

March 14, 2014

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

Control No. 175954-1

Prepared for:

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

Prepared by: <

AMERICAN INTERPLEX CORPORATION
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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*
Outfall 001
NPDES Permit No. AR0021601 AFIN# 73-00055

Dear Mr. Paul Abernathy:

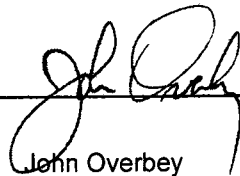
This report is the analytical results and supporting information for the samples submitted to American Interplex Corporation (AIC). The following results are applicable only to the sample identified by the control number referenced above. Accurate assessment of the data requires access to the entire 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 %. Any statistical difference with sublethal effects cannot be considered toxic due to the minimum significant difference (PMSD) calculated result being below the lower PMSD bounds. **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	0.299	PASS
Control Growth CV < or = 40%	7.27	PASS
Growth Minimum Significant Difference 12 to 30%	9.07	BELOW
Critical Dilution CV < or = 40%	3.62	PASS

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	18.3	PASS
Control CV < or = 40% per Surviving Female	17.1	PASS
Reproduction Minimum Significant Difference 13 to 47%	23.9	PASS
Critical Dilution CV < or = 40%	23.9	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: Outfall 001
 - b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.6	8.6	8.2
pH (standard units)	6.5	6.2	7.3
Alkalinity (mg/l as CaCO ₃)	14	26	22
Hardness (mg/l as CaCO ₃)	52	43	40
Conductivity (umhos/cm)	230	270	290
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.78	1.5	0.13

2. Dilution Water Samples: Synthetic Soft Water #4075
 - a. Dates Prepared: February 26 through March 12, 2014
 - b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.2	8.4	8.1
pH (standard units)	7.6	7.5	7.4
Alkalinity (mg/l as CaCO ₃)	34	34	34
Hardness (mg/l as CaCO ₃)	45	45	46
Conductivity (umhos/cm)	150	170	170
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: March 5, 2014 at 1430
Date & Time Test Terminated: March 12, 2014 at 1300
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: March 5, 2014 at 1530
Date & Time Test Terminated: March 12, 2014 at 1330
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 21, 2014 at 1730 to February 28, 2014 at 1530

The results were as follows: (Control No. 175677-1.)

Survival LC-50: 2002 mg/l

Growth IC-25: 2684 mg/l

Growth PMSD: 7.17

Ceriodaphnia dubia

Chronic reference tests are performed monthly.

A chronic reference test was performed on February 21, 2014 at 1730 to February 28, 2014 at 1600

The results were as follows: (Control No. 175677-2.)

Survival LC-50: 1913 mg/l

Growth IC-25: 1484 mg/l

Growth PMSD: 17.1

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	99.8	0.600
pH	SM 4500-H+ B	101	0.404
Conductivity	EPA 120.1	106	3.26

VI. Organism History

Pimephales promelas (Fathead minnow)

Date: March 5, 2014

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: March 5, 2014

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

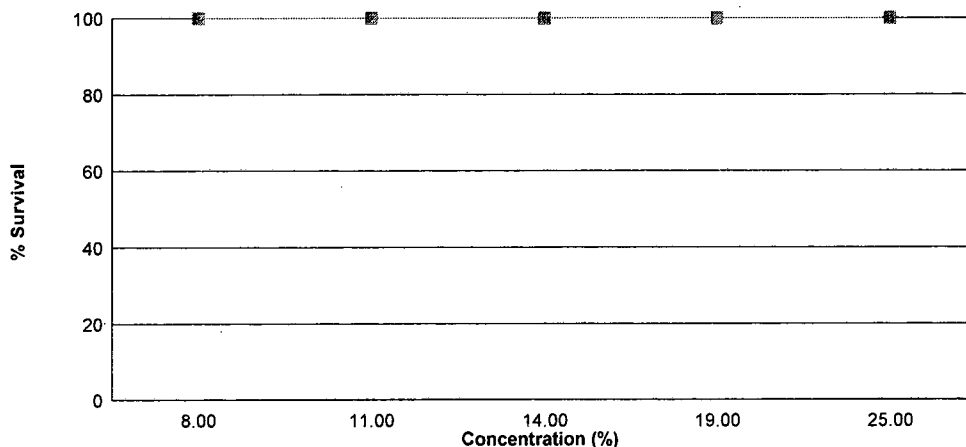
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

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 March 5, 2014 at 1430 and continued through March 12, 2014 at 1300. 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	0.299
8 %	100	0.295
11 %	100	0.333
14 %	100	0.311
19 %	100	0.319
25 %	100	0.313

