

September 27, 2012

Test Results of
Third Quarter
Chronic 7-Day Renewal
Biomonitoring Testing
for
Effluent

Control No. 161051-1

Prepared for:

Mr. Paul Abernathy
Searcy Water and Sewer System
Post Office Box 1319
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
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	0.457	PASS
Control Growth CV < or = 40%	8.54	PASS
Growth Minimum Significant Difference 12 to 30%	14.5	PASS
Critical Dilution CV < or = 40%	13.8	PASS

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	15.2	PASS
Control CV < or = 40% per Surviving Female	27.2	PASS
Reproduction Minimum Significant Difference 13 to 47%	33.9	PASS
Critical Dilution CV < or = 40%	35.0	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)	6.6	7.0	6.6
pH (standard units)	7.2	7.1	6.8
Alkalinity (mg/l as CaCO ₃)	35	21	20
Hardness (mg/l as CaCO ₃)	48	46	46
Conductivity (umhos/cm)	290	290	330
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.17	<0.1	<0.1

2. Dilution Water Samples: Synthetic Soft Water #3908

- a. Dates Prepared: September 5 through Septmeber 19, 2012
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	6.6	6.5	6.3
pH (standard units)	7.8	7.9	7.9
Alkalinity (mg/l as CaCO ₃)	30	30	30
Hardness (mg/l as CaCO ₃)	48	41	41
Conductivity (umhos/cm)	150	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: September 19, 2012 at 1000
Date & Time Test Terminated: September 26, 2012 at 0845
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: September 19, 2012 at 1120
Date & Time Test Terminated: September 25, 2012 at 1310
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 September 5, 2012 at 1250 to September 12, 2012 at 1115

The results were as follows: (Control No. 160675-1.)

Survival LC-50: 7105 mg/l

Growth IC-25: 6473 mg/l

Growth PMSD: 32.2

Ceriodaphnia dubia

Chronic reference tests are performed monthly.

A chronic reference test was performed on September 5, 2012 at 1440 to September 11, 2012 at 1450

The results were as follows: (Control No. 160675-2.)

Survival LC-50: 2323 mg/l

Growth IC-25: 894.4 mg/l

Growth PMSD: 26.6

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	101	4.60
pH	SM 4500-H+ B	100	0.269
Conductivity	EPA 120.1	100	0.678

VI. Organism History

Pimephales promelas (Fathead minnow)

Date: September 19, 2012

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: September 19, 2012

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

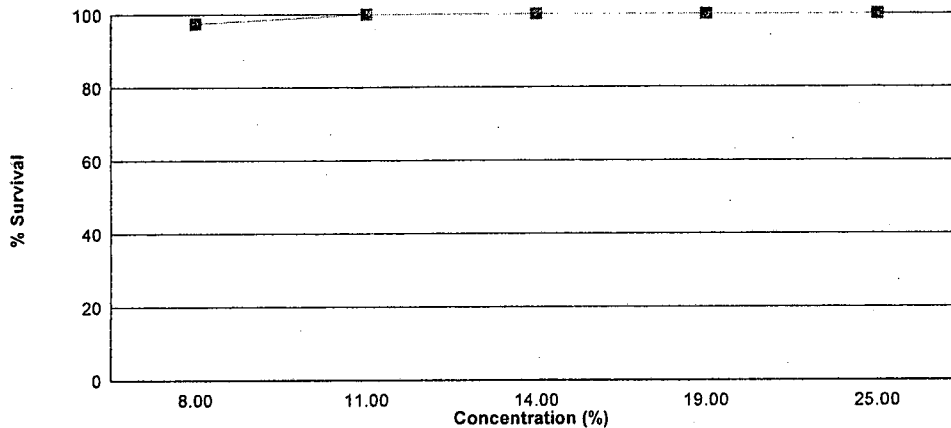
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

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 September 19, 2012 at 1000 and continued through September 26, 2012 at 0845. 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	0.457
8 %	97.5	0.398
11 %	100	0.397
14 %	100	0.398
19 %	100	0.452
25 %	100	0.462

