

March 10, 2015

Test Results of
First Quarter
Chronic 7-Day Renewal
Biomonitoring Testing
for
Effluent
Searcy, AR

Control No. 187871-1

Prepared for:

Mr. Paul Abernathy
Searcy Water and Sewer System
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Searcy, AR 72145

Prepared by:

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Searcy Water and Sewer System
ATTN: Mr. Paul Abernathy
Post Office Box 1319
Searcy, AR 72145

Re: Chronic 7-Day Renewal utilizing *Pimephales promelas* (Fathead minnow) and *Ceriodaphnia dubia*
Effluent - Searcy, AR
NPDES Permit No. AR0021601 AFIN# 73-00055

Dear Mr. Paul Abernathy:

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 laboratory director 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 1000.0 Chronic *Pimephales promelas* (Fathead minnow) Survival and Growth Test: The No Observable Effects Concentration (NOEC) for survival occurred at 25 % effluent, which is above the critical dilution of 19 %. The NOEC for growth occurred at 25 % effluent, which is above the critical dilution of 19 %. **The sample, therefore, PASSED both lethal and sub-lethal effects for the Fathead minnow test.**

Method 1002.0 Chronic *Ceriodaphnia dubia* Survival and Reproduction Test: The No Observable Effects Concentration (NOEC) for survival occurred at 25 % effluent, which is above the critical dilution of 19 %. The NOEC for reproduction occurred at 25 % effluent, which is above the critical dilution of 19 %. **The sample, therefore, PASSED both lethal and sub-lethal effects for the *Ceriodaphnia dubia* test.**

AMERICAN INTERPLEX CORPORATION

John Overbey
Laboratory Director

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I. Control Acceptance Criteria

Pimephales promelas (Fathead minnow) Method 1000.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Growth > or = 0.25 mg per Surviving minnow	0.308	PASS
Control Growth CV < or = 40%	13.0	PASS
Growth Minimum Significant Difference 12 to 30%	14.3	PASS
Critical Dilution CV < or = 40%	4.99	PASS

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	90.0	PASS
Control Reproduction > or = 15 per Surviving Female	22.2	PASS
Control CV < or = 40% per Surviving Female	33.0	PASS
Reproduction Minimum Significant Difference 13 to 47%	37.0	PASS
Critical Dilution CV < or = 40%	35.9	PASS

II. Outlined Report

A. Introduction

1. Permit Number: AR0021601 AFIN# 73-00055
2. Test Requirements: Chronic Biomonitoring, Quarterly
Test Methods 1000.0 and 1002.0
3. Receiving Stream: Little Red River

B. Source of Effluent/Dilution Water

1. Effluent Samples:

- a. Sampling Point: Effluent
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	7.4	7.5	7.6
pH (standard units)	6.9	7.0	6.8
Alkalinity (mg/l as CaCO ₃)	50	56	64
Hardness (mg/l as CaCO ₃)	46	46	45
Conductivity (umhos/cm)	260	260	280
Residual Chlorine (mg/l)	<0.05	<0.05	0.050
Ammonia as N (mg/l)	5.4	6.8	11

2. Dilution Water Samples: Synthetic Soft Water #4187

- a. Dates Prepared: February 13 through February 27, 2015
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.2	8.2	8.1
pH (standard units)	7.4	7.3	7.4
Alkalinity (mg/l as CaCO ₃)	32	32	32
Hardness (mg/l as CaCO ₃)	44	44	44
Conductivity (umhos/cm)	140	140	130
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 Methods 1000.0 and 1002.0, Fathead Minnow Survival and Growth and *Ceriodaphnia dubia* Survival and Reproduction.

2. Endpoint: No Observable Effects Concentration (NOEC)

3. Test Conditions:

Pimephales promelas (Fathead minnow) Survival and Growth Method 1000.0

Date & Time Test Initiated: February 25, 2015 at 1430
Date & Time Test Terminated: March 4, 2015 at 1250
Type & Volume of Test Chamber: 500 ml disposable beaker
Volume of Sample: 250 ml
Number of Organisms per replicate: 8
Number of Replicates per dilution: 5

Ceriodaphnia dubia Survival and Growth Method 1002.0

Date & Time Test Initiated: February 25, 2015 at 1050
Date & Time Test Terminated: March 3, 2015 at 1250
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 1000.0 *Pimephales promelas*
- b. Test 1002.0 *Ceriodaphnia dubia*

III. Data Analysis

The data was analyzed using American Interplex Corporation's Laboratory Information Management Software based on Toxstat.

Pimephales promelas (Fathead minnow) survival data was transformed using the Arc Sine transformation. Normality and homogeneity of variance were checked using Shapiro-Wilk's. The survival data was then analyzed using Steel's Many-One Rank Test to determine the No Observable Effects Concentration (NOEC).

Fathead minnow growth data was analyzed for normality and homogeneity of variance using Shapiro-Wilk's and Bartlett's test. Dunnett's Test was used to determine the No Observable Effects Concentration (NOEC) for growth.

Ceriodaphnia dubia survival data was analyzed with Fisher's Exact Test. Reproduction data was analyzed using Kolmogorov's Test for Normality and analyzed with Steel's Many-One Rank 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.

Pimephales promelas (Fathead minnow)

Chronic reference tests are performed monthly.

A chronic reference test was performed on February 4, 2015 at 1425 to February 11, 2015 at 1310

The results were as follows: (Control No. 187315-1.)

Survival LC-50: 4540 mg/l

Growth IC-25: 3331 mg/l

Growth PMSD: 16.3

Ceriodaphnia dubia

Chronic reference tests are performed monthly.

A chronic reference test was performed on February 4, 2015 at 1530 to February 10, 2015 at 1530

The results were as follows: (Control No. 187315-2.)

