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001					
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington						

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	987849	1000	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC10	>100	---	---	<1	---	---
LC15	>100	---	---	<1	---	---
LC20	>100	---	---	<1	---	---
LC25	>100	---	---	<1	---	---
LC40	>100	---	---	<1	---	---
LC50	>100	---	---	<1	---	---

2d Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	Code	Count	Mean	Median	Min	Max	CV%	%Effect	A/B	Mean	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%

2d Survival Rate Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

2d Survival Rate Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

Report Date: 11 Jun-24 10:25 (p 2 of 6)  
Test Code/ID: 4062300-01/03CC / 14-0681-9680

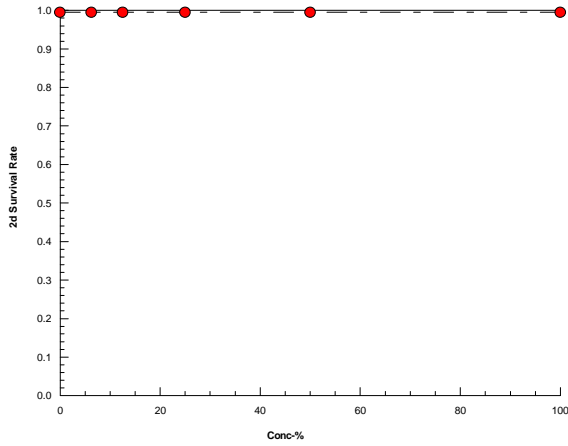
## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

Analysis ID: 13-9314-9002      Endpoint: 2d Survival Rate  
Analyzed: 11 Jun-24 10:23      Analysis: Linear Interpolation (ICPIN)  
Edit Date: 11 Jun-24 10:21      MD5 Hash: 6DFFCF255519977902535414E38EA216

CETIS Version: CETISv1.9.7  
Status Level: 1  
Editor ID: 006-153-011-8

### Graphics



**CETIS Analytical Report**

Report Date: 11 Jun-24 10:25 (p 3 of 6)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

Ceriodaphnia 7-d Survival and Reproduction Test				Pace Analytical Services, LLC			
<b>Analysis ID:</b> 06-2123-8042	<b>Endpoint:</b> 4d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7					
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1					
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 6DFFCF255519977902535414E38EA216	<b>Editor ID:</b> 006-153-011-8					
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech					
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water					
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable					
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR	<b>Age:</b> <24				
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)					
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658					
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001					
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington						

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	880096	1000	Yes	Two-Point Interpolation

Point Estimates						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC10	>100	---	---	<1	---	---
LC15	>100	---	---	<1	---	---
LC20	>100	---	---	<1	---	---
LC25	>100	---	---	<1	---	---
LC40	>100	---	---	<1	---	---
LC50	>100	---	---	<1	---	---

4d Survival Rate Summary			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	Code	Count	Mean	Median	Min	Max	CV%	%Effect	A/B	Mean	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	0.00%	0.00%	10/10	1.0000	0.00%

4d Survival Rate Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

4d Survival Rate Binomials											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Analytical Report

Report Date: 11 Jun-24 10:25 (p 4 of 6)  
Test Code/ID: 4062300-01/03CC / 14-0681-9680

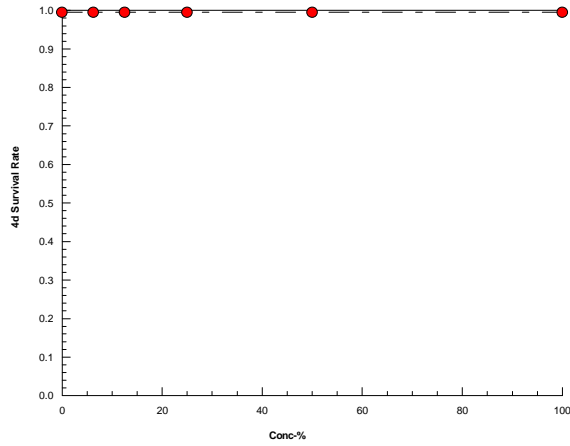
## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

Analysis ID: 06-2123-8042      Endpoint: 4d Survival Rate  
Analyzed: 11 Jun-24 10:23      Analysis: Linear Interpolation (ICPIN)  
Edit Date: 11 Jun-24 10:21      MD5 Hash: 6DFFCF255519977902535414E38EA216

CETIS Version: CETISv1.9.7  
Status Level: 1  
Editor ID: 006-153-011-8

### Graphics



# CETIS Analytical Report

Report Date: 11 Jun-24 10:25 (p 5 of 6)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 21-2920-2487	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 60B583A3662CD5B89138390B236E222D	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	615515	1000	Yes	Two-Point Interpolation

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	22.4	15	>>	Yes	Passes Criteria

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC10	12.3	3.922	---	8.128	---	25.5
IC15	81.7	5.883	---	1.224	---	17
IC20	>100	---	---	<1	---	---
IC25	>100	---	---	<1	---	---
IC40	>100	---	---	<1	---	---
IC50	>100	---	---	<1	---	---

### Reproduction Summary

Conc-%	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	D	10	22.4	25	12	28	25.53%	0.00%	22.6	0.00%
6.25		10	22.8	24	10	29	24.36%	-1.79%	22.6	0.00%
12.5		10	18.3	20.5	3	27	44.55%	18.30%	20.27	10.32%
25		10	21.3	22.5	10	31	34.00%	4.91%	20.27	10.32%
50		10	21.2	21.5	15	27	19.10%	5.36%	20.27	10.32%
100		10	18.6	16.5	13	29	29.47%	16.96%	18.6	17.70%

### Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	21	12	27	24	14	26	27	19	26	28
6.25		26	29	10	22	27	24	24	27	18	21
12.5		9	25	21	25	3	24	19	20	27	10
25		24	10	28	27	21	14	31	27	18	13
50		17	22	22	25	21	20	15	26	17	27
100		29	14	16	15	18	17	15	13	26	23

# CETIS Analytical Report

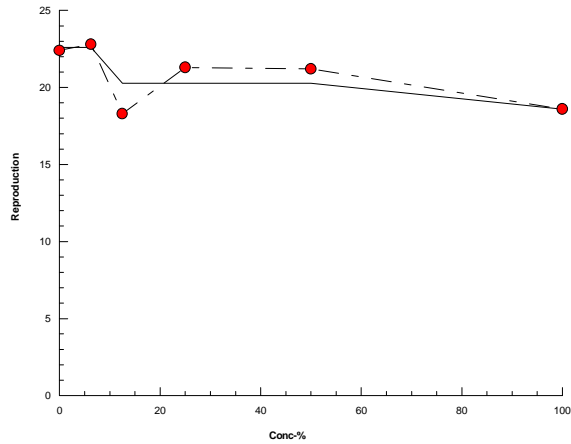
Report Date: 11 Jun-24 10:25 (p 6 of 6)  
Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 21-2920-2487	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 60B583A3662CD5B89138390B236E222D	<b>Editor ID:</b> 006-153-011-8

### Graphics





**CETIS Analytical Report**

**Report Date:** 11 Jun-24 10:25 (p 1 of 4)  
**Test Code/ID:** 4062300-01/03CC / 14-0681-9680

**Ceriodaphnia 7-d Survival and Reproduction Test**

**Pace Analytical Services, LLC**

<b>Analysis ID:</b> 17-6854-0335	<b>Endpoint:</b> 2d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> STP 2xK Contingency Tables	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 6DFFCF255519977902535414E38EA216	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	100	>100	---	1

**Fisher Exact/Bonferroni-Holm Test**

Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	1.0000	Exact	1.0000	Non-Significant Effect
		12.5	1.0000	Exact	1.0000	Non-Significant Effect
		25	1.0000	Exact	1.0000	Non-Significant Effect
		50	1.0000	Exact	1.0000	Non-Significant Effect
		100	1.0000	Exact	1.0000	Non-Significant Effect

**2d Survival Rate Frequencies**

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	D	10	0	10	1.0000	0.0000	0.00%
6.25		10	0	10	1.0000	0.0000	0.00%
12.5		10	0	10	1.0000	0.0000	0.00%
25		10	0	10	1.0000	0.0000	0.00%
50		10	0	10	1.0000	0.0000	0.00%
100		10	0	10	1.0000	0.0000	0.00%

**2d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**2d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

# CETIS Analytical Report

Report Date: 11 Jun-24 10:25 (p 2 of 4)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

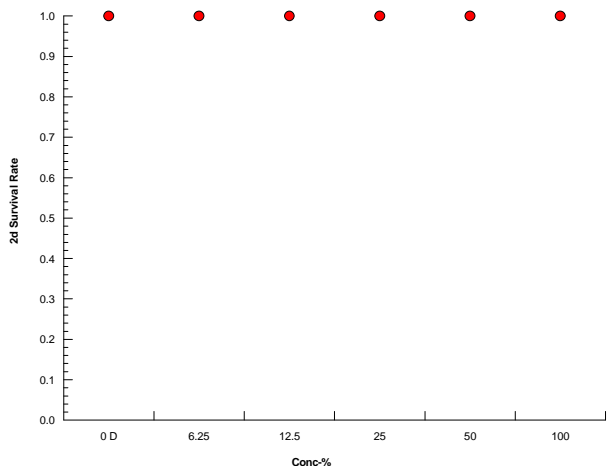
Pace Analytical Services, LLC

Analysis ID: 17-6854-0335      Endpoint: 2d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 11 Jun-24 10:23      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 11 Jun-24 10:21      MD5 Hash: 6DFFCF255519977902535414E38EA216      Editor ID: 006-153-011-8

### 2d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

### Graphics



**CETIS Analytical Report**

**Report Date:** 11 Jun-24 10:25 (p 3 of 4)  
**Test Code/ID:** 4062300-01/03CC / 14-0681-9680

**Ceriodaphnia 7-d Survival and Reproduction Test**

**Pace Analytical Services, LLC**

<b>Analysis ID:</b> 10-1775-6747	<b>Endpoint:</b> 4d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 11 Jun-24 10:23	<b>Analysis:</b> STP 2xK Contingency Tables	<b>Status Level:</b> 1
<b>Edit Date:</b> 11 Jun-24 10:21	<b>MD5 Hash:</b> 6DFFCF255519977902535414E38EA216	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 00-1320-8102	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 12:08	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 10 Jun-24 14:20	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Test Length:</b> 6d 2h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 07-4656-5875	<b>Code:</b> 4062300-01/03CC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 5h (6.3 °C)	<b>Client:</b> City of Washington	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	100	>100	---	1

**Fisher Exact/Bonferroni-Holm Test**

Control	vs	Conc-%	Test Stat	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	1.0000	Exact	1.0000	Non-Significant Effect
		12.5	1.0000	Exact	1.0000	Non-Significant Effect
		25	1.0000	Exact	1.0000	Non-Significant Effect
		50	1.0000	Exact	1.0000	Non-Significant Effect
		100	1.0000	Exact	1.0000	Non-Significant Effect

**4d Survival Rate Frequencies**

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	D	10	0	10	1.0000	0.0000	0.00%
6.25		10	0	10	1.0000	0.0000	0.00%
12.5		10	0	10	1.0000	0.0000	0.00%
25		10	0	10	1.0000	0.0000	0.00%
50		10	0	10	1.0000	0.0000	0.00%
100		10	0	10	1.0000	0.0000	0.00%

**4d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
6.25		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
12.5		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
25		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
50		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%

**4d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

# CETIS Analytical Report

Report Date: 11 Jun-24 10:25 (p 4 of 4)  
 Test Code/ID: 4062300-01/03CC / 14-0681-9680

