

January 28, 2016

Test Results of
First Quarter
Chronic 7-Day Renewal
Biomonitoring Testing
for
Outfall 001
Cabot, AR

Control No. 198490-1

Prepared for:

Mr. Matt Bienvenu
McClelland Consulting Engineers, Inc.
Post Office Box 34087
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Prepared by:

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McClelland Consulting Engineers, Inc.
ATTN: Mr. Matt Bienvenu
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Little Rock, AR 72203-4087

Re: Chronic 7-Day Renewal utilizing *Ceriodaphnia dubia*
Outfall 001 - Cabot, AR
NPDES Permit No. AR0021661 AFIN:43-00059

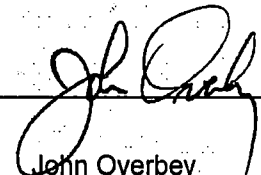
Dear Mr. Matt Bienvenu:

This report is the analytical results and supporting information for the samples submitted to American Interplex Corporation (AIC). 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 Chief Operating Officer 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. Test results are summarized below:

Method 1002.0 Chronic *Ceriodaphnia dubia* Survival and Reproduction Test: The No Observable Effects Concentration (NOEC) for survival occurred at 100 % effluent, which is equal to the critical dilution of 100 %. The NOEC for reproduction occurred at 100 % effluent, which is equal to the critical dilution of 100 %. **The sample, therefore, PASSED both lethal and sub-lethal effects for the *Ceriodaphnia dubia* test.**

AMERICAN INTERPLEX CORPORATION



John Overbey
Chief Operating Officer

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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	26.3	PASS
Control CV < or = 40% per Surviving Female	14.6	PASS
Reproduction Minimum Significant Difference 13 to 47%	13.1	PASS
Critical Dilution CV < or = 40%	9.04	PASS

II. Outlined Report

A. Introduction

1. Permit Number: AR0021661 AFIN:43-00059
2. Test Requirements: Test Method 1002.0

3. Receiving Stream:

B. Source of Effluent/Dilution Water

1. Effluent Samples:

- a. Sampling Point: Outfall 001
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.1	8.0	7.8
pH (standard units)	6.8	7.0	6.9
Alkalinity (mg/l as CaCO ₃)	68	68	56
Hardness (mg/l as CaCO ₃)	88	83	80
Conductivity (umhos/cm)	330	340	320
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.58	0.46	0.46

2. Dilution Water Samples: Synthetic Moderately Hard Water #4294

- a. Dates Prepared: January 13 through January 27, 2016
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.8	8.4	8.3
pH (standard units)	7.6	7.7	7.8
Alkalinity (mg/l as CaCO ₃)	60	61	61
Hardness (mg/l as CaCO ₃)	88	85	85
Conductivity (umhos/cm)	260	270	280
Residual Chlorine (mg/l)	<0.05	<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 Growth Method 1002.0

Date & Time Test Initiated: January 19, 2016 at 1700
Date & Time Test Terminated: January 25, 2016 at 1500
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. Acclimation of test organisms: Obtained from in-house cultures

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 American Interplex Corporation's Laboratory Information Management Software based on Toxstat.

Ceriodaphnia dubia survival data was analyzed with Fisher's Exact Test. Reproduction data was analyzed using Kolmogorov's Test for Normality and Bartlett's test and analyzed with Dunnett's Test to determine the No Observable Effects Concentration (NOEC) for Reproduction. Dunnett's Test was used to calculate the PMSD.

IV. Standard Reference Toxicants

American Interplex Corporation has an ongoing test organism culturing program. The sensitivity of the offspring is determined by performing a standard reference toxicant test with each effluent test. Sodium chloride in synthetic moderately hard water is used as prescribed in EPA-821-R-02-013.

Ceriodaphnia dubia

Chronic reference tests are performed monthly.

A chronic reference test was performed on January 5, 2016 at 1320 to January 11, 2016 at 1250

The results were as follows: (Control No. 198027-2.)

