



# ANALYTICAL REPORT

## PREPARED FOR

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

Generated 3/21/2025 4:52:24 PM

## JOB DESCRIPTION

Spokane County Water Q2 and Q4

## JOB NUMBER

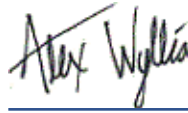
192-19794-1

## Job Notes

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## Authorization



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Re: Chronic 7 Day Renewal *Ceriodaphnia dubia*  
 Sample ID: Spokane County Water  
 Job number: 192-19794-1  
 Permit No.: WA0093317

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:

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:

<b>Survival:</b>	<b>NOEC</b>	<b>LOEC</b>	<b>LC50</b>	<b>Reproduction:</b>	<b>NOEC</b>	<b>LOEC</b>	<b>IC25</b>
	100	>100	>100		100	>100	>100

The sample therefore **PASSED** the *Ceriodaphnia dubia* test.

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# I. Test Acceptance Criteria

## *Ceriodaphnia dubia* Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	Pass
Control Reproduction > or = 15 per Surviving Female	33.5	Pass
Control CV < or = 40% per Surviving Female *	8.35	Pass
Reproduction Minimum Significant Difference 13 to 47%	17.5	Pass
Critical Dilution CV < or = 40% *	20.89	Pass

\*EPA Region 6 Requirement consult permit

# II. Test Design and QA

## 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)	8.75	8.92	8.98
pH (standard units)	7.48	7.58	7.54
Alkalinity (mg/l as CaCO3)	65	65	62
Hardness (mg/l as CaCO3)	220	250	210
Conductivity (umhos/cm)	769	930	914
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.33	0.57	0.36

## 2. Dilution Water : Synthetic Moderately Hard

Analysis	192-19602-A-1	192-19602-A-2	192-19602-A-3
Dissolved oxygen (mg/l)	8.74	8.74	8.78
pH (standard units)	7.24	7.54	7.58
Alkalinity (mg/l as CaCO3)	63	61	63
Hardness (mg/l as CaCO3)	89	85	84
Conductivity (umhos/cm)	302	300	307
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	NA	NA	NA

#### 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: 3/11/2025 at 1624  
Date & Time Test Terminated: 3/18/2025 at 1746  
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. Organism History

##### *Ceriodaphnia dubia*

Age: <24 hours

Source: In-house culture

Water: Moderately Hard Synthetic

# V. Results Summary *Ceriodaphnia dubia*, Survival and Reproduction Test. EPA Method 1002.0

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

Effluent concentrations for this test were in accordance with EPA methodology and/or the NPDES permit.

Statistical analyses were performed on the observed data and the no observable effects concentration (NOECs) were as follows:

- a.) NOEC Survival: 100
- b.) NOEC Reproduction: 100

## Summary of the 7-Day *Ceriodaphnia dubia* Survival and Reproduction

Concentration	Percent Survival	Mean Reproduction
Control	100	33.5
6.4	100	30.9
12.5	100	32.2
25	100	34.3
50	100	35.6
100	90	30.2



*Ceriodaphnia dubia* Survival and Reproduction

Date and Time Test Initiated: 3/11/2025 at 1624

Date and Time Test Terminated: 3/18/2025 at 1746

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	6	6	6	5	7	7	4	6	6	7	60	10	6.00
5	10	10	11	10	11	11	11	11	9	10	104	10	10.40
6	0	0	0	0	0	0	0	0	0	0	0	10	0.00
7	16	17	19	14	20	18	15	16	18	18	171	10	17.10
8													
Total	32	33	36	29	38	36	30	33	33	35	335	10	33.50

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	5	4	6	5	7	7	6	6	6	7	59	10	5.90
5	9	9	12	12	12	11	10	10	9	8	102	10	10.20
6	0	0	0	0	0	0	0	0	0	0	0	10	0.00
7	14	15	15	19	18	14	20	20	1	12	148	10	14.80
8													
Total	28	28	33	36	37	32	36	36	16	27	309	10	30.90

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	5	5	5	6	2	6	3	7	5	6	50	10	5.00
5	11	12	13	12	10	11	7	8	14	14	112	10	11.20
6	0	0	0	0	0	0	0	0	0	0	0	10	0.00
7	14	16	18	16	15	17	12	16	19	17	160	10	16.00
8													
Total	30	33	36	34	27	34	22	31	38	37	322	10	32.20