## Ceriodaphnia 7-d Survival and Reproduction Test

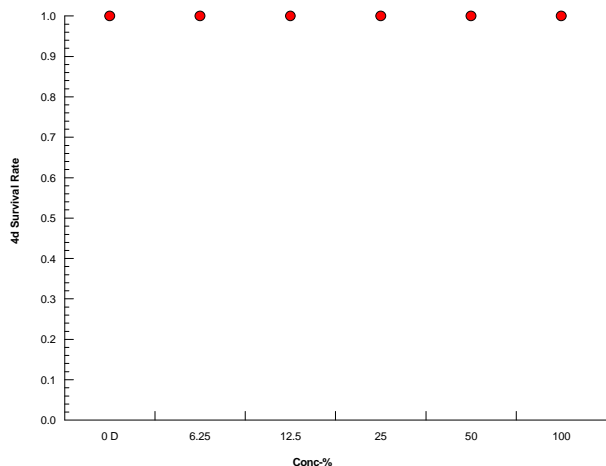
Pace Analytical Services, LLC

Analysis ID: 10-1775-6747      Endpoint: 4d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 11 Jun-24 10:23      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 11 Jun-24 10:21      MD5 Hash: 6DFFCF255519977902535414E38EA216      Editor ID: 006-153-011-8

### 4d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

### Graphics



# CETIS Summary Report

Report Date: 14 Jun-24 13:41 (p 1 of 4)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	TU	S
20-3324-7484	2d Survival Rate	Steel Many-One Rank Sum Test	100	>100	---	5.6%	1	1
10-5046-4762	4d Survival Rate	Steel Many-One Rank Sum Test	100	>100	---	8.48%	1	1
17-2589-8214	7d Survival Rate	Dunnett Multiple Comparison Test	100	>100	---	14.8%	1	1
03-0113-1423	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test	100	>100	---	21.8%	1	1

### Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
05-0875-0765	2d Survival Rate	GLM: Log-Normal (Probit)	LC5	305.6	---	---	0.3273	2
			LC10	971.4	---	---	0.1029	
			LC15	2120	---	---	0.0471	
			LC20	3942	---	---	0.0253	
			LC25	6711	---	---	0.0149	
			LC40	25650	---	---	0.0038	
00-7918-8983	4d Survival Rate	GLM: Log-Normal (Probit)	LC5	73.42	---	---	1.362	2
			LC10	157.9	---	---	0.6334	
			LC15	264.6	---	---	0.3779	
			LC20	399	---	---	0.2506	
			LC25	567.4	---	---	0.1762	
			LC40	1378	---	---	0.0725	
08-0185-5406	7d Survival Rate	GLM: Log-Normal (Probit)	✓ LC5	12.24	---	---	8.167	2
			LC10	222.3	---	---	0.4499	
			LC15	1572	---	---	0.0636	
			LC20	7438	---	---	0.0134	
			LC25	28230	---	---	0.0035	
			LC40	813000	---	---	0.0001	
20-8660-9627	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓ IC10	>100	---	---	<1	1
			✓ IC15	>100	---	---	<1	
			✓ IC20	>100	---	---	<1	
			✓ IC25	>100	---	---	<1	
			✓ IC40	>100	---	---	<1	
			✓ IC50	>100	---	---	<1	

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits			Overlap	Decision
				Lower	Upper			
08-0185-5406	7d Survival Rate	Control Resp	0.975	0.8	>>	Yes	Passes Criteria	
17-2589-8214	7d Survival Rate	Control Resp	0.975	0.8	>>	Yes	Passes Criteria	
03-0113-1423	Mean Dry Biomass-mg	Control Resp	0.3868	0.25	>>	Yes	Passes Criteria	
20-8660-9627	Mean Dry Biomass-mg	Control Resp	0.3868	0.25	>>	Yes	Passes Criteria	
03-0113-1423	Mean Dry Biomass-mg	PMSD	0.2182	0.12	0.3	Yes	Passes Criteria	

**CETIS Summary Report**

**Report Date:** 14 Jun-24 13:41 (p 2 of 4)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

**2d 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	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%
50		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	---	0.00%
100		4	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%

**4d 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	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%
50		4	0.9500	0.7909	1.1090	0.8000	1.0000	0.0500	0.1000	10.53%	5.00%
100		4	0.9500	0.8581	1.0420	0.9000	1.0000	0.0289	0.0577	6.08%	5.00%

**7d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	0.9750	0.8954	1.0550	0.9000	1.0000	0.0250	0.0500	5.13%	0.00%
6.25		4	0.9250	0.7727	1.0770	0.8000	1.0000	0.0479	0.0957	10.35%	5.13%
12.5		4	0.9250	0.8454	1.0050	0.9000	1.0000	0.0250	0.0500	5.41%	5.13%
25		4	0.9500	0.8581	1.0420	0.9000	1.0000	0.0289	0.0577	6.08%	2.56%
50		4	0.8750	0.7227	1.0270	0.8000	1.0000	0.0479	0.0957	10.94%	10.26%
100		4	0.9000	0.6750	1.1250	0.7000	1.0000	0.0707	0.1414	15.71%	7.69%

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	0.3868	0.3046	0.4689	0.316	0.439	0.02583	0.05166	13.36%	0.00%
6.25		4	0.4337	0.3573	0.5102	0.362	0.462	0.02404	0.04807	11.08%	-12.15%
12.5		4	0.4343	0.3423	0.5262	0.365	0.501	0.02889	0.05778	13.31%	-12.28%
25		4	0.4395	0.3753	0.5037	0.399	0.483	0.02018	0.04037	9.19%	-13.64%
50		4	0.426	0.349	0.503	0.386	0.496	0.02419	0.04838	11.36%	-10.15%
100		4	0.4125	0.3335	0.4915	0.37	0.482	0.02482	0.04964	12.03%	-6.66%

# CETIS Summary Report

Report Date: 14 Jun-24 13:41 (p 3 of 4)  
Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

### 2d Survival Rate Detail

MD5: C73A58ACADB3848C85FE6678765EC65C

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9000	1.0000

### 4d Survival Rate Detail

MD5: 83788466ED0C93A4A31831C421E16AF4

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	0.8000	1.0000
100		0.9000	1.0000	0.9000	1.0000

### 7d Survival Rate Detail

MD5: 4B19FF126B2F3B4FC6C2FBAE354AD53A

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

### Mean Dry Biomass-mg Detail

MD5: 8AF0736B18E6D1C3EEE7A40BE055F9C6

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.316	0.403	0.389	0.439
6.25		0.462	0.362	0.451	0.46
12.5		0.501	0.416	0.365	0.455
25		0.412	0.399	0.464	0.483
50		0.496	0.417	0.405	0.386
100		0.482	0.413	0.37	0.385

# CETIS Summary Report

Report Date: 14 Jun-24 13:41 (p 4 of 4)  
Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

### 2d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	9/10	10/10

### 4d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	8/10	10/10
100		9/10	10/10	9/10	10/10

### 7d Survival Rate Binomials

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



**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 1 of 8)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test** **Pace Analytical Services, LLC**

<b>Analysis ID:</b> 20-3324-7484	<b>Endpoint:</b> 2d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Nonparametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 5972C73183292DFBAB90B38D20CAF883	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <span style="float: right;"><b>Age:</b> &lt;24</span>
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Angular (Corrected)	C > T	100	>100	---	1	0.05598	5.60%

**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	16	10	1	6	CDF	0.6105	Non-Significant Effect
		50	18	10	1	6	CDF	0.8333	Non-Significant Effect
		100	16	10	1	6	CDF	0.6105	Non-Significant Effect

**Auxiliary Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Outlier	Grubbs Extreme Value Test	2.937	2.802	0.0259	Outlier Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0088531	0.0017706	5	0.8	0.5640	Non-Significant Effect
Error	0.039839	0.0022133	18			
Total	0.0486921		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	0.6154	0.884	<1.0E-05	Non-Normal Distribution

**2d 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	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	2.50%
50		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	0.00%
100		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	2.50%

**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	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
25		4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	2.89%
50		4	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
100		4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	2.89%

# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 2 of 8)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

Analysis ID: 20-3324-7484      Endpoint: 2d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 14 Jun-24 13:35      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 14 Jun-24 13:34      MD5 Hash: 5972C73183292DFBAB90B38D20CAF883      Editor ID: 006-153-011-8

### 2d Survival Rate Detail

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9000	1.0000

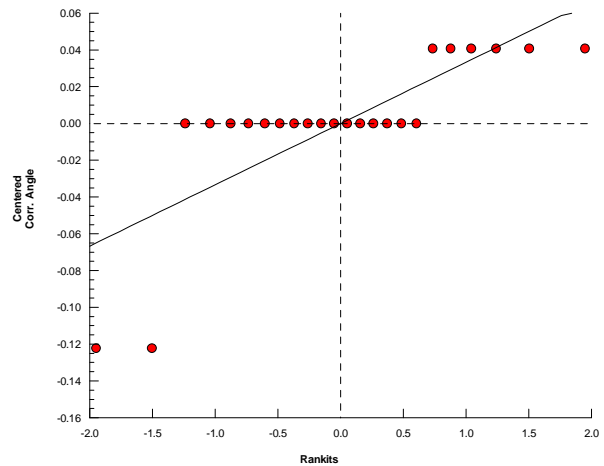
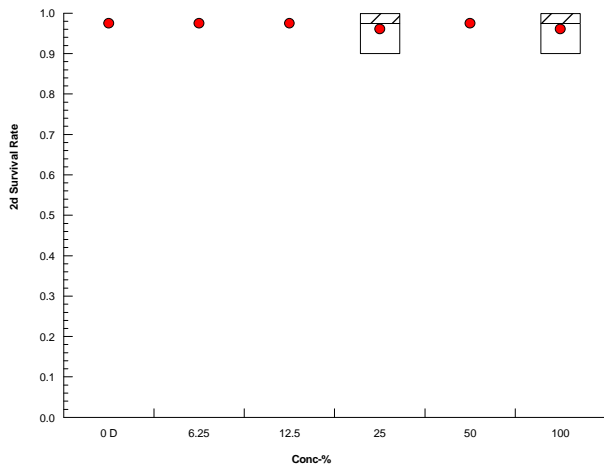
### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.4120	1.4120	1.4120	1.4120
6.25		1.4120	1.4120	1.4120	1.4120
12.5		1.4120	1.4120	1.4120	1.4120
25		1.4120	1.2490	1.4120	1.4120
50		1.4120	1.4120	1.4120	1.4120
100		1.4120	1.4120	1.2490	1.4120

### 2d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	9/10	10/10

### Graphics



# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 3 of 8)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test** **Pace Analytical Services, LLC**

Analysis ID: 10-5046-4762      Endpoint: 4d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 14 Jun-24 13:35      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 14 Jun-24 13:34      MD5 Hash: 613DAF79415030A727955F9BF903FBA6      Editor ID: 006-153-011-8

Batch ID: 06-9655-6388      Test Type: Growth-Survival (7d)      Analyst: Lab Tech  
 Start Date: 04 Jun-24 15:46      Protocol: EPA/821/R-02-013 (2002)      Diluent: Mod-Hard Synthetic Water  
 Ending Date: 11 Jun-24      Species: Pimephales promelas      Brine: Instant Ocean  
 Test Length: 6d 8h      Taxon: Actinopterygii      Source: Aquatox, AR      Age: <24

Sample ID: 02-3333-7956      Code: 4062300-01/03FC      Project: WET Biannual Compliance Test (1st)  
 Sample Date: 04 Jun-24 07:00      Material: Wastewater      Source: IN0025658  
 Receipt Date: 04 Jun-24 10:56      CAS (PC):      Station: 001  
 Sample Age: 9h (6.3 °C)      Client: City of Washington

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Angular (Corrected)	C > T	100	>100	---	1	0.08482	8.48%

