

ANALYTICAL REPORT

PREPARED FOR

Attn: Brandi Andrews
Jacobs Engineering Group, Inc.
1004 N. Freya Street
Spokane, Washington 99202

Generated 10/18/2024 3:14:24 PM

JOB DESCRIPTION

Spokane County Water Q4 Chronic

JOB NUMBER

192-15614-1

Eurofins Arkansas

Job Notes

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Authorization



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Authorized for release by
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Re: Chronic *Ceriodaphnia dubia*
Spokane County Water
NPDES Permit No. WA0093317
Control No. 275258-1

This report is the analytical results and supporting information for the samples submitted to Eurofins Arkansas. The following results are applicable only to the sample identified by the control number referenced above. Accurate assessment of the data requires access to the entire document. Each section of the report has been reviewed and approved by the Laboratory Manager or qualified designee.

Testing procedures and Quality Assurance were in accordance with "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" EPA-821-R-02-013, Fourth Edition, October 2002. The supporting chemistry data included with this report is intended for accessing the basic water quality of the effluent as required by this test method and is not intended to be utilized for discharge monitoring reports. Test results are summarized below:

The statistically significant difference noted for the 25% effluent concentration for *Ceriodaphnia dubia* Reproduction does not follow a dose-response pattern and is considered an anomaly.

Method 1002.0 Chronic *Ceriodaphnia dubia* Survival and Reproduction Test: The permit requirement is NOEC not less than 6.4%. The following were concluded from the test:

| | | | | | | |
|------------------|-------------|-------------|----------------------|-------------|-------------|-------------|
| Survival: | NOEC | LOEC | Reproduction: | NOEC | LOEC | IC25 |
| | 100 | >100 | | 100 | >100 | >100 |

The sample therefore PASSED the *Ceriodaphnia dubia* test.

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I. Control Acceptance Criteria

Ceriodaphnia dubia Method 1002.0

| CRITERIA | RESULTS | PASS/FAIL |
|---|---------|-----------|
| Control Survival > or = 80% | 100 | PASS |
| Control Reproduction > or = 15 per Surviving Female | 37.7 | PASS |
| Control CV < or = 40% per Surviving Female * | 11.5 | PASS |
| Reproduction Minimum Significant Difference 13 to 47% | 24.6 | PASS |
| Critical Dilution CV < or = 40% * | 25.0 | PASS |

* EPA Region 6 Requirement

II. Outlined Report

A. Introduction

1. Permit Number: WA0093317
2. Test Requirements: Test Method 1002.0

B. Source of Effluent/Dilution Water:

1. Effluent Samples:
 - a. Sampling Point: Spokane County Water
 - b. Chemical Data:

| Analysis | Sample 1 | Sample 2 | Sample 3 |
|---|----------|----------|----------|
| Dissolved oxygen (mg/l) | 8.8 | 8.3 | 8.8 |
| pH (standard units) | 6.4 | 6.6 | 7.7 |
| Alkalinity (mg/l as CaCO ₃) | 81 | 74 | 68 |
| Hardness (mg/l as CaCO ₃) | 200 | 170 | 200 |
| Conductivity (umhos/cm) | 860 | 930 | 920 |
| Residual Chlorine (mg/l) | <0.05 | <0.05 | <0.05 |
| Ammonia as N (mg/l) | 0.30 | <0.10 | 0.61 |

2. Dilution Water Samples:

| Analysis | 192-15450-A-2 | 192-15522-A-3 |
|---|---------------|---------------|
| Dissolved oxygen (mg/l) | 8.3 | 8.5 |
| pH (standard units) | 6.4 | 6.4 |
| Alkalinity (mg/l as CaCO ₃) | 62 | 63 |
| Hardness (mg/l as CaCO ₃) | 93 | 93 |
| Conductivity (umhos/cm) | 300 | 300 |
| Residual Chlorine (mg/l) | <0.05 | <0.05 |

C. Test Methods

1. Test methods used:

Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013; test Method 1002.0, *Ceriodaphnia dubia* Survival and Reproduction.

2. Endpoint: No Observable Effects Concentration (NOEC)

3. Test Conditions:

Ceriodaphnia dubia Survival and Reproduction Method 1002.0

| | |
|------------------------------------|--------------------------|
| Date & Time Test Initiated: | October 8, 2024 at 1513 |
| Date & Time Test Terminated: | October 15, 2024 at 1550 |
| Type & Volume of Test Chamber: | 30 ml disposable beaker |
| Volume of Sample: | 15 ml |
| Number of Organisms per replicate: | 1 |
| Number of Replicates per dilution: | 10 |

4. Source of test organisms: In-house culture

5. Test Temperature: 25 +/- 1 degree Celsius

D. Test Organisms

1. Scientific Name

a. Test 1002.0 *Ceriodaphnia dubia*

III. Data Analysis

The data was analyzed using EPA method criteria and CETIS statistical software.

IV. Standard Reference Toxicants

Sodium chloride in synthetic moderately hard water.

Ceriodaphnia dubia

A chronic reference test was performed on October 01, 2024 at 1230 to October 07, 2024 at 1428

The results were as follows: (Control No. 275250-2.)

Survival LC-50: 1673 mg/l

Reproduction IC-25: 1234 mg/l

Reproduction PMSD: 16.6

V. Organism History

Ceriodaphnia dubia

Date: October 8, 2024

Age: <24 hours

Source: In-house culture

Water: Moderately hard synthetic

Temperature: 25 deg.C

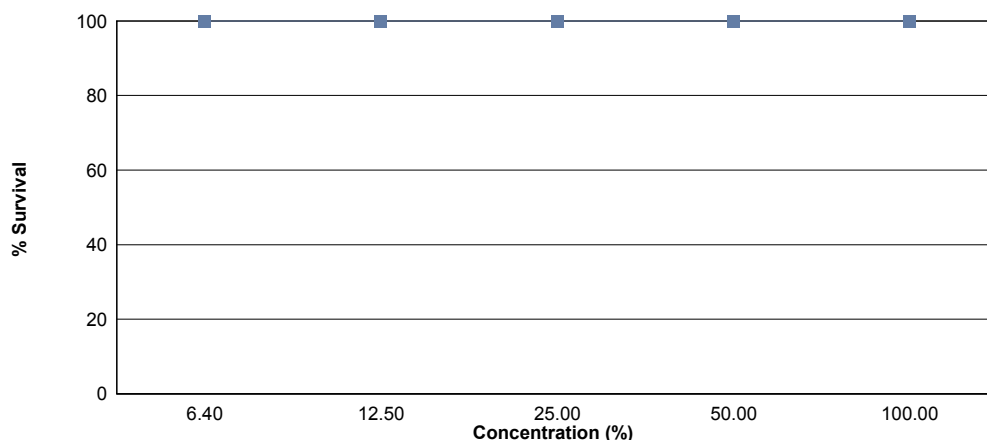
VI. Results Summary *Ceriodaphnia dubia*, Cladoceran Survival and Reproduction Test -- Method 1002.0

Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring or a maximum of eight test days.

Effluent concentrations for this test were 6.4 %, 12.5 %, 25 %, 50 %, 100 % in accordance with the NPDES permit.