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

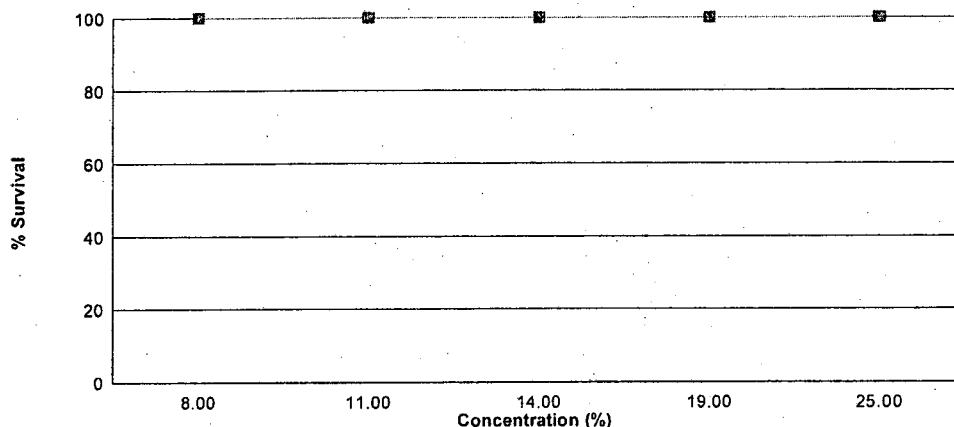
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

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 September 19, 2012 at 1120 and continued through September 25, 2012 at 1310. 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	100	15.2
8 %	100	15.1
11 %	100	16.4
14 %	100	15.1
19 %	100	15.7
25 %	100	12.4

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: September 19, 2012 at 1000

Date and Time Test Terminated: September 26, 2012 at 0845

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	7	7
	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: September 19, 2012 at 1000
Test Terminated: September 26, 2012 at 0845

Drying Started: September 21, 2012 at 1132
Drying Ended: September 27, 2012 at 1500

Concentration	Replicate	Weight of pan	Weight of pan + fish	Total weight of fish (g)	Original # of fish	Mean dry weight (mg)
Control	A	.92890	.93243	0.00353	8	0.441
	B	.92851	.93176	0.00325	8	0.406
	C	.92659	.93047	0.00388	8	0.485
	D	.92710	.93069	0.00359	8	0.449
	E	.92686	.93091	0.00405	8	0.506
8 %	A	.92962	.93266	0.00304	8	0.380
	B	.93200	.93529	0.00329	8	0.411
	C	.93024	.93330	0.00306	8	0.382
	D	.93357	.93698	0.00341	8	0.426
	E	.93130	.93442	0.00312	8	0.390
11 %	A	.93239	.93582	0.00343	8	0.429
	B	.93151	.93475	0.00324	8	0.405
	C	.93313	.93659	0.00346	8	0.432
	D	.93569	.93874	0.00305	8	0.381
	E	.93741	.94010	0.00269	8	0.336
14 %	A	.94060	.94414	0.00354	8	0.442
	B	.94019	.94327	0.00308	8	0.385
	C	.94078	.94337	0.00259	8	0.324
	D	.93997	.94355	0.00358	8	0.448
	E	.93929	.94241	0.00312	8	0.390
19 %	A	.93869	.94144	0.00275	8	0.344
	B	.94128	.94524	0.00396	8	0.495
	C	.94192	.94577	0.00385	8	0.481
	D	.93297	.93661	0.00364	8	0.455
	E	.93642	.94031	0.00389	8	0.486
25 %	A	.93509	.93882	0.00373	8	0.466
	B	.93685	.94054	0.00369	8	0.461
	C	.93739	.94057	0.00318	8	0.398
	D	.93750	.94124	0.00374	8	0.468
	E	.93781	.94196	0.00415	8	0.519

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: September 19, 2012 at 1120

Date and Time Test Terminated: September 25, 2012 at 1310

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	2	4	3	4	2	0	1	4	4	2	26	10	2.60	
5	6	6	5	6	4	6	5	5	6	5	54	10	5.40	
6	9	0	11	8	9	8	8	9	10	0	72	10	7.20	
7														
8														
TOTAL	17	10	19	18	15	14	14	18	20	7	152	10	15.2	

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	2	0	0	0	0	0	0	0	2	10	0.200
4	4	2	1	4	4	3	2	4	4	3	31	10	3.10
5	0	4	5	7	6	6	0	5	0	4	37	10	3.70
6	8	10	11	8	9	9	8	0	10	8	81	10	8.10
7													
8													
TOTAL	12	16	19	19	19	18	10	9	14	15	151	10	15.1

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	2	3	1	4	3	0	3	3	3	3	25	10	2.50
5	5	3	6	6	9	5	6	6	8	5	59	10	5.90
6	8	0	9	11	9	11	10	9	13	0	80	10	8.00
7													
8													
TOTAL	15	6	16	21	21	16	19	18	24	8	164	10	16.4

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: September 19, 2012 at 1120
Date and Time Test Terminated: September 25, 2012 at 1310