### 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	16	10	1	6	CDF	0.6105	Non-Significant Effect
		50	16	10	1	6	CDF	0.6105	Non-Significant Effect
		100	14	10	1	6	CDF	0.3451	Non-Significant Effect

### Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Outlier	Grubbs Extreme Value Test	3.217	2.802	0.0053	Outlier Detected

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0301817	0.0060363	5	0.9352	0.4818	Non-Significant Effect
Error	0.116187	0.0064548	18			
Total	0.146369		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	0.804	0.884	0.0003	Non-Normal Distribution

### 4d 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	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	2.50%
50		4	0.9500	0.7909	1.0000	1.0000	0.8000	1.0000	0.0500	10.53%	5.00%
100		4	0.9500	0.8581	1.0000	0.9500	0.9000	1.0000	0.0289	6.08%	5.00%

### 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	1.4120	1.4120	1.4120	1.4120	1.4120	1.4120	0.0000	0.00%	0.00%
25		4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	2.89%
50		4	1.3360	1.0930	1.5780	1.4120	1.1070	1.4120	0.0762	11.41%	5.40%
100		4	1.3310	1.1810	1.4800	1.3310	1.2490	1.4120	0.0471	7.07%	5.77%

# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 4 of 8)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

Analysis ID: 10-5046-4762      Endpoint: 4d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 14 Jun-24 13:35      Analysis: Nonparametric-Control vs Treatments      Status Level: 1  
 Edit Date: 14 Jun-24 13:34      MD5 Hash: 613DAF79415030A727955F9BF903FBA6      Editor ID: 006-153-011-8

### 4d Survival Rate Detail

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	0.8000	1.0000
100		0.9000	1.0000	0.9000	1.0000

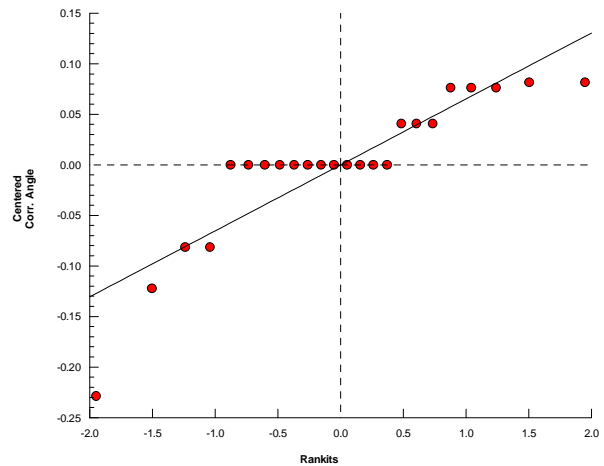
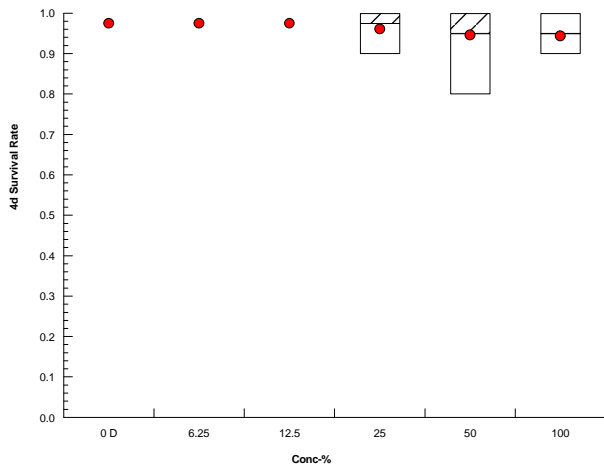
### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.4120	1.4120	1.4120	1.4120
6.25		1.4120	1.4120	1.4120	1.4120
12.5		1.4120	1.4120	1.4120	1.4120
25		1.4120	1.2490	1.4120	1.4120
50		1.4120	1.4120	1.1070	1.4120
100		1.2490	1.4120	1.2490	1.4120

### 4d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	8/10	10/10
100		9/10	10/10	9/10	10/10

### Graphics



# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 5 of 8)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

Analysis ID: 17-2589-8214      Endpoint: 7d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 14 Jun-24 13:35      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 14 Jun-24 13:34      MD5 Hash: 3DB0A7CB1AF71C33548AAC85FD331987      Editor ID: 006-153-011-8

Batch ID: 06-9655-6388      Test Type: Growth-Survival (7d)      Analyst: Lab Tech  
 Start Date: 04 Jun-24 15:46      Protocol: EPA/821/R-02-013 (2002)      Diluent: Mod-Hard Synthetic Water  
 Ending Date: 11 Jun-24      Species: Pimephales promelas      Brine: Instant Ocean  
 Test Length: 6d 8h      Taxon: Actinopterygii      Source: Aquatox, AR      Age: <24

Sample ID: 02-3333-7956      Code: 4062300-01/03FC      Project: WET Biannual Compliance Test (1st)  
 Sample Date: 04 Jun-24 07:00      Material: Wastewater      Source: IN0025658  
 Receipt Date: 04 Jun-24 10:56      CAS (PC):      Station: 001  
 Sample Age: 9h (6.3 °C)      Client: City of Washington

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Angular (Corrected)	C > T	100	>100	---	1	0.1442	14.79%

### Dunnnett Multiple Comparison Test

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	0.8176	2.407	0.224	6	CDF	0.5042	Non-Significant Effect
		12.5	0.8741	2.407	0.224	6	CDF	0.4784	Non-Significant Effect
		25	0.4371	2.407	0.224	6	CDF	0.6745	Non-Significant Effect
		50	1.635	2.407	0.224	6	CDF	0.1873	Non-Significant Effect
		100	1.129	2.407	0.224	6	CDF	0.3664	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.975	0.8	>>	Yes	Passes Criteria

### Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Outlier	Grubbs Extreme Value Test	2.357	2.802	0.2981	No Outliers Detected

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0549794	0.0109959	5	0.6327	0.6774	Non-Significant Effect
Error	0.312831	0.0173795	18			
Total	0.36781		23			

### ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	3.636	15.09	0.6030	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9688	0.884	0.6383	Normal Distribution

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	0.00%
6.25		4	0.9250	0.7727	1.0000	0.9500	0.8000	1.0000	0.0479	10.35%	5.13%
12.5		4	0.9250	0.8454	1.0000	0.9000	0.9000	1.0000	0.0250	5.41%	5.13%
25		4	0.9500	0.8581	1.0000	0.9500	0.9000	1.0000	0.0289	6.08%	2.56%
50		4	0.8750	0.7227	1.0000	0.8500	0.8000	1.0000	0.0479	10.94%	10.26%
100		4	0.9000	0.6750	1.0000	0.9500	0.7000	1.0000	0.0707	15.71%	7.69%

# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 6 of 8)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

Analysis ID: 17-2589-8214      Endpoint: 7d Survival Rate      CETIS Version: CETISv1.9.7  
 Analyzed: 14 Jun-24 13:35      Analysis: Parametric-Control vs Treatments      Status Level: 1  
 Edit Date: 14 Jun-24 13:34      MD5 Hash: 3DB0A7CB1AF71C33548AAC85FD331987      Editor ID: 006-153-011-8

### Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.3710	1.2420	1.5010	1.4120	1.2490	1.4120	0.0407	5.94%	0.00%
6.25		4	1.2950	1.0610	1.5290	1.3310	1.1070	1.4120	0.0735	11.35%	5.56%
12.5		4	1.2900	1.1600	1.4190	1.2490	1.2490	1.4120	0.0407	6.32%	5.94%
25		4	1.3310	1.1810	1.4800	1.3310	1.2490	1.4120	0.0471	7.07%	2.97%
50		4	1.2190	0.9879	1.4500	1.1780	1.1070	1.4120	0.0726	11.91%	11.12%
100		4	1.2660	0.9499	1.5820	1.3310	0.9912	1.4120	0.0994	15.70%	7.67%

### 7d Survival Rate Detail

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

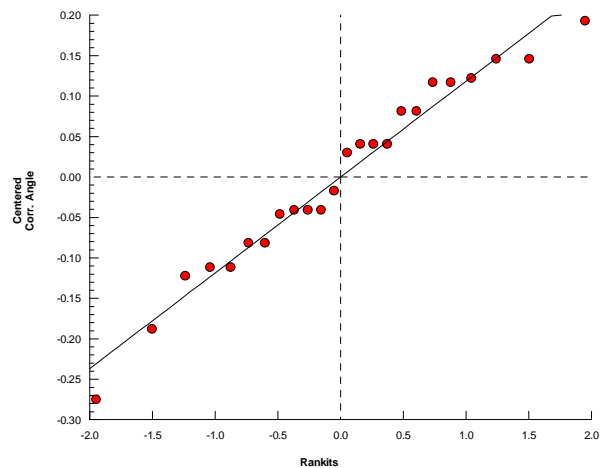
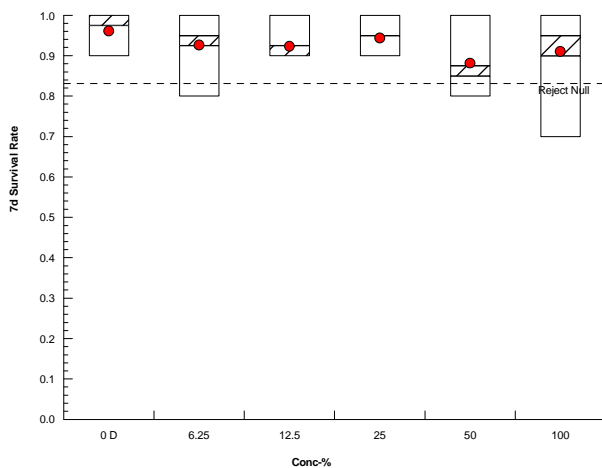
### Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.4120	1.4120	1.2490	1.4120
6.25		1.4120	1.1070	1.2490	1.4120
12.5		1.2490	1.2490	1.2490	1.4120
25		1.2490	1.2490	1.4120	1.4120
50		1.2490	1.4120	1.1070	1.1070
100		1.2490	1.4120	0.9912	1.4120

### 7d Survival Rate Binomials

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

### Graphics



**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 7 of 8)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

**Analysis ID:** 03-0113-1423      **Endpoint:** Mean Dry Biomass-mg      **CETIS Version:** CETISv1.9.7  
**Analyzed:** 14 Jun-24 13:35      **Analysis:** Parametric-Control vs Treatments      **Status Level:** 1  
**Edit Date:** 14 Jun-24 13:34      **MD5 Hash:** 220E695A9CD99F9DF99BDF9A70DB035F9      **Editor ID:** 006-153-011-8

**Batch ID:** 06-9655-6388      **Test Type:** Growth-Survival (7d)      **Analyst:** Lab Tech  
**Start Date:** 04 Jun-24 15:46      **Protocol:** EPA/821/R-02-013 (2002)      **Diluent:** Mod-Hard Synthetic Water  
**Ending Date:** 11 Jun-24      **Species:** Pimephales promelas      **Brine:** Instant Ocean  
**Test Length:** 6d 8h      **Taxon:** Actinopterygii      **Source:** Aquatox, AR      **Age:** <24

**Sample ID:** 02-3333-7956      **Code:** 4062300-01/03FC      **Project:** WET Biannual Compliance Test (1st)  
**Sample Date:** 04 Jun-24 07:00      **Material:** Wastewater      **Source:** IN0025658  
**Receipt Date:** 04 Jun-24 10:56      **CAS (PC):**      **Station:** 001  
**Sample Age:** 9h (6.3 °C)      **Client:** City of Washington

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	MSDu	PMSD
Untransformed	C > T	100	>100	---	1	0.0844	21.82%