Survival LC-50: 1732 mg/l

Growth IC-25: 837.5 mg/l

Growth PMSD: 19.1

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	1.51
Hardness	EPA 200.7	97.8	0.620
pH	SM 4500-H+ B	101	0.00
Conductivity	EPA 120.1	98.6	1.37

VI. Organism History

Ceriodaphnia dubia

Date: January 19, 2016

Age: <24 hours

Source: In-house culture

Water Chemistry Record:

Alkalinity: 57-64 mg/l

Hardness: 80-100 mg/l

Temperature: 25 deg.C

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

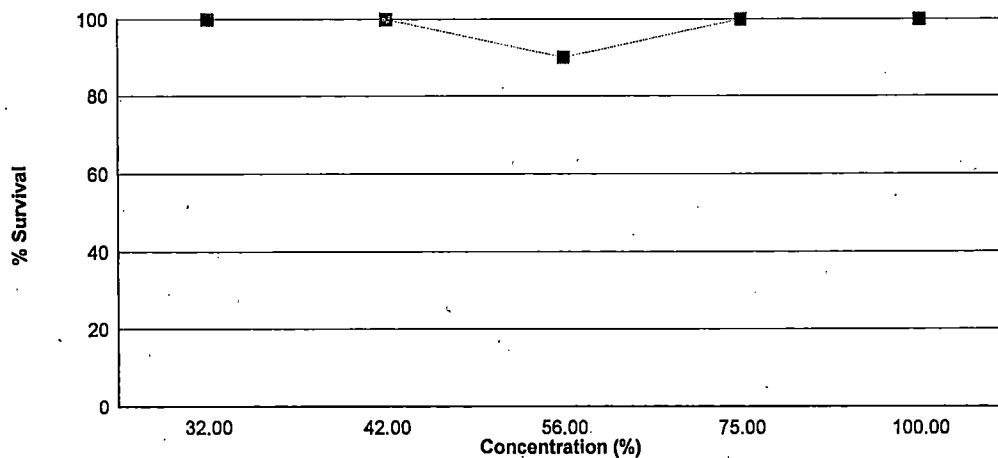
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

Effluent dilutions for this test were 32 %, 42 %, 56 %, 75 %, 100 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 100 % effluent.

The test was initiated on January 19, 2016 at 1700 and continued through January 25, 2016 at 1500. 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



Concentration	Percent Survival	Mean Reproduction
Control	100	26.3
32 %	100	32.4
42 %	100	30.9
56 %	90.0	30.7
75 %	100	34.0
100 %	100	33.5

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: January 19, 2016 at 1700

Date and Time Test Terminated: January 25, 2016 at 1500

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	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	4	0	5	4	4	0	4	0	5	3	29	10	2.90	
4	0	4	0	10	0	5	0	6	11	10	46	10	4.60	
5	11	9	10	0	10	10	10	11	0	0	71	10	7.10	
6	15	9	14	15	11	11	13	1	14	14	117	10	11.7	
7														
8														
TOTAL	30	22	29	29	25	26	27	18	30	27	263	10	26.3	

Concentration: 32 %														
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	4	0	4	4	3	0	4	6	4	6	35	10	3.50	
4	0	5	0	13	0	0	0	13	10	10	51	10	5.10	
5	10	10	14	0	11	8	9	0	0	0	62	10	6.20	
6	16	12	19	18	20	20	17	19	19	16	176	10	17.6	
7														
8														
TOTAL	30	27	37	35	34	28	30	38	33	32	324	10	32.4	

Concentration: 42 %														
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	4	3	5	3	4	3	5	0	3	3	33	10	3.30	
4	0	0	0	11	0	0	0	5	10	11	37	10	3.70	
5	12	11	11	0	7	11	9	12	0	0	73	10	7.30	
6	18	18	17	17	20	16	15	10	21	14	166	10	16.6	
7														
8														
TOTAL	34	32	33	31	31	30	29	27	34	28	309	10	30.9	

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: January 19, 2016 at 1700
Date and Time Test Terminated: January 25, 2016 at 1500

Concentration: 56 %														
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	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	3	4	3	4	4	4	4	4	3	33	10	3.30	
4	2	0	10	12	0	0	0	10	11X	14	59	9	6.56	
5	11	10	0	0	10	8	12	0	X	0	51	9	5.67	
6	15	21	18	19	15	18	19	20	X	19	164	9	18.2	
7														
8														
TOTAL	28	34	32	34	29	30	35	34	15	36	307	10	30.7	