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	2	0	0	0	0	0	0	0	0	2	10	0.200
4	3	3	0	4	4	0	4	4	4	3	29	10	2.90	
5	0	7	5	6	6	7	8	5	7	4	55	10	5.50	
6	10	0	10	0	11	10	13	11	0	0	65	10	6.50	
7														
8														
TOTAL	13	10	17	10	21	17	25	20	11	7	151	10	15.1	

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	2	0	0	0	0	0	0	0	2	10	0.200
4	4	3	0	0	4	4	4	4	4	3	30	10	3.00
5	0	6	7	6	7	6	7	6	6	7	58	10	5.80
6	10	0	10	0	10	10	8	9	10	0	67	10	6.70
7													
8													
TOTAL	14	9	19	6	21	20	19	19	20	10	157	10	15.7

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	3	2	3	4	0	1	1	4	4	22	10	2.20
5	4	0	2	7	2	6	5	4	5	7	42	10	4.20
6	7	0	4	0	11	11	9	10	8	0	60	10	6.00
7													
8													
TOTAL	11	3	8	10	17	17	15	15	17	11	124	10	12.4

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	0.87500	1.20940	
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 = 0.027		
W = 0.4161		
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 %	25.00	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 = 0.04705 W = 0.9288 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 = 4.305 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	0.0272	0.00544	2.774	
Within (Error)	24	0.04706	0.001961		
Total	29	0.07426			
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	0.4574	0.4574			
2	8 %	0.3978	0.3978	2.128		
3	11 %	0.3966	0.3966	2.171		
4	14 %	0.3978	0.3978	2.128		
5	19 %	0.4522	0.4522	0.1857		
6	25 %	0.4624	0.4624	-0.1785		
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	0.0661	14.5	0.0596		
3	11 %	5	0.0661	14.5	0.0608		
4	14 %	5	0.0661	14.5	0.0596		
5	19 %	5	0.0661	14.5	0.0052		
6	25 %	5	0.0661	14.5	-0.005		

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

Chi-Square Test for Normality	No Transformation
Chi-Square = 10.191 Critical Chi-Square = 13.28	(alpha = 0.01, df = 4)
Data PASS normality test (alpha = 0.01).	

Kolmogorov Test for Normality	No Transformation
D = 0.1421 D* = 1.115 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 %	104.50	75.00	10.00	
3	11 %	116.00	75.00	10.00	
4	14 %	103.00	75.00	10.00	
5	19 %	115.00	75.00	10.00	
6	25 %	87.00	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	92.68	18.54	0.7461	
Within (Error)	54	1342	24.85		
Total	59	1435			
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	15.2	15.2		
2	8 %	15.1	15.1	0.04486	
3	11 %	16.4	16.4	-0.5383	
4	14 %	15.1	15.1	0.04486	
5	19 %	15.7	15.7	-0.2243	
6	25 %	12.4	12.4	1.256	
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	5.15	33.9	0.1
3	11 %	10	5.15	33.9	-1.2
4	14 %	10	5.15	33.9	0.1
5	19 %	10	5.15	33.9	-0.5
6	25 %	10	5.15	33.9	2.8

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: September 19, 2012 at 0910
Date and Time Test Terminated: September 26, 2012 at 0845

Effluent Conc.: Control	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	6.6	6.3	6.5	6.7	6.3	6.9	6.4
	Final *1	6.0	5.9	5.8	6.6	6.0	5.4	6.0
	Final *2	6.4	6.8	6.8	7.1	7.7	7.5	NA
pH, units	Initial	7.8	7.8	7.9	7.9	7.9	7.8	7.6
	Final *1	7.7	7.5	7.4	7.7	7.4	7.2	7.4
	Final *2	8.1	8.3	8.0	8.2	8.0	8.0	NA
Alkalinity, mg CaCO3/l	30	NA	30	NA	30	NA	NA	
Hardness, mg CaCO3/l	48	NA	41	NA	41	NA	NA	
Conductivity, umhos/cm	150	150	140	130	130	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	6.8	6.2	6.4	6.5	6.5	6.9	6.4
	Final *1	6.1	5.7	5.6	6.3	6.1	5.5	5.9
	Final *2	6.3	6.4	6.6	6.9	7.6	7.5	NA
pH, units	Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
	Final *1	7.6	7.4	7.4	7.6	7.5	7.2	7.4
	Final *2	8.2	8.2	7.9	8.3	8.0	8.0	NA