The test was initiated on October 8, 2024 at 1513 and continued through October 15, 2024 at 1550. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 100 % effluent
- b.) NOEC reproduction = 100 % effluent



| Summary of the 7-day <i>Ceriodaphnia dubia</i> Survival and Reproduction Data | | |
|---|------------------|-------------------|
| Concentration | Percent Survival | Mean Reproduction |
| Control | 100 | 37.7 |
| 6.4 % | 100 | 29.0 |
| 12.5 % | 100 | 32.3 |
| 25 % | 100 | 24.3 |
| 50 % | 100 | 30.7 |
| 100 % | 100 | 31.1 |

Appendix (Data): Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: October 8, 2024 at 1513

Date and Time Test Terminated: October 15, 2024 at 1550

| Concentration: Control | | | | | | | | | | | | | |
|------------------------|-----------|----|----|----|----|----|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 7 | 5 | 8 | 7 | 5 | 6 | 9 | 6 | 8 | 8 | 69 | 10 | 6.90 |
| 5 | 10 | 9 | 9 | 13 | 10 | 13 | 12 | 14 | 14 | 12 | 116 | 10 | 11.6 |
| 6 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 10 | 1.40 |
| 7 | 18 | 20 | 19 | 24 | 0 | 21 | 18 | 22 | 17 | 19 | 178 | 10 | 17.8 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 35 | 34 | 36 | 44 | 29 | 40 | 39 | 42 | 39 | 39 | 377 | 10 | 37.7 |

| Concentration: 6.4 % | | | | | | | | | | | | | |
|----------------------|-----------|----|----|----|----|----|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 0 | 4 | 5 | 0 | 7 | 5 | 0 | 0 | 6 | 2 | 29 | 10 | 2.90 |
| 5 | 12 | 8 | 9 | 0 | 11 | 11 | 14 | 3 | 11 | 8 | 87 | 10 | 8.70 |
| 6 | 0 | 0 | 0 | 7 | 15 | 0 | 0 | 0 | 0 | 0 | 22 | 10 | 2.20 |
| 7 | 18 | 15 | 0 | 15 | 0 | 17 | 24 | 21 | 23 | 19 | 152 | 10 | 15.2 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 30 | 27 | 14 | 22 | 33 | 33 | 38 | 24 | 40 | 29 | 290 | 10 | 29.0 |

| Concentration: 12.5 % | | | | | | | | | | | | | |
|-----------------------|-----------|----|----|----|----|----|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 0 | 2 | 5 | 1 | 6 | 7 | 0 | 6 | 2 | 2 | 31 | 10 | 3.10 |
| 5 | 2 | 7 | 9 | 14 | 12 | 10 | 11 | 13 | 12 | 8 | 98 | 10 | 9.80 |
| 6 | 0 | 11 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 10 | 2.70 |
| 7 | 20 | 0 | 0 | 24 | 24 | 21 | 17 | 20 | 20 | 21 | 167 | 10 | 16.7 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 22 | 20 | 30 | 39 | 42 | 38 | 28 | 39 | 34 | 31 | 323 | 10 | 32.3 |

Appendix (Data): Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: October 8, 2024 at 1513

Date and Time Test Terminated: October 15, 2024 at 1550

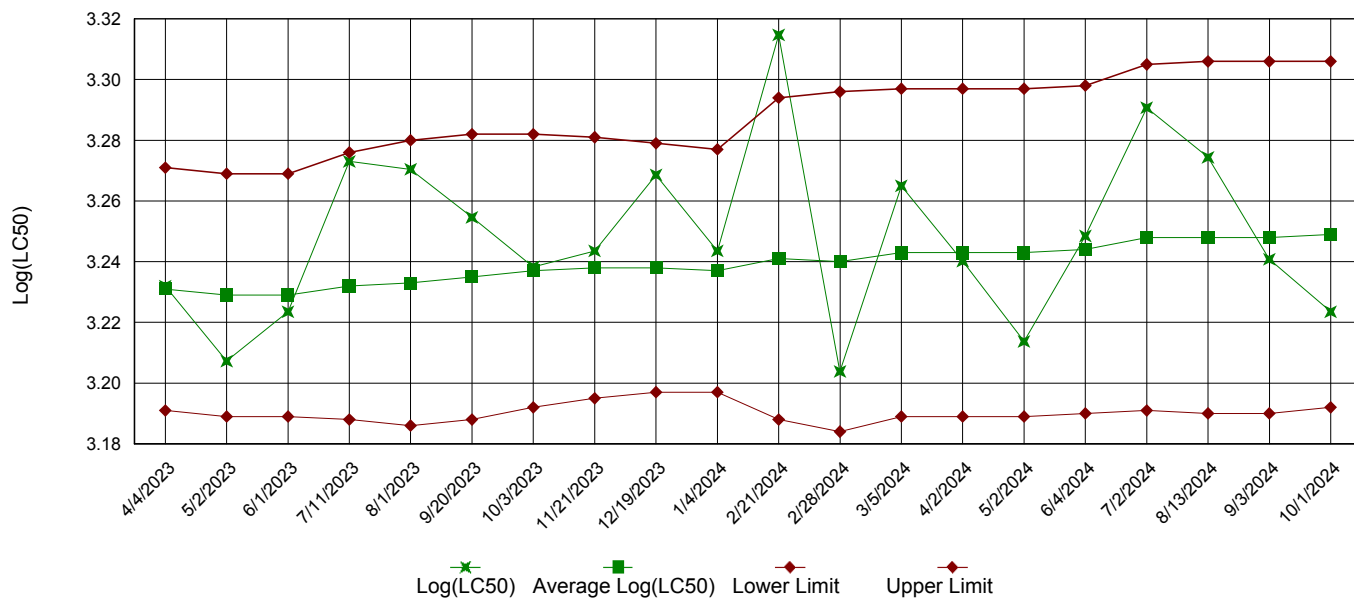
| Concentration: 25 % | | | | | | | | | | | | | |
|---------------------|-----------|----|----|----|----|---|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 0 | 1 | 0 | 4 | 4 | 6 | 7 | 7 | 3 | 5 | 37 | 10 | 3.70 |
| 5 | 0 | 10 | 3 | 9 | 8 | 0 | 14 | 9 | 15 | 0 | 68 | 10 | 6.80 |
| 6 | 0 | 0 | 9 | 13 | 0 | 0 | 0 | 0 | 18 | 0 | 40 | 10 | 4.00 |
| 7 | 0 | 17 | 0 | 0 | 19 | 1 | 19 | 22 | 0 | 20 | 98 | 10 | 9.80 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 0 | 28 | 12 | 26 | 31 | 7 | 40 | 38 | 36 | 25 | 243 | 10 | 24.3 |

| Concentration: 50 % | | | | | | | | | | | | | |
|---------------------|-----------|----|----|----|----|----|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 2 | 6 | 0 | 4 | 6 | 0 | 8 | 4 | 4 | 6 | 40 | 10 | 4.00 |
| 5 | 10 | 6 | 0 | 18 | 13 | 10 | 10 | 11 | 12 | 14 | 104 | 10 | 10.4 |
| 6 | 14 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 16 | 51 | 10 | 5.10 |
| 7 | 0 | 4 | 17 | 0 | 23 | 26 | 0 | 21 | 21 | 0 | 112 | 10 | 11.2 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 26 | 16 | 17 | 43 | 42 | 36 | 18 | 36 | 37 | 36 | 307 | 10 | 30.7 |