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

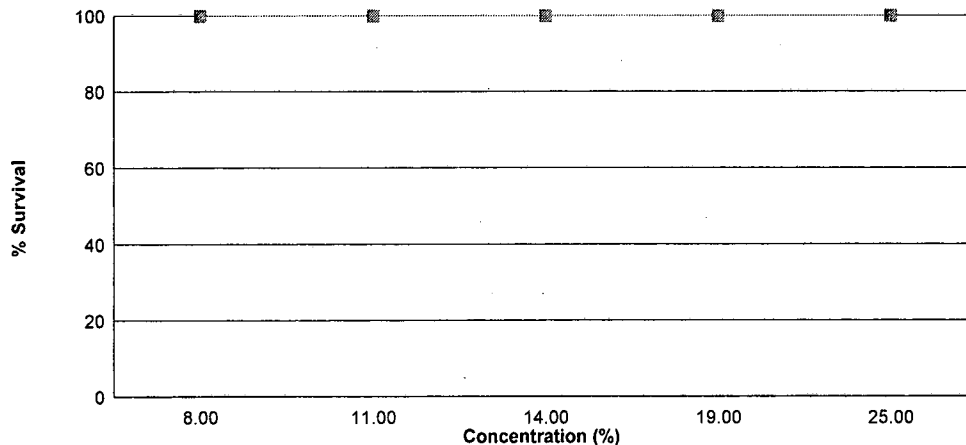
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

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 March 5, 2014 at 1530 and continued through March 12, 2014 at 1330. 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



Concentration	Percent Survival	Mean Reproduction
Control	100	18.3
8 %	100	20.0
11 %	100	20.6
14 %	100	20.4
19 %	100	20.6
25 %	100	21.9

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: March 5, 2014 at 1430

Date and Time Test Terminated: March 12, 2014 at 1300

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	8	8	8
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	8	8	8
25 %	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

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Growth

Test Initiated: March 5, 2014 at 1430
Test Terminated: March 12, 2014 at 1300

Drying Started: March 10, 2014 at 1140
Drying Ended: March 13, 2014 at 1300

Concentration	Replicate	Weight of pan	Weight of pan + fish	Total weight of fish (g)	Original # of fish	Mean dry weight (mg)
Control	A	.93892	.94130	0.00238	8	0.298
	B	.94540	.94755	0.00215	8	0.269
	C	.93786	.94023	0.00237	8	0.296
	D	.94642	.94885	0.00243	8	0.304
	E	.94584	.94848	0.00264	8	0.330
8 %	A	.93963	.94193	0.00230	8	0.288
	B	.94264	.94490	0.00226	8	0.282
	C	.93862	.94109	0.00247	8	0.309
	D	.94092	.94307	0.00215	8	0.269
	E	.94071	.94333	0.00262	8	0.328
11 %	A	.94451	.94697	0.00246	8	0.308
	B	.94505	.94789	0.00284	8	0.355
	C	.94127	.94378	0.00251	8	0.314
	D	.94539	.94812	0.00273	8	0.341
	E	.94107	.94384	0.00277	8	0.346
14 %	A	.94927	.95172	0.00245	8	0.306
	B	.95000	.95237	0.00237	8	0.296
	C	.95191	.95450	0.00259	8	0.324
	D	.95044	.95299	0.00255	8	0.319
	E	.95166	.95412	0.00246	8	0.308
19 %	A	.95258	.95522	0.00264	8	0.330
	B	.95263	.95517	0.00254	8	0.318
	C	.95497	.95763	0.00266	8	0.332
	D	.95357	.95603	0.00246	8	0.308
	E	.95089	.95335	0.00246	8	0.308
25 %	A	.95173	.95417	0.00244	8	0.305
	B	.95035	.95273	0.00238	8	0.298
	C	.94873	.95116	0.00243	8	0.304
	D	.94841	.95097	0.00256	8	0.320
	E	.94735	.95007	0.00272	8	0.340

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: March 5, 2014 at 1530
Date and Time Test Terminated: March 12, 2014 at 1330

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	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	4	4	4	4	3	0	4	4	2	0	29	10	2.90	
5	0	7	8	7	6	4	8	6	7	3	56	10	5.60	
6	8	0	0	0	0	0	0	0	0	8	16	10	1.60	
7	8	9	9	9	10	11	9	8	9	0	82	10	8.20	
8														
TOTAL	20	20	21	20	19	15	21	18	18	11	183	10	18.3	

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	0	0	0	0	0	0	0	0	0	10	0.00	
4	2	4	4	3	4	0	4	2	2	4	29	10	2.90	
5	9	8	8	6	8	4	10	7	8	0	68	10	6.80	
6	0	0	0	0	0	0	0	0	0	7	7	10	0.700	
7	9	12	10	9	11	8	10	8	10	9	96	10	9.60	
8														
TOTAL	20	24	22	18	23	12	24	17	20	20	200	10	20.0	

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	0	0	0	0	0	0	0	0	0	0	10	0.00	
4	0	4	4	4	4	4	4	2	4	4	34	10	3.40	
5	5	8	7	7	8	9	6	8	7	7	72	10	7.20	
6	8	0	0	0	0	0	0	0	0	0	8	10	0.800	
7	0	13	10	10	12	13	8	8	8	10	92	10	9.20	
8														
TOTAL	13	25	21	21	24	26	18	18	19	21	206	10	20.6	

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: March 5, 2014 at 1530
Date and Time Test Terminated: March 12, 2014 at 1330

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	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	0	4	4	4	4	4	0	3	2	2	27	10	2.70	
5	7	9	5	7	9	8	5	8	0	4	62	10	6.20	
6	0	0	0	0	0	0	10	0	9	0	19	10	1.90	
7	10	13	11	10	9	12	0	12	8	11	96	10	9.60	
8														
TOTAL	17	26	20	21	22	24	15	23	19	17	204	10	20.4	