*Ceriodaphnia dubia* Survival and Reproduction

Date and Time Test Initiated: 3/11/2025 at 1624

Date and Time Test Terminated: 3/18/2025 at 1746

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	6	6	6	6	4	5	5	6	5	6	55	10	5.50
5	10	9	14	14	15	14	9	9	9	10	113	10	11.30
6	0	0	0	0	0	0	0	0	0	0	0	10	0.00
7	16	17	18	19	21	18	16	13	17	20	175	10	17.50
8													
Total	32	32	38	39	40	37	30	28	31	36	343	10	34.30

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	7	5	6	6	6	8	0	5	7	5	55	10	5.50
5	16	11	15	11	13	14	4	9	16	13	122	10	12.20
6	0	0	0	0	0	0	6	0	0	0	6	10	0.60
7	22	15	18	18	17	17	9	16	20	21	173	10	17.30
8													
Total	45	31	39	35	36	39	19	30	43	39	356	10	35.60

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	5	5	5	5	6	4	5	3	6	6	50	10	5.00
5	9	10	12	8	13	15	10	8	7x	10	102	9	11.33
6	0	0	0	0	0	0	0	0	x	0	0	9	0.00
7	18	17	17	14	16	20	15	16	x	17	150	9	16.67
8													
Total	32	32	34	27	35	39	30	27	13	33	302	10	30.20

VI. Standard Reference Toxicants  
Sodium Chloride in synthetic moderately hard water.

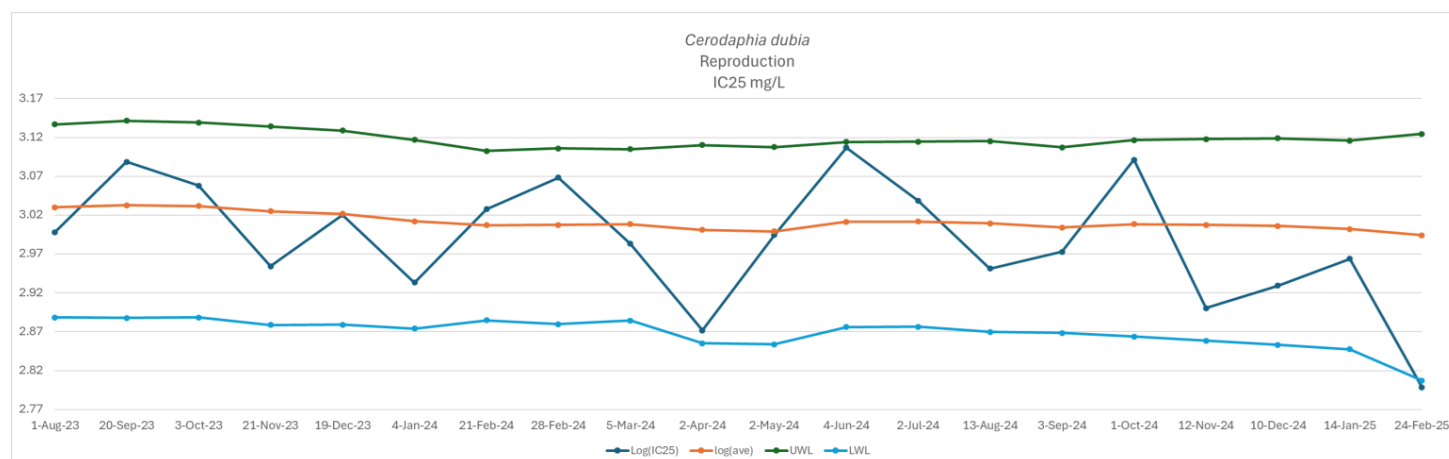
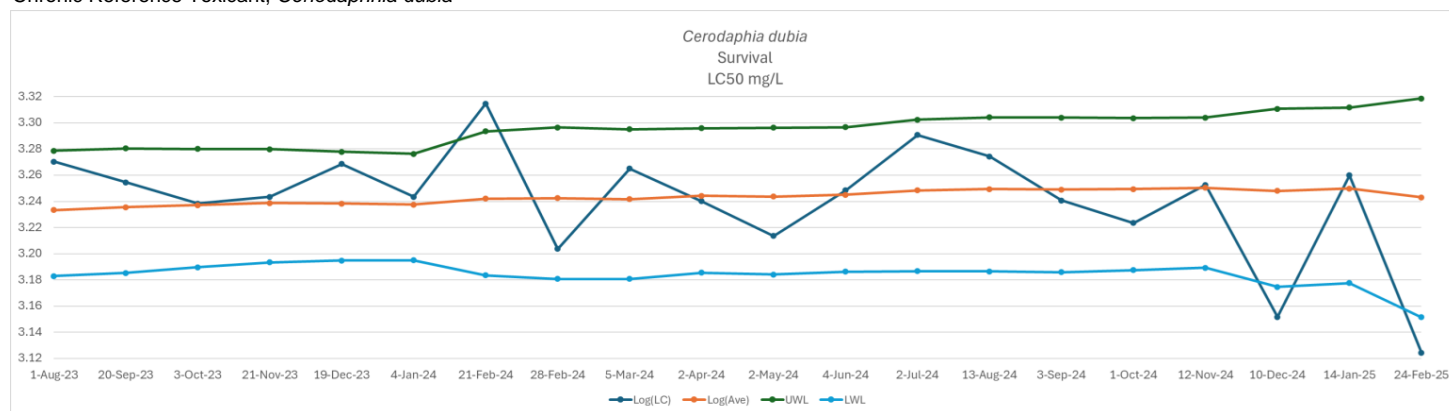
*Ceriodaphnia dubia*