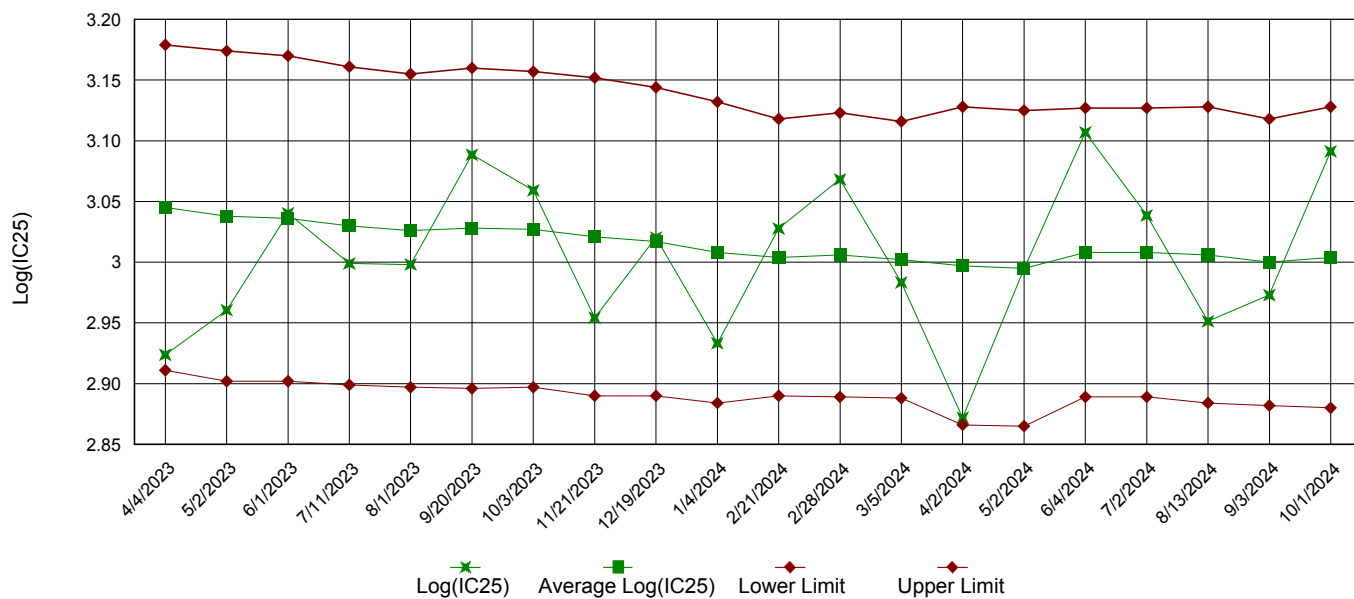
| Concentration: 100 % | | | | | | | | | | | | | |
|----------------------|-----------|----|----|----|----|----|----|----|----|----|--------------|---------------|-----------------|
| Day | Replicate | | | | | | | | | | No. of Young | No. of Adults | Young per Adult |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0.00 |
| 4 | 4 | 5 | 4 | 5 | 5 | 5 | 0 | 0 | 3 | 1 | 32 | 10 | 3.20 |
| 5 | 8 | 12 | 12 | 11 | 5 | 14 | 11 | 14 | 13 | 13 | 113 | 10 | 11.3 |
| 6 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 14 | 0 | 19 | 10 | 1.90 |
| 7 | 22 | 17 | 20 | 8 | 0 | 24 | 20 | 23 | 0 | 13 | 147 | 10 | 14.7 |
| 8 | | | | | | | | | | | | | |
| TOTAL | 34 | 34 | 36 | 24 | 15 | 43 | 31 | 37 | 30 | 27 | 311 | 10 | 31.1 |

Appendix (Reference Toxicant): Test 1002.0
Chronic Reference Toxicant, *Ceriodaphnia dubia*

LC50 Survival Data



IC25 Reproduction Data



Appendix (Summary): Test 1002.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING

Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

Permittee: Jacobs

NPDES No.: WA0093317

Date and Time Test Initiated: October 8, 2024 at 1513

Date and Time Test Terminated: October 15, 2024 at 1550

Dilution water used:

PERCENT SURVIVAL

| Time of Reading | Control | Percent Effluent | | | | |
|-----------------|---------|------------------|--------|------|------|-------|
| | | 6.4 % | 12.5 % | 25 % | 50 % | 100 % |
| 24 hour | 100 | 100 | 100 | 100 | 100 | 100 |
| 48 hour | 100 | 100 | 100 | 100 | 100 | 100 |
| 7 day | 100 | 100 | 100 | 100 | 100 | 100 |

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

| Replicates | Control | Percent Effluent | | | | |
|--------------------------|---------|------------------|--------|------|------|-------|
| | | 6.4 % | 12.5 % | 25 % | 50 % | 100 % |
| A | 35 | 30 | 22 | 0 | 26 | 34 |
| B | 34 | 27 | 20 | 28 | 16 | 34 |
| C | 36 | 14 | 30 | 12 | 17 | 36 |
| D | 44 | 22 | 39 | 26 | 43 | 24 |
| E | 29 | 33 | 42 | 31 | 42 | 15 |
| F | 40 | 33 | 38 | 7 | 36 | 43 |
| G | 39 | 38 | 28 | 40 | 18 | 31 |
| H | 42 | 24 | 39 | 38 | 36 | 37 |
| I | 39 | 40 | 34 | 36 | 37 | 30 |
| J | 39 | 29 | 31 | 25 | 36 | 27 |
| Mean per Adult | 37.7 | 29.0 | 32.3 | 24.3 | 30.7 | 31.1 |
| Mean per Surviving Adult | 37.7 | 29.0 | 32.3 | 24.3 | 30.7 | 31.1 |
| CV % | 11.5 | 26.7 | 23.1 | 56.1 | 34.2 | 25.0 |

CV = Coefficient of variation = standard deviation * 100 / mean
(calculated based on young produced by surviving females)

Appendix (Summary): Test 1002.0
 CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
 CHEMICAL PARAMETERS CHART

PERMITTEE: Jacobs
 NPDES NO.: WA0093317
 CONTACT: Ms. Brandi Andrews
 ANALYST: GCX6, V6YL, B6YF, QGL9, WK7B

Test Initiated: DATE: October 8, 2024 TIME: 1513
 Test Terminated: DATE: October 15, 2024 TIME: 1550

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| Control | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.3 | 8.0 | 8.5 | 8.8 | 8.9 | 8.8 | 8.9 |
| Final | 8.0 | 8.8 | 8.7 | 8.7 | 8.9 | 8.8 | 8.7 |
| pH Initial | 6.4 | 7.0 | 6.4 | 8.0 | 7.0 | 8.0 | 8.1 |
| Final | 7.7 | 7.9 | 7.9 | 8.3 | 8.0 | 8.3 | 7.9 |

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| 6.4 % | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.5 | 8.1 | 8.2 | 8.8 | 8.8 | 8.9 | 8.9 |
| Final | 8.1 | 8.7 | 8.8 | 8.8 | 8.9 | 9.0 | 8.7 |
| pH Initial | 6.5 | 7.0 | 6.6 | 8.0 | 7.3 | 8.1 | 8.0 |
| Final | 7.6 | 8.1 | 8.0 | 8.4 | 8.4 | 8.2 | 8.0 |

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| 12.5 % | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.4 | 8.2 | 8.0 | 8.8 | 8.7 | 8.9 | 9.0 |
| Final | 7.9 | 8.7 | 8.8 | 8.7 | 8.9 | 8.8 | 8.7 |
| pH Initial | 6.5 | 7.0 | 6.7 | 8.0 | 7.7 | 8.1 | 8.0 |
| Final | 7.6 | 8.2 | 8.0 | 8.4 | 8.4 | 8.2 | 8.1 |

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| 25 % | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.4 | 8.1 | 7.4 | 9.0 | 8.7 | 8.8 | 9.0 |
| Final | 8.2 | 8.8 | 8.9 | 8.8 | 9.0 | 9.0 | 8.8 |
| pH Initial | 6.5 | 7.0 | 6.7 | 8.0 | 7.8 | 8.0 | 8.0 |
| Final | 7.7 | 8.2 | 8.0 | 8.4 | 8.5 | 8.3 | 8.1 |