Effluent Conc.: 11 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	6.6	6.1	6.4	6.6	6.5	6.9	6.5
	Final *1	6.1	5.7	5.6	6.1	6.0	5.8	5.7
	Final *2	6.4	6.6	6.6	7.1	7.6	7.4	NA
pH, units	Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
	Final *1	7.6	7.4	7.4	7.6	7.5	7.3	7.3
	Final *2	8.1	8.2	7.9	8.3	8.0	8.0	NA

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: September 19, 2012 at 0910
Date and Time Test Terminated: September 26, 2012 at 0845

Effluent Conc.: 14 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.3	6.4	6.5	6.5	6.9	6.6
	Final *1	6.1	5.9	5.9	5.9	5.2	6.0	5.8
	Final *2	6.4	6.6	6.8	7.2	7.8	7.5	NA
pH, units	Initial	7.7	7.7	7.8	7.7	7.9	7.6	7.4
	Final *1	7.6	7.5	7.5	7.6	7.2	7.4	7.3
	Final *2	8.1	8.2	7.9	8.3	8.0	8.0	NA

Effluent Conc.: 19 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.3	6.4	6.5	6.6	6.9	6.7
	Final *1	6.1	6.1	5.9	6.7	5.5	5.8	5.8
	Final *2	6.4	6.6	6.8	7.0	7.7	7.5	NA
pH, units	Initial	7.6	7.7	7.8	7.7	7.9	7.6	7.4
	Final *1	7.6	7.6	7.5	7.7	7.3	7.3	7.3
	Final *2	8.1	8.1	7.8	8.2	8.0	8.0	NA
Alkalinity, mg CaCO ₃ /l	29	NA	28	NA	30	NA	NA	NA
Hardness, mg CaCO ₃ /l	46	NA	42	NA	42	NA	NA	NA
Conductivity, umhos/cm	180	180	170	160	160	190	200	200
Res. Chlorine, mg/l	<0.05	NA	<0.05	NA	<0.05	NA	NA	NA

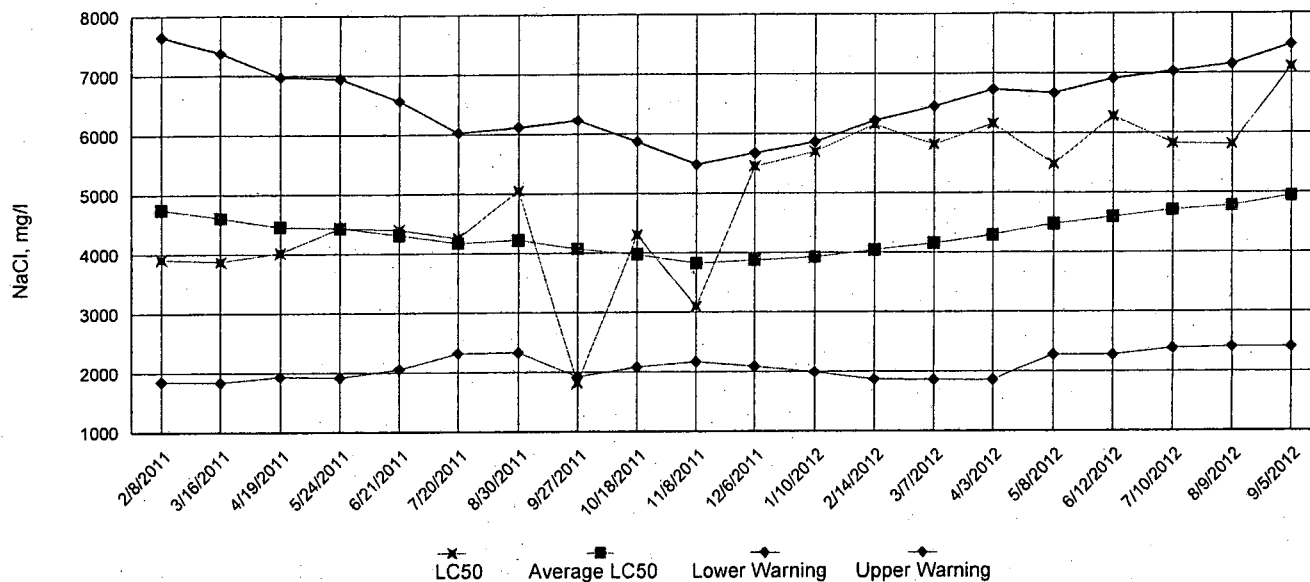
Effluent Conc.: 25 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.2	6.4	6.5	6.3	6.9	6.5
	Final *1	6.2	6.0	5.7	6.8	5.8	5.5	5.9
	Final *2	6.4	6.6	7.0	7.0	7.6	7.4	NA
pH, units	Initial	7.6	7.6	7.7	7.6	7.9	7.6	7.3
	Final *1	7.6	7.5	7.4	7.8	7.4	7.3	7.3
	Final *2	8.1	8.1	7.8	8.3	8.0	8.0	NA

