March 10, 2016

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

Control No. 199771-1

Prepared for:

Mr. Bill Eoff
Huntsville Water Utilities
Post Office Box 430
Huntsville, AR 72740

Prepared by:

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AMERICAN INTERPLEX CORPORATION
LABORATORIES

Huntsville Water Utilities
ATTN: Mr. Bill Eoff
Post Office Box 430
Huntsville, AR 72740

Re: Chronic 7-Day Renewal utilizing *Pimephales promelas* (Fathead minnow) and *Ceriodaphnia dubia*
Outfall 001 - Huntsville, AR
NPDES Permit No. AR0022004 AFIN# 44-00018

Dear Mr. Bill Eoff:

This report is the analytical results and supporting information for the samples submitted to American Interplex Corporation (AIC). The following results are applicable only to the sample identified by the control number referenced above. Accurate assessment of the data requires access to the entire document. Each section of the report has been reviewed and approved by the Chief Operating Officer or qualified designee.

Testing procedures and Quality Assurance were in accordance with "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" EPA-821-R-02-013, Fourth Edition, October 2002. Test results are summarized below:

Method 1000.0 Chronic *Pimephales promelas* (Fathead minnow) Survival and Growth Test: The No Observable Effects Concentration (NOEC) for survival occurred at 100 % effluent, which is equal to the critical dilution of 100 %. The NOEC for growth occurred at 100 % effluent, which is equal to the critical dilution of 100 %. **The sample, therefore, PASSED both lethal and sub-lethal effects for the Fathead minnow test.**

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

AMERICAN INTERPLEX CORPORATION

John Overbey
Chief Operating Officer

PDF cc: Huntsville Water Utilities
ATTN: Mr. Bill Eoff
bill9eoff@hotmail.com

Table of Contents

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	0.381	PASS
Control Growth CV < or = 40%	5.36	PASS
Growth Minimum Significant Difference 12 to 30%	18.3	PASS
Critical Dilution CV < or = 40%	14.5	PASS

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	23.8	PASS
Control CV < or = 40% per Surviving Female	16.2	PASS
Reproduction Minimum Significant Difference 13 to 47%	23.9	PASS
Critical Dilution CV < or = 40%	22.0	PASS

II. Outlined Report

A. Introduction

1. Permit Number: AR0022004 AFIN# 44-00018
2. Test Requirements: Chronic Biomonitoring, Quarterly
   Test Methods 1000.0 and 1002.0
3. Receiving Stream: White River Basin

B. Source of Effluent/Dilution Water

1. Effluent Samples:
   a. Sampling Point: Outfall 001
   b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.1	8.1	8.5
pH (standard units)	7.3	7.4	7.4
Alkalinity (mg/l as CaCO3)	150	170	120
Hardness (mg/l as CaCO3)	210	190	180
Conductivity (umhos/cm)	1200	1100	1000
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.16	4.9	0.23

2. Dilution Water Samples: Synthetic Moderately Hard Water #4309
   a. Dates Prepared: February 27 through March 12, 2016
   b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	8.5	8.2	8.7
pH (standard units)	7.5	7.6	7.7
Alkalinity (mg/l as CaCO3)	58	58	58
Hardness (mg/l as CaCO3)	82	90	90
Conductivity (umhos/cm)	280	280	280
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05

C. Test Methods
1. Test methods used:
Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013; test 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 1, 2016 at 1700
Date & Time Test Terminated:	March 8, 2016 at 1545
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 1, 2016 at 1530
Date & Time Test Terminated:	March 7, 2016 at 1350
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 Bartlett's test and analyzed with Dunnett's Test to determine the No Observable Effects Concentration (NOEC) for Reproduction.

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 2, 2016 at 1425 to February 9, 2016 at 1340
The results were as follows: (Control No. 198842-1.)
Survival LC-50: 4893 mg/l
Growth IC-25: 3633 mg/l
Growth PMSD: 14.2

Ceriodaphnia dubia

Chronic reference tests are performed monthly.
A chronic reference test was performed on February 2, 2016 at 1610 to February 8, 2016 at 1450
The results were as follows: (Control No. 198842-2.)
Survival LC-50: 1777 mg/l
Growth IC-25: 720.1 mg/l
Growth PMSD: 21.4

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	96.4	5.34
pH	SM 4500-H+ B	101	0.145
Conductivity	EPA 120.1	108	1.90

VI. Organism History

Pimephales promelas (Fathead minnow)

Date: March 1, 2016
Age: <24 hours
Source: In-house culture
Water Chemistry Record:
Alkalinity: 57-64 mg/l
Hardness: 80-100 mg/l
Temperature: 25 deg.C

Ceriodaphnia dubia

Date: March 1, 2016
Age: <24 hours
Source: In-house culture
Water Chemistry Record:
Alkalinity: 57-64 mg/l
Hardness: 80-100 mg/l
Temperature: 25 deg.C