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| 50 % | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.5 | 8.1 | 8.4 | 9.0 | 8.6 | 8.9 | 9.0 |
| Final | 8.4 | 8.8 | 8.9 | 8.8 | 8.9 | 8.8 | 8.7 |
| pH Initial | 6.5 | 7.0 | 6.6 | 8.0 | 7.8 | 8.0 | 8.0 |
| Final | 7.7 | 8.3 | 8.0 | 8.4 | 8.4 | 8.2 | 8.1 |

| DILUTION | DAY | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| 100 % | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| D.O. Initial | 8.8 | 8.2 | 8.3 | 9.0 | 8.8 | 9.0 | 8.9 |
| Final | 8.0 | 8.7 | 8.8 | 8.8 | 8.9 | 8.9 | 8.7 |
| pH Initial | 6.4 | 6.9 | 6.6 | 7.9 | 7.7 | 7.8 | 7.8 |
| Final | 7.8 | 8.4 | 8.0 | 8.4 | 8.4 | 8.2 | 8.1 |

| Alkalinity | Hardness | Conductivity | Chlorine | Sample ID |
|------------|----------|--------------|----------|-----------------------|
| 81 | 200 | 860 | <0.05 | B1024100707 07-OCT-24 |
| 74 | 170 | 930 | <0.05 | B1024100909 09-OCT-24 |
| 68 | 200 | 920 | <0.05 | B1024101106 11-OCT-24 |

| Alkalinity | Hardness | Conductivity | Chlorine | Sample ID |
|------------|----------|--------------|----------|---------------|
| 62 | 93 | 300 | <0.05 | 192-15450-A-2 |
| 63 | 93 | 300 | <0.05 | 192-15522-A-3 |

CETIS Summary Report

Report Date: 17 Oct-24 10:53 (p 1 of 2)
Test Code/ID: 275258_CD / 19-5628-7108

| Ceriodaphnia 7-d Survival and Reproduction Test | | | | | | Eurofins Arkansas | |
|---|-----------------|------------|----------------------------|--|----------|-----------------------------------|----------|
| Batch ID: | 13-4438-0123 | Test Type: | Reproduction-Survival (7d) | | Analyst: | | |
| Start Date: | 08 Oct-24 15:13 | Protocol: | EPA/821/R-02-013 (2002) | | Diluent: | Mod-Hard Synthetic Water | |
| Ending Date: | 15 Oct-24 15:50 | Species: | Ceriodaphnia dubia | | Brine: | | |
| Test Length: | 7d 1h | Taxon: | Branchiopoda | | Source: | In-House Culture | Age: <24 |
| Sample ID: | 08-1344-0409 | Code: | 275258 | | Project: | | |
| Sample Date: | 07 Oct-24 09:33 | Material: | POTW Effluent | | Source: | Jacobs Spokane County (WA0093317) | |
| Receipt Date: | 08 Oct-24 07:50 | CAS (PC): | | | Station: | BIO24100707 | |
| Sample Age: | 30h | Client: | | | | | |

Multiple Comparison Summary

| Analysis ID | Endpoint | Comparison Method | ✓ | NOEL | LOEL | TOEL | PMSD | TU | S |
|--------------|------------------|-----------------------------------|---|------|------|------|-------|----|---|
| 18-9302-9635 | 7d Survival Rate | Fisher Exact/Bonferroni-Holm Test | | 100 | >100 | --- | --- | 1 | 1 |
| 08-0018-5668 | Reproduction | Dunnett Multiple Comparison Test | | 100 | >100 | --- | 24.6% | 1 | 1 |

Point Estimate Summary

| Analysis ID | Endpoint | Point Estimate Method | ✓ | Level | % | 95% LCL | 95% UCL | TU | S |
|--------------|------------------|------------------------------|---|-------|------|---------|---------|----|---|
| 00-4498-4656 | 7d Survival Rate | Linear Interpolation (ICPIN) | | LC50 | >100 | --- | --- | <1 | 1 |
| 14-8907-1501 | Reproduction | Linear Interpolation (ICPIN) | | IC25 | >100 | --- | --- | <1 | 1 |

Test Acceptability

| Analysis ID | Endpoint | Attribute | Test Stat | TAC Limits | | Overlap | Decision |
|--------------|------------------|--------------|-----------|------------|-------|---------|-----------------|
| | | | | Lower | Upper | | |
| 00-4498-4656 | 7d Survival Rate | Control Resp | 1 | 0.8 | << | Yes | Passes Criteria |
| 18-9302-9635 | 7d Survival Rate | Control Resp | 1 | 0.8 | << | Yes | Passes Criteria |
| 08-0018-5668 | Reproduction | Control Resp | 37.7 | 15 | << | Yes | Passes Criteria |
| 14-8907-1501 | Reproduction | Control Resp | 37.7 | 15 | << | Yes | Passes Criteria |
| 08-0018-5668 | Reproduction | PMSD | 0.2456 | 0.13 | 0.47 | Yes | Passes Criteria |

7d Survival Rate Summary

| Conc-% | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|--------|------|-------|--------|---------|---------|--------|--------|---------|---------|-------|---------|
| 0 | D | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |
| 6.4 | | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |
| 12.5 | | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |
| 25 | | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |
| 50 | | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |
| 100 | | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 | 0.00% | 0.00% |

Reproduction Summary

| Conc-% | Code | Count | Mean | 95% LCL | 95% UCL | Min | Max | Std Err | Std Dev | CV% | %Effect |
|--------|------|-------|------|---------|---------|-----|-----|---------|---------|--------|---------|
| 0 | D | 10 | 37.7 | 34.61 | 40.79 | 29 | 44 | 1.367 | 4.322 | 11.46% | 0.00% |
| 6.4 | | 10 | 29 | 23.47 | 34.53 | 14 | 40 | 2.445 | 7.732 | 26.66% | 23.08% |
| 12.5 | | 10 | 32.3 | 26.96 | 37.64 | 20 | 42 | 2.362 | 7.469 | 23.12% | 14.32% |
| 25 | | 10 | 24.3 | 14.54 | 34.06 | 0 | 40 | 4.313 | 13.64 | 56.13% | 35.54% |
| 50 | | 10 | 30.7 | 23.2 | 38.2 | 16 | 43 | 3.317 | 10.49 | 34.16% | 18.57% |
| 100 | | 10 | 31.1 | 25.53 | 36.67 | 15 | 43 | 2.461 | 7.781 | 25.02% | 17.51% |

CETIS Summary Report

Report Date: 17 Oct-24 10:53 (p 2 of 2)
 Test Code/ID: 275258_CD / 19-5628-7108

Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

7d Survival Rate Detail

MD5: 9D4B596157A8E8088B0E1B2E74F38F5A

| 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 |
| 6.4 | | 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: 116C9553DF4AA78F46184F075A27305E

| Conc-% | Code | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Rep 9 | Rep 10 |
|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 0 | D | 35 | 34 | 36 | 44 | 29 | 40 | 39 | 42 | 39 | 39 |
| 6.4 | | 30 | 27 | 14 | 22 | 33 | 33 | 38 | 24 | 40 | 29 |
| 12.5 | | 22 | 20 | 30 | 39 | 42 | 38 | 28 | 39 | 34 | 31 |
| 25 | | 0 | 28 | 12 | 26 | 31 | 7 | 40 | 38 | 36 | 25 |
| 50 | | 26 | 16 | 17 | 43 | 42 | 36 | 18 | 36 | 37 | 36 |
| 100 | | 34 | 34 | 36 | 24 | 15 | 43 | 31 | 37 | 30 | 27 |

7d 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 |
| 6.4 | | 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: 17 Oct-24 10:53 (p 1 of 2)
Test Code/ID: 275258_CD / 19-5628-7108

Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

| | | |
|-------------------------------|--|---|
| Analysis ID: 08-0018-5668 | Endpoint: Reproduction | CETIS Version: CETISv2.1.4 |
| Analyzed: 17 Oct-24 10:52 | Analysis: Parametric-Control vs Treatments | Status Level: 1 |
| Edit Date: 17 Oct-24 10:50 | MD5 Hash: 116C9553DF4AA78F46184F075A27305E | Editor ID: 005-847-680-2 |
| Batch ID: 13-4438-0123 | Test Type: Reproduction-Survival (7d) | Analyst: |
| Start Date: 08 Oct-24 15:13 | Protocol: EPA/821/R-02-013 (2002) | Diluent: Mod-Hard Synthetic Water |
| Ending Date: 15 Oct-24 15:50 | Species: Ceriodaphnia dubia | Brine: |
| Test Length: 7d 1h | Taxon: Branchiopoda | Source: In-House Culture Age: <24 |
| Sample ID: 08-1344-0409 | Code: 275258 | Project: |
| Sample Date: 07 Oct-24 09:33 | Material: POTW Effluent | Source: Jacobs Spokane County (WA0093317) |
| Receipt Date: 08 Oct-24 07:50 | CAS (PC): | Station: BIO24100707 |
| Sample Age: 30h | Client: | |

| Data Transform | Alt Hyp | NOEL | LOEL | TOEL | Tox Units | MSDu | PMSD |
|----------------|---------|------|------|------|-----------|-------|--------|
| Untransformed | C > T | 100 | >100 | --- | 1 | 9.259 | 24.56% |

Dunnett Multiple Comparison Test

| Control | vs | Conc-% | df | Test Stat | Critical | MSD | P-Type | P-Value | Decision(α:5%) |
|----------------|----|--------|----|-----------|----------|-------|--------|---------|------------------------|
| Dilution Water | | 6.4 | 18 | 2.151 | 2.289 | 9.259 | CDF | 0.0671 | Non-Significant Effect |
| | | 12.5 | 18 | 1.335 | 2.289 | 9.259 | CDF | 0.2759 | Non-Significant Effect |
| | | 25* | 18 | 3.313 | 2.289 | 9.259 | CDF | 0.0037 | Significant Effect |
| | | 50 | 18 | 1.731 | 2.289 | 9.259 | CDF | 0.1493 | Non-Significant Effect |
| | | 100 | 18 | 1.632 | 2.289 | 9.259 | CDF | 0.1763 | Non-Significant Effect |

Test Acceptability Criteria

| TAC Limits | | | | | |
|--------------|-----------|-------|-------|---------|-----------------|
| Attribute | Test Stat | Lower | Upper | Overlap | Decision |
| Control Resp | 37.7 | 15 | << | Yes | Passes Criteria |
| PMSD | 0.2456 | 0.13 | 0.47 | Yes | Passes Criteria |

ANOVA Table

| Source | Sum Squares | Mean Square | DF | F Stat | P-Value | Decision(α:5%) |
|---------|-------------|-------------|----|--------|---------|------------------------|
| Between | 954.35 | 190.87 | 5 | 2.333 | 0.0545 | Non-Significant Effect |
| Error | 4417.3 | 81.8018 | 54 | | | |
| Total | 5371.65 | | 59 | | | |

ANOVA Assumptions Tests

| Attribute | Test | Test Stat | Critical | P-Value | Decision(α:1%) |
|--------------|------------------------------------|-----------|----------|---------|---------------------|
| Variance | Bartlett Equality of Variance Test | 11.7 | 15.09 | 0.0391 | Equal Variances |
| Distribution | Shapiro-Wilk W Normality Test | 0.9636 | 0.9459 | 0.0708 | Normal Distribution |

Reproduction Summary

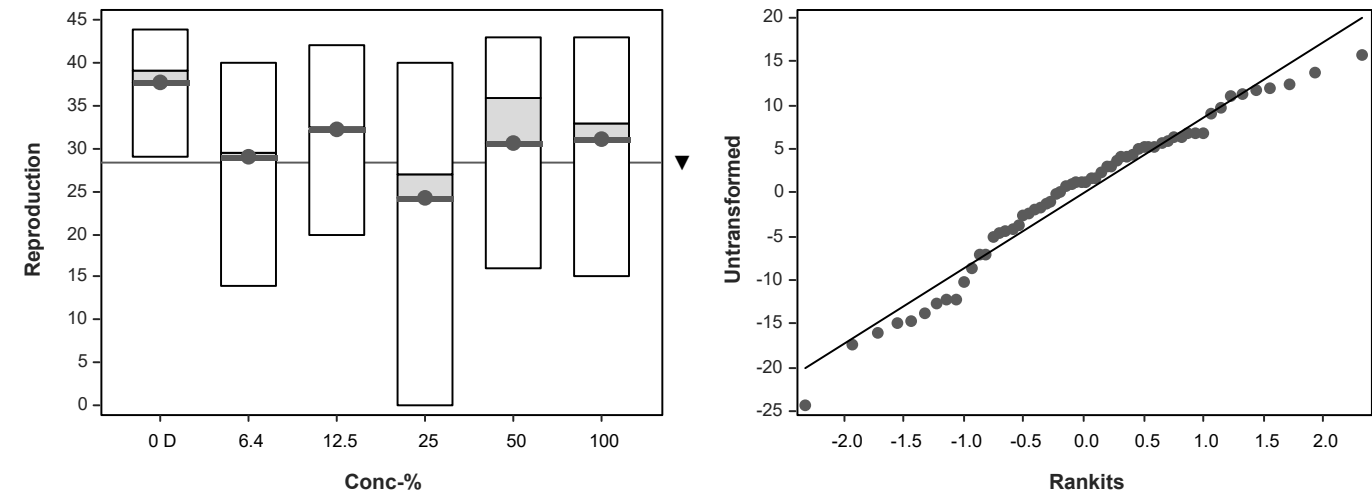
| Conc-% | Code | Count | Mean | 95% LCL | 95% UCL | Median | Min | Max | Std Err | CV% | %Effect |
|--------|------|-------|------|---------|---------|--------|-----|-----|---------|--------|---------|
| 0 | D | 10 | 37.7 | 34.61 | 40.79 | 39 | 29 | 44 | 1.367 | 11.46% | 0.00% |
| 6.4 | | 10 | 29 | 23.47 | 34.53 | 29.5 | 14 | 40 | 2.445 | 26.66% | 23.08% |
| 12.5 | | 10 | 32.3 | 26.96 | 37.64 | 32.5 | 20 | 42 | 2.362 | 23.12% | 14.32% |
| 25 | | 10 | 24.3 | 14.54 | 34.06 | 27 | 0 | 40 | 4.313 | 56.13% | 35.54% |
| 50 | | 10 | 30.7 | 23.2 | 38.2 | 36 | 16 | 43 | 3.317 | 34.16% | 18.57% |
| 100 | | 10 | 31.1 | 25.53 | 36.67 | 33 | 15 | 43 | 2.461 | 25.02% | 17.51% |

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 | 35 | 34 | 36 | 44 | 29 | 40 | 39 | 42 | 39 | 39 |
| 6.4 | | 30 | 27 | 14 | 22 | 33 | 33 | 38 | 24 | 40 | 29 |
| 12.5 | | 22 | 20 | 30 | 39 | 42 | 38 | 28 | 39 | 34 | 31 |
| 25 | | 0 | 28 | 12 | 26 | 31 | 7 | 40 | 38 | 36 | 25 |
| 50 | | 26 | 16 | 17 | 43 | 42 | 36 | 18 | 36 | 37 | 36 |
| 100 | | 34 | 34 | 36 | 24 | 15 | 43 | 31 | 37 | 30 | 27 |

| | | | | |
|---|--|----------------------------|-------------------|--|
| Ceriodaphnia 7-d Survival and Reproduction Test | | | Eurofins Arkansas | |
| Analysis ID: 08-0018-5668 | Endpoint: Reproduction | CETIS Version: CETISv2.1.4 | | |
| Analyzed: 17 Oct-24 10:52 | Analysis: Parametric-Control vs Treatments | Status Level: 1 | | |
| Edit Date: 17 Oct-24 10:50 | MD5 Hash: 116C9553DF4AA78F46184F075A27305E | Editor ID: 005-847-680-2 | | |