Survival LC-50: 2180 mg/l

Growth IC-25: 1316 mg/l

Growth PMSD: 23.4

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	101	1.05
pH	SM 4500-H+ B	100	0.940
Conductivity	EPA 120.1	101	1.35

VI. Organism History

Pimephales promelas (Fathead minnow)

Date: February 25, 2015

Age: <24 hours

Source: In-house culture

Water Chemistry Record:

Alkalinity: 57-64 mg/l

Hardness: 80-100 mg/l

Temperature: 25 deg.C

Ceriodaphnia dubia

Date: February 25, 2015

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 *Pimephales promelas*, Fathead minnow Larval Survival and Growth Test -- Method 1000.0

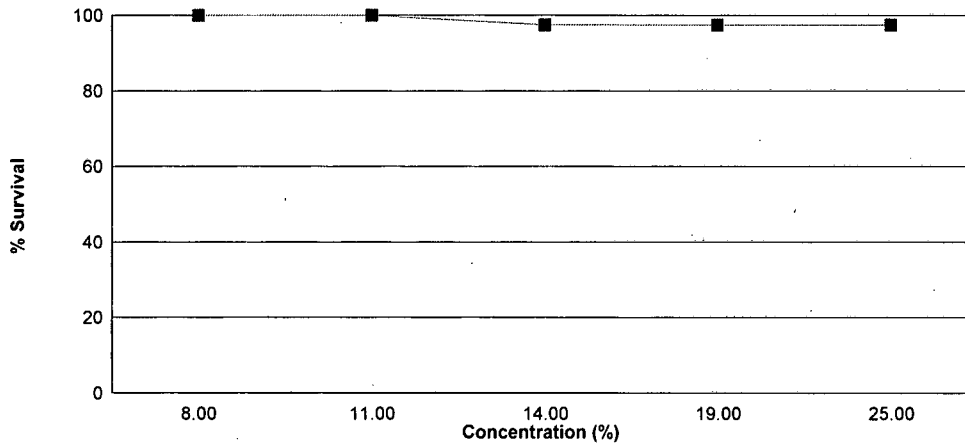
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

Effluent dilutions for this test were 8 %, 11 %, 14 %, 19 %, 25 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 19 % effluent.

The test was initiated on February 25, 2015 at 1430 and continued through March 4, 2015 at 1250. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 25 % effluent
- b.) NOEC growth = 25 % effluent



Summary of the 7-day Fathead Minnow Survival and Growth		
Concentration	Percent Survival	Mean Growth (mg)
Control	100	0.308
8 %	100	0.301
11 %	100	0.287
14 %	97.5	0.268
19 %	97.5	0.289
25 %	97.5	0.278

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

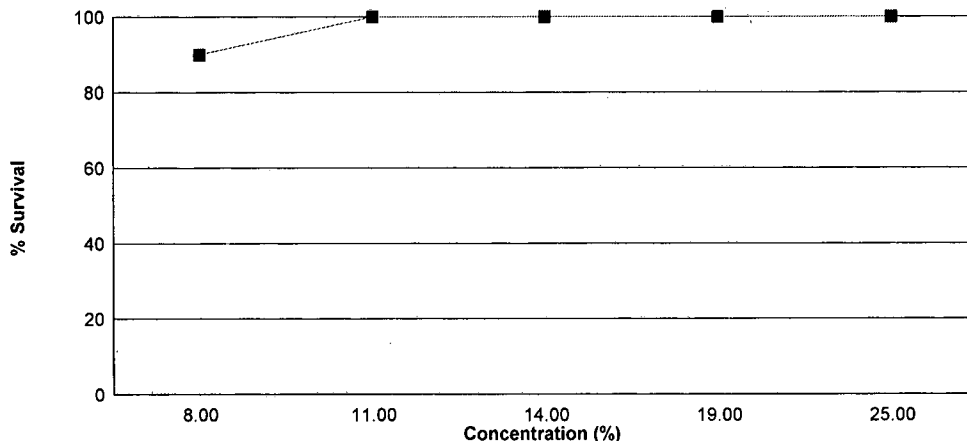
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

Effluent dilutions for this test were 8 %, 11 %, 14 %, 19 %, 25 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 19 % effluent.

The test was initiated on February 25, 2015 at 1050 and continued through March 3, 2015 at 1250. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 25 % effluent
- b.) NOEC reproduction = 25 % effluent



Summary of the 6-day <i>Ceriodaphnia dubia</i> Survival and Reproduction Data		
Concentration	Percent Survival	Mean Reproduction
Control	90.0	20.0
8 %	90.0	19.3
11 %	100	22.4
14 %	100	23.5
19 %	100	24.3
25 %	100	26.0

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: February 25, 2015 at 1430
Date and Time Test Terminated: March 4, 2015 at 1250

Concentration	Replicate	Number of Survivors						
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Control	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8
8 %	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8
11 %	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8
14 %	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	7	7	7
19 %	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	7	7	7
25 %	A	8	8	8	8	8	8	8
	B	8	8	7	7	7	7	7
	C	8	8	8	8	8	8	8
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Growth

Test Initiated: February 25, 2015 at 1430
Test Terminated: March 4, 2015 at 1250

Drying Started: March 2, 2015 at 1120
Drying Ended: March 5, 2015 at 1320

Concentration	Replicate	Weight of pan	Weight of pan + fish	Total weight of fish (g)	Original # of fish	Mean dry weight (mg)
Control	A	.93834	.94099	0.00265	8	0.331
	B	.93826	.94018	0.00192	8	0.240
	C	.94004	.94275	0.00271	8	0.339
	D	.93281	.93525	0.00244	8	0.305
	E	.93732	.93992	0.00260	8	0.325
8 %	A	.94520	.94729	0.00209	8	0.261
	B	.94723	.94958	0.00235	8	0.294
	C	.93775	.94021	0.00246	8	0.308
	D	.93845	.94080	0.00235	8	0.294
	E	.93179	.93457	0.00278	8	0.348
11 %	A	.92898	.93169	0.00271	8	0.339
	B	.92791	.93014	0.00223	8	0.279
	C	.92813	.93025	0.00212	8	0.265
	D	.93116	.93329	0.00213	8	0.266
	E	.93321	.93549	0.00228	8	0.285
14 %	A	.93511	.93690	0.00179	8	0.224
	B	.93491	.93696	0.00205	8	0.256
	C	.93010	.93252	0.00242	8	0.302
	D	.93221	.93443	0.00222	8	0.278
	E	.93258	.93484	0.00226	8	0.282
19 %	A	.93359	.93582	0.00223	8	0.279
	B	.93543	.93766	0.00223	8	0.279
	C	.93693	.93924	0.00231	8	0.289
	D	.93401	.93652	0.00251	8	0.314
	E	.93053	.93282	0.00229	8	0.286
25 %	A	.92929	.93161	0.00232	8	0.290
	B	.93235	.93432	0.00197	8	0.246
	C	.93138	.93349	0.00211	8	0.264
	D	.93247	.93472	0.00225	8	0.281
	E	.93389	.93636	0.00247	8	0.309