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	0	0	0	0	0	0	0	0	0	0	10	0.00	
4	4	4	4	4	3	4	0	0	4	2	29	10	2.90	
5	8	8	8	6	9	10	4	4	0	5	62	10	6.20	
6	0	0	0	0	0	0	11	8	8	0	27	10	2.70	
7	13	11	13	10	11	12	0	0	10	8	88	10	8.80	
8														
TOTAL	25	23	25	20	23	26	15	12	22	15	206	10	20.6	

Concentration: 25 %														
Day	Replicate										No. of Young	No. of Adults	Young per Adult	
	1	2	3	4	5	6	7	8	9	10				
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
3	0	0	0	0	0	0	0	0	0	0	0	10	0.00	
4	0	4	2	4	4	4	4	4	4	4	34	10	3.40	
5	5	8	0	8	9	8	9	9	10	8	74	10	7.40	
6	9	0	7	0	0	0	0	0	0	0	16	10	1.60	
7	0	12	0	13	13	12	11	9	13	12	95	10	9.50	
8														
TOTAL	14	24	9	25	26	24	24	22	27	24	219	10	21.9	

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	1.00000	1.39310
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	1.00000	1.39310
6	25 %	1	1.00000	1.39310
6	25 %	2	1.00000	1.39310
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))
D = 0		
W = 0		
Critical W = 0.9	(alpha = 0.01, N = 30)	
Critical W = 0.927	(alpha = 0.05, N = 30)	
Data FAIL normality test (alpha = 0.01).		

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 %	27.50	16.00	5.00	
5	19 %	27.50	16.00	5.00	
6	25 %	27.50	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Growth

Shapiro - Wilk's Test for Normality	No Transformation
<p>D = 0.007948 W = 0.9744 Critical W = 0.9 (alpha = 0.01, N = 30) Critical W = 0.927 (alpha = 0.05, N = 30)</p> <p>Data PASS normality test (alpha = 0.01).</p>	

Bartlett's Test for Homogeneity of Variance	No Transformation
<p>Calculated B1 statistic = 3.426 Critical B = 15.086 (alpha = 0.01, df = 5)</p> <p>Data PASS B1 homogeneity test at 0.01 level.</p>	

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Growth

ANOVA Table				No Transformation	
SOURCE	DF	SS	MS	F	
Between	5	0.004645	0.000929	2.807	
Within (Error)	24	0.007945	0.000331		
Total	29	0.01259			
Critical F = 3.9 (alpha = 0.01, df = 5,24)					
2.62 (alpha = 0.05, df = 5,24)					
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	0.2994	0.2994			
2	8 %	0.2952	0.2952	0.365		
3	11 %	0.3328	0.3328	-2.903		
4	14 %	0.3106	0.3106	-0.9734		
5	19 %	0.3192	0.3192	-1.721		
6	25 %	0.3134	0.3134	-1.217		
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	0.02716	9.07	0.0042	
3	11 %	5	0.02716	9.07	-0.0334	
4	14 %	5	0.02716	9.07	-0.0112	
5	19 %	5	0.02716	9.07	-0.0198	
6	25 %	5	0.02716	9.07	-0.014	

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
8 %	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
11 %	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
14 %	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
19 %	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
25 %	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	8 %	10	0	
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
<p>D = 0.1435 D* = 1.126 Critical D* = 1.035 (alpha = 0.01, N = 60)</p> <p>Data FAIL normality test (alpha = 0.01).</p>	

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 %	120.50	75.00	10.00	
3	11 %	123.50	75.00	10.00	
4	14 %	120.50	75.00	10.00	
5	19 %	125.50	75.00	10.00	
6	25 %	136.00	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	68.4	13.68	0.7613	
Within (Error)	54	970.6	17.97		
Total	59	1039			
Critical F = 3.38 (alpha = 0.01, df = 5,54)					
2.38 (alpha = 0.05, df = 5,54)					
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	18.3	18.3			
2	8 %	20	20	-0.8967		
3	11 %	20.6	20.6	-1.213		
4	14 %	20.4	20.4	-1.108		
5	19 %	20.6	20.6	-1.213		
6	25 %	21.9	21.9	-1.899		
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	8 %	10	4.379	23.9	-1.7	
3	11 %	10	4.379	23.9	-2.3	
4	14 %	10	4.379	23.9	-2.1	
5	19 %	10	4.379	23.9	-2.3	
6	25 %	10	4.379	23.9	-3.6	

Appendix A3: Water Chemistry
Routine Chemical and Physical Data

Date and Time Test Initiated: March 5, 2014 at 1457

Date and Time Test Terminated:

Effluent Conc.: Control		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	8.0	8.4	8.1	8.1	8.2	8.2
	Final *1	7.8	7.2	7.3	7.7	7.8	7.2	7.2
	Final *2	7.9	7.8	7.8	8.3	7.8	7.7	7.7
pH, units	Initial	7.6	7.4	7.5	7.3	7.4	7.1	7.2
	Final *1	7.3	6.6	6.7	7.1	6.7	7.1	7.4
	Final *2	7.5	7.3	7.5	7.5	7.3	7.4	7.6
Alkalinity, mg CaCO ₃ /l		34	NA	34	NA	34	NA	NA
Hardness, mg CaCO ₃ /l		45	NA	45	NA	46	NA	NA
Conductivity, umhos/cm		150	160	170	160	170	160	160
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	8.1	7.9	8.3	7.8	8.1	8.1	8.2
	Final *1	7.8	7.4	7.2	7.8	7.9	7.0	7.1
	Final *2	7.9	7.8	8.1	8.5	7.8	7.8	7.8
pH, units	Initial	7.5	7.4	7.4	7.2	7.3	6.9	7.1
	Final *1	7.2	7.0	6.9	7.2	7.3	7.0	7.3
	Final *2	7.6	7.4	7.5	7.6	7.4	7.4	7.6

Effluent Conc.: 11 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	8.0	8.2	8.0	8.2	8.3	8.5
	Final *1	7.7	7.2	7.2	7.6	7.7	6.5	7.0
	Final *2	7.7	7.8	7.9	8.1	7.7	7.5	7.8
pH, units	Initial	7.5	7.3	7.4	7.2	7.3	6.9	7.1
	Final *1	7.2	7.0	7.0	7.4	7.4	7.0	7.3
	Final *2	7.6	7.4	7.5	7.6	7.4	7.4	7.6

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: March 5, 2014 at 1457

Date and Time Test Terminated:

Effluent Conc.: 14 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	8.0	8.3	7.8	8.1	9.0	8.4
	Final *1	7.8	7.5	7.3	7.8	7.6	6.3	7.2
	Final *2	7.6	7.9	8.0	8.2	7.8	7.4	7.6
pH, units	Initial	7.4	7.3	7.4	7.1	7.2	7.0	7.1
	Final *1	7.2	7.1	7.0	7.4	7.4	6.9	7.3
	Final *2	7.6	7.4	7.5	7.6	7.4	7.4	7.5

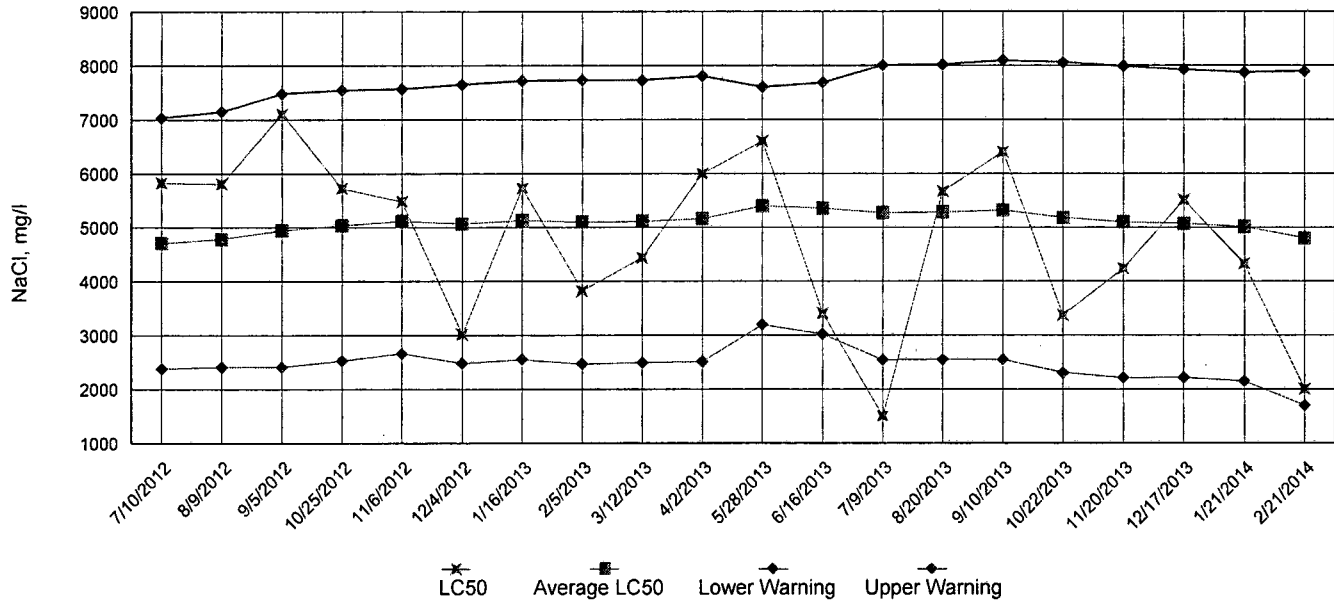
Effluent Conc.: 19 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	7.9	8.3	7.6	8.0	9.0	7.7
	Final *1	7.8	7.4	7.3	7.6	7.9	7.1	7.5
	Final *2	7.8	7.9	7.9	8.3	7.7	7.5	7.8
pH, units	Initial	7.4	7.2	7.4	7.1	7.2	6.9	7.1
	Final *1	7.1	7.1	7.1	7.4	7.5	7.0	7.4
	Final *2	7.7	7.4	7.4	7.6	7.4	7.4	7.6
Alkalinity, mg CaCO ₃ /l	28	NA	31	NA	26	NA	NA	NA
Hardness, mg CaCO ₃ /l	45	NA	45	NA	44	NA	NA	NA
Conductivity, umhos/cm	170	170	190	180	180	190	170	170
Res. Chlorine, mg/l	<0.05	NA	<0.05	NA	<0.05	NA	NA	NA