**Dunnnett Multiple Comparison Test**

Control	vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	-1.34	2.407	0.084	6	CDF	0.9934	Non-Significant Effect
		12.5	-1.355	2.407	0.084	6	CDF	0.9936	Non-Significant Effect
		25	-1.504	2.407	0.084	6	CDF	0.9959	Non-Significant Effect
		50	-1.119	2.407	0.084	6	CDF	0.9876	Non-Significant Effect
		100	-0.7344	2.407	0.084	6	CDF	0.9655	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3868	0.25	>>	Yes	Passes Criteria
PMSD	0.2182	0.12	0.3	Yes	Passes Criteria

**Auxiliary Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Outlier	Grubbs Extreme Value Test	1.636	2.802	1.0000	No Outliers Detected

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0077724	0.0015545	5	0.6322	0.6777	Non-Significant Effect
Error	0.0442563	0.0024587	18			
Total	0.0520287		23			

**ANOVA Assumptions Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	0.3519	15.09	0.9966	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9553	0.884	0.3520	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	0.3868	0.3046	0.4689	0.396	0.316	0.439	0.02583	13.36%	0.00%
6.25		4	0.4337	0.3573	0.5102	0.4555	0.362	0.462	0.02404	11.08%	-12.15%
12.5		4	0.4343	0.3423	0.5262	0.4355	0.365	0.501	0.02889	13.31%	-12.28%
25		4	0.4395	0.3753	0.5037	0.438	0.399	0.483	0.02018	9.19%	-13.64%
50		4	0.426	0.349	0.503	0.411	0.386	0.496	0.02419	11.36%	-10.15%
100		4	0.4125	0.3335	0.4915	0.399	0.37	0.482	0.02482	12.03%	-6.66%

Fathead Minnow 7-d Larval Survival and Growth Test

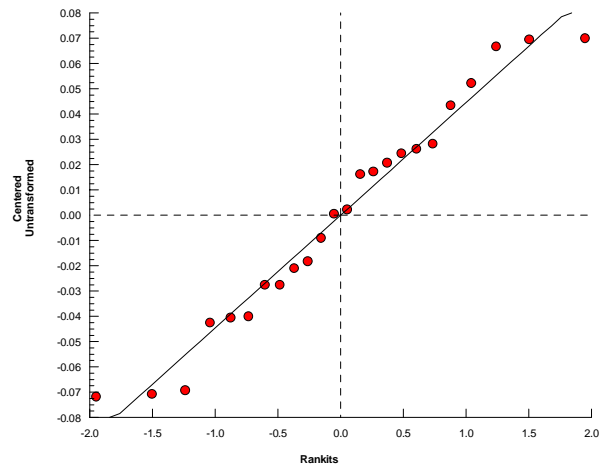
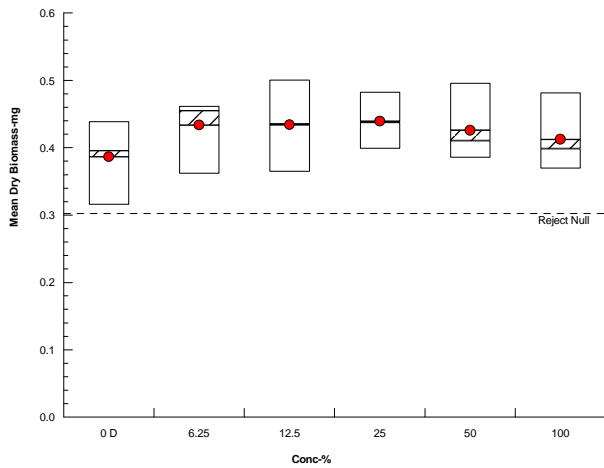
Pace Analytical Services, LLC

<b>Analysis ID:</b> 03-0113-1423	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Parametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 220E695A9CD99F9DF99BDF970DB035F9	<b>Editor ID:</b> 006-153-011-8

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.316	0.403	0.389	0.439
6.25		0.462	0.362	0.451	0.46
12.5		0.501	0.416	0.365	0.455
25		0.412	0.399	0.464	0.483
50		0.496	0.417	0.405	0.386
100		0.482	0.413	0.37	0.385

Graphics





# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 1 of 9)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 05-0875-0765	<b>Endpoint:</b> 2d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Regression (GLM)	<b>Status Level:</b> 2
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 5972C73183292DFBAB90B38D20CAF883	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

### Linear Regression Options

Model Name	Link Function	Threshold Option	Thresh	PMSD	Optimize	Pooled	Het Corr	Weighted
Log-Normal (Probit)	$\eta = \text{inv } \Phi[\pi]$	Control Threshold	6.29E-07	0.02%	Yes	No	No	Yes

### Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Cov	R2	F Stat	P-Value	Decision( $\alpha:5\%$ )
26	-6.045	19.29	21.62	4.759389	1.382678	-0.893834	1	1.091	0.3784	Non-Significant Lack-of-Fit

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	305.6	---	---	0.3273	---	---
LC10	971.4	---	---	0.1029	---	---
LC15	2120	---	---	0.04717	---	---
LC20	3942	---	---	0.02537	---	---
LC25	6711	---	---	0.0149	---	---
LC40	25650	---	---	0.003899	---	---
LC50	57460	---	---	0.00174	---	---

### Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	Test Stat	P-Value	Decision( $\alpha:5\%$ )
Threshold	6.286E-07	0.0001254	-0.000245	0.0002463	0.005014	0.9960	Non-Significant Parameter
Slope	0.7232	0.7369	-0.721	2.168	0.9815	0.3264	Non-Significant Parameter
Intercept	-3.442	1.243	-5.879	-1.005	-2.768	0.0056	Significant Parameter

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Model	19810000	9904000	2	13150000	<1.0E-05	Significant Effect
Lack of Fit	2.432	0.8108	3	1.091	0.3784	Non-Significant Lack-of-Fit
Pure Error	13.38	0.7433	18			
Residual	15.81	0.753	21			

### Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision( $\alpha:5\%$ )
Model Fit	Likelihood Ratio GOF Test	8.293	32.67	0.9938	Non-Significant Heterogeneity
	Pearson Chi-Sq GOF Test	15.81	32.67	0.7801	Non-Significant Heterogeneity
Outlier	Grubbs Extreme Value Test	4.081	2.802	<1.0E-05	Outlier Detected
Variance	Mod Levene Equality of Variance	0.8269	2.773	0.5469	Equal Variances
Distribution	Anderson-Darling A2 Test	5.366	2.492	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.4859	0.9169	<1.0E-05	Non-Normal Distribution
Overdispersion	Tarone C( $\alpha$ ) BinOverdispersion Te	0.344	1.645	0.3654	Non-Significant Overdispersion

**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 2 of 9)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

**Analysis ID:** 05-0875-0765      **Endpoint:** 2d Survival Rate      **CETIS Version:** CETISv1.9.7  
**Analyzed:** 14 Jun-24 13:35      **Analysis:** Linear Regression (GLM)      **Status Level:** 2  
**Edit Date:** 14 Jun-24 13:34      **MD5 Hash:** 5972C73183292DFBAB90B38D20CAF883      **Editor ID:** 006-153-011-8

**2d Survival Rate Summary**

**Calculated Variate(A/B)**

Conc-%	Code	Count	Mean	Median	Min	Max	Std Err	Std Dev	CV%	%Effect	A/B
0	D	4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
6.25		4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
12.5		4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
25		4	0.9750	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%	39/40
50		4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
100		4	0.9750	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%	39/40

**2d Survival Rate Detail**

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	0.9000	1.0000

**2d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	9/10	10/10

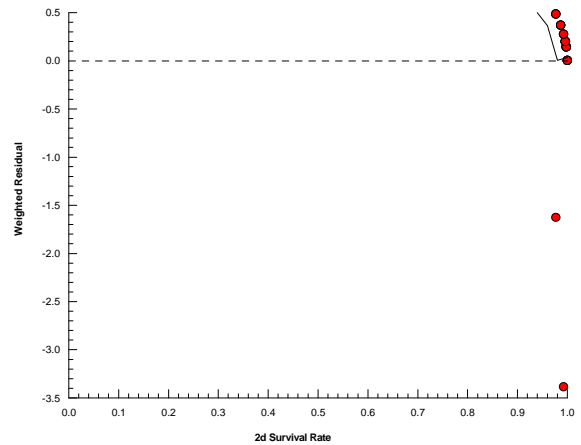
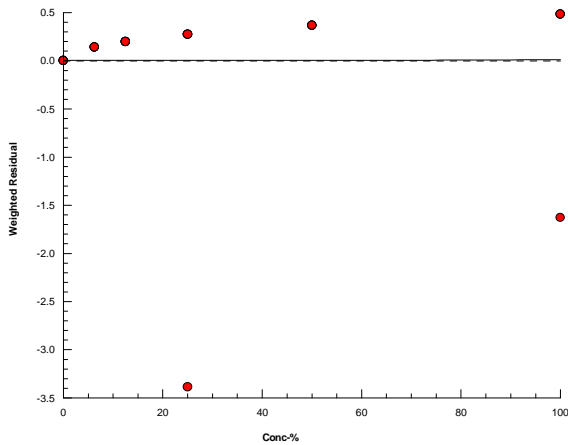
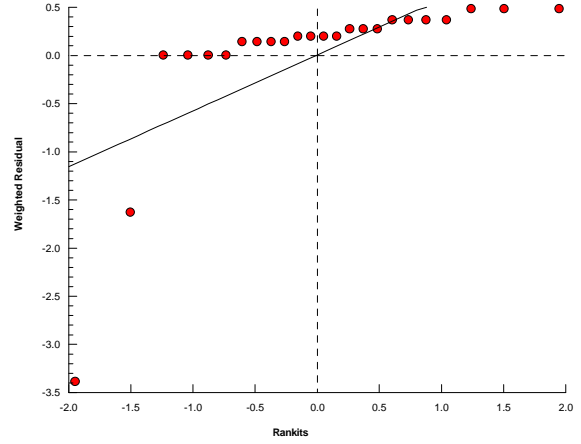
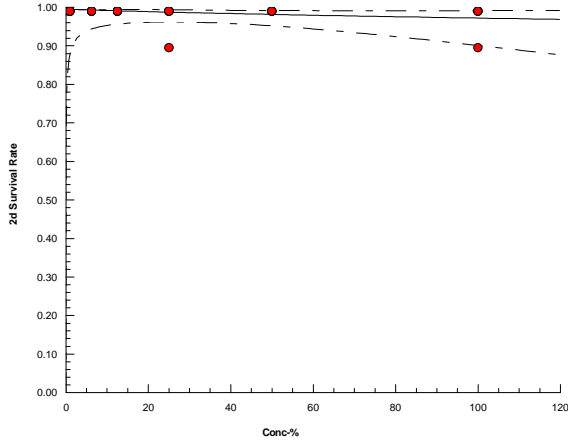
Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 05-0875-0765	<b>Endpoint:</b> 2d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Regression (GLM)	<b>Status Level:</b> 2
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 5972C73183292DFBAB90B38D20CAF883	<b>Editor ID:</b> 006-153-011-8

Graphics

Log-Normal:  $\text{inv } \Phi[\pi] = \alpha + \beta \cdot \log[x]$



# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 4 of 9)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 00-7918-8983	<b>Endpoint:</b> 4d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Regression (GLM)	<b>Status Level:</b> 2
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 613DAF79415030A727955F9BF903FBA6	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

### Linear Regression Options

Model Name	Link Function	Threshold Option	Thresh	PMSD	Optimize	Pooled	Het Corr	Weighted
Log-Normal (Probit)	$\eta = \text{inv } \Phi[\pi]$	Control Threshold	0		No	No	No	Yes

### Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Cov	R2	F Stat	P-Value	Decision( $\alpha:5\%$ )
31	-10.54	25.65	27.44	3.371186	0.9151837	-0.593683	1	0.3152	0.8640	Non-Significant Lack-of-Fit

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	73.42	---	---	1.362	---	---
LC10	157.9	---	---	0.6334	---	---
LC15	264.6	---	---	0.3779	---	---
LC20	399	---	---	0.2506	---	---
LC25	567.4	---	---	0.1762	---	---
LC40	1378	---	---	0.07256	---	---
LC50	2351	---	---	0.04254	---	---

### Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	Test Stat	P-Value	Decision( $\alpha:5\%$ )
Slope	1.093	0.5915	-0.0666	2.252	1.847	0.0647	Non-Significant Parameter
Intercept	-3.684	1.024	-5.69	-1.677	-3.598	0.0003	Significant Parameter

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Model	32680000	32680000	1	42850000	<1.0E-05	Significant Effect
Lack of Fit	1.098	0.2746	4	0.3152	0.8640	Non-Significant Lack-of-Fit
Pure Error	15.68	0.8711	18			
Residual	16.78	0.7626	22			

### Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision( $\alpha:5\%$ )
Model Fit	Likelihood Ratio GOF Test	12.99	33.92	0.9333	Non-Significant Heterogeneity
	Pearson Chi-Sq GOF Test	16.78	33.92	0.7755	Non-Significant Heterogeneity
Outlier	Grubbs Extreme Value Test	3.403	2.802	0.0015	Outlier Detected
Variance	Mod Levene Equality of Variance	0.8239	2.773	0.5488	Equal Variances
Distribution	Anderson-Darling A2 Test	3.174	2.492	<1.0E-05	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.6756	0.9169	<1.0E-05	Non-Normal Distribution
Overdispersion	Tarone C( $\alpha$ ) BinOverdispersion Te	0.863	1.645	0.1941	Non-Significant Overdispersion

**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 5 of 9)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

**Analysis ID:** 00-7918-8983      **Endpoint:** 4d Survival Rate      **CETIS Version:** CETISv1.9.7  
**Analyzed:** 14 Jun-24 13:35      **Analysis:** Linear Regression (GLM)      **Status Level:** 2  
**Edit Date:** 14 Jun-24 13:34      **MD5 Hash:** 613DAF79415030A727955F9BF903FBA6      **Editor ID:** 006-153-011-8

**4d Survival Rate Summary**

**Calculated Variate(A/B)**

Conc-%	Code	Count	Mean	Median	Min	Max	Std Err	Std Dev	CV%	%Effect	A/B
0	D	4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
6.25		4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
12.5		4	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%	40/40
25		4	0.9750	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	2.50%	39/40
50		4	0.9500	1.0000	0.8000	1.0000	0.0500	0.1000	10.53%	5.00%	38/40
100		4	0.9500	0.9500	0.9000	1.0000	0.0289	0.0577	6.08%	5.00%	38/40

**4d Survival Rate Detail**

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	0.9000	1.0000	1.0000
50		1.0000	1.0000	0.8000	1.0000
100		0.9000	1.0000	0.9000	1.0000

**4d 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		10/10	10/10	10/10	10/10
25		10/10	9/10	10/10	10/10
50		10/10	10/10	8/10	10/10
100		9/10	10/10	9/10	10/10

Fathead Minnow 7-d Larval Survival and Growth Test

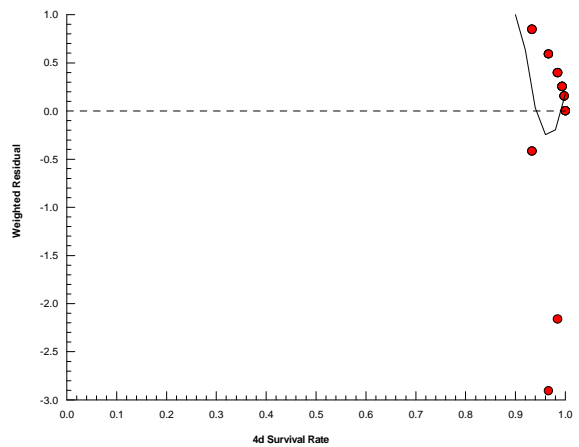
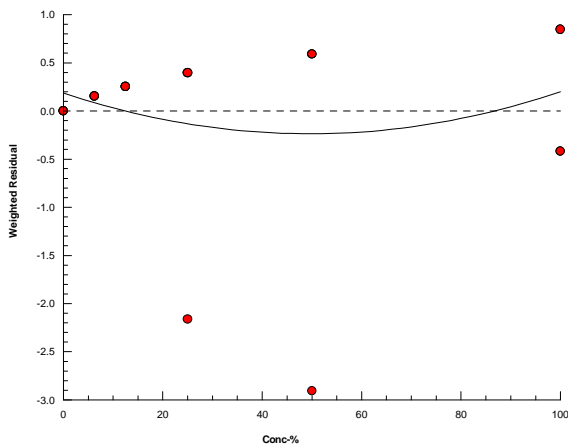
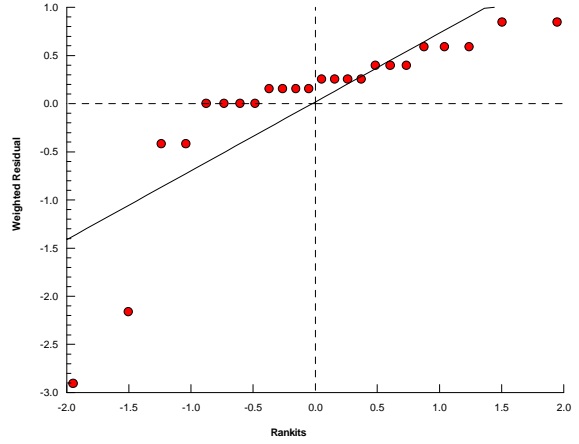
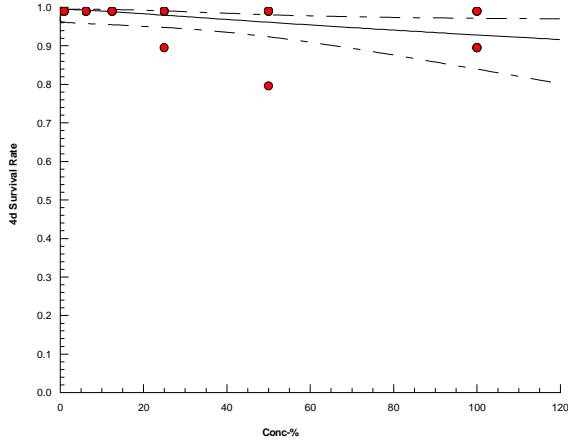
Pace Analytical Services, LLC

Analysis ID: 00-7918-8983      Endpoint: 4d Survival Rate  
Analyzed: 14 Jun-24 13:35      Analysis: Linear Regression (GLM)  
Edit Date: 14 Jun-24 13:34      MD5 Hash: 613DAF79415030A727955F9BF903FBA6

CETIS Version: CETISv1.9.7  
Status Level: 2  
Editor ID: 006-153-011-8

Graphics

Log-Normal:  $\text{inv } \Phi[\pi] = \alpha + \beta \cdot \log[x]$



# CETIS Analytical Report

Report Date: 14 Jun-24 13:41 (p 7 of 9)  
 Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 08-0185-5406	<b>Endpoint:</b> 7d Survival Rate	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Regression (GLM)	<b>Status Level:</b> 2
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 3DB0A7CB1AF71C33548AAC85FD331987	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

### Linear Regression Options

Model Name	Link Function	Threshold Option	Thresh	PMSD	Optimize	Pooled	Het Corr	Weighted
Log-Normal (Probit)	$\eta = \text{inv } \Phi[\pi]$	Control Threshold	0.025185	4.98%	Yes	No	No	Yes

### Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Cov	R2	F Stat	P-Value	Decision( $\alpha:5\%$ )
6	-25.65	58.49	60.83	6.788041	3.465427	-0.256573	0.9297	0.3396	0.7970	Non-Significant Lack-of-Fit

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	12.24	---	---	8.167	---	---
LC10	222.3	---	---	0.4499	---	---
LC15	1572	---	---	0.06363	---	---
LC20	7438	---	---	0.01344	---	---
LC25	28230	---	---	0.003543	---	---
LC40	813000	---	---	0.000123	---	---
LC50	6138000	---	---	0.0000162	---	---

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.975	0.8	>>	Yes	Passes Criteria

### Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	Test Stat	P-Value	Decision( $\alpha:5\%$ )
Threshold	0.02519	0.02477	-0.02335	0.07372	1.017	0.3092	Non-Significant Parameter
Slope	0.2886	0.4145	-0.5239	1.101	0.6961	0.4864	Non-Significant Parameter
Intercept	-1.959	0.6708	-3.274	-0.6441	-2.92	0.0035	Significant Parameter

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Model	299.3	149.6	2	153.1	<1.0E-05	Significant Effect
Lack of Fit	1.099	0.3665	3	0.3396	0.7970	Non-Significant Lack-of-Fit
Pure Error	19.43	1.079	18			
Residual	20.53	0.9775	21			

### Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision( $\alpha:5\%$ )
Model Fit	Likelihood Ratio GOF Test	24.4	32.67	0.2742	Non-Significant Heterogeneity
	Pearson Chi-Sq GOF Test	20.53	32.67	0.4882	Non-Significant Heterogeneity
Outlier	Grubbs Extreme Value Test	2.097	2.802	0.6871	No Outliers Detected
Variance	Mod Levene Equality of Variance	0.6076	2.773	0.6952	Equal Variances
Distribution	Anderson-Darling A2 Test	0.8642	2.492	0.0264	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9042	0.9169	0.0264	Non-Normal Distribution
Overdispersion	Tarone C( $\alpha$ ) BinOverdispersion Te	1.088	1.645	0.1383	Non-Significant Overdispersion

**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 8 of 9)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

**Analysis ID:** 08-0185-5406      **Endpoint:** 7d Survival Rate      **CETIS Version:** CETISv1.9.7  
**Analyzed:** 14 Jun-24 13:35      **Analysis:** Linear Regression (GLM)      **Status Level:** 2  
**Edit Date:** 14 Jun-24 13:34      **MD5 Hash:** 3DB0A7CB1AF71C33548AAC85FD331987      **Editor ID:** 006-153-011-8

**7d Survival Rate Summary**

**Calculated Variate(A/B)**

Conc-%	Code	Count	Mean	Median	Min	Max	Std Err	Std Dev	CV%	%Effect	A/B
0	D	4	0.9750	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	0.00%	39/40
6.25		4	0.9250	0.9500	0.8000	1.0000	0.0479	0.0957	10.35%	5.13%	37/40
12.5		4	0.9250	0.9000	0.9000	1.0000	0.0250	0.0500	5.41%	5.13%	37/40
25		4	0.9500	0.9500	0.9000	1.0000	0.0289	0.0577	6.08%	2.56%	38/40
50		4	0.8750	0.8500	0.8000	1.0000	0.0479	0.0957	10.94%	10.26%	35/40
100		4	0.9000	0.9500	0.7000	1.0000	0.0707	0.1414	15.71%	7.69%	36/40