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: February 25, 2015 at 1050
Date and Time Test Terminated: March 3, 2015 at 1250

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	0	3	5	0	0	0	5	5	4	5	27	10	2.70	
4	0	0	0	2	2	4	0	9	10	0	27	10	2.70	
5	X	8	7	2	2	7	7	0	0	7	40	9	4.44	
6	X	12	17	12	8	0	15	16	11	15	106	9	11.8	
7														
8														
TOTAL	0	23	29	16	12	11	27	30	25	27	200	10	20.0	

Concentration: 8 %													
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	4	0	0	0	3	4	6	5	22	10	2.20
4	X	3	0	6	4	6	0	0	0	0	19	9	2.11
5	X	7	8	9	7	8	7	7	7	13	73	9	8.11
6	X	11	17	0	0	0	13	17	11	10	79	9	8.78
7													
8													
TOTAL	0	21	29	15	11	14	23	28	24	28	193	10	19.3

Concentration: 11 %													
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	3	3	0	0	0	5	5	4	0	20	10	2.00
4	6	0	0	6	4	6	0	0	0	5	27	10	2.70
5	9	9	9	11	4	9	9	7	8	4	79	10	7.90
6	0	16	15	0	0	0	17	16	19	15	98	10	9.80
7													
8													
TOTAL	15	28	27	17	8	15	31	28	31	24	224	10	22.4

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: February 25, 2015 at 1050
Date and Time Test Terminated: March 3, 2015 at 1250

Concentration: 14 %														
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	4	4	0	0	0	3	4	4	5	24	10	2.40	
4	7	0	0	5	6	8	0	6	0	0	32	10	3.20	
5	12	7	9	7	7	6	9	0	8	9	74	10	7.40	
6	0	17	18	0	0	14	15	11	15	15	105	10	10.5	
7														
8														
TOTAL	19	28	31	12	13	28	27	21	27	29	235	10	23.5	

Concentration: 19 %													
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	5	4	0	0	0	3	4	5	5	26	10	2.60
4	7	0	0	5	6	4	0	0	0	0	22	10	2.20
5	5	6	10	9	10	5	8	6	10	9	78	10	7.80
6	0	16	17	13	0	0	17	17	18	19	117	10	11.7
7													
8													
TOTAL	12	27	31	27	16	9	28	27	33	33	243	10	24.3

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	3	6	0	0	0	5	6	3	3	26	10	2.60
4	7	0	0	6	5	7	0	0	0	0	25	10	2.50
5	9	10	8	10	16	12	11	12	11	8	107	10	10.7
6	0	17	16	0	0	0	19	16	18	16	102	10	10.2
7													
8													
TOTAL	16	30	30	16	21	19	35	34	32	27	260	10	26.0

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Survival

Transformation of Data			Transform: Arc Sin(Square Root(Y))	
Group	Identification	Rep	Value	Transformed
1	Control	1	1.00000	1.39310
1	Control	2	1.00000	1.39310
1	Control	3	1.00000	1.39310
1	Control	4	1.00000	1.39310
1	Control	5	1.00000	1.39310
2	8 %	1	1.00000	1.39310
2	8 %	2	1.00000	1.39310
2	8 %	3	1.00000	1.39310
2	8 %	4	1.00000	1.39310
2	8 %	5	1.00000	1.39310
3	11 %	1	1.00000	1.39310
3	11 %	2	1.00000	1.39310
3	11 %	3	1.00000	1.39310
3	11 %	4	1.00000	1.39310
3	11 %	5	1.00000	1.39310
4	14 %	1	1.00000	1.39310
4	14 %	2	1.00000	1.39310
4	14 %	3	1.00000	1.39310
4	14 %	4	1.00000	1.39310
4	14 %	5	0.87500	1.20940
5	19 %	1	1.00000	1.39310
5	19 %	2	1.00000	1.39310
5	19 %	3	1.00000	1.39310
5	19 %	4	1.00000	1.39310
5	19 %	5	0.87500	1.20940
6	25 %	1	1.00000	1.39310
6	25 %	2	0.87500	1.20940
6	25 %	3	1.00000	1.39310
6	25 %	4	1.00000	1.39310
6	25 %	5	1.00000	1.39310

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Survival

Shapiro - Wilk's Test for Normality		Transform: Arc Sin(Square Root(Y))
<p>D = 0.08099 W = 0.5968 Critical W = 0.9 (alpha = 0.01, N = 30) Critical W = 0.927 (alpha = 0.05, N = 30)</p> <p>Data FAIL normality test (alpha = 0.01).</p>		

Steel's Many-One Rank Test			Transform: Arc Sin(Square Root(Y))		
Ho: Control < Treatment					
Group	Identification	Rank Sum	Critical Value	DF	Sig 0.05
1	Control				
2	8 %	27.50	16.00	5.00	
3	11 %	27.50	16.00	5.00	
4	14 %	25.00	16.00	5.00	
5	19 %	25.00	16.00	5.00	
6	25 %	25.00	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Growth

ANOVA Table				No Transformation	
SOURCE	DF	SS	MS	F	
Between	5	0.005272	0.001054	1.218	
Within (Error)	24	0.02077	0.0008654		
Total	29	0.02604			
Critical F = 3.9 (alpha = 0.01, df = 5,24)					
2.62 (alpha = 0.05, df = 5,24)					
Since F < Critical F FAIL TO 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	0.308	0.308		
2	8 %	0.301	0.301	0.3762	
3	11 %	0.2868	0.2868	1.139	
4	14 %	0.2684	0.2684	2.128	
5	19 %	0.2894	0.2894	0.9997	
6	25 %	0.278	0.278	1.612	
Dunnett's critical value = 2.36 (1 Tailed, alpha = 0.05, df = 5,24)					

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	5			
2	8 %	5	0.04391	14.3	0.007
3	11 %	5	0.04391	14.3	0.0212
4	14 %	5	0.04391	14.3	0.0396
5	19 %	5	0.04391	14.3	0.0186
6	25 %	5	0.04391	14.3	0.03

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	9	1	10
8 %	9	1	10
Total	18	2	20

Critical Fisher's value (10,10,9) (alpha=0.05) is 4. b value is 9. Since b is greater than 4 there is NO SIGNIFICANT DIFFERENCE between CONTROL and TREATMENT at the 0.05 level.