Effluent Conc.: 25 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.2	7.9	8.2	7.7	8.1	8.9	7.7
	Final *1	7.7	7.3	7.0	7.6	7.7	6.6	7.4
	Final *2	7.6	7.9	7.9	8.2	7.6	7.6	7.7
pH, units	Initial	7.3	7.2	7.4	7.1	7.2	6.9	7.1
	Final *1	7.1	7.1	7.1	7.4	7.5	7.0	7.3
	Final *2	7.7	7.4	7.5	7.6	7.3	7.5	7.6

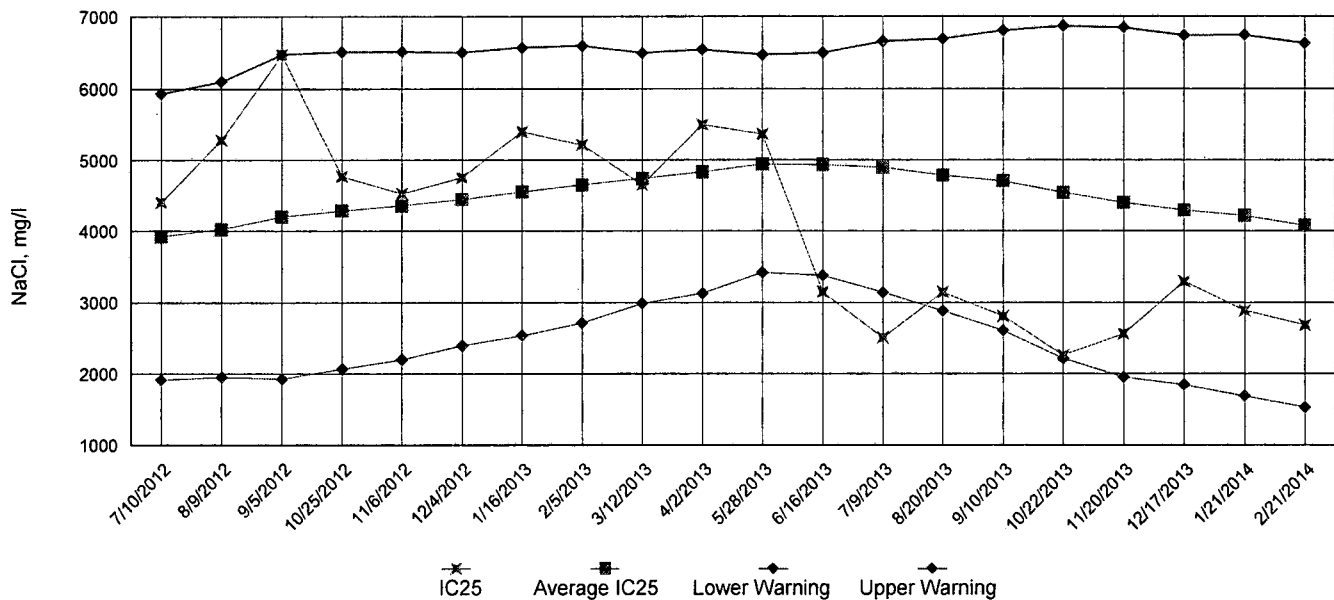
*1 = data from the *Pimephales promelas* (Fathead Minnow) test *2 = data from the *Ceriodaphnia dubia* test

Appendix A4: Test 1000.0
Chronic Reference Toxicant, *Pimephales promelas* (Fathead Minnow)