Chronic Reference Toxicity: 2/24/2025

Job No. 192-18837  
Survival LC-50: 1332 mg/L  
Growth IC-25: 629.1 mg/L

Appendix (Reference Toxicity): Test 1002.0

Chronic Reference Toxicant, *Ceriodaphnia dubia*



## Appendix (Summary): Test 1002.0

SUMMARY REPORTING FORMS  
CHRONIC BIOMONITORING  
*Ceriodaphnia dubia*  
SURVIVAL AND REPRODUCTION

NPDES No. WA0093317  
Date and Time Initiated: 3/11/2025 at 1624  
Date and Time Terminated: 3/18/2025 at 1746  
Dilution water:  
Synthetic Moderately Hard

### PERCENT SURVIVAL

Time of reading	Control	Percent Effluent				
		6.4	12.5	25	50	100
24 hour	10	10	10	10	10	10
48 hour	10	10	10	10	10	10
7 day	10	10	10	10	10	9

### NUMBER OF YOUNG PRODUCED PER FEMALE

Replicates	Control	Percent Effluent				
		6.4	12.5	25	50	100
A	32	28	30	32	45	32
B	33	28	33	32	31	32
C	36	33	36	38	39	34
D	29	36	34	39	35	27
E	38	37	27	40	36	35
F	36	32	34	37	39	39
G	30	36	22	30	19	30
H	33	36	31	28	30	27
I	33	16	38	31	43	13
J	35	27	37	36	39	33
Mean per Adult	33.5	30.9	32.2	34.3	35.6	30.2
Mean per Surviving Adult	33.5	30.9	32.2	34.3	35.6	32.111111
CV %	8.35	20.89	15.20	12.22	21.07	11.90

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

Dilution Control	Day						
	1	2	3	4	5	6	7
D.O. initial	8.74	8.74	8.74	8.58	8.78	8.90	9.04
D.O. Final	8.73	8.25	8.35	8.75	9.16	8.82	8.95
pH initial	7.24	7.79	7.54	7.57	7.58	7.65	7.57
pH Final	7.79	7.66	7.79	7.96	7.99	7.78	7.69

Dilution 6.4	Day						
	1	2	3	4	5	6	7
D.O. initial	8.78	8.79	8.73	8.74	8.77	8.93	9.02
D.O. Final	8.66	8.17	8.33	8.64	9.14	8.84	8.96
pH initial	7.45	7.76	7.66	7.57	7.68	7.73	7.61
pH Final	7.88	7.69	7.81	7.92	7.95	7.84	7.80

Dilution 12.5	Day						
	1	2	3	4	5	6	7
D.O. initial	8.73	8.74	8.69	8.77	8.76	8.87	8.99
D.O. Final	8.49	8.19	8.35	8.65	9.07	8.85	8.96
pH initial	7.61	7.75	7.61	7.63	7.67	7.73	7.65
pH Final	7.91	7.74	7.85	7.94	7.92	7.86	7.83

Dilution 25	Day						
	1	2	3	4	5	6	7
D.O. initial	8.69	8.66	8.71	8.68	8.76	8.84	8.97
D.O. Final	8.52	8.23	8.36	8.68	9.03	8.84	8.92
pH initial	7.63	7.70	7.61	7.63	7.68	7.75	7.65
pH Final	7.93	7.77	7.88	8.00	7.99	7.87	7.85

Dilution 50	Day						
	1	2	3	4	5	6	7
D.O. initial	8.61	8.68	8.69	8.64	8.78	8.84	9.04
D.O. Final	8.48	8.26	8.33	8.63	9.00	8.83	8.91
pH initial	7.62	7.66	7.62	7.65	7.62	7.72	7.63
pH Final	7.97	7.83	7.92	7.99	7.98	7.89	7.89