VII. Results Summary *Pimephales promelas*, Fathead minnow Larval Survival and Growth Test – Method 1000.0

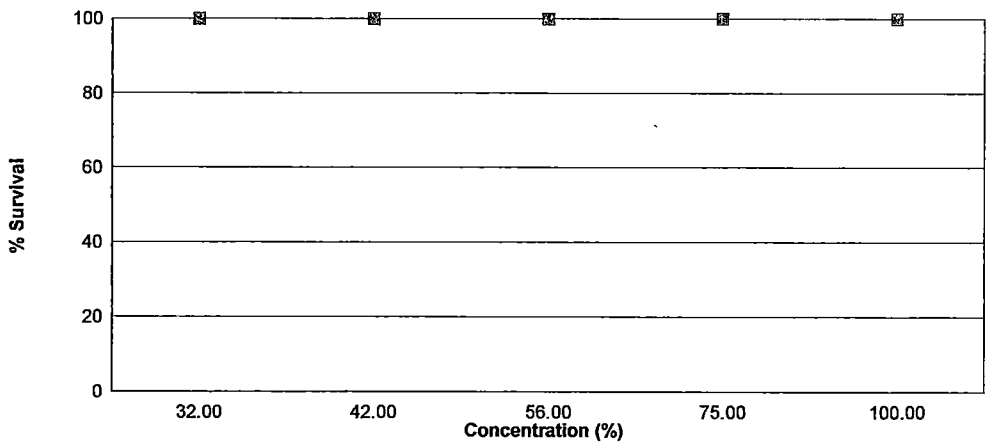
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

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

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

The test was initiated on March 1, 2016 at 1700 and continued through March 8, 2016 at 1545. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

a.) NOEC survival = 100 % effluent
b.) NOEC growth = 100 % effluent



Summary of the 7-day Fathead Minnow Survival and Growth		
Concentration	Percent Survival	Mean Growth (mg)
Control	100	0.381
32 %	100	0.376
42 %	100	0.378
56 %	100	0.374
75 %	100	0.388
100 %	100	0.356

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

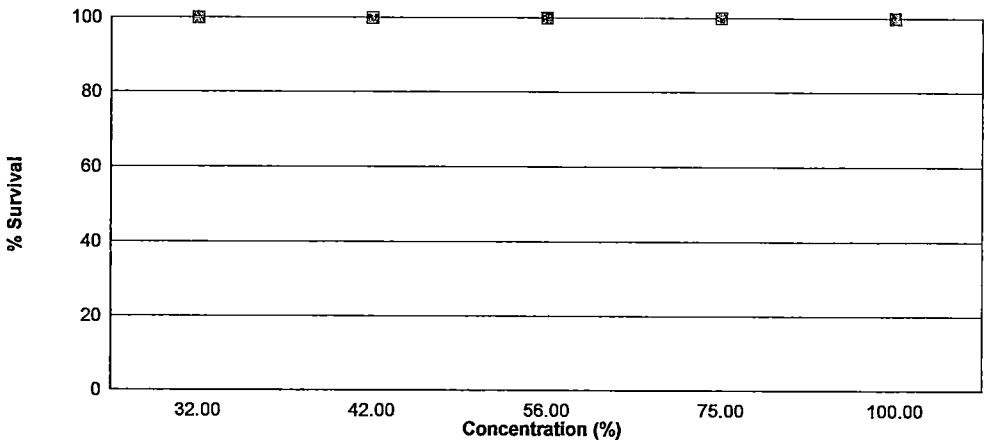
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

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

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

The test was initiated on March 1, 2016 at 1530 and continued through March 7, 2016 at 1350. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

a.) NOEC survival = 100 % effluent
b.) NOEC reproduction = 100 % effluent



Summary of the 6-day *Ceriodaphnia dubia* Survival and Reproduction Data		
Concentration	Percent Survival	Mean Reproduction
Control	100	23.8
32 %	100	31.4
42 %	100	31.1
56 %	100	29.6
75 %	100	30.9
100 %	100	29.0

Appendix A1: Test 1000.0

Pimephales promelas (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: March 1, 2016 at 1700
Date and Time Test Terminated: March 8, 2016 at 1545

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
32 %	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
42 %	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
56 %	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
75 %	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
100 %	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 1, 2016 at 1700
Test Terminated: March 8, 2016 at 1545

