

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>Shapiro Wilk's Test</u>	<u>Failed. Indicates Non-Normal Distribution for Reprod.</u>
Homogeneity test:	<u>Bartlett's Test</u>	<u>Passed. Indicates Equal Variance for Reprod.</u>
Significance test:		
1. Parametric:	<u>Dunnett's Test</u>	_____
2. Non-Parametric:	<u>Steels Many-One Rank Test</u>	<u>Passed. No Significant Difference for Reprod</u>
	<u>Fisher Exact Test</u>	<u>Passed. No Significant Difference for Survival.</u>
3. Are the Critical Values of Significance Provided?		<u>Yes.</u>
4. Other:	_____	

B. Toxicity Test Results:

1. Acute:

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

2. Chronic:

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

C. Permit Limits Requirement:

1. Acute:

LC₅₀ (48-hr): 100% Effluent (1 TU_a)

2. Chronic:

NOEL:	Survival	<u>14.3% (7 TU_c)</u>	Reproduction	<u>14.3% (7 TU_c)</u>	Growth	_____
LOEL:	Survival	_____	Reproduction	_____	Growth	_____

D. Reference Toxicant Data:

- Reference Toxicant: Sodium chloride (NaCl) Reagent Grade from Fischer.
- Test Date: February 6 - 13, 2024
- Results: 48-hr LC₅₀ = 1.66 g/L, IC₂₅ = 0.90 g/L.
- Acceptable Range: Within Laboratory Control Limits.

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

<input checked="" type="checkbox"/>	Pass (LC ₅₀ [48-hr])	<u>(1 TU_a)</u>	<input type="checkbox"/>	Fail (LC ₅₀ [48-hr])	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Survival)	<u>(1 TU_c)</u>	<input type="checkbox"/>	Fail (NOEL/Survival)	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Reprod.)	<u>(1 TU_c)</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>Shapiro Wilk's Test</u>	<u>Failed. Indicates Non-Normal Distribution for Growth.</u>
Homogeneity test:	<u>Bartlett's Test</u>	<u>Indicates Indeterminable Variances for Growth.</u>
Significance test:		
1. Parametric:	<u>Dunnett's Test</u>	<u>Passed. No Significant Difference for Growth</u>
2. Non-Parametric:	<u>Steels Many-One Rank Test</u>	<u>Passed. No Significant Difference for Survival</u>
3. Are the Critical Values of Significance Provided?		<u>Yes.</u>
4. Other:	_____	

B. Toxicity Test Results:

1. Acute:

LC₅₀ (96-hr): >100% Effluent (<1 TU_a)

2. Chronic:

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

C. Permit Limits Requirement:

1. Acute:

LC₅₀ (96-hr): 100% Effluent (1 TU_a)

2. Chronic:

NOEL:	Survival	<u>14.3% (7 TU_c)</u>	Reproduction	_____	Growth	<u>14.3% (7 TU_c)</u>
LOEL:	Survival	_____	Reproduction	_____	Growth	_____

D. Reference Toxicant Data:

- Reference Toxicant: Sodium chloride (NaCl) Reagent Grade from SFisher
- Test Date: March 6 – 13, 2024
- Results: 96-hr LC₅₀ = 2.96 g/L, IC₂₅ = 0.80 g/L.
- Acceptable Range: Within Laboratory Control Limits

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

<input checked="" type="checkbox"/>	Pass (LC ₅₀ [96-hr])	<u>(1 TU_a)</u>	<input type="checkbox"/>	Fail (LC ₅₀ [96-hr])	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Survival)	<u>(1 TU_c)</u>	<input type="checkbox"/>	Fail (NOEL/Survival)	_____
<input type="checkbox"/>	Pass (NOEL/Reprod.)	_____	<input type="checkbox"/>	Fail (NOEL/Reprod.)	_____
<input checked="" type="checkbox"/>	Pass (NOEL/Growth)	<u>(1 TU_c)</u>	<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)

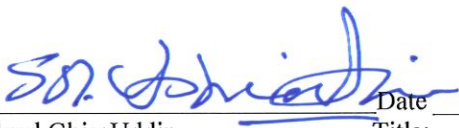
- A. Does the Biomonitoring Report provide?**
- | | | | | |
|---|-----|-------------------------------------|----|--------------------------|
| 1. GLP Compliance Statement: | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| 2. QA/QC Compliance Statement: | Yes | <input checked="" 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: | | | | |
-
-

- 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: | | | | |
-
-

V. Comments and Recommendations:
(To be completed by IDEM Staff only)

- In March 2024, in the Semi-annual testing whole effluent from **Centerpoint Energy-FB-Culley Generating Station** did not demonstrate any acute or chronic toxicity to *Ceriodaphnia dubia* or to Fathead minnow (*Pimephales promelas*). The 48-hr LC₅₀ and the 96-hr LC₅₀ to both the test species was **>100% effluent (<1 TUa)**, respectively. Likewise, the NOEL for *Ceriodaphnia dubia* Survival and Reproduction and for *Pimephales promelas* Survival and Growth was **100% effluent (1 TUc)** and acceptable as compared to **14.3% effluent (7 TUc)** WET compliance limit in the facility NPDES permit.

Reviewed by:

Signature:  Date: 06/20/2024
 Syed GhiasUddin Title: Environmental Toxicologist
 NPDES Permits Branch, OWQ

Electronic copy:

Jerry Dittmer, BC, NPDES Permitting Branch, OWQ
 Richard Hamilton, SC, NPDES Permitting Branch, OWQ