Dilution 100	Day						
	1	2	3	4	5	6	7
D.O. initial	8.75	8.78	8.92	8.79	8.98	8.96	9.10
D.O. Final	8.56	8.47	8.37	8.61	8.95	8.77	8.90
pH initial	7.48	7.51	7.58	7.55	7.54	7.49	7.50
pH Final	8.04	7.99	8.00	8.04	7.99	7.90	7.93

# CETIS Summary Report

Report Date: 19 Mar-25 11:10 (p 1 of 2)  
 Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Batch ID: 18-5583-1987	Test Type: Reproduction-Survival (7d)	Analyst:
Start Date: 11 Mar-25 16:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Mod-Hard Synthetic Water
Ending Date: 18 Mar-25 17:46	Species: Ceriodaphnia dubia	Brine:
Test Length: 7d 1h	Taxon: Branchiopoda	Source: In-House Culture Age: <24
Sample ID: 10-6482-2168	Code: 19794	Project:
Sample Date: 10 Mar-25 08:58	Material: POTW Effluent	Source: Jacobs Spokane County (WA0093317)
Receipt Date: 11 Mar-25 08:45	CAS (PC):	Station: BIO25031006
Sample Age: 31h	Client:	

## Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	PMSD	TU
03-1216-4386	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	>100	---	---	1
20-3387-3337	Reproduction	Steel Many-One Rank Sum Test	100	>100	---	17.5%	1

## Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU
20-8840-2879	7d Survival Rate	Linear Interpolation (ICPIN)	LC50	>100	---	---	<1
18-6712-4689	Reproduction	Linear Interpolation (ICPIN)	IC25	>100	---	---	<1

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
03-1216-4386	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
20-8840-2879	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
18-6712-4689	Reproduction	Control Resp	33.5	15	>>	Yes	Passes Criteria
20-3387-3337	Reproduction	Control Resp	33.5	15	>>	Yes	Passes Criteria
20-3387-3337	Reproduction	PMSD	0.175	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	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%

## Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	33.5	31.5	35.5	29	38	0.8851	2.799	8.35%	0.00%
6.4		10	30.9	26.28	35.52	16	37	2.041	6.454	20.89%	7.76%
12.5		10	32.2	28.7	35.7	22	38	1.548	4.894	15.20%	3.88%
25		10	34.3	31.3	37.3	28	40	1.325	4.191	12.22%	-2.39%
50		10	35.6	30.23	40.97	19	45	2.372	7.501	21.07%	-6.27%
100		10	30.2	25.17	35.23	13	39	2.225	7.036	23.30%	9.85%

# CETIS Summary Report

Report Date: 19 Mar-25 11:10 (p 2 of 2)  
 Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

### 7d Survival Rate Detail

MD5: 5EA0179276A7FF78AEDF73FE5C7672A6

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	0.0000	1.0000

### Reproduction Detail

MD5: D251EF952F871573146C316A8D9E7F60

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	32	33	36	29	38	36	30	33	33	35
6.4		28	28	33	36	37	32	36	36	16	27
12.5		30	33	36	34	27	34	22	31	38	37
25		32	32	38	39	40	37	30	28	31	36
50		45	31	39	35	36	39	19	30	43	39
100		32	32	34	27	35	39	30	27	13	33

### 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	0/1	1/1

## CETIS Analytical Report

Report Date: 19 Mar-25 11:09 (p 1 of 2)  
 Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

<b>Analysis ID:</b> 20-3387-3337	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETIS v2.1.5
<b>Analyzed:</b> 19 Mar-25 11:09	<b>Analysis:</b> Nonparametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 19 Mar-25 0:00	<b>MD5 Hash:</b> D251EF952F871573146C316A8D9E7F60	<b>Editor ID:</b> 009-809-445-9
<b>Batch ID:</b> 18-5583-1987	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 11 Mar-25 16:24	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Mod-Hard Synthetic Water
<b>Ending Date:</b> 18 Mar-25 17:46	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b>
<b>Test Length:</b> 7d 1h	<b>Taxon:</b> Branchiopoda	<b>Source:</b> In-House Culture <b>Age:</b> <24
<b>Sample ID:</b> 10-6482-2168	<b>Code:</b> 19794	<b>Project:</b>
<b>Sample Date:</b> 10 Mar-25 08:58	<b>Material:</b> POTW Effluent	<b>Source:</b> Jacobs Spokane County (WA0093317)
<b>Receipt Date:</b> 11 Mar-25 08:45	<b>CAS (PC):</b>	<b>Station:</b> BIO25031006
<b>Sample Age:</b> 31h	<b>Client:</b>	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	100	>100	---	1	5.863	17.50%