Graphics



CETIS Analytical Report

Report Date: 17 Oct-24 10:53 (p 1 of 4)
Test Code/ID: 275258_CD / 19-5628-7108

| Ceriodaphnia 7-d Survival and Reproduction Test | | | | | Eurofins Arkansas | |
|---|-----------------|------------|----------------------------------|----------------|-----------------------------------|----------|
| Analysis ID: | 00-4498-4656 | Endpoint: | 7d Survival Rate | CETIS Version: | CETISv2.1.4 | |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | Linear Interpolation (ICPIN) | Status Level: | 1 | |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 9D4B596157A8E8088B0E1B2E74F38F5A | Editor ID: | 005-847-680-2 | |
| Batch ID: | 13-4438-0123 | Test Type: | Reproduction-Survival (7d) | Analyst: | | |
| Start Date: | 08 Oct-24 15:13 | Protocol: | EPA/821/R-02-013 (2002) | Diluent: | Mod-Hard Synthetic Water | |
| Ending Date: | 15 Oct-24 15:50 | Species: | Ceriodaphnia dubia | Brine: | | |
| Test Length: | 7d 1h | Taxon: | Branchiopoda | Source: | In-House Culture | Age: <24 |
| Sample ID: | 08-1344-0409 | Code: | 275258 | Project: | | |
| Sample Date: | 07 Oct-24 09:33 | Material: | POTW Effluent | Source: | Jacobs Spokane County (WA0093317) | |
| Receipt Date: | 08 Oct-24 07:50 | CAS (PC): | | Station: | BIO24100707 | |
| Sample Age: | 30h | Client: | | | | |

| Linear Interpolation Options | | | | | |
|------------------------------|-------------|------------|-----------|------------|-------------------------|
| X Transform | Y Transform | Seed | Resamples | Exp 95% CL | Method |
| Linear | Linear | 204396 | 1000 | Yes | Two-Point Interpolation |
| Test Acceptability Criteria | | | | | |
| | | TAC Limits | | | |
| Attribute | Test Stat | Lower | Upper | Overlap | Decision |
| Control Resp | 1 | 0.8 | << | Yes | Passes Criteria |

| Point Estimates | | | | | | |
|-----------------|------|---------|---------|-----------|---------|---------|
| Level | % | 95% LCL | 95% UCL | Tox Units | 95% LCL | 95% UCL |
| LC50 | >100 | --- | --- | <1 | --- | --- |

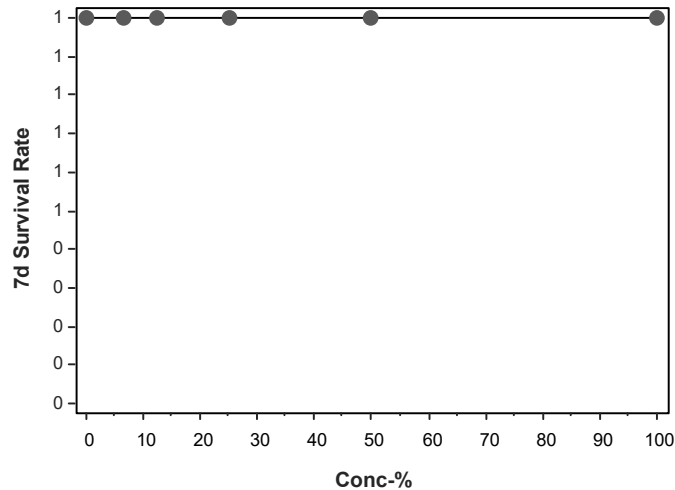
| 7d Survival Rate Summary | | | Calculated Variate(A/B) | | | | | | | Isotonic Variate | |
|--------------------------|------|-------|-------------------------|--------|--------|--------|-------|---------|-------|------------------|---------|
| Conc-% | Code | Count | Mean | Median | Min | Max | CV% | %Effect | ΣA/ΣB | Mean | %Effect |
| 0 | D | 10 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.00% | 0.00% | 10/10 | 1.0000 | 0.00% |
| 6.4 | | 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% |

| 7d 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 |
| 6.4 | | 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 |

| 7d 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 |
| 6.4 | | 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 |

| Ceriodaphnia 7-d Survival and Reproduction Test | | | | Eurofins Arkansas | |
|---|-----------------|-----------|----------------------------------|-------------------|---------------|
| Analysis ID: | 00-4498-4656 | Endpoint: | 7d Survival Rate | CETIS Version: | CETISv2.1.4 |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | Linear Interpolation (ICPIN) | Status Level: | 1 |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 9D4B596157A8E8088B0E1B2E74F38F5A | Editor ID: | 005-847-680-2 |

Graphics



CETIS Analytical Report

Report Date: 17 Oct-24 10:53 (p 3 of 4)
Test Code/ID: 275258_CD / 19-5628-7108

| Ceriodaphnia 7-d Survival and Reproduction Test | | | | Eurofins Arkansas | |
|---|-----------------|------------|----------------------------------|-------------------|-----------------------------------|
| Analysis ID: | 14-8907-1501 | Endpoint: | Reproduction | CETIS Version: | CETISv2.1.4 |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | Linear Interpolation (ICPIN) | Status Level: | 1 |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 116C9553DF4AA78F46184F075A27305E | Editor ID: | 005-847-680-2 |
| Batch ID: | 13-4438-0123 | Test Type: | Reproduction-Survival (7d) | Analyst: | |
| Start Date: | 08 Oct-24 15:13 | Protocol: | EPA/821/R-02-013 (2002) | Diluent: | Mod-Hard Synthetic Water |
| Ending Date: | 15 Oct-24 15:50 | Species: | Ceriodaphnia dubia | Brine: | |
| Test Length: | 7d 1h | Taxon: | Branchiopoda | Source: | In-House Culture |
| | | | | Age: | <24 |
| Sample ID: | 08-1344-0409 | Code: | 275258 | Project: | |
| Sample Date: | 07 Oct-24 09:33 | Material: | POTW Effluent | Source: | Jacobs Spokane County (WA0093317) |
| Receipt Date: | 08 Oct-24 07:50 | CAS (PC): | | Station: | BIO24100707 |
| Sample Age: | 30h | Client: | | | |

| Linear Interpolation Options | | | | | |
|------------------------------|-------------|------------|-----------|------------|-------------------------|
| X Transform | Y Transform | Seed | Resamples | Exp 95% CL | Method |
| Linear | Linear | 1771706 | 1000 | Yes | Two-Point Interpolation |
| Test Acceptability Criteria | | | | | |
| | | TAC Limits | | | |
| Attribute | Test Stat | Lower | Upper | Overlap | Decision |
| Control Resp | 37.7 | 15 | << | Yes | Passes Criteria |

| Point Estimates | | | | | | |
|-----------------|------|---------|---------|-----------|---------|---------|
| Level | % | 95% LCL | 95% UCL | Tox Units | 95% LCL | 95% UCL |
| IC25 | >100 | --- | --- | <1 | --- | --- |