Fisher's Exact Test			
Identification	Dead	Alive	Total Animals
Control	1	9	10
11 %	0	10	10
Total	1	19	20

Critical Fisher's value (10,10,1) (alpha=0.05) is negative. b value is 0. NO SIGNIFICANT DIFFERENCE.

Fisher's Exact Test			
Identification	Dead	Alive	Total Animals
Control	1	9	10
14 %	0	10	10
Total	1	19	20

Critical Fisher's value (10,10,1) (alpha=0.05) is negative. b value is 0. NO SIGNIFICANT DIFFERENCE.

Fisher's Exact Test			
Identification	Dead	Alive	Total Animals
Control	1	9	10
19 %	0	10	10
Total	1	19	20

Critical Fisher's value (10,10,1) (alpha=0.05) is negative. b value is 0. NO SIGNIFICANT DIFFERENCE.

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Dead	Alive	Total Animals
Control	1	9	10
25 %	0	10	10
Total	1	19	20

Critical Fisher's value (10,10,1) ($\alpha=0.05$) is negative. b value is 0. NO SIGNIFICANT DIFFERENCE.

Summary of Fisher's Exact Test				
Group	Identification	Exposed	Dead	Sig 0.05
0	Control	10	1	
1	8 %	10	1	
2	11 %	10	0	
3	14 %	10	0	
4	19 %	10	0	
5	25 %	10	0	

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

Kolmogorov Test for Normality	No Transformation
D = 0.1998 D* = 1.568 Critical D* = 1.035 (alpha = 0.01, N = 60)	
Data FAIL normality test (alpha = 0.01).	

Steel's Many-One Rank Test					No Transformation
Ho: Control < Treatment					
Group	Identification	Rank Sum	Critical Value	DF	Sig 0.05
1	Control				
2	8 %	101.00	75.00	10.00	
3	11 %	114.00	75.00	10.00	
4	14 %	117.00	75.00	10.00	
5	19 %	121.00	75.00	10.00	
6	25 %	126.00	75.00	10.00	

Critical values are 1 tailed (k=5)

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	132.6	26.52	0.4656	
Within (Error)	52	2962	56.96		
Total	57	3095			
Critical F = 3.39 (alpha = 0.01, df = 5,52)					
2.39 (alpha = 0.05, df = 5,52)					
Since F < Critical F FAIL TO 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	22.222	22.222			
2	8 %	21.444	21.444	0.2187		
3	11 %	22.4	22.4	-0.05133		
4	14 %	23.5	23.5	-0.3685		
5	19 %	24.3	24.3	-0.5992		
6	25 %	26	26	-1.089		
Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,52)						
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	9				
2	8 %	9	8.218	37	0.778	
3	11 %	10	8.01	36	-0.178	
4	14 %	10	8.01	36	-1.278	
5	19 %	10	8.01	36	-2.078	
6	25 %	10	8.01	36	-3.778	

Appendix A3: Water Chemistry
Routine Chemical and Physical Data

Date and Time Test Initiated: February 25, 2015 at 0857
Date and Time Test Terminated: March 4, 2015 at 1250

Effluent Conc.: Control	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	8.2	8.1	8.2	8.8	8.1	8.4	8.1
	Final *1	8.1	7.8	7.9	8.1	7.9	8.0	7.3
	Final *2	8.1	8.1	8.4	8.0	8.4	7.9	
pH, units	Initial	7.4	7.4	7.3	7.3	7.4	7.2	7.3
	Final *1	7.5	7.1	7.0	7.6	7.5	7.4	7.4
	Final *2	7.8	7.5	7.4	7.8	7.5	7.3	
Alkalinity, mg CaCO ₃ /l	32	NA	32	NA	32	NA	NA	
Hardness, mg CaCO ₃ /l	44	NA	44	NA	44	NA	NA	
Conductivity, umhos/cm	140	140	140	120	130	130	140	
Res. Chlorine, mg/l	<0.05	NA	<0.05	NA	<0.05	NA	NA	

Effluent Conc.: 8 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	7.8	7.8	8.1	8.2	8.0	8.3	8.3
	Final *1	7.5	7.3	7.8	8.0	8.1	7.2	7.3
	Final *2	7.8	8.0	8.4	8.5	8.0	7.9	
pH, units	Initial	7.3	7.4	7.2	7.2	7.4	7.2	7.3
	Final *1	7.5	7.1	7.1	7.7	7.4	7.3	7.4
	Final *2	7.8	7.5	7.5	7.9	7.4	7.3	

Effluent Conc.: 11 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	7.9	7.9	8.0	8.4	7.9	8.3	8.6
	Final *1	7.8	7.4	7.5	7.9	8.1	7.0	7.0
	Final *2	8.0	7.8	8.5	8.6	7.6	7.9	
pH, units	Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
	Final *1	7.6	7.0	7.1	7.7	8.2	7.4	7.4
	Final *2	7.8	7.5	7.5	7.9	7.4	7.3	

Appendix A3: Water Chemistry
Routine Chemical and Physical Data

Date and Time Test Initiated: February 25, 2015 at 0857
Date and Time Test Terminated: March 4, 2015 at 1250

Effluent Conc.: 14 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.7	8.0	8.2	8.6	8.2	8.3	8.3
	Final *1	7.5	7.6	7.5	7.9	7.9	7.4	7.2
	Final *2	8.2	7.8	8.4	8.2	8.2	7.9	
pH, units	Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
	Final *1	7.6	7.0	7.1	7.7	7.5	7.4	7.5
	Final *2	7.8	7.4	7.4	7.9	7.4	7.4	

Effluent Conc.: 19 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	8.1	8.2	8.6	7.8	8.2	8.3
	Final *1	7.5	7.6	7.7	8.2	7.8	7.4	7.3
	Final *2	8.1	7.7	8.7	8.0	8.2	7.9	
pH, units	Initial	7.2	7.3	7.1	7.0	7.3	7.2	7.2
	Final *1	7.5	7.0	7.0	7.7	7.5	7.4	7.6
	Final *2	7.7	7.3	7.4	7.9	7.4	7.4	
Alkalinity, mg CaCO ₃ /l		34	NA	39	NA	39	NA	NA
Hardness, mg CaCO ₃ /l		47	NA	45	NA	44	NA	NA
Conductivity, umhos/cm		160	160	160	160	160	160	170
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