## Steel Many-One Rank Sum Test

Control	vs	Conc-%	df	Test Stat	Critical	Ties	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.4	18	95	75	3	CDF	0.5278	Non-Significant Effect
		12.5	18	101.5	75	4	CDF	0.7427	Non-Significant Effect
		25	18	110	75	4	CDF	0.9223	Non-Significant Effect
		50	18	123	75	3	CDF	0.9955	Non-Significant Effect
		100	18	88.5	75	4	CDF	0.3061	Non-Significant Effect

## Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control Resp	33.5	15	>>	Yes	Passes Criteria
PMSD	0.175	0.13	0.47	Yes	Passes Criteria

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	213.083	42.6167	5	1.299	0.2780	Non-Significant Effect
Error	1771.1	32.7982	54			
Total	1984.18		59			

## ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	10.18	15.09	0.0703	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9111	0.9459	0.0003	Non-Normal Distribution

## Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	33.5	31.5	35.5	33	29	38	0.8851	8.35%	0.00%
6.4		10	30.9	26.28	35.52	32.5	16	37	2.041	20.89%	7.76%
12.5		10	32.2	28.7	35.7	33.5	22	38	1.548	15.20%	3.88%
25		10	34.3	31.3	37.3	34	28	40	1.325	12.22%	-2.39%
50		10	35.6	30.23	40.97	37.5	19	45	2.372	21.07%	-6.27%
100		10	30.2	25.17	35.23	32	13	39	2.225	23.30%	9.85%

## 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	32	33	36	29	38	36	30	33	33	35
6.4		28	28	33	36	37	32	36	36	16	27
12.5		30	33	36	34	27	34	22	31	38	37
25		32	32	38	39	40	37	30	28	31	36
50		45	31	39	35	36	39	19	30	43	39
100		32	32	34	27	35	39	30	27	13	33



# CETIS Analytical Report

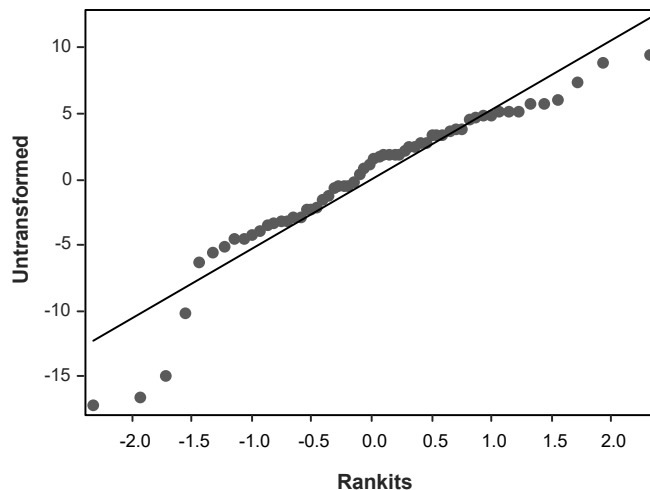
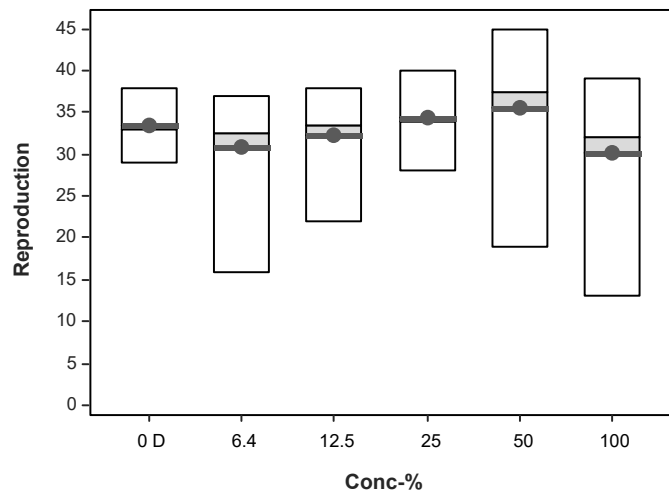
Report Date: 19 Mar-25 11:09 (p 2 of 2)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

<b>Analysis ID:</b> 20-3387-3337	<b>Endpoint:</b> Reproduction	<b>CETIS Version:</b> CETIS v2.1.5
<b>Analyzed:</b> 19 Mar-25 11:09	<b>Analysis:</b> Nonparametric-Control vs Treatments	<b>Status Level:</b> 1
<b>Edit Date:</b> 19 Mar-25 0:00	<b>MD5 Hash:</b> D251EF952F871573146C316A8D9E7F60	<b>Editor ID:</b> 009-809-445-9