**7d Survival Rate Detail**

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

**7d Survival Rate Binomials**

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



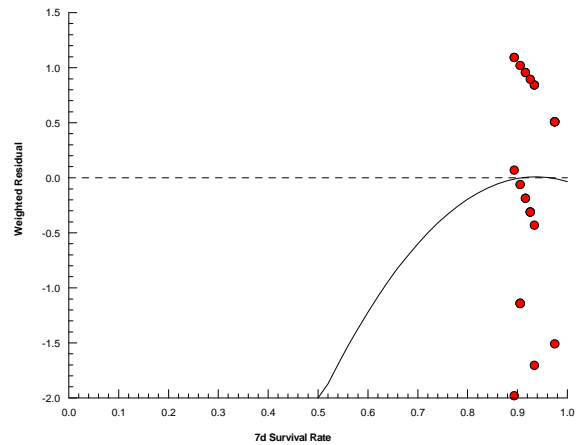
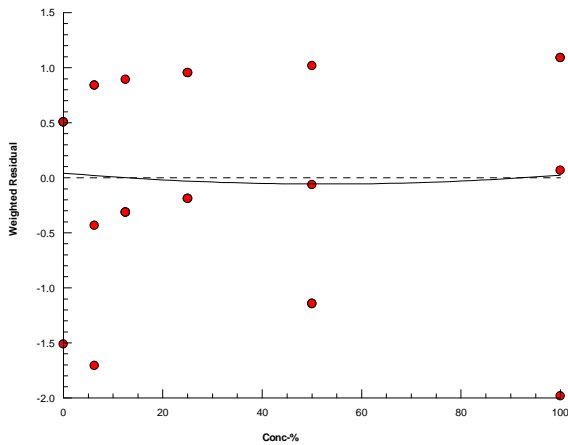
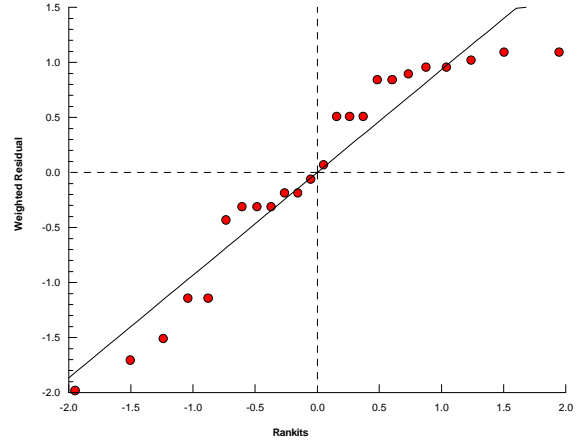
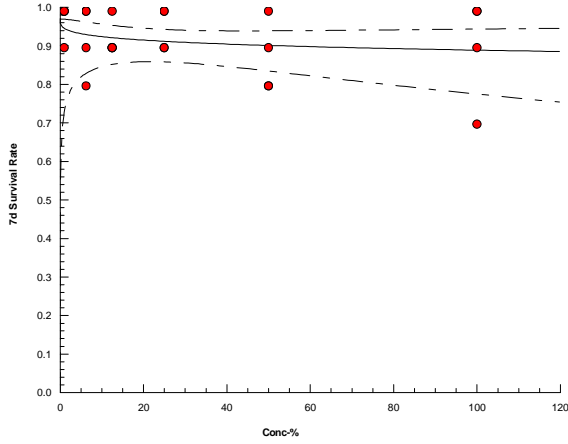
Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

Analysis ID: 08-0185-5406      Endpoint: 7d Survival Rate      CETIS Version: CETISv1.9.7  
Analyzed: 14 Jun-24 13:35      Analysis: Linear Regression (GLM)      Status Level: 2  
Edit Date: 14 Jun-24 13:34      MD5 Hash: 3DB0A7CB1AF71C33548AAC85FD331987      Editor ID: 006-153-011-8

Graphics

Log-Normal:  $\text{inv } \Phi[\pi] = \alpha + \beta \cdot \log[x]$



**CETIS Analytical Report**

**Report Date:** 14 Jun-24 13:41 (p 1 of 2)  
**Test Code/ID:** 4062300-01/03FC / 09-2444-3427

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Pace Analytical Services, LLC**

<b>Analysis ID:</b> 20-8660-9627	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 220E695A9CD99F9DF99BDF970DB035F9	<b>Editor ID:</b> 006-153-011-8
<b>Batch ID:</b> 06-9655-6388	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Lab Tech
<b>Start Date:</b> 04 Jun-24 15:46	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 11 Jun-24	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Instant Ocean
<b>Test Length:</b> 6d 8h	<b>Taxon:</b> Actinopterygii	<b>Source:</b> Aquatox, AR <b>Age:</b> <24
<b>Sample ID:</b> 02-3333-7956	<b>Code:</b> 4062300-01/03FC	<b>Project:</b> WET Biannual Compliance Test (1st)
<b>Sample Date:</b> 04 Jun-24 07:00	<b>Material:</b> Wastewater	<b>Source:</b> IN0025658
<b>Receipt Date:</b> 04 Jun-24 10:56	<b>CAS (PC):</b>	<b>Station:</b> 001
<b>Sample Age:</b> 9h (6.3 °C)	<b>Client:</b> City of Washington	

**Linear Interpolation Options**

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	173515	1000	Yes	Two-Point Interpolation

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	0.3868	0.25	>>	Yes	Passes Criteria

**Point Estimates**

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC10	>100	---	---	<1	---	---
IC15	>100	---	---	<1	---	---
IC20	>100	---	---	<1	---	---
IC25	>100	---	---	<1	---	---
IC40	>100	---	---	<1	---	---
IC50	>100	---	---	<1	---	---

**Mean Dry Biomass-mg Summary**

Conc-%	Code	Count	Calculated Variate						Isotonic Variate	
			Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	D	4	0.3868	0.396	0.316	0.439	13.36%	0.00%	0.4241	0.00%
6.25		4	0.4337	0.4555	0.362	0.462	11.08%	-12.15%	0.4241	0.00%
12.5		4	0.4343	0.4355	0.365	0.501	13.31%	-12.28%	0.4241	0.00%
25		4	0.4395	0.438	0.399	0.483	9.19%	-13.64%	0.4241	0.00%
50		4	0.426	0.411	0.386	0.496	11.36%	-10.15%	0.4241	0.00%
100		4	0.4125	0.399	0.37	0.482	12.03%	-6.66%	0.4125	2.72%

**Mean Dry Biomass-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.316	0.403	0.389	0.439
6.25		0.462	0.362	0.451	0.46
12.5		0.501	0.416	0.365	0.455
25		0.412	0.399	0.464	0.483
50		0.496	0.417	0.405	0.386
100		0.482	0.413	0.37	0.385

# CETIS Analytical Report

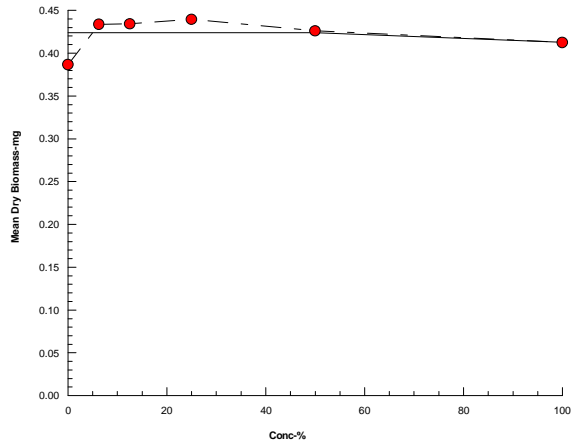
Report Date: 14 Jun-24 13:41 (p 2 of 2)  
Test Code/ID: 4062300-01/03FC / 09-2444-3427

## Fathead Minnow 7-d Larval Survival and Growth Test

Pace Analytical Services, LLC

<b>Analysis ID:</b> 20-8660-9627	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv1.9.7
<b>Analyzed:</b> 14 Jun-24 13:35	<b>Analysis:</b> Linear Interpolation (ICPIN)	<b>Status Level:</b> 1
<b>Edit Date:</b> 14 Jun-24 13:34	<b>MD5 Hash:</b> 220E695A9CD99F9DF99BDF70DB035F9	<b>Editor ID:</b> 006-153-011-8

### Graphics



**GENERAL CHEMISTRY DATA**

Washington

Scientific Name: *Ceriodaphnia dubia*

D.O Meter: [Hanna Edge DO meter](#)

Cond: [Hanna Edge meter/probe](#)

pH meter: [Hanna Edge meter](#)

Alkalinity: [Titration pH method](#)

Hardness: [Colorimetric Titration](#)

pH meter: [Hanna Edge meter](#)

		Day							
Control	CONTROL	1	2	3	4	5	6	7	8
Temperature. (oC)		24.5	24.5	24.5	24.5	24.5	24.5		
pH (SU)	Initial	7.53	7.48	7.44	7.38	7.42	7.99		
	Final	8.41	8.52	8.28	7.38	8.31	8.30		
D.O. (mg/L)	Initial	8.78	8.57	8.85	8.88	8.69	8.55		
	Final	8.26	7.56	8.15	8.48	8.06	8.47		
Alkalinity (mg/L)		57	60	60	60	64	64		
Hardness (mg/L)		97	86	82	81	91	87		
Conductivity (µmhos/cm)		302	310	299	313	301	294		

		Day							
Concentration	6.25%	1	2	3	4	5	6	7	8
pH (SU)	Initial	7.43	8.13	8.15	8.05	7.25	8.12		
	Final	7.60	8.56	8.47	8.69	8.36	8.43		
D.O. (mg/L)	Initial	8.60	8.59	7.48	8.91	8.83	8.71		
	Final	7.77	7.78	8.46	8.73	8.24	8.25		

		Day							
Concentration	12.50%	1	2	3	4	5	6	7	8
pH (SU)	Initial	8.01	8.13	8.09	7.99	7.99	8.05		
	Final	8.53	8.55	8.49	8.72	8.39	8.65		
D.O. (mg/L)	Initial	8.62	8.58	7.50	8.84	8.82	8.89		
	Final	7.79	7.58	8.47	8.88	8.14	8.15		

		Day							
Concentration	25.00%	1	2	3	4	5	6	7	8
pH (SU)	Initial	7.95	8.02	8.01	7.89	7.95	7.97		
	Final	8.49	8.65	8.52	8.76	8.56	8.68		
D.O. (mg/L)	Initial	8.53	8.27	7.38	8.84	8.72	8.94		
	Final	7.80	7.70	8.43	8.94	8.97	8.47		

		Day							
Concentration	50.00%	1	2	3	4	5	6	7	8
pH (SU)	Initial	7.87	7.90	7.96	7.78	7.87	7.91		
	Final	8.61	8.73	8.61	8.84	8.59	8.69		
D.O. (mg/L)	Initial	8.35	8.20	7.13	8.66	8.66	9.15		
	Final	7.64	7.79	8.44	8.99	9.73	8.54		

		Day							
Concentration	100.00%	1	2	3	4	5	6	7	8
Temperature. (oC)		25.8	25.5	24.8	25.8	25.9	25.8		
pH (SU)	Initial	7.70	7.75	7.77	7.61	7.73	7.73		
	Final	8.71	8.87	8.75	8.92	8.66	8.79		
D.O. (mg/L)	Initial	7.03	7.28	6.11	6.57	8.31	7.75		
	Final	7.69	7.78	7.85	8.91	8.85	8.72		
Alkalinity (mg/L)		194	198	193	190	159	200		
Hardness (mg/L)		271	300	345	288	296	280		
Conductivity (µmhos/cm)		770	803	999	1029	922	996		
Total Residual Chlorine		0.02	-	0.04	-	0.02	-	-	

**GENERAL CHEMISTRY DATA**

Washington  
 Scientific Name: Fathead minnow  
 D.O Meter: Hanna Edge DO meter  
 Cond: Hanna Edge meter/probe  
 pH meter: Hanna Edge meter  
 Alkalinity: Titration pH method  
 Hardness: Colorimetric Titration  
 pH meter: Hanna Edge meter