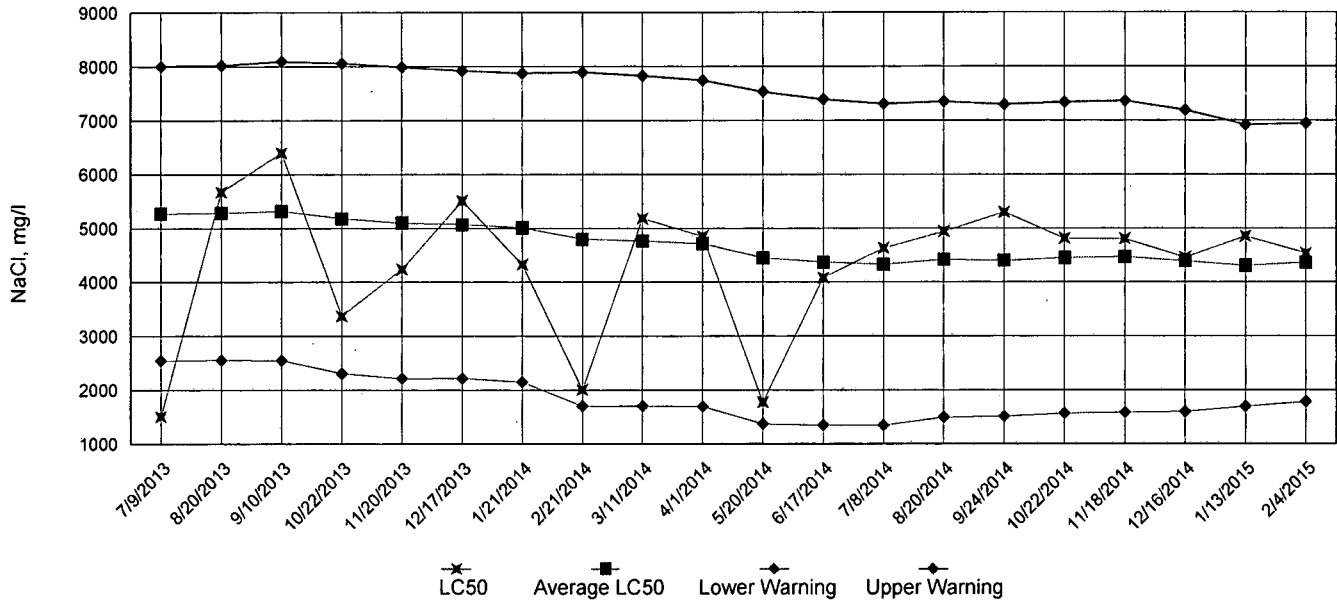
Effluent Conc.: 25 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.8	7.7	8.0	8.2	7.8	8.1	8.2
	Final *1	7.5	7.4	7.1	8.0	7.8	7.4	8.4
	Final *2	7.8	7.8	8.5	8.3	7.9	7.6	
pH, units	Initial	7.2	7.3	7.1	7.1	7.3	7.1	7.2
	Final *1	7.5	7.1	7.1	7.7	7.5	7.4	7.5
	Final *2	7.8	7.3	7.6	7.9	7.5	7.4	

*1 = data from the *Pimephales promelas* (Fathead Minnow) test *2 = data from the *Ceriodaphnia dubia* test

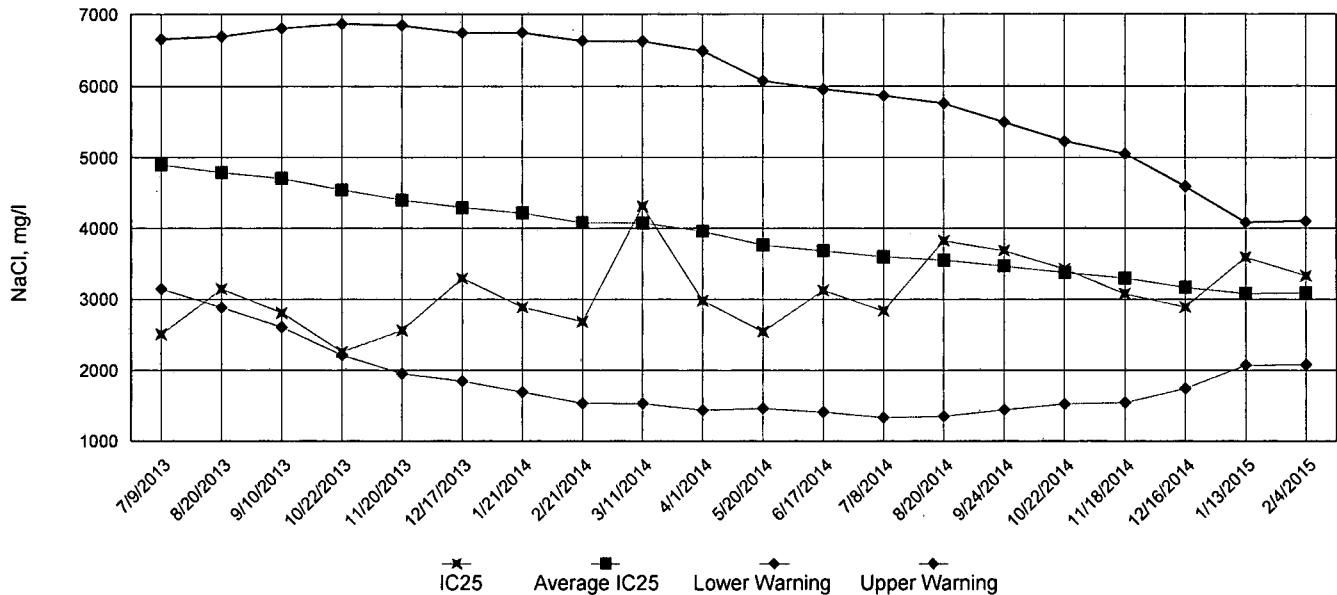
Appendix A4: Test 1000.0

Chronic Reference Toxicant, *Pimephales promelas* (Fathead Minnow)