### Graphics



## CETIS Analytical Report

Report Date: 19 Mar-25 11:10 (p 1 of 3)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Analysis ID:	20-8840-2879	Endpoint:	7d Survival Rate	CETIS Version:	CETIS v2.1.5
Analyzed:	19 Mar-25 11:09	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1
Edit Date:	19 Mar-25 0:00	MD5 Hash:	5EA0179276A7FF78AEDF73FE5C7672A6	Editor ID:	009-809-445-9
Batch ID:	18-5583-1987	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	11 Mar-25 16:24	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Mod-Hard Synthetic Water
Ending Date:	18 Mar-25 17:46	Species:	Ceriodaphnia dubia	Brine:	
Test Length:	7d 1h	Taxon:	Branchiopoda	Source:	In-House Culture
				Age:	<24
Sample ID:	10-6482-2168	Code:	19794	Project:	
Sample Date:	10 Mar-25 08:58	Material:	POTW Effluent	Source:	Jacobs Spokane County (WA0093317
Receipt Date:	11 Mar-25 08:45	CAS (PC):		Station:	BIO25031006
Sample Age:	31h	Client:			

## Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1035605	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	0.9000	1.0000	0.0000	1.0000	35.14%	10.00%	9/10	0.9000	10.00%

## 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	0.0000	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	0/1	1/1

# CETIS Analytical Report

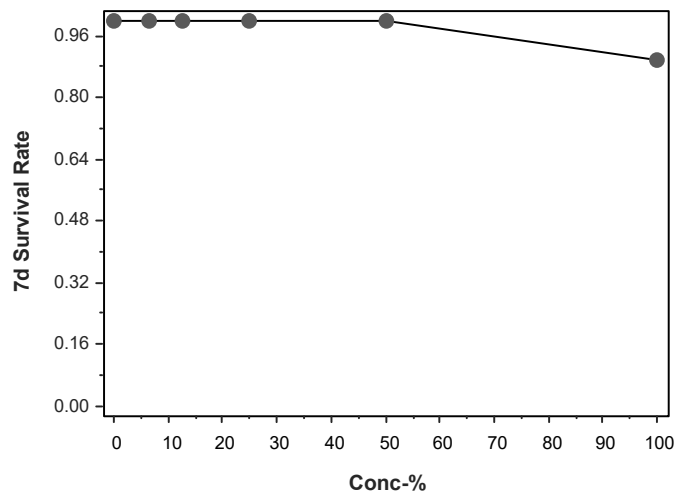
Report Date: 19 Mar-25 11:10 (p 2 of 3)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Analysis ID:	20-8840-2879	Endpoint:	7d Survival Rate	CETIS Version:	CETIS v2.1.5
Analyzed:	19 Mar-25 11:09	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1
Edit Date:	19 Mar-25 0:00	MD5 Hash:	5EA0179276A7FF78AEDF73FE5C7672A6	Editor ID:	009-809-445-9

### Graphics



## CETIS Analytical Report

Report Date: 19 Mar-25 11:10 (p 3 of 3)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Analysis ID:	18-6712-4689	Endpoint:	Reproduction	CETIS Version:	CETIS v2.1.5
Analyzed:	19 Mar-25 11:09	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1
Edit Date:	19 Mar-25 0:00	MD5 Hash:	D251EF952F871573146C316A8D9E7F60	Editor ID:	009-809-445-9
Batch ID:	18-5583-1987	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	11 Mar-25 16:24	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Mod-Hard Synthetic Water
Ending Date:	18 Mar-25 17:46	Species:	Ceriodaphnia dubia	Brine:	
Test Length:	7d 1h	Taxon:	Branchiopoda	Source:	In-House Culture
				Age:	<24
Sample ID:	10-6482-2168	Code:	19794	Project:	
Sample Date:	10 Mar-25 08:58	Material:	POTW Effluent	Source:	Jacobs Spokane County (WA0093317
Receipt Date:	11 Mar-25 08:45	CAS (PC):		Station:	BIO25031006
Sample Age:	31h	Client:			

## Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1052214	1000	Yes	Two-Point Interpolation

## Test Acceptability Criteria

		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	33.5	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	33.5	33	29	38	8.35%	0.00%	33.5	0.00%
6.4		10	30.9	32.5	16	37	20.89%	7.76%	33.25	0.75%
12.5		10	32.2	33.5	22	38	15.20%	3.88%	33.25	0.75%
25		10	34.3	34	28	40	12.22%	-2.39%	33.25	0.75%
50		10	35.6	37.5	19	45	21.07%	-6.27%	33.25	0.75%
100		10	30.2	32	13	39	23.30%	9.85%	30.2	9.85%

## 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	32	33	36	29	38	36	30	33	33	35
6.4		28	28	33	36	37	32	36	36	16	27
12.5		30	33	36	34	27	34	22	31	38	37
25		32	32	38	39	40	37	30	28	31	36
50		45	31	39	35	36	39	19	30	43	39
100		32	32	34	27	35	39	30	27	13	33