| Reproduction Summary | | | Calculated Variate | | | | | | Isotonic Variate | |
|----------------------|------|-------|--------------------|--------|-----|-----|--------|---------|------------------|---------|
| Conc-% | Code | Count | Mean | Median | Min | Max | CV% | %Effect | Mean | %Effect |
| 0 | D | 10 | 37.7 | 39 | 29 | 44 | 11.46% | 0.00% | 37.7 | 0.00% |
| 6.4 | | 10 | 29 | 29.5 | 14 | 40 | 26.66% | 23.08% | 30.65 | 18.70% |
| 12.5 | | 10 | 32.3 | 32.5 | 20 | 42 | 23.12% | 14.32% | 30.65 | 18.70% |
| 25 | | 10 | 24.3 | 27 | 0 | 40 | 56.13% | 35.54% | 28.7 | 23.87% |
| 50 | | 10 | 30.7 | 36 | 16 | 43 | 34.16% | 18.57% | 28.7 | 23.87% |
| 100 | | 10 | 31.1 | 33 | 15 | 43 | 25.02% | 17.51% | 28.7 | 23.87% |

| 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 | 35 | 34 | 36 | 44 | 29 | 40 | 39 | 42 | 39 | 39 |
| 6.4 | | 30 | 27 | 14 | 22 | 33 | 33 | 38 | 24 | 40 | 29 |
| 12.5 | | 22 | 20 | 30 | 39 | 42 | 38 | 28 | 39 | 34 | 31 |
| 25 | | 0 | 28 | 12 | 26 | 31 | 7 | 40 | 38 | 36 | 25 |
| 50 | | 26 | 16 | 17 | 43 | 42 | 36 | 18 | 36 | 37 | 36 |
| 100 | | 34 | 34 | 36 | 24 | 15 | 43 | 31 | 37 | 30 | 27 |

CETIS Analytical Report

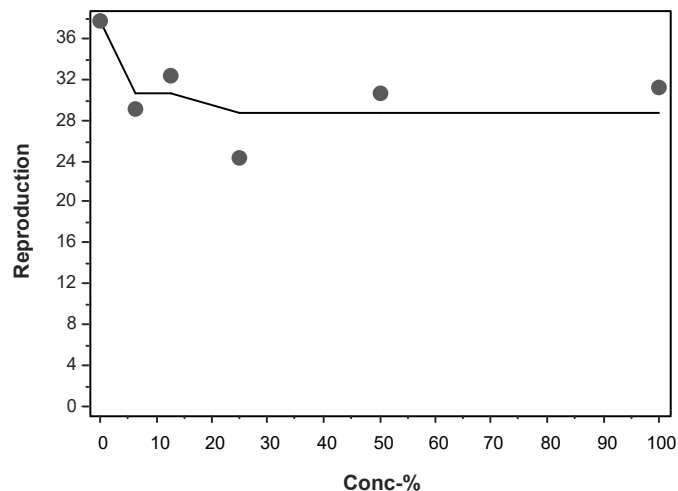
Report Date: 17 Oct-24 10:53 (p 4 of 4)
Test Code/ID: 275258_CD / 19-5628-7108

Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

| | | | | | |
|--------------|-----------------|-----------|----------------------------------|----------------|---------------|
| Analysis ID: | 14-8907-1501 | Endpoint: | Reproduction | CETIS Version: | CETISv2.1.4 |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | Linear Interpolation (ICPIN) | Status Level: | 1 |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 116C9553DF4AA78F46184F075A27305E | Editor ID: | 005-847-680-2 |

Graphics



CETIS Analytical Report

Report Date: 17 Oct-24 10:53 (p 1 of 2)
Test Code/ID: 275258_CD / 19-5628-7108

| Ceriodaphnia 7-d Survival and Reproduction Test | | | | Eurofins Arkansas | |
|---|-----------------|------------|----------------------------------|-------------------|-----------------------------------|
| Analysis ID: | 18-9302-9635 | Endpoint: | 7d Survival Rate | CETIS Version: | CETISv2.1.4 |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | STP 2xK Contingency Tables | Status Level: | 1 |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 9D4B596157A8E8088B0E1B2E74F38F5A | Editor ID: | 005-847-680-2 |
| Batch ID: | 13-4438-0123 | Test Type: | Reproduction-Survival (7d) | Analyst: | |
| Start Date: | 08 Oct-24 15:13 | Protocol: | EPA/821/R-02-013 (2002) | Diluent: | Mod-Hard Synthetic Water |
| Ending Date: | 15 Oct-24 15:50 | Species: | Ceriodaphnia dubia | Brine: | |
| Test Length: | 7d 1h | Taxon: | Branchiopoda | Source: | In-House Culture |
| | | | | Age: | <24 |
| Sample ID: | 08-1344-0409 | Code: | 275258 | Project: | |
| Sample Date: | 07 Oct-24 09:33 | Material: | POTW Effluent | Source: | Jacobs Spokane County (WA0093317) |
| Receipt Date: | 08 Oct-24 07:50 | CAS (PC): | | Station: | BIO24100707 |
| Sample Age: | 30h | Client: | | | |

| Data Transform | Alt Hyp | NOEL | LOEL | TOEL | Tox Units |
|----------------|---------|------|------|------|-----------|
| 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 | | 6.4 | 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 |

| Test Acceptability Criteria | | | | | |
|-----------------------------|-----------|-------|-------|---------|-----------------|
| TAC Limits | | | | | |
| Attribute | Test Stat | Lower | Upper | Overlap | Decision |
| Control Resp | 1 | 0.8 | << | Yes | Passes Criteria |

| 7d 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% |
| 6.4 | | 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% |

| 7d 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% |
| 6.4 | | 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% |

| 7d 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 |
| 6.4 | | 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 |

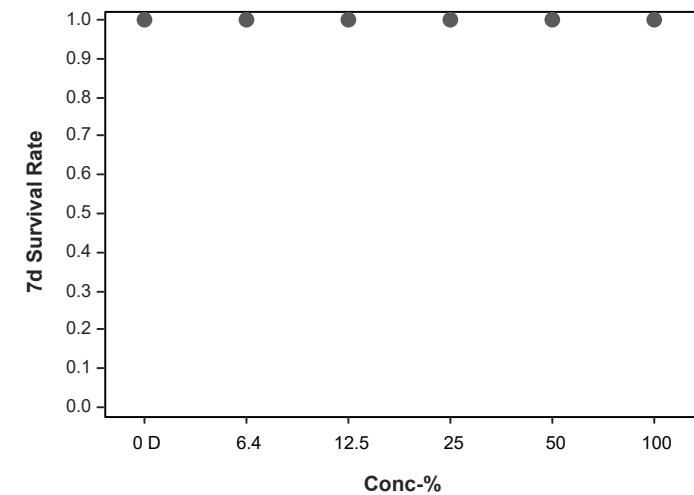
Ceriodaphnia 7-d Survival and Reproduction Test Eurofins Arkansas

| | | | | | |
|--------------|-----------------|-----------|----------------------------------|----------------|---------------|
| Analysis ID: | 18-9302-9635 | Endpoint: | 7d Survival Rate | CETIS Version: | CETISv2.1.4 |
| Analyzed: | 17 Oct-24 10:52 | Analysis: | STP 2xK Contingency Tables | Status Level: | 1 |
| Edit Date: | 17 Oct-24 10:50 | MD5 Hash: | 9D4B596157A8E8088B0E1B2E74F38F5A | Editor ID: | 005-847-680-2 |

7d 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 |
| 6.4 | | 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



