

II. *Daphnia* or *Ceriodaphnia* Toxicity Test Information
(To be completed by the testing lab)

A. Data Analyses:

Statistical Test	Method Used	Comment
Normality test:	<u>Chi-Square Test</u>	<u>Passed. Indicates Normal Distribution for Reprod.</u>
Homogeneity test:	<u>Hartley Test</u>	<u>Passed. Indicates Equal Variances for Reprod.</u>
Significance test:		
1. Parametric:	<u>Dunnett's test</u>	<u>Passed. No Significant Difference for Reprod.</u>
2. Non-Parametric:	<u>Fishers Exact Test</u>	<u>Passed. No Significant Difference for Survival.</u>
3. Are the Critical Values of Significance Provided?		<u>Yes.</u>
4. Other:	<u>No calculation for acute endpoint was necessary.</u>	

B. Toxicity Test Results:

1. Acute:

LC50 (48-hr): > 100% Effluent (<1 TUa)

2. Chronic:

NOEL:	Survival	<u>100% (1 TUc)</u>	Reproduction	<u>100% (1 TUc)</u>	Growth	_____
LOEL:	Survival	_____	Reproduction	_____	Growth	_____
Chronic Value:	Survival	_____	Reproduction	_____	Growth	_____

C. Permit Limits Requirement:

1. Acute:

LC50 (48-hr): 100% Effluent (1 TUa)

2. Chronic:

NOEL:	Survival	<u>90.9% (1.1 TUc)</u>	Reproduction	<u>90.9% (1.1 TUc)</u>	Growth	_____
LOEL:	Survival	_____	Reproduction	_____	Growth	_____

D. Reference Toxicant Data:

- Reference Toxicant: Copper chloride, Reagent Grade, from Carolina Biological
- Test Date: February 20 - 27, 2024
- Results: 48-hr LC50 = 86 µg/L, NOEL (Reprod.) = 40 µg/L, LOEL (Reprod.) = 80 µg/L as Cu.
- Acceptable Range: Within Laboratory Control Limits.

E. Permit Limits Compliance: (To be completed by IDEM Staff only)

<input checked="" type="checkbox"/>	Pass (LC50 [48-hr])	<u>(1 TUa)</u>	<input type="checkbox"/>	Fail (LC50 [48-hr])	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Survival)	<u>(1 TUc)</u>	<input type="checkbox"/>	Fail (NOEL/Survival)	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Reprod)	<u>(1 TUc)</u>	<input type="checkbox"/>	Fail (NOEL/Reprod.)	_____
<input type="checkbox"/>	Pass (NOEL/Growth)	_____	<input type="checkbox"/>	Fail (NOEL/Growth)	_____

Is the Test Acceptable? Yes No Reason _____

III. Fathead Minnow (*Pimephales promelas*) Toxicity Test Information
(To be completed by the testing lab)

A. Data Analyses:

Statistical Test	Method Used	Comment
Normality test:	<u>Chi-Square Test</u>	_____
Homogeneity test:	<u>Hartley Test</u>	_____
Significance test:		
1. Parametric:	<u>Dunnett's Test</u>	_____
2. Non-Parametric:	<u>Fisher's Exact Test</u>	_____
3. Are the Critical Values of Significance Provided?		_____
4. Other:		_____

B. Toxicity Test Results:

1. Acute:

LC₅₀ (48-hr): _____

2. Chronic:

NOEL: Survival	_____	Reproduction	_____	Growth	_____
LOEL: Survival	_____	Reproduction	_____	Growth	_____
Chronic Survival Value:	_____	Reproduction	_____	Growth	_____

C. Permit Limits Requirement:

1. Acute:

LC₅₀ (48-hr): _____

2. Chronic:

NOEL: Survival	_____	Reproduction	_____	Growth	_____
LOEL: Survival	_____	Reproduction	_____	Growth	_____

D. Reference Toxicant Data:

- Reference Toxicant: _____
- Test Date: _____
- Results: _____
- Acceptable Range: _____

E. Permit Limits Compliance: (To be completed by IDEM Staff only)

<input type="checkbox"/> Pass (LC ₅₀ [48-hr])	_____	<input type="checkbox"/> Fail (LC ₅₀ [48-hr])	_____
<input type="checkbox"/> Pass (NOEL/Survival)	_____	<input type="checkbox"/> Fail (NOEL/Survival)	_____
<input type="checkbox"/> Pass (NOEL/Reprod.)	_____	<input type="checkbox"/> Fail (NOEL/Reprod.)	_____
<input type="checkbox"/> Pass (NOEL/Growth)	_____	<input type="checkbox"/> Fail (NOEL/Growth)	_____

Is the Test Acceptable? Yes ___ No ___ Reason _____

IV. GLP and QA/QC Compliance:
(To be completed by IDEM Staff only)

- A. Does the Biomonitoring Report provide?**
- | | | | | |
|---|-----|-------------------------------------|----|--------------------------|
| 1. GLP Compliance Statement: | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 2. QA/QC Compliance Statement: | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 3. Were the required GLPs followed? | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 4. If not, the Report lacks what major information: | | | | |
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- B. Laboratory Raw Data Sheets:**
- | | | | | |
|--|-----|-------------------------------------|----|--------------------------|
| 1. Does the Report enclose raw data sheets? | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 2. Does the raw data sheets provide essential information? | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 3. If not, the Report lacks what major information: | | | | |
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V. Comments and Recommendations:
(To be completed by IDEM Staff only)

- This was repeat Semi-Annual WET test conducted in April 2024 by Speedway WTP for the WET test which had failed for *Ceriodaphnia dubia* Reproduction in March 2024. In this repeat WET test whole effluent did not demonstrate any acute or chronic toxicity to *Ceriodaphnia dubias*. The 48-hr LC₅₀ to the test species was >100% effluent (<1 TUa) and acceptable. Likewise, the NOEL (NOEC) for *Ceriodaphnia dubia* Survival and Reproduction was 100% effluent (1 TUc) and acceptable as compared to 90.9% effluent (1.1 TUc) WET compliance limit in the facility NPDES permit.

Reviewed by:

Signature:



Syed GhiasUddin
 NPDES Permits Branch, OWQ

Date:

Title: Environmental Toxicologist

06/13/2024

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