# CETIS Analytical Report

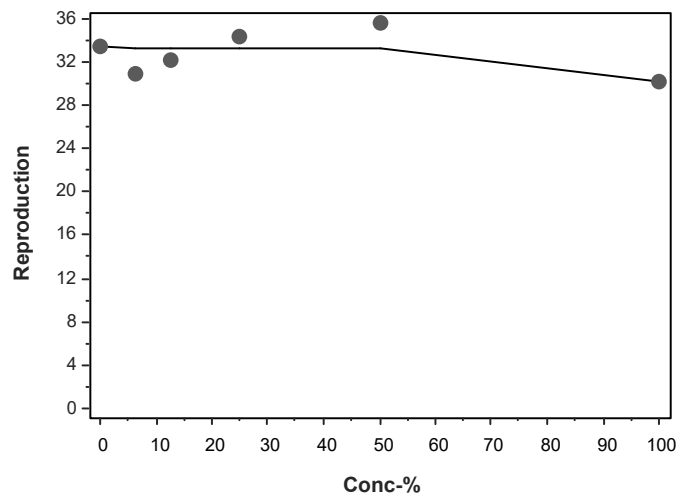
Report Date: 19 Mar-25 11:10 (p 4 of 3)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Analysis ID:	18-6712-4689	Endpoint:	Reproduction	CETIS Version:	CETIS v2.1.5
Analyzed:	19 Mar-25 11:09	Analysis:	Linear Interpolation (ICPIN)	Status Level:	1
Edit Date:	19 Mar-25 0:00	MD5 Hash:	D251EF952F871573146C316A8D9E7F60	Editor ID:	009-809-445-9

### Graphics



## CETIS Analytical Report

Report Date: 19 Mar-25 11:10 (p 1 of 2)  
Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

Eurofins Arkansas

Analysis ID:	03-1216-4386	Endpoint:	7d Survival Rate	CETIS Version:	CETIS v2.1.5
Analyzed:	19 Mar-25 11:08	Analysis:	STP 2xK Contingency Tables	Status Level:	1
Edit Date:	19 Mar-25 0:00	MD5 Hash:	5EA0179276A7FF78AEDF73FE5C7672A6	Editor ID:	009-809-445-9
Batch ID:	18-5583-1987	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	11 Mar-25 16:24	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Mod-Hard Synthetic Water
Ending Date:	18 Mar-25 17:46	Species:	Ceriodaphnia dubia	Brine:	
Test Length:	7d 1h	Taxon:	Branchiopoda	Source:	In-House Culture
				Age:	<24
Sample ID:	10-6482-2168	Code:	19794	Project:	
Sample Date:	10 Mar-25 08:58	Material:	POTW Effluent	Source:	Jacobs Spokane County (WA0093317
Receipt Date:	11 Mar-25 08:45	CAS (PC):		Station:	BIO25031006
Sample Age:	31h	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	0.5000	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		9	1	10	0.9000	0.1000	10.00%

## 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	0.9000	0.6738	1.0000	1.0000	0.0000	1.0000	0.1000	35.14%	10.00%

## 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	0.0000	1.0000

# CETIS Analytical Report

Report Date: 19 Mar-25 11:10 (p 2 of 2)  
 Test Code/ID: 19794\_CD / 06-2330-6276

## Ceriodaphnia 7-d Survival and Reproduction Test

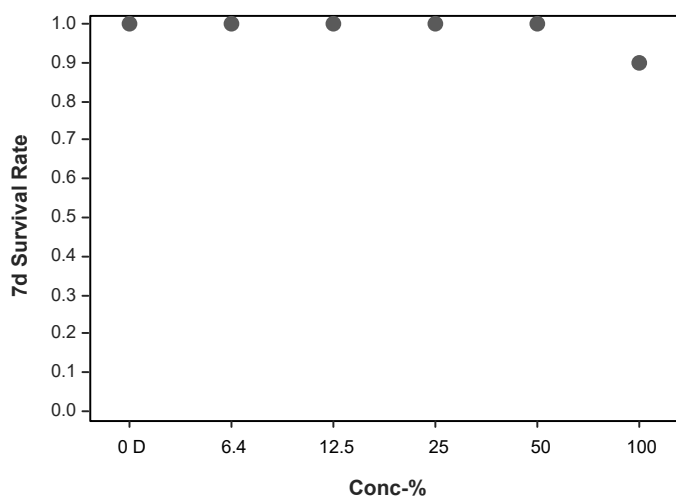
Eurofins Arkansas

Analysis ID: 03-1216-4386      Endpoint: 7d Survival Rate      CETIS Version: CETIS v2.1.5  
 Analyzed: 19 Mar-25 11:08      Analysis: STP 2xK Contingency Tables      Status Level: 1  
 Edit Date: 19 Mar-25 0:00      MD5 Hash: 5EA0179276A7FF78AEDF73FE5C7672A6      Editor ID: 009-809-445-9