		Day								
Control		CONTROL	1	2	3	4	5	6	7	8
Temperature. (oC)			24.5	24.5	24.5	24.5	24.5	24.5	24.5	
pH (SU)	Initial		7.38	8.10	8.03	7.50	7.42	7.97	7.98	
	Final		8.41	8.52	8.28	7.38	8.31	8.30	7.82	
D.O. (mg/L)	Initial		8.55	8.70	8.78	8.58	8.95	8.69	9.09	
	Final		8.26	7.26	8.15	8.48	8.06	8.47	7.27	
Alkalinity (mg/L)			60	58	58	63	62	64	64	
Hardness (mg/L)			91	83	91	81	82	87	90	
Conductivity (µmhos/cm)			308	310	291	318	314	313	316	

		Day								
Concentration		6.25%	1	2	3	4	5	6	7	8
pH (SU)	Initial		7.43	8.13	8.15	8.05	7.25	8.12	8.10	
	Final		7.60	8.56	8.47	8.69	8.36	8.43	7.72	
D.O. (mg/L)	Initial		8.60	8.59	7.48	8.91	8.83	8.71	8.74	
	Final		7.77	7.78	8.46	8.73	8.24	8.25	5.51	

		Day								
Concentration		12.50%	1	2	3	4	5	6	7	8
pH (SU)	Initial		8.01	8.13	8.09	7.99	7.99	8.05	8.21	
	Final		8.53	8.55	8.49	8.72	8.39	8.65	7.73	
D.O. (mg/L)	Initial		8.62	8.58	7.50	8.84	8.82	8.89	8.99	
	Final		7.79	7.58	8.47	8.88	8.14	8.15	5.78	

		Day								
Concentration		25.00%	1	2	3	4	5	6	7	8
pH (SU)	Initial		7.95	8.02	8.01	7.89	7.95	7.97	7.96	
	Final		8.49	8.65	8.52	8.76	8.56	8.68	7.78	
D.O. (mg/L)	Initial		8.53	8.27	7.38	8.84	8.72	8.94	8.82	
	Final		7.80	7.70	8.43	8.94	8.97	8.47	5.39	

		Day								
Concentration		50.00%	1	2	3	4	5	6	7	8
pH (SU)	Initial		7.87	7.90	7.96	7.78	7.87	7.91	7.83	
	Final		8.61	8.73	8.61	8.84	8.59	8.69	7.82	
D.O. (mg/L)	Initial		8.35	8.20	7.13	8.66	8.66	9.15	8.58	
	Final		7.64	7.79	8.44	8.99	9.73	8.54	5.88	

		Day								
Concentration		100.00%	1	2	3	4	5	6	7	8
Temperature. (oC)			25.8	25.5	24.8	25.8	25.9	25.8	25.1	
pH (SU)	Initial		7.70	7.75	7.77	7.61	7.73	7.73	7.67	
	Final		8.71	8.87	8.75	8.92	8.66	8.79	7.90	
D.O. (mg/L)	Initial		7.03	7.28	6.11	6.57	8.31	7.75	8.49	
	Final		7.69	7.78	7.85	8.91	8.85	8.72	5.27	
Alkalinity (mg/L)			194	198	193	190	159	200	204	
Hardness (mg/L)			271	300	345	288	296	280	290	
Conductivity (µmhos/cm)			770	803	999	1029	922	996	986	
Total Residual Chlorine			0.02	-	0.04	-	0.02	-	-	



P.O. Box 907, 825 Industrial Road  
 Madisonville, KY 42431  
 270.821.7375

CLIENT Washington

ANALYST (s) JLW, CML, ART  
 MHSF LIMS ID # 4034432  
4062300-01/03  
 LIMS SAMPLE ID # 4061995-01/03  
for 6/9/24  
 CERIO TRAY # 052224-01  
 RANDOMIZATION # 1  
 DATA REVIEWED BY JLW DATE 6/11/24

CONTROL						% <u>6.25</u>			% <u>12.5</u>			% <u>25</u>			% <u>50</u>			% <u>100</u>								
	pH	DO	°C	ALK	HARD	COND	pH	DO	°C	pH	DO	°C	pH	DO	°C	pH	DO	°C	pH	DO	°C	ALK/TRC	HARD	COND	SAMPLE ID	
Day 1	I	7.53	8.78	24.5			7.43	8.60	25.8	8.01	8.62	25.8	7.95	8.53	25.8	7.87	8.35	25.8	7.70	7.03	25.8	194			<del>4061995-01C</del>	
	F	8.41	8.26	24.8	57	97	302	7.60	7.77	24.8	8.53	7.79	24.8	8.49	7.80	24.8	8.61	7.64	24.8	8.71	7.69	24.8	0.03	271	772	4061995-01C ANALYST: ART
Day 2	I	7.48	8.57	24.5			8.13	8.59	25.5	8.13	8.58	25.5	8.02	8.27	25.5	7.90	8.20	25.5	7.75	7.28	25.5				<del>4061995-01B</del>	
	F	8.52	7.56	25.0	60	86	310	8.56	7.78	25.0	8.55	7.58	25.0	8.45	7.70	25.0	8.73	7.79	25.0	8.87	7.78	25.0	198	300	803	4061995-01B ANALYST: ART
Day 3	I	7.44	8.85	24.5			8.15	7.48	24.8	8.09	7.50	24.8	8.01	7.38	24.8	7.96	7.13	24.8	7.77	6.11	24.8	193			<del>4061995-02A</del>	
	F	8.28	8.15	24.7	60	82	299	8.47	8.46	24.7	8.49	8.47	24.7	8.52	8.43	24.7	8.61	8.44	24.7	8.75	7.85	24.7	0.02	345	999	4061995-02A ANALYST: JLW
Day 4	I	7.38	8.88	24.5			8.05	8.91	25.8	7.99	8.84	25.8	7.89	8.84	25.8	7.78	8.66	25.8	7.61	6.57	25.8				<del>4062300-02A</del>	
	F	7.38	8.48	25.4	60	81	313	8.69	8.73	25.4	8.72	8.88	25.4	8.76	8.94	25.4	8.84	8.99	25.4	8.92	8.91	25.4	190	288	1029	4062300-02A ANALYST: ART
Day 5	I	7.42	8.69	24.5			7.25	8.83	25.9	7.99	8.82	25.9	7.95	8.72	25.9	7.87	8.66	25.9	7.73	8.31	25.9	159			<del>4062300-03A</del>	
	F	8.31	8.06	24.7	64	91	301	8.36	8.24	24.7	8.39	8.14	24.7	8.56	8.97	24.7	8.59	9.73	24.7	8.66	8.85	24.7	202	296	922	4062300-03A ANALYST: ART
Day 6	I	7.99	8.55	24.5			8.12	8.71	25.8	8.05	8.89	25.8	7.97	8.94	25.8	7.91	9.15	25.8	7.73	7.75	25.8				<del>4062300-03B</del>	
	F	8.30	8.47	24.9	64	87	294	8.43	8.25	24.9	8.65	8.15	24.9	8.68	8.40	24.9	8.69	8.54	24.9	8.79	8.72	24.9	200	280	0916	4062300-03B ANALYST: JLW
Day 7	I																									ANALYST:
	F																									

UNITS: pH - STD, DISSOLVE OXYGEN (DO) - MG/L, HARDNESS - MG/L, ALKALINITY - MG/L, CONDUCTIVITY - UMHOS/CM, TOTAL RESIDUAL CHLORINE (TRC) - MG/L

EPA 821 - R - 02 - 013 METHOD 1002.0 STATIC RENEWAL



SET UP DATE & TIME 6/4/24 12:00 mc  
 DATE REVIEWED BY jlw DATE 6/04/24

CLIENT Washington  
 CERIO TRAY # 052224-01  
 # ORG/CONC. - CERIO 10

LIMS ID # 4033250 AMOUNT FEED DAILY IN µl

ALGAE	4033250	300µl
YCT	4031561	300µl

CERIODAPHNIA/CONTROL/EFFLUENT # YNG = NUMBER OF BABIES, # ADT = NUMBER OF ADULTS, X = DEAD, 0 = NO BABIES AND NO MORTALITY

DAY	1	2	3	4	5	6	7	8
ANALYST	mc	ART	jlw	ART	jlw	mc		
DATE	6/5/24	6/10/24	6/17/24	6/18/24	6/19/24	6/10/24		
TIME	1155	1250	1313	1149	1205	1420		
SAMPLE ID	4062300-01	4061995-01	4061995-02	4061995-02	4062300-03	4062300-03		

Comments:

Control	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	3	5	6	5	5	6	5	3	7	5	50	10
DAY 5	8	0	7	8	0	9	10	7	8	10	67	10
DAY 6	10	7	14	11	9	11	12	9	11	13	107	10
DAY 7												
TOTAL	21	12	27	24	14	26	27	19	26	28	224	10

85 %	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	3	4	8	7	7	6	7	5	6	5	58	10
DAY 5	10	0	13	11	6	0	11	12	12	0	75	10
DAY 6	11	6	7	9	8	8	13	10	0	8	80	10
DAY 7												
TOTAL	24	10	28	27	21	14	31	27	18	13	213	10

62.5 %	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	8	6	6	5	7	5	1	6	6	4	54	10
DAY 5	7	10	0	8	8	12	10	10	12	6	83	10
DAY 6	11	13	4	9	12	7	13	11	0	11	91	10
DAY 7												
TOTAL	26	29	10	22	27	24	24	27	18	21	228	10

50 %	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	3	6	7	6	6	4	5	6	8	4	55	10
DAY 5	4	7	8	8	5	5	10	9	2	10	68	10
DAY 6	10	9	7	11	10	11	0	11	7	13	89	10
DAY 7												
TOTAL	17	22	22	25	21	20	15	26	17	27	212	10

12.5 %	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	5	3	6	5	3	5	4	3	6	3	43	10
DAY 5	0	10	7	9	0	7	7	8	10	0	58	10
DAY 6	4	12	8	11	0	12	8	9	11	7	82	10
DAY 7												
TOTAL	9	25	21	25	3	24	19	20	27	18	183	10

10 %	1	2	3	4	5	6	7	8	9	10	# YNG	# ADT
DAY 1	0	0	0	0	0	0	0	0	0	0	0	10
DAY 2	0	0	0	0	0	0	0	0	0	0	0	10
DAY 3	0	0	0	0	0	0	0	0	0	0	0	10
DAY 4	6	2	4	5	4	3	6	3	6	6	45	10
DAY 5	10	5	4	3	5	14	3	0	9	8	61	10
DAY 6	13	7	8	7	9	0	6	10	11	9	80	10
DAY 7												
TOTAL	29	14	16	15	18	17	15	13	26	23	180	10



P.O. Box 907, 825 Industrial Road  
 Madisonville, KY 42431  
 270.821.7375

CLIENT Washington

ANALYST (s) JW, CML, ART  
 MHSF LIMS ID # 4033108  
 LIMS SAMPLE ID # 4061995-01/03  
 FATHEAD ID # 4034444  
 RANDOMIZATION # 1  
 DATA REVIEWED BY JW DATE 6/26/14