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

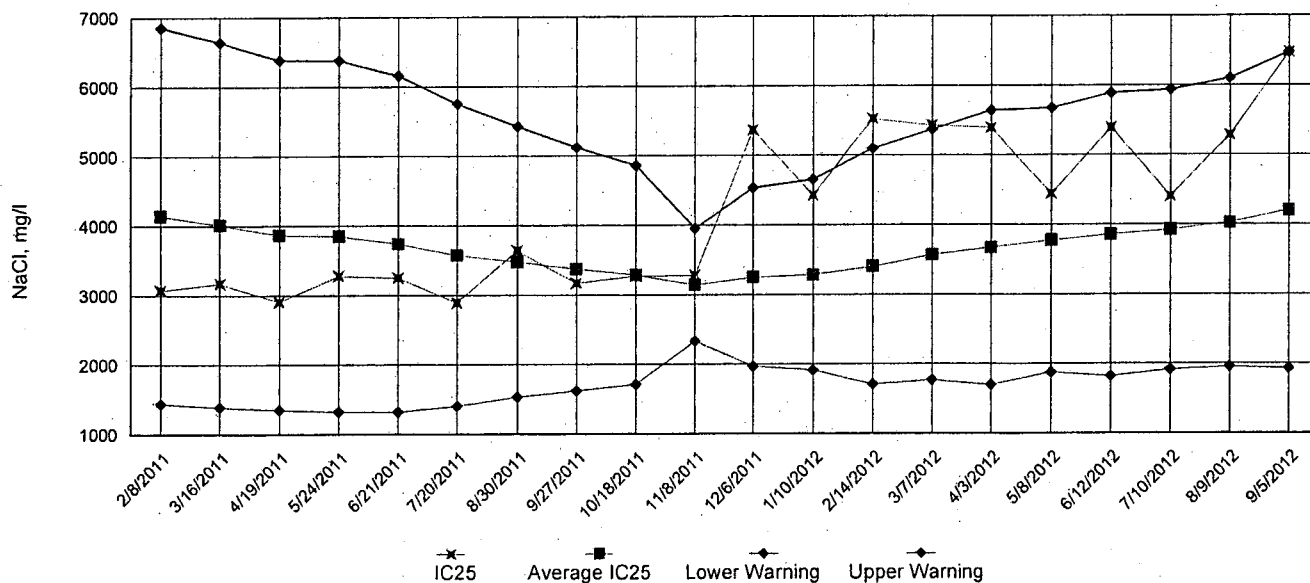
Appendix A4: Test 1000.0

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

LC50 Survival Data

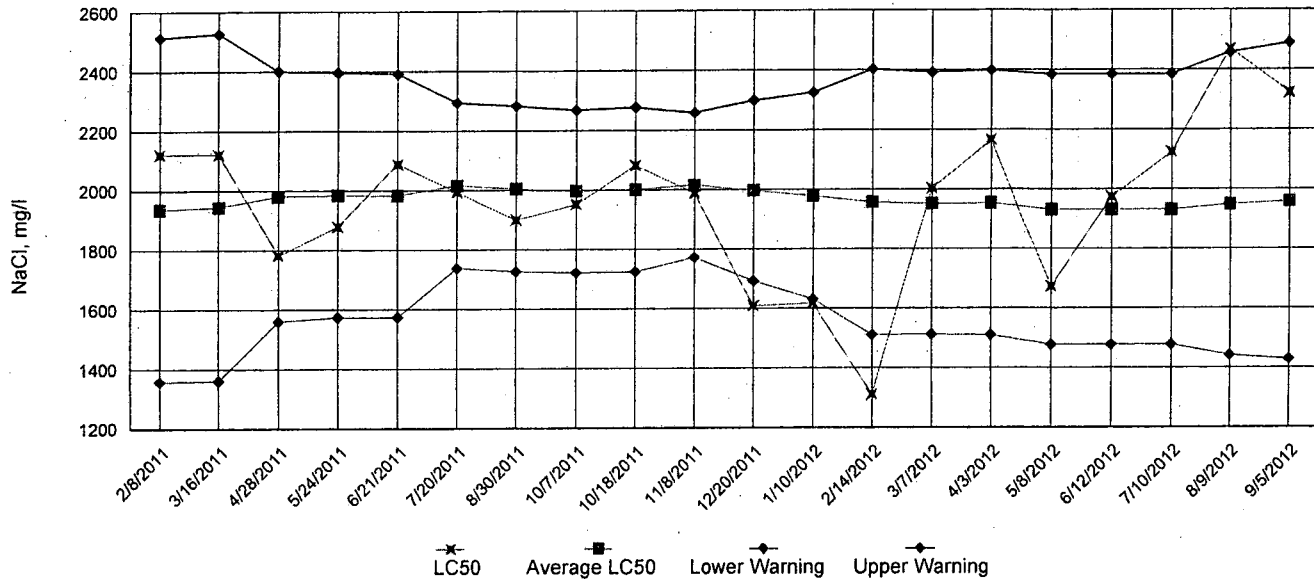


IC25 Growth Data

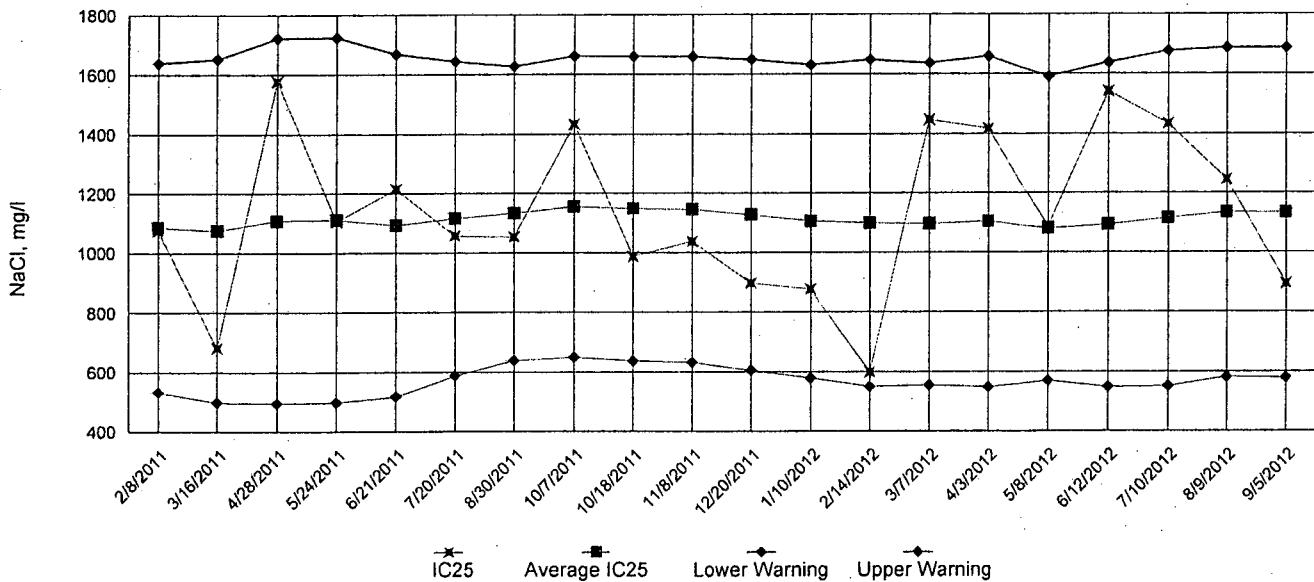


Appendix A4: Test 1002.0
Chronic Reference Toxicant, *Ceriodaphnia dubia*

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: September 19, 2012 at 1000

Date and Time Test Terminated: September 26, 2012 at 0845

Dilution water used: Synthetic Soft Water #3908

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 %	87.5	100	100	100	100	100	100	97.5	5.73
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	0.441	0.406	0.485	0.449	0.506	0.457	8.54
8 %	0.380	0.411	0.382	0.426	0.390	0.398	5.02
11 %	0.429	0.405	0.432	0.381	0.336	0.397	10.0
14 %	0.442	0.385	0.324	0.448	0.390	0.398	12.7
19 %	0.344	0.495	0.481	0.455	0.486	0.452	13.8
25 %	0.466	0.461	0.398	0.468	0.519	0.462	9.30

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	<u> X </u> 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	<u> X </u> 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: 13.8 (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: September 18, 2012 TIME: 2340
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: September 20, 2012 TIME: 2345
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: September 23, 2012 TIME: 2345
 ANALYST: 275, 280, 298, 304 Test Initiated: DATE: September 19, 2012 TIME: 1000
 Test Terminated: DATE: September 26, 2012 TIME: 0845