Chain of Custody Record



FXFO

| | | | | | |
|--|----------------|---|-------------|--|---|
| Client Information | | Sampler: <u>Brandi Andrews</u> | | Lab PM: <u>Overbey, John</u> | COC No: <u>192-15614 COC</u> |
| Client Contact: <u>Brandi Andrews</u> | | Phone: <u>501-536-3710</u> | | E-Mail: <u>john.overbey@eurofins.com</u> | Page: <u>1 of 1</u> |
| Company: <u>Jacobs Engineering Group, Inc.</u> | | PWSID: <u>509-536-3710</u> | | Job #: <u>Washington</u> | |
| Address: <u>1004 N. Freya Street</u> | | Due Date Requested: <u>30 Days</u> | | Analysis Requested | |
| City: <u>Spokane</u> | | TAT Requested (days): <u>30 Days</u> | | Preservation Codes: <u>N - None</u> | |
| State, Zip: <u>WA, 99202</u> | | Compliance Project: <u>Yes</u> <input checked="" type="checkbox"/> <u>No</u> <input type="checkbox"/> | | Other: | |
| Phone: <u>509-536-3710</u> | | PO #: <u>148055071</u> | | Total Number of Containers: <u>X</u> | |
| Email: <u>brandi.andrews@jacobs.com</u> | | WO #: <u>19201000</u> | | Special Instructions/Note: | |
| Project Name: <u>Spokane County Water Q2 and Q4</u> | | Project #: <u>19201000</u> | | | |
| Site: <u>Outfall- Mankholz</u> | | SSOW#: <u></u> | | | |
| Sample Identification | | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air) |
| <u>B1024100707</u> | <u>10/6/24</u> | <u>0855</u> | <u>C</u> | <u>Water</u> | <u>Water</u> |
| Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) | | | | | |
| <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <u>Months</u> | | | | | |
| Special Instructions/QC Requirements: | | | | | |
| Empty Kit Relinquished by: <u>Brandi Andrews</u> Date: <u>10/7/24</u> Time: <u>1143</u> Company: <u>Jacobs</u> | | | | | |
| Relinquished by: <u>Brandi Andrews</u> Date/Time: <u>10/7/24</u> Received by: <u>Jacobs</u> Company: <u>Jacobs</u> | | | | | |
| Relinquished by: <u>Brandi Andrews</u> Date/Time: <u>10/8/24</u> Received by: <u>P. Brown</u> Company: <u>Jacobs</u> | | | | | |
| Custody Seals Intact: <u>Yes</u> <input checked="" type="checkbox"/> <u>No</u> <input type="checkbox"/> Cooler Temperature(s) °C and Other Remarks: <u>0.8</u> | | | | | |

Chain of Custody Record

FXFO

| | | | | | |
|---|----------------|---|-------------|---|--|
| Client Information | | Sampler: <u>Brandi Andrews</u> | | Lab PM: <u>Overbey, John</u> | COC No: <u>192-2799-988.1</u> |
| Client Contact: <u>Brandi Andrews</u> | | Phone: <u>509-536-3710</u> | | E-Mail: <u>john.overbey@et.eurofins.com</u> | Page: <u>1 of 1</u> |
| Company: <u>Jacobs Engineering Group, Inc.</u> | | PWSID: _____ | | State of Origin: <u>Wash.</u> | |
| Address: <u>1004 N. Freya Street</u> | | Due Date Requested: <u>30 Days</u> | | Analysis Requested | |
| City: <u>Spokane</u> | | TAT Requested (days): <u>30 Days</u> | | Preservation Codes: N - None | |
| State, Zip: <u>WA, 99202</u> | | Compliance Project: <u>Δ Yes Δ No</u> | | Other: | |
| Phone: <u>509-536-3710</u> | | PO #: <u>148055071</u> | | Total Number of containers | |
| Email: <u>brandi.andrews@jacobs.com</u> | | WO #: _____ | | Special Instructions/Note: | |
| Project Name: <u>Spokane County Water Q2 and Q4</u> | | Project #: <u>19201000</u> | | | |
| Site: <u>Outfall - Manhole</u> | | SSOW#: _____ | | | |
| Sample Identification | | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air) |
| <u>B1024100909</u> | <u>10/8/24</u> | <u>0902</u> | <u>0914</u> | <u>C</u> | <u>Water</u> |
| Possible Hazard Identification | | Preservation Code: _____ | | | |
| <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological | | Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) | | | |
| Deliverable Requested: I, II, III, IV, Other (specify) | | <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months | | | |
| Empty Kit Relinquished by: | | Date: | | Method of Shipment: | |
| Relinquished by: <u>Brandi Andrews</u> | | Date/Time: <u>10/9/24 1144</u> | | Received by: _____ | |
| Relinquished by: | | Date/Time: | | Received by: | |
| Relinquished by: | | Date/Time: | | Received by: | |
| Custody Seals Intact Δ Yes Δ No | | Custody Seal No.: | | Cooler Temperature(s) °C and Other Remarks: <u>D. Brown</u> | |

Eurofins Arkansas

8600 Kanis Rd

Little Rock, AR 72204

Phone: 501-224-5060 Fax: 501-224-5075

Chain of Custody Record



Environment Testing

| | | | | | |
|--|--------------------|--|------------------------|--|---|
| Client Information | | Sampler: <u>Brandi Andrews</u> | | Lab PM: <u>Overbey, John</u> | COC No: <u>192-2799-988.1</u> |
| Client Contact: <u>Brandi Andrews</u> | | Phone: <u>509-534-3710</u> | | E-Mail: <u>john.overbey@et.eurofins.com</u> | Page: <u>Page 1 of 1</u> |
| Company: <u>Jacobs Engineering Group, Inc.</u> | | IPWSID: <u></u> | | Job #: <u></u> | |
| Address: <u>1004 N. Freya Street</u> | | Due Date Requested: <u>30 Days</u> | | Analysis Requested | |
| City: <u>Spokane</u> | | TAT Requested (days): <u>30 Days</u> | | Preservation Codes: <u>N - None</u> | |
| State, Zip: <u>WA, 99202</u> | | Compliance Project: <u>X Yes</u> <u>Δ No</u> | | Other: <u></u> | |
| Phone: <u></u> | | PO #: <u>148055071</u> | | Total Number of containers | |
| Email: <u>brandi.andrews@jacobs.com</u> | | WO #: <u></u> | | Special Instructions/Note: <u></u> | |
| Project Name: <u>Spokane County Water Q2 and Q4</u> | | Project #: <u>19201000</u> | | Field Filtered Sample (Yes or No) <u>X</u> | |
| Site: <u>Outfall - Manhole</u> | | SSOW#: <u></u> | | Perform MS/MSD (Yes or No) <u>N</u> | |
| Sample Identification | | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air) |
| <u>B1024101106</u> | <u>10/10-11/24</u> | <u>0833</u> | <u>0804</u> | <u>C</u> | <u>Water</u> |
| Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) | | Return To Client <input type="checkbox"/> Archive For <u>Months</u> | | Special Instructions/Note: <u></u> | |
| Possible Hazard Identification | | Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological <input type="checkbox"/> | | Special Instructions/QC Requirements: <u></u> | |
| Deliverable Requested: <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Other (Specify) <u></u> | | Empty Kit Relinquished by: <u>Brandi Andrews</u> | | Method of Shipment: <u></u> | |
| Relinquished by: <u>Brandi Andrews</u> | | Date/Time: <u>10/11/24</u> | Date/Time: <u>1137</u> | Received by: <u></u> | |
| Relinquished by: <u></u> | | Date/Time: <u></u> | Date/Time: <u></u> | Received by: <u></u> | |
| Relinquished by: <u></u> | | Date/Time: <u></u> | Date/Time: <u></u> | Received by: <u></u> | |
| Custody Seals Intact: <u>Δ Yes</u> <u>Δ No</u> | | Custody Seal No.: <u></u> | | Cooler Temperature(s) °C and Other Remarks: <u>0.4</u> | |