### 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	0/1	1/1

### Graphics



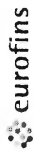
## Eurofins Arkansas

8600 Kanis Rd

Little Rock, AR 72204

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

## Chain of Custody



Environment Testing

<b>Client Information</b>		Sampler: <u>Brandi Andrews</u>		Lat	Ov	192-19794 COC
Client Contact:		Phone: <u>509-534-3710</u>		E-M	John.Overbey@eurofins.com	Page 1 of 1
Company:		Jacobs Engineering Group, Inc.		Job #:		
Address:		1004 N. Freya Street		Carrier Tracking No(s):		
City:		Spokane		State of Origin: <u>Wash.</u>		
State, Zip:		WA, 99202		Page 1 of 1		
Phone:		<u>509-534-3710</u>		Job #:		
Email:		brandi.andrews@jacobs.com		Preservation Codes:		
Project Name:		Spokane County Water Q2 and Q4		N - None		
Site:		<u>Mannok Outfall</u>		Other:		
Due Date Requested:		<u>30 Days</u>		Analysis Requested		
TAT Requested (days):		<u>30 Days</u>		Total Number of Containers		
Compliance Project:		<u>Yes</u> <input checked="" type="checkbox"/> <u>No</u> <input type="checkbox"/>		Special Instructions/Note:		
PO #:		148055071		1002 CD, 2002, 48CDNR		
WO #:				Field Filtered Sample (Yes or No)		
Project #:		19201000		Perform MS/MSD (Yes or No)		
SSOW#:				N		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=tissue, A=air)	Preservation Code
<u>B1025031004</u>	<u>0920-0858</u>	<u>3/9/25</u>	<u>0929</u>	<u>C</u>	<u>Water</u>	<u>XBA</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 _____ Months						
Special Instructions/QC Requirements:						
Empty Kit Relinquished by: _____ Date: _____ Time: _____						
Relinquished by: <u>Brandi Andrews</u> Date/Time: <u>3/10/25 1006</u> Company: <u>Jacobs</u>						
Relinquished by: _____ Date/Time: _____ Company: _____						
Relinquished by: _____ Date/Time: _____ Company: _____						
Custody Seals Intact: <u>Yes</u> <input checked="" type="checkbox"/> <u>No</u> <input type="checkbox"/> Custody Seal No.: _____						
Cooler Temperature(s) °C and Other Remarks: <u>0.1</u>						

Ver: 10/10/2024

2867 7947 3998



## 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: Brandi Andrews		Lab PM: Overbey, John		Carrier Tracking No(s):		COC No: 192-3475-1282.1	
Client Contact: Brandi Andrews		Phone: 509-534-3710		E-Mail: john.overbey@eurofins.com		State of Origin: Wash.		Page: Page 1 of 1	
Company: Jacobs Engineering Group, Inc.		PWSID:		Due Date Requested: 30 Days		Analysis Requested		Job #:	
Address: 1004 N. Freya Street		TAT Requested (days): 30 Days		Compliance Project: Yes No		Field Filtered Sample (Yes or No)		Preservation Codes: N - None	
City: Spokane		PO #: 148055071		Project #: 19201000		Perform MS/MSD (Yes or No)		Other:	
State, Zip: WA, 99202		WO #:		SSOW#:		Matrix (W=water, S=solid, O=water/soil, ST=Sludge, A=Air)		Special Instructions/Note:	
Phone: 509-534-3710		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Total Number of Containers	
Email: brandi.andrews@jacobs.com		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Total Number of Containers	
Project Name: Spokane County Water Q2 and Q4		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Total Number of Containers	
Site: Mankole - Outfall		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Total Number of Containers	
Sample Identification		B1025031209		3/11-12/25		0833-0833		C	
Possible Hazard Identification		Non-Hazard		Flammable		Skin Irritant		Poison B	
Deliverable Requested: I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Brandi Andrews		Date/Time: 3/12/25		1112		Company: Jacobs		Received by: Ren Stopanova	
Relinquished by:		Date/Time:				Company:		Received by:	
Relinquished by:		Date/Time:				Company:		Received by:	
Custody Seals Intact: Yes No		Custody Seal No.:		2863 6862 7990		Cooler Temperature(s) °C and Other Remarks: 0.2		Ver: 10/10/2024	

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

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