Concentration: 75 %													
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	4	0	4	4	4	4	6	4	2	2	34	10	3.40
4	0	6	0	8	0	0	0	7	14	11	46	10	4.60
5	11	11	12	0	11	11	13	0	0	0	69	10	6.90
6	20	20	22	15	18	18	15	20	22	21	191	10	19.1
7													
8													
TOTAL	35	37	38	27	33	33	34	31	38	34	340	10	34.0

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	4	1	3	4	4	0	0	5	3	4	28	10	2.80
4	0	5	11	12	0	6	0	11	9	10	64	10	6.40
5	11	12	0	0	10	10	13	0	0	0	56	10	5.60
6	18	20	20	18	19	14	18	22	23	15	187	10	18.7
7													
8													
TOTAL	33	38	34	34	33	30	31	38	35	29	335	10	33.5

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test

Identification	Alive	Dead	Total Animals
Control	10	0	10
32 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) ($\alpha=0.05$) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Fisher's Exact Test

Identification	Alive	Dead	Total Animals
Control	10	0	10
42 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) ($\alpha=0.05$) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Fisher's Exact Test

Identification	Alive	Dead	Total Animals
Control	10	0	10
56 %	9	1	10
Total	19	1	20

Critical Fisher's value (10,10,10) ($\alpha=0.05$) is 6. b value is 9. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Fisher's Exact Test

Identification	Alive	Dead	Total Animals
Control	10	0	10
75 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) ($\alpha=0.05$) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test

Identification	Alive	Dead	Total Animals
Control	10	0	10
100 %	10	0	10
Total	20	0	20

Critical Fisher's value (10,10,10) ($\alpha=0.05$) is 6. b value is 10. Since b is greater than 6 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Summary of Fisher's Exact Test

Group	Identification	Exposed	Dead	Sig 0.05
0	Control	10	0	
1	32 %	10	0	
2	42 %	10	0	
3	56 %	10	1	
4	75 %	10	0	
5	100 %	10	0	

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

Kolmogorov Test for Normality	No Transformation
D = 0.0936 D* = 0.7344 Critical D* = 1.035 (alpha = 0.01, N = 60)	
Data PASS normality test (alpha = 0.01).	

Bartlett's Test for Homogeneity of Variance	No Transformation
Calculated B1 statistic = 9.124 Critical B = 15.086 (alpha = 0.01, df = 5)	
Data PASS B1 homogeneity test at 0.01 level.	

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

ANOVA Table				No Transformation	
SOURCE	DF	SS	MS	F	
Between	5	388.6	77.72	5.053	
Within (Error)	54	830.4	15.38		
Total	59	1219			
Critical F = 3.38 (alpha = 0.01, df = 5,54)					
2.38 (alpha = 0.05, df = 5,54)					
Since F > Critical F REJECT Ho: All equal (alpha = 0.05)					

Dunnett's Test - Table 1 of 2					No Transformation	
Ho:Control<Treatment						
Group	Identification	Transformed Mean	Mean In Original Units	T Stat	Sig 0.05	
1	Control	26.3	26.3			
2	32 %	32.4	32.4	-3.478		
3	42 %	30.9	30.9	-2.623		
4	56 %	30.7	30.7	-2.509		
5	75 %	34	34	-4.39		
6	100 %	33.5	33.5	-4.105		
Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,54)						

Dunnett's Test - Table 2 of 2					No Transformation	
Ho:Control<Treatment						
Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control	
1	Control	10				
2	32 %	10	4.051	15.4	-6.1	
3	42 %	10	4.051	15.4	-4.6	
4	56 %	10	4.051	15.4	-4.4	
5	75 %	10	4.051	15.4	-7.7	
6	100 %	10	4.051	15.4	-7.2	

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

Dunnett's Test for PMSD Calculation (excluding deaths if applicable)

ANOVA Table				No Transformation	
SOURCE	DF	SS	MS	F	
Between	5	392.3	78.46	7.48	
Within (Error)	53	556.1	10.49		
Total	58	948.4			
Critical F = 3.39 (alpha = 0.01, df = 5,53)					
2.39 (alpha = 0.05, df = 5,53)					
Since F > Critical F REJECT Ho: All equal (alpha = 0.05)					

Dunnett's Test - Table 1 of 2					No Transformation	
Ho:Control<Treatment						
Group	Identification	Transformed Mean	Mean In Original Units	T Stat	Sig 0.05	
1	Control	26.3	26.3			
2	32 %	32.4	32.4	-4.211		
3	42 %	30.9	30.9	-3.176		
4	56 %	32.444	32.444	-4.129		
5	75 %	34	34	-5.316		
6	100 %	33.5	33.5	-4.971		
Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,53)						
WARNING - Unequal replicate sizes. Critical values assuming equal replicate sizes have been used.						