LC50 Survival Data

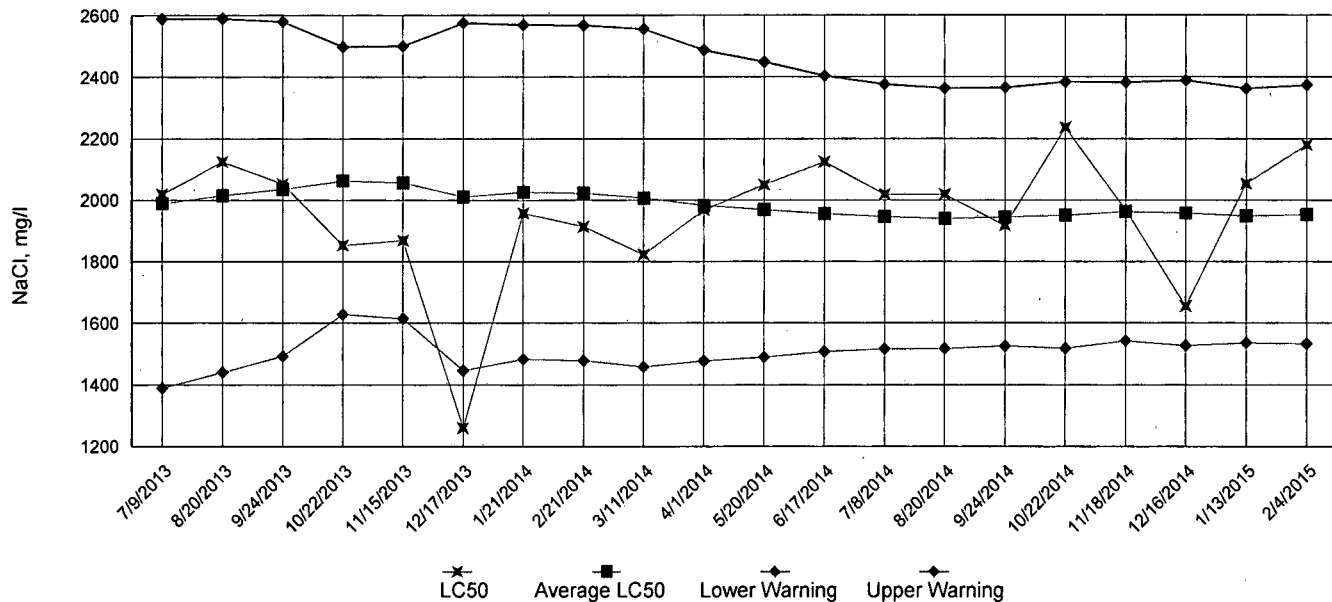


IC25 Growth Data

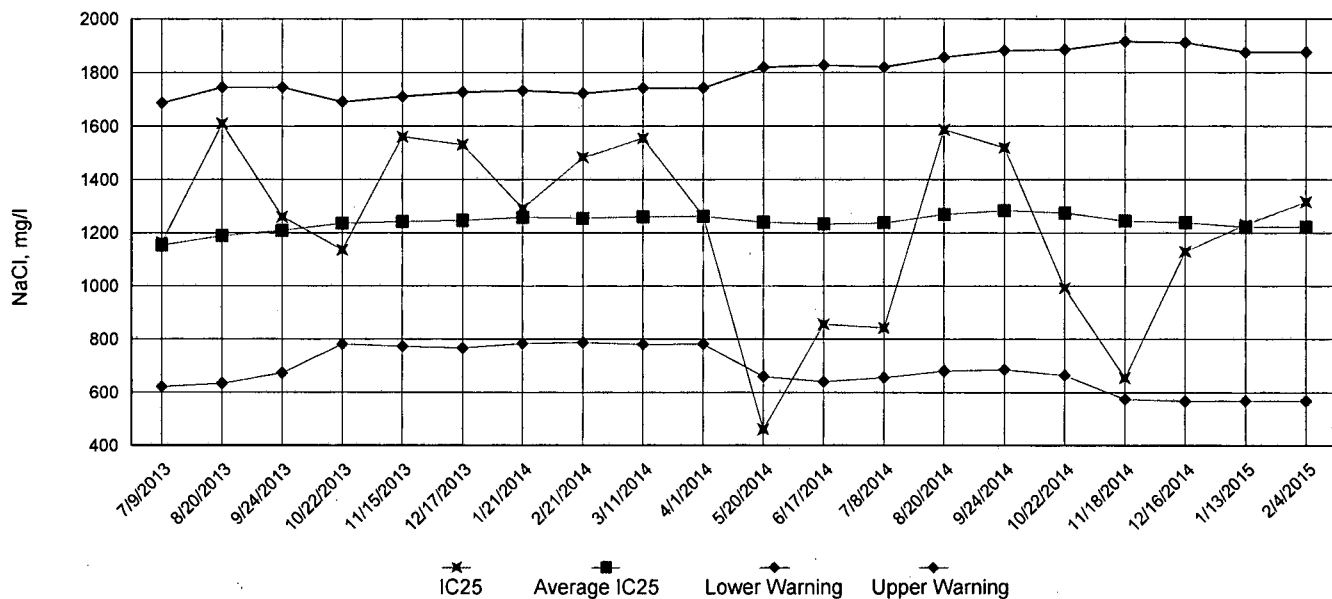


Appendix A4: Test 1002.0
Chronic Reference Toxicant, *Ceriodaphnia dubia*

LC50 Survival Data



IC25 Reproduction Data



Appendix B: Test 1000.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Pimephales promelas (Fathead Minnow)
SURVIVAL AND GROWTH

Permittee: Searcy Water and Sewer System

NPDES No.: AR0021601 AFIN# 73-00055

Date and Time Test Initiated: February 25, 2015 at 1430

Date and Time Test Terminated: March 4, 2015 at 1250

Dilution water used: Synthetic Soft Water #4187

DATA TABLE FOR SURVIVAL

Effluent Conc. %	Percent Survival in replicate chambers					Mean percent survival			CV%
	A	B	C	D	E	24 hr	48 hr	7 days	
Control	100	100	100	100	100	100	100	100	0.00
8 %	100	100	100	100	100	100	100	100	0.00
11 %	100	100	100	100	100	100	100	100	0.00
14 %	100	100	100	100	87.5	100	100	97.5	5.73
19 %	100	100	100	100	87.5	100	100	97.5	5.73
25 %	100	87.5	100	100	100	100	100	97.5	5.73