DILUTION	DAY						
	1	2	3	4	5	6	7
Control							
D.O. Initial	6.6	6.3	6.5	6.7	6.3	6.9	6.4
Final	6.0	5.9	5.8	6.6	6.0	5.4	6.0
pH Initial	7.8	7.8	7.9	7.9	7.9	7.8	7.6
Final	7.7	7.5	7.4	7.7	7.4	7.2	7.4
Alkalinity	30	NA	30	NA	30	NA	NA
Hardness	48	NA	41	NA	41	NA	NA
Conductivity	150	150	140	130	130	160	160
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
8 %							
D.O. Initial	6.8	6.2	6.4	6.5	6.5	6.9	6.4
Final	6.1	5.7	5.6	6.3	6.1	5.5	5.9
pH Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
Final	7.6	7.4	7.4	7.6	7.5	7.2	7.4
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	150	140	150	170	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
11 %							
D.O. Initial	6.6	6.1	6.4	6.6	6.5	6.9	6.5
Final	6.1	5.7	5.6	6.1	6.0	5.8	5.7
pH Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
Final	7.6	7.4	7.4	7.6	7.5	7.3	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	150	160	150	180	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
14 %							
D.O. Initial	6.8	6.3	6.4	6.5	6.5	6.9	6.6
Final	6.1	5.9	5.9	5.9	5.2	6.0	5.8
pH Initial	7.7	7.7	7.8	7.7	7.9	7.6	7.4
Final	7.6	7.5	7.5	7.6	7.2	7.4	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	160	160	160	180	190
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
19 %							
D.O. Initial	6.8	6.3	6.4	6.5	6.6	6.9	6.7
Final	6.1	6.1	5.9	6.7	5.5	5.8	5.8
pH Initial	7.6	7.7	7.8	7.7	7.9	7.6	7.4
Final	7.6	7.6	7.5	7.7	7.3	7.3	7.3
Alkalinity	29	NA	28	NA	30	NA	NA
Hardness	46	NA	42	NA	42	NA	NA
Conductivity	180	180	170	160	160	190	200
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
25 %							
D.O. Initial	6.8	6.2	6.4	6.5	6.3	6.9	6.5
Final	6.2	6.0	5.7	6.8	5.8	5.5	5.9
pH Initial	7.6	7.6	7.7	7.6	7.9	7.6	7.3
Final	7.6	7.5	7.4	7.8	7.4	7.3	7.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	190	190	170	170	170	200	210
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: September 19, 2012 at 1120

Date and Time Test Terminated: September 25, 2012 at 1310

Dilution water used: Synthetic Soft Water #3908

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	100	100	100	100	100	100

NUMBER OF YOUNG PRODUCED PER FEMALE @ 6 DAYS

Replicates	Control	Percent Effluent				
		8 %	11 %	14 %	19 %	25 %
A	17	12	15	13	14	11
B	10	16	6	10	9	3
C	19	19	16	17	19	8
D	18	19	21	10	6	10
E	15	19	21	21	21	17
F	14	18	16	17	20	17
G	14	10	19	25	19	15
H	18	9	18	20	19	15
I	20	14	24	11	20	17
J	7	15	8	7	10	11
Mean per Adult	15.2	15.1	16.4	15.1	15.7	12.4
Mean per Surviving Adult	15.2	15.1	16.4	15.1	15.7	12.4
CV %	27.2	25.1	34.6	38.4	35.0	37.5

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 (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: September 18, 2012 TIME: 2340
 NPDES NO.: AR0021601 AFIN# 73-00055 SAMPLE No. 2 COLLECTED ending: DATE: September 20, 2012 TIME: 2345
 CONTACT: Mr. Paul Abernathy SAMPLE No. 3 COLLECTED ending: DATE: September 23, 2012 TIME: 2345
 ANALYST: 275, 280, 298, 304 Test Initiated: DATE: September 19, 2012 TIME: 1120
 Test Terminated: DATE: September 25, 2012 TIME: 1310