LC50 Survival Data

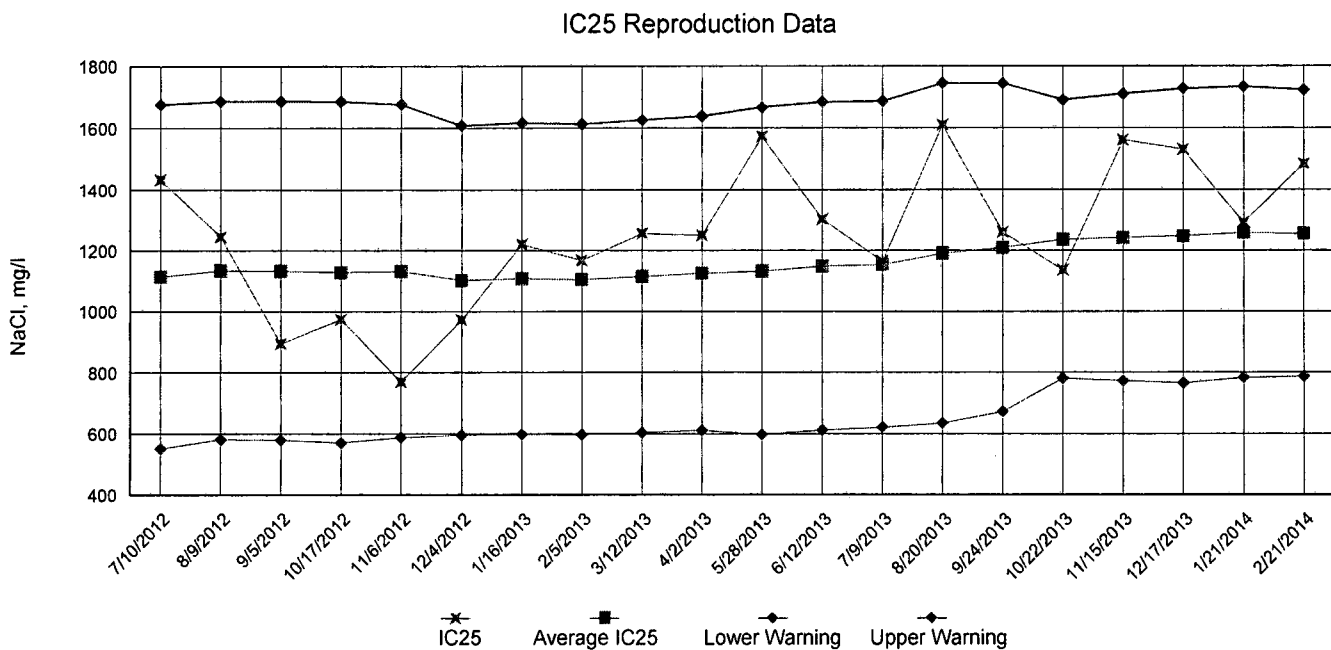
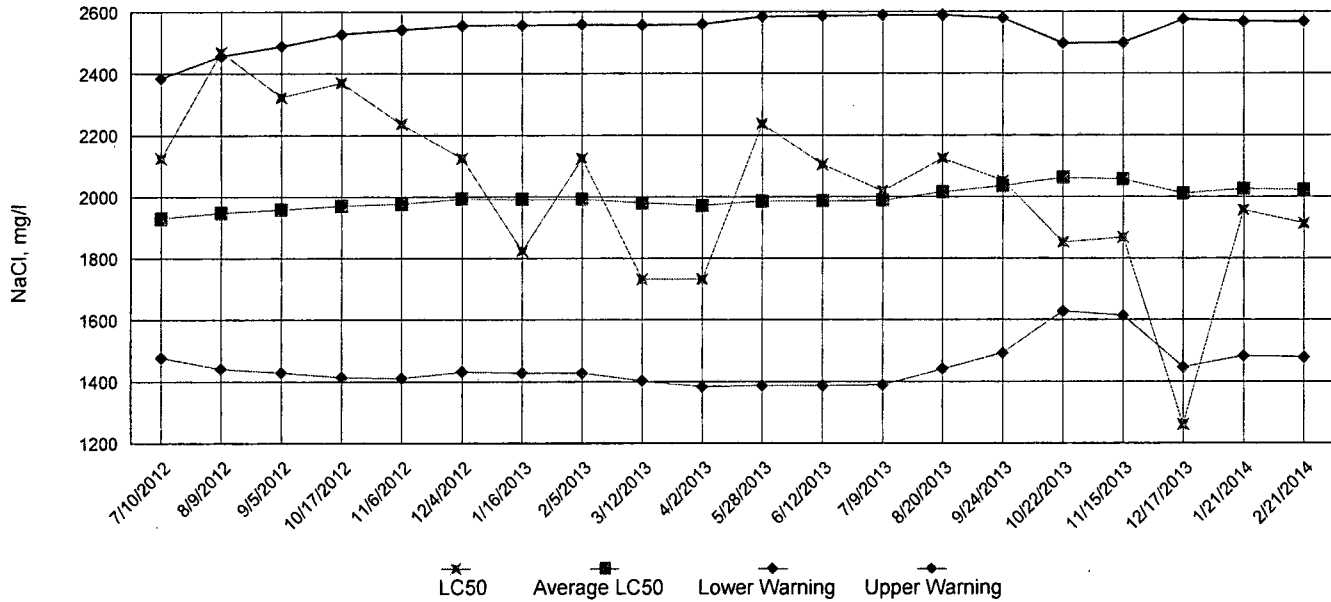


IC25 Growth Data



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

LC50 Survival Data



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: March 5, 2014 at 1430

Date and Time Test Terminated: March 12, 2014 at 1300

Dilution water used: Synthetic Soft Water #4075

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	100	100	100	100	0.00
19 %	100	100	100	100	100	100	100	100	0.00
25 %	100	100	100	100	100	100	100	100	0.00

DATA TABLE FOR GROWTH

Effluent Conc. %	Average dry weight, mg replicate chambers					Mean dry weight, mg	CV%
	A	B	C	D	E		
Control	0.298	0.269	0.296	0.304	0.330	0.299	7.27
8 %	0.288	0.282	0.309	0.269	0.328	0.295	7.91
11 %	0.308	0.355	0.314	0.341	0.346	0.333	6.20
14 %	0.306	0.296	0.324	0.319	0.308	0.311	3.57
19 %	0.330	0.318	0.332	0.308	0.308	0.319	3.62
25 %	0.305	0.298	0.304	0.320	0.340	0.313	5.40