DATA TABLE FOR GROWTH

Effluent Conc. %	Average dry weight, mg replicate chambers					Mean dry weight, mg	CV%
	A	B	C	D	E		
Control	0.331	0.240	0.339	0.305	0.325	0.308	13.0
8 %	0.261	0.294	0.308	0.294	0.348	0.301	10.4
11 %	0.339	0.279	0.265	0.266	0.285	0.287	10.6
14 %	0.224	0.256	0.302	0.278	0.282	0.268	11.1
19 %	0.279	0.279	0.289	0.314	0.286	0.289	4.99
25 %	0.290	0.246	0.264	0.281	0.309	0.278	8.69

CV = Coefficient of variation = standard deviation * 100 / mean

Appendix B: Test 1000.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Pimephales promelas (Fathead Minnow)
SURVIVAL AND GROWTH

1. Steel's Many-One Rank 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	(19 %)	<u> </u> YES	<u> X </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u> </u> YES	<u> </u> NO

2. Dunnett's Test:

Is the mean dry weight (growth) significantly different ($p=0.05$) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

a.) LOW FLOW OR CRITICAL DILUTION	(19 %)	<u> </u> YES	<u> X </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u> </u> YES	<u> </u> NO

- 3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP6C)
- 4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP6C)
- 5. NOEC Pimephales Lethality: 25 % (TOP6C)
- 6. LOEC Pimephales Lethality: 25 % (TXP6C)
- 7. NOEC Pimephales Sublethality: 25 % (TPP6C)
- 8. LOEC Pimephales Sublethality: 25 % (TYP6C)
- 9. Coefficient of variation for Pimephales growth: 13 (TQP6C)

Appendix B: Test 1000.0

CHRONIC TOXICITY SUMMARY FORM
Pimephales promelas (Fathead minnow)
CHEMICAL PARAMETERS CHART

PERMITTEE: Searcy Water and Sewer System SAMPLE No. 1 COLLECTED ending: DATE: February 24, 2015 TIME: 1145
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: February 26, 2015 TIME: 1145
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: March 1, 2015 TIME: 1145
 ANALYST: 280, 304, 310 Test Initiated: DATE: February 25, 2015 TIME: 1430
 Test Terminated: DATE: March 4, 2015 TIME: 1250

DILUTION Control	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.1	8.2	8.8	8.1	8.4	8.1
Final	8.1	7.8	7.9	8.1	7.9	8.0	7.3
pH Initial	7.4	7.4	7.3	7.3	7.4	7.2	7.3
Final	7.5	7.1	7.0	7.6	7.5	7.4	7.4
Alkalinity	32	NA	32	NA	32	NA	NA
Hardness	44	NA	44	NA	44	NA	NA
Conductivity	140	140	140	120	130	130	140
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 8 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.8	7.8	8.1	8.2	8.0	8.3	8.3
Final	7.5	7.3	7.8	8.0	8.1	7.2	7.3
pH Initial	7.3	7.4	7.2	7.2	7.4	7.2	7.3
Final	7.5	7.1	7.1	7.7	7.4	7.3	7.4
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	140	140	150	140	140	140	150
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 11 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.9	7.9	8.0	8.4	7.9	8.3	8.6
Final	7.8	7.4	7.5	7.9	8.1	7.0	7.0
pH Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
Final	7.6	7.0	7.1	7.7	8.2	7.4	7.4
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	150	150	150	140	140	140	150
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 14 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.7	8.0	8.2	8.6	8.2	8.3	8.3
Final	7.5	7.6	7.5	7.9	7.9	7.4	7.2
pH Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
Final	7.6	7.0	7.1	7.7	7.5	7.4	7.5
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	150	150	160	140	150	150	160
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 19 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.1	8.2	8.6	7.8	8.2	8.3
Final	7.5	7.6	7.7	8.2	7.8	7.4	7.3
pH Initial	7.2	7.3	7.1	7.0	7.3	7.2	7.2
Final	7.5	7.0	7.0	7.7	7.5	7.4	7.6
Alkalinity	34	NA	39	NA	39	NA	NA
Hardness	47	NA	45	NA	44	NA	NA
Conductivity	160	160	160	160	160	160	170
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 25 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.8	7.7	8.0	8.2	7.8	8.1	8.2
Final	7.5	7.4	7.1	8.0	7.8	7.4	8.4
pH Initial	7.2	7.3	7.1	7.1	7.3	7.1	7.2
Final	7.5	7.1	7.1	7.7	7.5	7.4	7.5
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	170	150	160	160	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

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

Permittee: Searcy Water and Sewer System

NPDES No.: AR0021601 AFIN# 73-00055

Date and Time Test Initiated: February 25, 2015 at 1050

Date and Time Test Terminated: March 3, 2015 at 1250

Dilution water used: Synthetic Soft Water #4187

PERCENT SURVIVAL

Time of Reading	Control	Percent Effluent				
		8 %	11 %	14 %	19 %	25 %
24 hour	100	100	100	100	100	100
48 hour	100	100	100	100	100	100
6 day	90.0	90.0	100	100	100	100

NUMBER OF YOUNG PRODUCED PER FEMALE @ 6 DAYS

Replicates	Control	Percent Effluent				
		8 %	11 %	14 %	19 %	25 %
A	0	0	15	19	12	16
B	23	21	28	28	27	30
C	29	29	27	31	31	30
D	16	15	17	12	27	16
E	12	11	8	13	16	21
F	11	14	15	28	9	19
G	27	23	31	27	28	35
H	30	28	28	21	27	34
I	25	24	31	27	33	32
J	27	28	24	29	33	27
Mean per Adult	20.0	19.3	22.4	23.5	24.3	26.0
Mean per Surviving Adult	22.2	21.4	22.4	23.5	24.3	26.0
CV %	33.0	31.2	35.9	29.1	35.9	28.3

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	(19 %)	<u> </u> YES	<u> X </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u> </u> YES	<u> </u> NO