CONTROL						% <u>10.25</u>			% <u>12.5</u>			% <u>25</u>			% <u>50</u>			% <u>100</u>					SAMPLE ID				
pH	DO	°C	ALK	HARD	COND	pH	DO	°C	pH	DO	°C	pH	DO	°C	pH	DO	°C	pH	DO	°C	ALK/TRC	HARD		COND			
Day 1	I	7.38	8.55	24.5																							
	F	8.41	8.20	24.8	60	91	308	7.43	8.60	25.8	8.01	8.62	25.8	7.95	8.53	25.8	7.87	8.35	25.8	7.70	7.03	25.8	194	271	772	4061995-01C ANALYST: ART	
Day 2	I	8.10	8.70	24.5																							
	F	8.52	7.26	24.9	58	83	310	8.13	8.59	25.5	8.13	8.58	25.5	8.02	8.27	25.5	7.90	8.20	25.5	7.75	7.28	25.5	198	300	803	4061995-01B ANALYST: ART	
Day 3	I	8.03	8.78	24.5																							
	F	8.28	8.15	24.9	58	91	291	8.15	7.48	24.8	8.09	7.50	24.8	8.01	7.38	24.8	7.96	7.13	24.8	7.77	6.10	24.8	193	345	999	4061995-02A ANALYST: ART	
Day 4	I	7.50	8.58	24.5																							
	F	7.38	8.48	24.9	63	81	318	8.05	8.91	25.8	7.99	8.84	25.8	7.89	8.84	25.8	7.78	8.66	25.8	7.61	6.57	25.8	190	288	1029	4062308-02A ANALYST: ART	
Day 5	I	7.42	8.95	24.5																							
	F	8.31	8.06	24.7	62	82	314	8.19	8.73	24.9	8.72	8.88	24.9	8.70	8.94	24.9	8.84	8.99	24.9	8.92	8.91	24.9	159	296	922	4062300-02A ANALYST: ART	
Day 6	I	7.97	8.69	24.5																							
	F	8.30	8.47	25.0	64	87	313	8.36	8.24	24.7	8.39	8.14	24.7	8.56	8.97	24.7	7.87	8.66	24.7	8.66	8.85	24.7	0.62	200	280	996	4062300-03A ANALYST: ART
Day 7	I	7.98	9.04	24.5																							
	F	7.87	7.77	25.1	64	90	316	8.12	8.71	25.8	8.05	8.89	25.8	7.97	8.94	25.8	7.91	9.15	25.8	7.73	7.75	25.8	204	290	986	4062300-03C ANALYST: ART	
								8.43	8.25	25.0	8.65	8.15	25.0	8.68	8.40	25.0	8.69	8.54	25.0	8.79	8.73	25.0					4062300-03C ANALYST: ART
								8.10	8.74	25.1	8.21	8.99	25.1	7.96	8.82	25.1	7.83	8.58	25.1	7.67	8.49	25.1					4062300-03C ANALYST: ART
								7.77	5.51	25.1	7.73	5.78	25.1	7.78	5.39	25.1	7.82	5.88	25.1	7.90	5.27	25.1					4062300-03C ANALYST: ART

UNITS: pH - STD, DISSOLVE OXYGEN (DO) - MG/L, HARDNESS - MG/L, ALKALINITY - MG/L, CONDUCTIVITY - UMHOS/CM, TOTAL RESIDUAL CHLORINE (TRC) - MG/L, BRINE SHRIMP (BS) - µ





P.O. Box 907, 825 Industrial Road  
Madisonville, KY 42431

CLIENT Washington

ANALYST JLW, RML, APT

FATHEAD BATCH # 4034444 AGE 224

# ORG/CONC. - FATHEAD 40

SETUP DATE & TIME 12/12/24 1540 APT

DATA REVIEWED BY APT DATE 12/14/24

INITIAL FEEDING ID: 4023736

INCUBATOR ID: 0019317

DRYING OVEN ID: 0019324

WEIGHTS ID: 3030061 / 3027794

WEIGHT BOAT (G) WEIGHT FISH + WEIGH BOAT (G)

CONTROL	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
ANALYST	APT	APT	APT	APT	APT	APT	APT
DATE	12/12/24	12/13/24	12/14/24	12/15/24	12/16/24	12/17/24	12/18/24
TIME	1555	1308	1453	1402	1533	1315	1525
1	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10
3	10	10	10	10	9	9	9
4	10	10	10	10	10	10	10
=	40	40	40	40	39	39	39

0.04409	0.04725
0.04453	0.05050
0.04404	0.05053
0.04841	0.05380

10.25 %	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
1	10	10	10	10	10	10	10
2	10	10	10	10	9	9	8
3	10	10	10	10	9	9	9
4	10	10	10	10	10	10	10
=	40	40	40	40	38	38	37

0.04880	0.05342
0.05085	0.05387
0.05041	0.05492
0.04440	0.05700

12.5 %	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
1	10	10	10	10	9	9	9
2	10	10	10	10	9	9	9
3	10	10	10	10	10	10	9
4	10	10	10	10	10	10	10
=	40	40	40	40	38	38	37

0.04776	0.05279
0.04804	0.05280
0.04403	0.04978
0.04400	0.05115

25 %	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
1	10	10	10	10	9	9	9
2	9	9	9	9	9	9	9
3	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10
=	39	39	39	39	38	38	38

0.047102	0.05174
0.04777	0.05170
0.04521	0.05035
0.04677	0.05100

50 %	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
1	10	10	10	10	10	10	9
2	10	10	10	10	10	10	10
3	10	10	8	8	8	8	8
4	10	10	10	10	9	9	8
=	40	40	38	38	37	37	35

0.04570	0.05072
0.04470	0.04893
0.04941	0.05340
0.04509	0.04895

100 %	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
1	10	10	9	9	9	9	9
2	10	10	10	10	10	10	10
3	9	9	9	9	8	8	7
4	10	10	10	10	10	10	10
=	39	39	38	38	37	37	36

0.04834	0.05310
0.04539	0.04952
0.04838	0.05208
0.04832	0.05217

COMMENTS:

SAMPLE ID	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
4011995	01	01	02	02	03	03	03
BRINE SHRIMP ID	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
W023736	75/75	75/100	100/100	100/100	100/100	100/100	100/100

DATE DRIED 12/11/24 DATE WEIGHED 12/12/24  
 ANALYST APT ANALYST APT  
 TEMP (°C) IN 62.0 TIME DRIED 1555 TEMP (°C) OUT 59 TIME OUT 1530  
 0.001 g 0.00100 0.001 g 0.00101  
 0.100 g 0.10004 0.100 g 0.10000

# Chain of Custody

Scheduled for: 11/06/2023



Client: **Washington City of**

Report To:  
Washington City of

Invoice To:  
Washington City of

Project: **WETT**

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Phone: (812) 254-2792  
PWS ID#:  
State: IN

PO#:  
Quote#

Please Print Legibly

Collected by (Signature): Matt Hooper  
\*required information\*

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date 6-3-24 Start time 7 AM End Date 6-4-24 End Time 7 AM Temp (oC) 40C

LAB/USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
3112336-01 A			Plastic 1gal	1	001 Chronic Day One	g / c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
3112336-01 B			Plastic 1gal	1	001 Chronic Day One	g / c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
3112336-01 C			Plastic 1gal	1	001 Chronic Day One	g / c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
<del>3112336-02 A</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g / c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>
<del>3112336-02 B</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g / c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-02 C</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g / c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-03 A</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g / c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>
<del>3112336-03 B</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g / c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-03 C</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g / c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>

4062300 ~~49~~ 6/4/24

Thermometer Serial Number:

181390287  
181460057  
Temp 63°C

Preservation Check Performed by: \_\_\_\_\_

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
	Turb. (NTU) _____	

Relinquished by: (Signature) <u>Matt Hooper</u>	Received by: (Signature) <u>[Signature]</u>	Date (mm/dd/yy) <u>6-4-24</u>	Time (24 hr) <u>10:56</u>
_____	_____	_____	_____
_____	_____	_____	_____

# Chain of Custody

Scheduled for: **11/06/2023**



Client: Washington City of

Report To:  
Washington City of

Invoice To:  
Washington City of

Project: WETT

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Phone: (812) 254-2792  
PWS ID#:  
State: \_\_\_\_\_

PO#: \_\_\_\_\_  
Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Matt Horton  
\*required information\*

Compliance Monitoring? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Samples Chlorinated? Yes  No

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date 6-5-24 Start time 7AM End Date 6-6-24 End Time 7AM Temp (oC) 4

LAB USE ONLY Workorder # 3112336 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
<del>3112336-01 A</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day One</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-01 B</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day One</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-01 C</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day One</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
3112336-02 A	_____	_____	Plastic 1gal	1	001 Chronic Day Two	g/c	Chronic Ceriodaphnia Dubia Chronic Fathead Minnow Chronic
3112336-02 B	_____	_____	Plastic 1gal	1	001 Chronic Day Two	g/c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
3112336-02 C	_____	_____	Plastic 1gal	1	001 Chronic Day Two	g/c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
<del>3112336-03 A</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g/c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>
<del>3112336-03 B</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-03 C</del>	<del>_____</del>	<del>_____</del>	<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Three</del>	<del>g/c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>

4062300  
MK 6/6/24

Thermometer Serial Number:  
181390287  
181460057  
Temp 5.2°C

Preservation Check Performed by: \_\_\_\_\_

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
Tot Cl (mg/L) _____	Free Cl (mg/L) _____	DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature)

Received by: (Signature)

Date (mm/dd/yy)

Time (24 hr)

Matt Horton

[Signature]

6/6/24

1015

# Chain of Custody

**Scheduled for: 11/06/2023**



**Client:** Washington City of

**Report To:**  
Washington City of

**Invoice To:**  
Washington City of

**Project:** WETT

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Dirk Rhoads  
169 S. 200 West  
Washington, IN 47501

Phone: (812) 254-2792

PO#: \_\_\_\_\_

PWS ID#: \_\_\_\_\_

Quote# \_\_\_\_\_

Please Print Legibly

Collected by (Signature): Matt Hosty

Compliance Monitoring? Yes  No

Samples Chlorinated? Yes  No

\*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date \_\_\_\_\_ Start time \_\_\_\_\_ End Date \_\_\_\_\_ End Time \_\_\_\_\_ Temp (oC) \_\_\_\_\_

Effluent: Start Date 6-3-24 Start time 7 AM End Date 6-8-24 End Time 7 AM Temp (oC) 40

LAB USE ONLY Workorder # 3112336 Sample ID#	*required information* Date (mm/dd/yy):	Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
3112336-01 A			Plastic 1gal	1	001 Chronic Day One	g/c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
<del>3112336-01 B</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day One</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-01 C</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day One</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-02 A</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g/c</del>	<del>Chronic Ceriodaphnia Dubia Chronic Fathead Minnow</del>
<del>3112336-02 B</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
<del>3112336-02 C</del>			<del>Plastic 1gal</del>	<del>1</del>	<del>001 Chronic Day Two</del>	<del>g/c</del>	<del>Chronic Fathead Minnow Chronic Ceriodaphnia Dubia</del>
3112336-03 A			Plastic 1gal	1	001 Chronic Day Three	g/c	Chronic Ceriodaphnia Dubia Chronic Fathead Minnow
3112336-03 B			Plastic 1gal	1	001 Chronic Day Three	g/c	Chronic Fathead Minnow Chronic Ceriodaphnia Dubia
3112336-03 C			Plastic 1gal	1	001 Chronic Day Three	g/c	Chronic Ceriodaphnia Dubia Chronic Fathead Minnow

4062300  
MIL 6/8/24

Thermometer Serial Number

181390287

181460057

Temp 59 °C

Preservation Check Performed by: \_\_\_\_\_

Field data collected by: _____	Date (mm/dd/yy) _____	Time (24 hr) _____
pH _____	Cond (umho) _____	Res Cl (mg/L) _____
Temp (oC) _____	or (oF) _____	Static Water Level _____
Flow (MGD) _____	or (CFS) _____	or (g/min) _____
		DO (mg/L) _____
		Turb. (NTU) _____

Relinquished by: (Signature)

Received by: (Signature)

Date (mm/dd/yy)

Time (24 hr)

Matt Hosty

[Signature]

6/8/24

0918

PACE- Check here if trip charge applied to associated COC