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 %)	_____ YES	_____ X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	_____ YES	_____ 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 %)	_____ 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 (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: 7.27 (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: March 4, 2014 TIME: 2345
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: March 6, 2014 TIME: 2345
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: March 9, 2014 TIME: 2345
 ANALYST: 280, 304, 307, 310 Test Initiated: DATE: March 5, 2014 TIME: 1430
 Test Terminated: DATE: March 12, 2014 TIME: 1300

DILUTION Control	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.4	8.1	8.1	8.2	8.2
Final	7.8	7.2	7.3	7.7	7.8	7.2	7.2
pH Initial	7.6	7.4	7.5	7.3	7.4	7.1	7.2
Final	7.3	6.6	6.7	7.1	6.7	7.1	7.4
Alkalinity	34	NA	34	NA	34	NA	NA
Hardness	45	NA	45	NA	46	NA	NA
Conductivity	150	160	170	160	170	160	160
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 8 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.1	7.9	8.3	7.8	8.1	8.1	8.2
Final	7.8	7.4	7.2	7.8	7.9	7.0	7.1
pH Initial	7.5	7.4	7.4	7.2	7.3	6.9	7.1
Final	7.2	7.0	6.9	7.2	7.3	7.0	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	160	180	170	170	170	160
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 11 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.2	8.0	8.2	8.3	8.5
Final	7.7	7.2	7.2	7.6	7.7	6.5	7.0
pH Initial	7.5	7.3	7.4	7.2	7.3	6.9	7.1
Final	7.2	7.0	7.0	7.4	7.4	7.0	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	180	170	180	170	170
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 14 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.3	7.8	8.1	9.0	8.4
Final	7.8	7.5	7.3	7.8	7.6	6.3	7.2
pH Initial	7.4	7.3	7.4	7.1	7.2	7.0	7.1
Final	7.2	7.1	7.0	7.4	7.4	6.9	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	180	170	180	180	170
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 19 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	7.9	8.3	7.6	8.0	9.0	7.7
Final	7.8	7.4	7.3	7.6	7.9	7.1	7.5
pH Initial	7.4	7.2	7.4	7.1	7.2	6.9	7.1
Final	7.1	7.1	7.1	7.4	7.5	7.0	7.4
Alkalinity	28	NA	31	NA	26	NA	NA
Hardness	45	NA	45	NA	44	NA	NA
Conductivity	170	170	190	180	180	190	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	8.2	7.9	8.2	7.7	8.1	8.9	7.7
Final	7.7	7.3	7.0	7.6	7.7	6.6	7.4
pH Initial	7.3	7.2	7.4	7.1	7.2	6.9	7.1
Final	7.1	7.1	7.1	7.4	7.5	7.0	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	180	190	180	190	190	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: March 5, 2014 at 1530

Date and Time Test Terminated: March 12, 2014 at 1330

Dilution water used: Synthetic Soft Water #4075

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
7 day	100	100	100	100	100	100

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

Replicates	Control	Percent Effluent				
		8 %	11 %	14 %	19 %	25 %
A	20	20	13	17	25	14
B	20	24	25	26	23	24
C	21	22	21	20	25	9
D	20	18	21	21	20	25
E	19	23	24	22	23	26
F	15	12	26	24	26	24
G	21	24	18	15	15	24
H	18	17	18	23	12	22
I	18	20	19	19	22	27
J	11	20	21	17	15	24
Mean per Adult	18.3	20.0	20.6	20.4	20.6	21.9
Mean per Surviving Adult	18.3	20.0	20.6	20.4	20.6	21.9
CV %	17.1	18.4	18.8	17.0	23.9	26.3

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: 23.9 (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: March 4, 2014 TIME: 2345
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: March 6, 2014 TIME: 2345
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: March 9, 2014 TIME: 2345
 ANALYST: 280, 304, 307, 310 Test Initiated: DATE: March 5, 2014 TIME: 1530
 Test Terminated: DATE: March 12, 2014 TIME: 1330

DILUTION Control	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.4	8.1	8.1	8.2	8.2
Final	7.9	7.8	7.8	8.3	7.8	7.7	7.7
pH Initial	7.6	7.4	7.5	7.3	7.4	7.1	7.2
Final	7.5	7.3	7.5	7.5	7.3	7.4	7.6
Alkalinity	34	NA	34	NA	34	NA	NA
Hardness	45	NA	45	NA	46	NA	NA
Conductivity	150	160	170	160	170	160	160
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 8 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.1	7.9	8.3	7.8	8.1	8.1	8.2
Final	7.9	7.8	8.1	8.5	7.8	7.8	7.8
pH Initial	7.5	7.4	7.4	7.2	7.3	6.9	7.1
Final	7.6	7.4	7.5	7.6	7.4	7.4	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	160	180	170	170	170	160
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 11 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.2	8.0	8.2	8.3	8.5
Final	7.7	7.8	7.9	8.1	7.7	7.5	7.8
pH Initial	7.5	7.3	7.4	7.2	7.3	6.9	7.1
Final	7.6	7.4	7.5	7.6	7.4	7.4	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	180	170	180	170	170
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 14 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	8.0	8.3	7.8	8.1	9.0	8.4
Final	7.6	7.9	8.0	8.2	7.8	7.4	7.6
pH Initial	7.4	7.3	7.4	7.1	7.2	7.0	7.1
Final	7.6	7.4	7.5	7.6	7.4	7.4	7.5
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	180	170	180	180	170
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 19 %	DAY						
	1	2	3	4	5	6	7
D.O. Initial	8.2	7.9	8.3	7.6	8.0	9.0	7.7
Final	7.8	7.9	7.9	8.3	7.7	7.5	7.8
pH Initial	7.4	7.2	7.4	7.1	7.2	6.9	7.1
Final	7.7	7.4	7.4	7.6	7.4	7.4	7.6
Alkalinity	28	NA	31	NA	26	NA	NA
Hardness	45	NA	45	NA	44	NA	NA
Conductivity	170	170	190	180	180	190	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	8.2	7.9	8.2	7.7	8.1	8.9	7.7
Final	7.6	7.9	7.9	8.2	7.6	7.6	7.7
pH Initial	7.3	7.2	7.4	7.1	7.2	6.9	7.1
Final	7.7	7.4	7.5	7.6	7.3	7.5	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	180	190	180	190	190	180
Chlorine	NA	NA	NA	NA	NA	NA	NA



CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

5 gals
COMPOSITE IN
SEALY LUG 6.

Client: <u>SEARCY</u>			PO No.		NO OF BOTTLES	ANALYSES REQUESTED ¹										AIC CONTROL NO: <u>175954</u>			
Project Reference:			SAMPLE MATRIX			3											AIC PROPOSAL NO:		
Project Manager: <u>Paul Abernethy</u>			G A B	C O M P	W A T E R		S O I L	B O T T L E S	A R I M O N I N G	C H L O R I N E	P H	T O T A L D I S S O L V E D	S O L I D S						Carrier/Tracking No.
Sampled <u>Walker White</u> By: <u>Tom Montedivito</u>																			Received Temperature C <u>1.2</u>
AIC No.	Sample Identification	Date/Time Collected																	Remarks
<u>(2)</u>	<u>EFF</u>	<u>Spot 3-5-14 11:45AM</u> <u>STP 3-6-14 11:45AM</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
	<u>North Slady Pond</u>	<u>3-6-14 12:50pm</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														<u>AIC # 17608X</u>
	<u>South Slady Pond</u>	<u>3-6-14 1:08pm</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
Container Type																			Field pH calibration
Preservative																			on _____ @ _____
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									
Turnaround Time Requested: (Please circle) <u>NORMAL</u> or EXPEDITED IN _____ DAYS						Relinquished By: <u>Walker White</u>		Date/Time: <u>3-7-14</u> <u>6:00 AM</u>		Received By: <u>Sydney Brown</u>		Date/Time: <u>3-7-14</u> <u>6:00 AM</u>							
Expedited results requested by: _____						Relinquished By: <u>Sydney Brown</u>		Date/Time: <u>3-7-14</u> <u>8:55</u>		Received in Lab By: <u>Greg Holm</u>		Date/Time: <u>3-7-14</u> <u>0855</u>							
Who should AIC contact with questions: _____						Comments:													
Report Attention to: <u>Searcy Water Utilities</u>																			
Report Address to: <u>P.O. Box 1219</u> <u>Searcy, VA 22145</u>																			

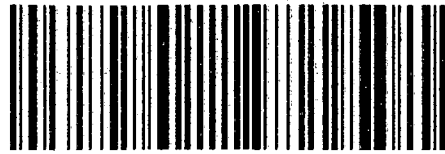


CHAIN OF CUSTODY / ANALYSIS REQUEST FORM


PAGE OF

Client: <u>Searcy</u>			PO No.		NO OF BOTTLES	ANALYSES REQUESTED ¹										AIC CONTROL NO: <u>175954</u>		
Project Reference:			SAMPLE MATRIX			3	<div style="display: flex; justify-content: space-between;"> Bio monitoring ✓ </div>										AIC PROPOSAL NO:	
Project Manager: <u>Paul Abernathy</u>			WATER SOIL														Carrier/Tracking No. _____	
Sampled By: <u>Johnny Fowler</u>			G	C												Received Temperature C <u>0.9 C</u>		
AIC No.	Sample Identification	Date/Time Collected	R	O	A	S										Remarks		
<u>3</u>	<u>FFF</u>	<u>3-10-14 11:45 AM</u> <u>3-9-14 11:45 AM</u>																
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									
Turnaround Time Requested: (Please circle) <u>(NORMAL)</u> or EXPEDITED IN _____ DAYS					Relinquished By: <u>[Signature]</u>		Date/Time <u>3-10-14</u> <u>7:50</u>		Received By: <u>Lynn Brewer</u>		Date/Time <u>3-10-14</u> <u>7:50</u>							
Expedited results requested by: _____					Relinquished By: <u>Lynn Brewer</u>		Date/Time <u>3-10-14</u> <u>9:30</u>		Received in Lab By: <u>Jimmy Day</u>		Date/Time <u>3/10/14</u> <u>0930</u>							
Who should AIC contact with questions: _____					Comments: _____													
Phone: _____ Fax: _____																		
Report Attention to: <u>Searcy Water Utilities</u>																		
Report Address to: <u>P.O. Box 1319</u> <u>SEARCY, AR 72145</u>																		

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**RETURN RECEIPT
REQUESTED**

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