2. Steel's Many-One Rank 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	(19 %)	<u> </u> YES	<u> X </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u> </u> YES	<u> </u> 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: 25 % (TOP3B)
6. LOEC *Ceriodaphnia* Lethality: 25 % (TXP3B)
7. NOEC *Ceriodaphnia* Sublethality: 25 % (TPP3B)
8. LOEC *Ceriodaphnia* Sublethality: 25 % (TYP3B)
9. Coefficient of variation for *Ceriodaphnia* Reproduction: 35.9 (TQP3B)

Appendix B: Test 1002.0

CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
CHEMICAL PARAMETERS CHART

PERMITTEE: Searcy Water and Sewer System SAMPLE No. 1 COLLECTED ending: DATE: February 24, 2015 TIME: 1145
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: February 26, 2015 TIME: 1145
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: March 1, 2015 TIME: 1145
 ANALYST: 280, 304, 310 Test Initiated: DATE: February 25, 2015 TIME: 1050
 Test Terminated: DATE: March 3, 2015 TIME: 1250

DILUTION Control	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.1	8.2	8.8	8.1	8.4	8.1
Final	8.1	8.1	8.4	8.0	8.4	7.9	--
pH Initial	7.4	7.4	7.3	7.3	7.4	7.2	7.3
Final	7.8	7.5	7.4	7.8	7.5	7.3	--
Alkalinity	32	NA	32	NA	32	NA	NA
Hardness	44	NA	44	NA	44	NA	NA
Conductivity	140	140	140	120	130	130	140
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 8 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.8	7.8	8.1	8.2	8.0	8.3	8.3
Final	7.8	8.0	8.4	8.5	8.0	7.9	--
pH Initial	7.3	7.4	7.2	7.2	7.4	7.2	7.3
Final	7.8	7.5	7.5	7.9	7.4	7.3	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	140	140	150	140	140	140	150
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 11 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.9	7.9	8.0	8.4	7.9	8.3	8.6
Final	8.0	7.8	8.5	8.6	7.6	7.9	--
pH Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
Final	7.8	7.5	7.5	7.9	7.4	7.3	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	150	150	150	140	140	140	150
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 14 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.7	8.0	8.2	8.6	8.2	8.3	8.3
Final	8.2	7.8	8.4	8.2	8.2	7.9	--
pH Initial	7.2	7.4	7.2	7.1	7.3	7.2	7.3
Final	7.8	7.4	7.4	7.9	7.4	7.4	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	150	150	160	140	150	150	160
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 19 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.1	8.2	8.6	7.8	8.2	8.3
Final	8.1	7.7	8.7	8.0	8.2	7.9	--
pH Initial	7.2	7.3	7.1	7.0	7.3	7.2	7.2
Final	7.7	7.3	7.4	7.9	7.4	7.4	--
Alkalinity	34	NA	39	NA	39	NA	NA
Hardness	47	NA	45	NA	44	NA	NA
Conductivity	160	160	160	160	160	160	170
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

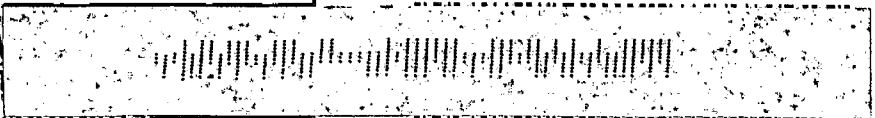
DILUTION 25 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	7.8	7.7	8.0	8.2	7.8	8.1	8.2
Final	7.8	7.8	8.5	8.3	7.9	7.6	--
pH Initial	7.2	7.3	7.1	7.1	7.3	7.1	7.2
Final	7.8	7.3	7.6	7.9	7.5	7.4	--
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	170	150	160	160	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM


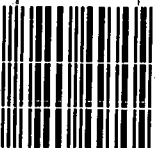
Client: <u>Searcy</u>			PO No.		NO OF BOTTLES	ANALYSES REQUESTED										AIC CONTROL NO: <u>197871</u>								
Project Reference:			MATRIX			CN TS BIOMONITORS													AIC PROPOSAL NO:					
Project Manager: <u>Paul Abaneta</u>			G R A B	C O M P	W A T E R		S O I L	1	1	2										Carrier:				
Sampled By: <u>Ray Diaz</u>						Received Temperature C <u>5.7</u>																		
AIC No.	Sample Identification	Date/Time Collected																	Remarks					
	<u>North Side</u>	<u>2-26-15 11:54am</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>														<u>AIC# 187962</u>					
	<u>South Side</u>	<u>2-26-15 11:30am</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>														<u>AIC# 187962</u>					
	<u>EPD</u>	<u>2-25-15 11:55am</u>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
	<u>Stop</u>	<u>2-26-15 11:55am</u>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
Container Type																			Field pH calibration on _____ @ _____					
Preservative																			Buffer:					
G = Glass NO = none			P = Plastic S = Sulfuric acid pH2			V = VOA vials N = Nitric acid pH2			H = HCl to pH2 B = NaOH to pH12			T = Sodium Thiosulfate Z = Zinc acetate			A = (NH ₄) ₂ SO ₄ , NH ₄ OH									
Turnaround Time Requested: (Please circle) <u>NORMAL</u> or EXPEDITED IN _____ DAYS					Relinquished By: <u>[Signature]</u>					Date/Time <u>2-26-15 6:10 AM</u>					Received By: <u>[Signature]</u>					Date/Time <u>2-27-15 6:10 AM</u>				
Expedited results requested by: _____					Relinquished By: <u>[Signature]</u>					Date/Time <u>2-27-15 8:48 AM</u>					Received in Lab By: <u>[Signature]</u>					Date/Time <u>2-27-15 0845</u>				
Who should AIC contact with questions: Phone: _____ Fax: _____					Comments:																			
Report Attention to: <u>Searcy Water Utilities</u>																								
Report Address to: <u>P.O. Box 1319</u>																								
Email Address: <u>Searcy, VA 22145</u>																								

CERTIFIED MAIL™

Searcy
300 NORTH
P. O. BOX 1019
SEARCY, AR 72145-1319



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**RETURN RECEIPT
REQUESTED**

NPDES Enforcement Division
A.D.E.Q.
5301 Northshore Dr.
North Little Rock, AR 72118-5317