DILUTION	DAY						
	1	2	3	4	5	6	7
Control							
D.O. Initial	6.6	6.3	6.5	6.7	6.3	6.9	6.4
Final	6.4	6.8	6.8	7.1	7.7	7.5	NA
pH Initial	7.8	7.8	7.9	7.9	7.9	7.8	7.6
Final	8.1	8.3	8.0	8.2	8.0	8.0	NA
Alkalinity	30	NA	30	NA	30	NA	NA
Hardness	48	NA	41	NA	41	NA	NA
Conductivity	150	150	140	130	130	160	160
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
8 %							
D.O. Initial	6.8	6.2	6.4	6.5	6.5	6.9	6.4
Final	6.3	6.4	6.6	6.9	7.6	7.5	NA
pH Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
Final	8.2	8.2	7.9	8.3	8.0	8.0	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	170	150	140	150	170	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
11 %							
D.O. Initial	6.6	6.1	6.4	6.6	6.5	6.9	6.5
Final	6.4	6.6	6.6	7.1	7.6	7.4	NA
pH Initial	7.7	7.7	7.8	7.8	7.9	7.6	7.5
Final	8.1	8.2	7.9	8.3	8.0	8.0	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	150	160	150	180	180
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
14 %							
D.O. Initial	6.8	6.3	6.4	6.5	6.5	6.9	6.6
Final	6.4	6.6	6.8	7.2	7.8	7.5	NA
pH Initial	7.7	7.7	7.8	7.7	7.9	7.6	7.4
Final	8.1	8.2	7.9	8.3	8.0	8.0	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	170	160	160	160	180	190
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
19 %							
D.O. Initial	6.8	6.3	6.4	6.5	6.6	6.9	6.7
Final	6.4	6.6	6.8	7.0	7.7	7.5	NA
pH Initial	7.6	7.7	7.8	7.7	7.9	7.6	7.4
Final	8.1	8.1	7.8	8.2	8.0	8.0	NA
Alkalinity	29	NA	28	NA	30	NA	NA
Hardness	46	NA	42	NA	42	NA	NA
Conductivity	180	180	170	160	160	190	200
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
25 %							
D.O. Initial	6.8	6.2	6.4	6.5	6.3	6.9	6.5
Final	6.4	6.6	7.0	7.0	7.6	7.4	NA
pH Initial	7.6	7.6	7.7	7.6	7.9	7.6	7.3
Final	8.1	8.1	7.8	8.3	8.0	8.0	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	190	190	170	170	170	200	210
Chlorine	NA	NA	NA	NA	NA	NA	NA

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: <u>SEARCY</u>			PO No.		NO OF	ANALYSES REQUESTED										AIC CONTROL NO: <u>161051</u>	
Project Reference:			SAMPLE MATRIX			BOTTLES	Monitoring										AIC PROPOSAL NO:
Project Manager: <u>Paul Abernathy</u>			G R A B	C O M P	W A T E R												S O I L
Sampled X <u>[Signature]</u>						Received Temperature C <u>2°C</u>											
By:													Remarks				
AIC No.	Sample Identification	Date/Time Collected															
<u>2</u>	<u>FFP START</u>	<u>9-14-12 / 11:45pm</u>															
	<u>STOP</u>	<u>9-20-12 / 11:45pm</u>		<input checked="" type="checkbox"/>													
													Field pH calibration				
													on _____ @ _____				
													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 <u>X</u> By: <u>[Signature]</u>		Date/Time <u>06:00</u> <u>9-21-12</u>		Received By: <u>[Signature]</u>		Date/Time <u>9-21-12</u> <u>06:00</u>					
Expedited results requested by: _____						Relinquished By: <u>[Signature]</u>		Date/Time <u>9-21-12</u> <u>09:00</u>		Received in Lab By: <u>[Signature]</u>		Date/Time <u>9-21-12</u> <u>9:00am</u>					
Who should AIC contact with questions: _____						Comments:											
Phone: _____ Fax: _____																	
Report Attention to: _____																	
Report Address to: <u>SEARCY Water & Sewer</u> <u>P.O. Box 135</u> <u>SEARCY, AR 72145</u>																	

Monthly Overflow Report
In accordance with Part III (4) of NPDES Permit No. AR0021601

DMR Period: From: To:
 9/1/2012 9/30/2012


<u>Overflow #</u>	<u>Date</u>	<u>Time</u>	<u>Duration</u>	<u>Location</u>	<u>Est. Volume</u>	<u>Cause</u>	<u>Env. Impact</u>	<u>Action Taken</u>	<u>Discharge</u>
1	9/2/2012	5:45 PM	1 hour	806 Brookhart	750	grease	neah	Jetted line	not reach stream
2	9/10/2012	8:00 PM	3.5 hrs.	2215 E. Race	500	debris	neah	Jetted line	not reach stream

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblity of fine and imprisonment for knowing violations.

Report submitted by:

Date signed:



Daniel K. Dawson, General Manager


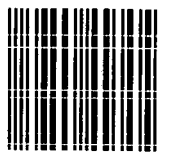
Oct. 10, 2012

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