Dunnett's Test - Table 2 of 2					No Transformation	
Ho:Control<Treatment						
Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control	
1	Control	10				
2	32 %	10	3.346	12.7	-6.1	
3	42 %	10	3.346	12.7	-4.6	
4	56 %	9	3.438	13.1	-6.144	
5	75 %	10	3.346	12.7	-7.7	
6	100 %	10	3.346	12.7	-7.2	

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: January 19, 2016 at 1546

Date and Time Test Terminated: January 25, 2016 at 1500

Effluent Conc.: Control		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.8	8.3	8.4	8.4	8.3	7.9	8.3
	Final	7.7	7.8	8.0	8.3	8.2	7.5	
pH, units	Initial	7.6	7.3	7.7	7.8	7.8	8.0	7.7
	Final	7.4	7.8	7.9	7.8	7.8	7.9	
Alkalinity, mg CaCO ₃ /l		60	NA	61	NA	61	NA	NA
Hardness, mg CaCO ₃ /l		88	NA	85	NA	85	NA	NA
Conductivity, umhos/cm		260	270	270	280	280	300	280
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

Effluent Conc.: 32 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.7	8.2	8.3	7.9	8.4	7.8	8.2
	Final	7.6	8.0	8.3	8.0	7.9	7.3	
pH, units	Initial	7.2	7.3	7.4	7.5	7.4	7.9	7.4
	Final	7.4	7.8	7.9	7.7	7.6	7.8	

Effluent Conc.: 42 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.7	8.2	8.2	8.0	8.4	7.9	8.1
	Final	7.6	7.9	8.2	8.0	8.0	7.6	
pH, units	Initial	7.2	7.2	7.3	7.4	7.3	7.9	7.4
	Final	7.4	7.8	7.9	7.7	7.6	7.8	

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: January 19, 2016 at 1546
Date and Time Test Terminated: January 25, 2016 at 1500

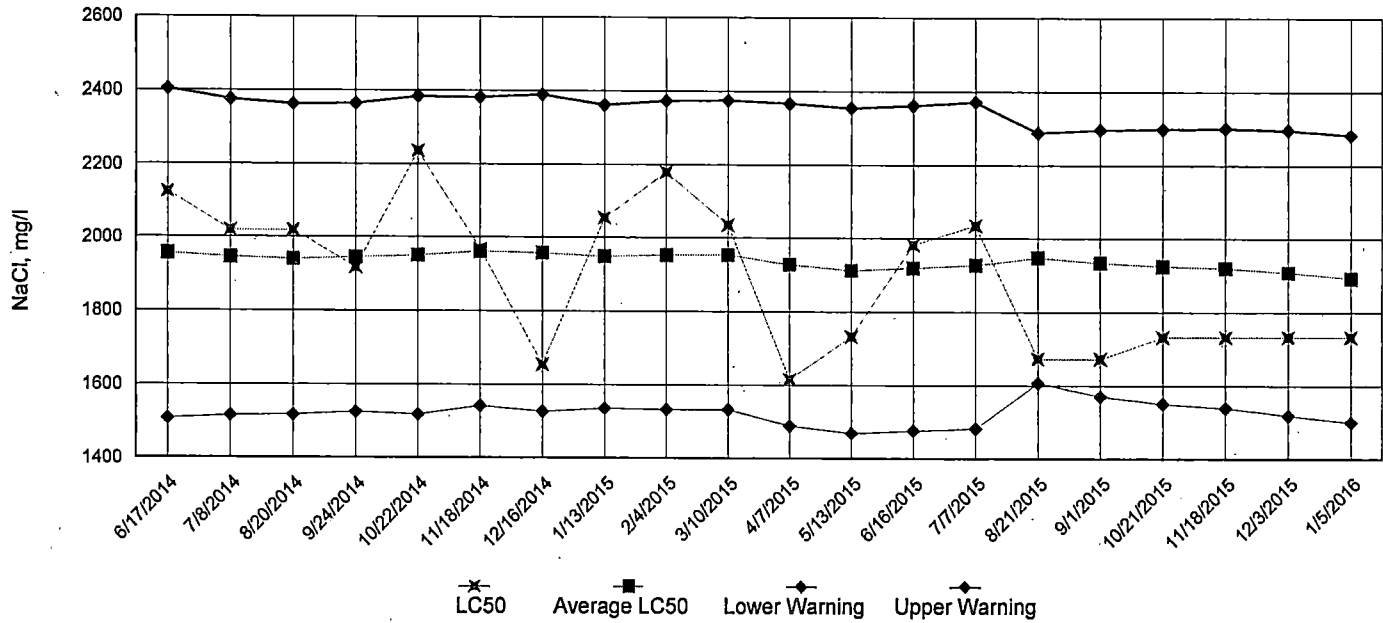
Effluent Conc.: 56 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.7	8.2	8.5	8.3	8.3	7.9	8.1
	Final	7.7	7.6	8.1	8.4	8.1	7.6	
pH, units	Initial	7.1	7.2	7.2	7.4	7.2	7.8	7.3
	Final	7.4	7.8	7.8	7.7	7.6	7.8	

Effluent Conc.: 75 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.5	8.2	8.5	8.3	7.9	7.8	8.1
	Final	7.6	7.7	8.0	8.3	8.2	7.6	
pH, units	Initial	7.0	7.2	7.1	7.3	7.1	7.8	7.2
	Final	7.4	7.8	7.8	7.7	7.5	7.7	

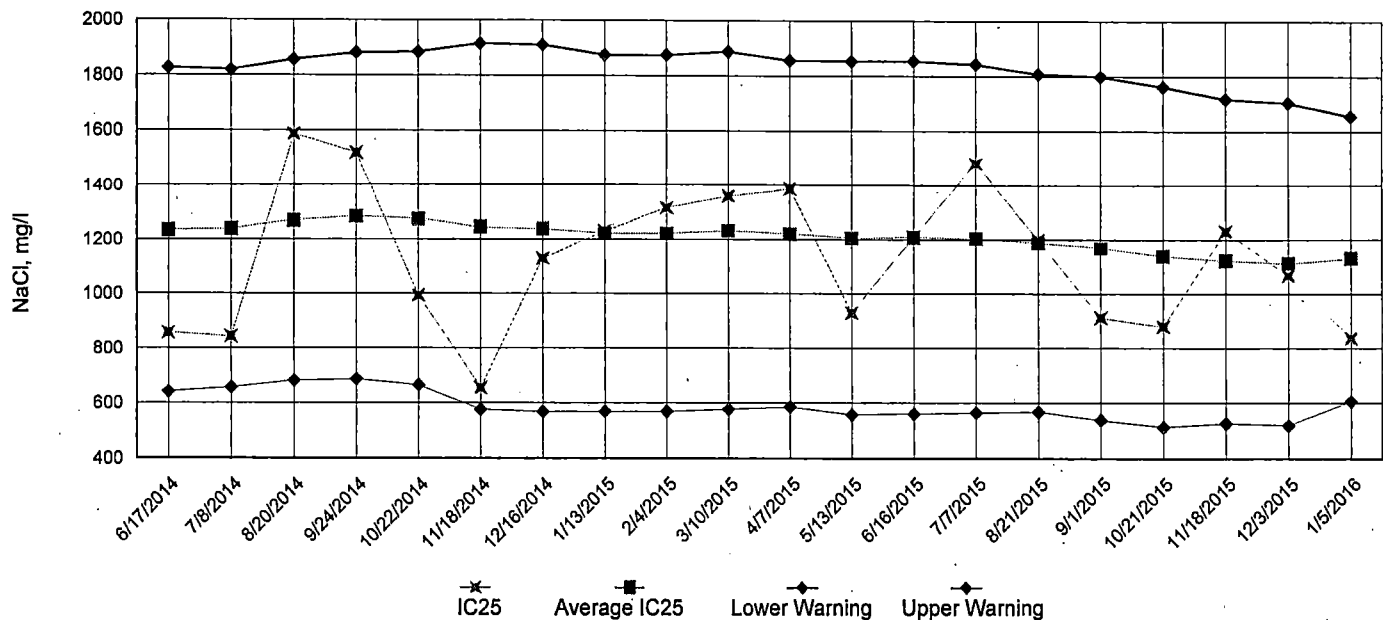
Effluent Conc.: 100 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.1	7.9	8.0	7.8	7.8	7.7	8.0
	Final	7.4	8.0	8.2	8.2	8.1	7.5	
pH, units	Initial	6.8	7.1	7.0	7.1	6.9	7.8	7.0
	Final	7.4	7.8	7.8	7.7	7.6	7.7	
Alkalinity, mg CaCO ₃ /l		68	NA	68	NA	56	NA	NA
Hardness, mg CaCO ₃ /l		88	NA	83	NA	80	NA	NA
Conductivity, umhos/cm		330	340	340	350	320	340	310
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

Appendix A4: Test 1002.0
Chronic Reference Toxicant, *Ceriodaphnia dubia*

LC50 Survival Data



IC25 Reproduction Data



Appendix B: Test 1002.0
SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

Permittee: McClelland Consulting Engineers, Inc.

NPDES No.: AR0021661 AFIN:43-00059

Date and Time Test Initiated: January 19, 2016 at 1700

Date and Time Test Terminated: January 25, 2016 at 1500

Dilution water used: Synthetic Moderately Hard Water #4294

PERCENT SURVIVAL

Time of Reading	Control	Percent Effluent				
		32 %	42 %	56 %	75 %	100 %
24 hour	100	100	100	100	100	100
48 hour	100	100	100	100	100	100
6 day	100	100	100	90.0	100	100

NUMBER OF YOUNG PRODUCED PER FEMALE @ 6 DAYS

Replicates	Control	Percent Effluent				
		32 %	42 %	56 %	75 %	100 %
A	30	30	34	28	35	33
B	22	27	32	34	37	38
C	29	37	33	32	38	34
D	29	35	31	34	27	34
E	25	34	31	29	33	33
F	26	28	30	30	33	30
G	27	30	29	35	34	31
H	18	38	27	34	31	38
I	30	33	34	15	38	35
J	27	32	28	36	34	29
Mean per Adult	26.3	32.4	30.9	30.7	34.0	33.5
Mean per Surviving Adult	26.3	32.4	30.9	32.4	34.0	33.5
CV %	14.6	11.4	7.85	8.73	9.90	9.04

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

Appendix B: Test 1002.0
SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

1. Fisher's Exact Test:

Is the mean survival significantly different ($p=0.05$) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION	(100 %)	_____ YES	_____ X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	_____ YES	_____ NO

2. Dunnett's Test:

Is the mean number of young produced per female significantly different ($p=0.05$) than the control's number of young per female for the % effluent corresponding to (significant non-lethal effects):

a.) LOW FLOW OR CRITICAL DILUTION	(100 %)	_____ YES	_____ X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	_____ YES	_____ NO

3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP3B)
4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP3B)
5. NOEC Ceriodaphnia Lethality: 100 % (TOP3B)
6. LOEC Ceriodaphnia Lethality: 100 % (TXP3B)
7. NOEC Ceriodaphnia Sublethality: 100 % (TPP3B)
8. LOEC Ceriodaphnia Sublethality: 100 % (TYP3B)
9. Coefficient of variation for Ceriodaphnia Reproduction: 14.6 (TQP3B)

Appendix B: Test 1002.0
CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
CHEMICAL PARAMETERS CHART

PERMITTEE: McClelland Consulting Engineers, SAMPLE No. 1 COLLECTED ending: DATE: January 19, 2016 TIME: 0800
 NPDES NO.: AR0021661 AFIN:43-00059 SAMPLE No. 2 COLLECTED ending: DATE: January 20, 2016 TIME: 0800
 CONTACT: Mr. Matt Bienvenu SAMPLE No. 3 COLLECTED ending: DATE: January 22, 2016 TIME: 0800
 ANALYST: 280, 304, 310, 314 Test Initiated: DATE: January 19, 2016 TIME: 1700
 Test Terminated: DATE: January 25, 2016 TIME: 1500

DILUTION Control	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.8	8.3	8.4	8.4	8.3	7.9	8.3
Final	7.7	7.8	8.0	8.3	8.2	7.5	--
pH Initial	7.6	7.3	7.7	7.8	7.8	8.0	7.7
Final	7.4	7.8	7.9	7.8	7.8	7.9	--
Alkalinity	60	NA	61	NA	61	NA	NA
Hardness	88	NA	85	NA	85	NA	NA
Conductivity	260	270	270	280	280	300	280
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 32 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.7	8.2	8.3	7.9	8.4	7.8	8.2
Final	7.6	8.0	8.3	8.0	7.9	7.3	--
pH Initial	7.2	7.3	7.4	7.5	7.4	7.9	7.4
Final	7.4	7.8	7.9	7.7	7.6	7.8	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	280	290	290	310	300	310	290
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 42 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.7	8.2	8.2	8.0	8.4	7.9	8.1
Final	7.6	7.9	8.2	8.0	8.0	7.6	--
pH Initial	7.2	7.2	7.3	7.4	7.3	7.9	7.4
Final	7.4	7.8	7.9	7.7	7.6	7.8	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	290	290	300	320	300	320	290
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 56 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.7	8.2	8.5	8.3	8.3	7.9	8.1
Final	7.7	7.6	8.1	8.4	8.1	7.6	--
pH Initial	7.1	7.2	7.2	7.4	7.2	7.8	7.3
Final	7.4	7.8	7.8	7.7	7.6	7.8	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	300	300	310	330	310	330	300
Chlorine	NA	NA	NA	NA	NA	NA	NA

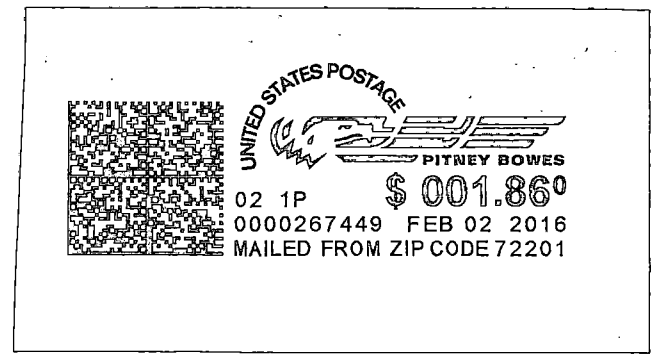
DILUTION 75 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.5	8.2	8.5	8.3	7.9	7.8	8.1
Final	7.6	7.7	8.0	8.3	8.2	7.6	--
pH Initial	7.0	7.2	7.1	7.3	7.1	7.8	7.2
Final	7.4	7.8	7.8	7.7	7.5	7.7	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	310	320	320	350	310	330	310
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 100 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.1	7.9	8.0	7.8	7.8	7.7	8.0
Final	7.4	8.0	8.2	8.2	8.1	7.5	--
pH Initial	6.8	7.1	7.0	7.1	6.9	7.8	7.0
Final	7.4	7.8	7.8	7.7	7.6	7.7	--
Alkalinity	68	NA	68	NA	56	NA	NA
Hardness	88	NA	83	NA	80	NA	NA
Conductivity	330	340	340	350	320	340	310
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: CABOT		PO No.		ANALYSES REQUESTED												AIC CONTROL NO: 198490			
Project		MATRIX		NO OF BOTTLES													AIC PROPOSAL NO:		
Reference:																	Carrier:		
Project Manager:		WATER		1st Day Sample, 1st Pretest # 2													Received Temperature C 0.1		
Sampled By: Jana Kohlmann		SOIL															Remarks		
AIC No.		GRA B		COMP														Field pH calibration	
Sample Identification		Date/Time Collected		Container Type														on _____ @ _____	
Preservative		P		ice														Buffer:	
1		2nd Bil. Mon. Rebt 1/19/16 800 am		X														G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate	
		4/19/16 900 am																NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate A=(NH ₄) ₂ SO ₄ , NH ₄ OH	
																		Turnaround Time Requested: (Please circle) NORMAL or EXPEDITED IN _____ DAYS	
																		Relinquished By: Jana Kohlmann 8:00 am Date/Time: 1/19/16 0800	
																		Received By: Jessie Brown Date/Time: 1/19/16 1349	
																		Relinquished By: Jessie Brown Date/Time: 1/19/16 1525	
																		Received in Lab By: Danny Date/Time: 1-19-16 1525	
																		Comments:	
																		Who should AIC contact with questions:	
																		Phone: _____ Fax: _____	
																		Report Attention to:	
																		Report Address to:	
																		Email Address:	

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