Drying Started: March 7, 2016 at 0942
Drying Ended: March 9, 2016 at 1415

Concentration	Replicate	Weight of pan	Weight of pan + fish	Total weight of fish (g)	Original # of fish	Mean dry weight (mg)
Control	A	.94037	.94370	0.00333	8	0.416
	B	.94097	.94388	0.00291	8	0.364
	C	.94471	.94770	0.00299	8	0.374
	D	.94348	.94645	0.00297	8	0.371
	E	.94344	.94647	0.00303	8	0.379
32 %	A	.94084	.94391	0.00307	8	0.384
	B	.94699	.94975	0.00276	8	0.345
	C	.94710	.95044	0.00334	8	0.418
	D	.94379	.94642	0.00263	8	0.329
	E	.94163	.94487	0.00324	8	0.405
42 %	A	.94514	.94755	0.00241	8	0.301
	B	.94192	.94507	0.00315	8	0.394
	C	.94431	.94684	0.00253	8	0.316
	D	.94116	.94476	0.00360	8	0.450
	E	.94032	.94377	0.00345	8	0.431
56 %	A	.93833	.94095	0.00262	8	0.328
	B	.93873	.94150	0.00277	8	0.346
	C	.93890	.94189	0.00299	8	0.374
	D	.93638	.93941	0.00303	8	0.379
	E	.93458	.93811	0.00353	8	0.441
75 %	A	.93993	.94299	0.00306	8	0.382
	B	.93490	.93774	0.00284	8	0.355
	C	.94203	.94536	0.00333	8	0.416
	D	.93473	.93835	0.00362	8	0.452
	E	.94411	.94680	0.00269	8	0.336
100 %	A	.94611	.94847	0.00236	8	0.295
	B	.94628	.94961	0.00333	8	0.416
	C	.94635	.94890	0.00255	8	0.319
	D	.94278	.94559	0.00281	8	0.351
	E	.94433	.94754	0.00321	8	0.401

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: March 1, 2016 at 1530
Date and Time Test Terminated: March 7, 2016 at 1350

Concentration: Control													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	4	5	5	4	4	3	5	3	4	3	40	10	4.00
4	0	0	9	8	0	0	0	0	0	0	17	10	1.70
5	7	0	0	0	9	6	9	8	1	7	47	10	4.70
6	14	12	15	15	13	12	14	9	17	13	134	10	13.4
7													
8													
TOTAL	25	17	29	27	26	21	28	20	22	23	238	10	23.8

Concentration: 32 %													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	5	3	4	4	5	4	4	0	4	4	37	10	3.70
4	0	9	11	9	11	0	0	4	0	0	44	10	4.40
5	11	0	0	0	12	8	14	11	11	9	76	10	7.60
6	22	14	16	19	0	15	15	20	19	17	157	10	15.7
7													
8													
TOTAL	38	26	31	32	28	27	33	35	34	30	314	10	31.4

Concentration: 42 %													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	4	4	4	4	0	4	4	0	3	5	32	10	3.20
4	0	9	13	12	6	0	8	4	0	0	52	10	5.20
5	14	0	0	0	9	8	0	11	12	13	67	10	6.70
6	20	19	18	20	0	15	16	15	20	17	160	10	16.0
7													
8													
TOTAL	38	32	35	36	15	27	28	30	35	35	311	10	31.1

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: March 1, 2016 at 1530
Date and Time Test Terminated: March 7, 2016 at 1350

Concentration: 56 %													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	3	6	5	4	4	2	3	0	5	0	32	10	3.20
4	0	9	10	11	10	0	0	4	0	5	49	10	4.90
5	10	0	0	0	0	10	8	9	10	8	55	10	5.50
6	18	17	18	16	13	13	17	15	17	16	160	10	16.0
7													
8													
TOTAL	31	32	33	31	27	25	28	28	32	29	296	10	29.6

Concentration: 75 %													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	3	5	5	4	4	5	5	3	4	4	42	10	4.20
4	9	13	11	11	8	9	0	0	0	0	61	10	6.10
5	0	0	0	0	0	0	9	8	8	12	37	10	3.70
6	16	20	24	19	0	16	19	16	20	19	169	10	16.9
7													
8													
TOTAL	28	38	40	34	12	30	33	27	32	35	309	10	30.9

Concentration: 100 %													
Day	Replicate										No. of Young	No. of Adults	Young per Adult
	1	2	3	4	5	6	7	8	9	10			
1	0	0	0	0	0	0	0	0	0	0	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	5	4	5	3	4	4	3	0	0	3	31	10	3.10
4	5	10	9	9	12	0	0	4	0	0	49	10	4.90
5	0	0	0	0	15	10	10	13	2	10	60	10	6.00
6	13	20	20	19	0	14	19	18	12	15	150	10	15.0
7													
8													
TOTAL	23	34	34	31	31	28	32	35	14	28	290	10	29.0

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	32 %	1	1.00000	1.39310
2	32 %	2	1.00000	1.39310
2	32 %	3	1.00000	1.39310
2	32 %	4	1.00000	1.39310
2	32 %	5	1.00000	1.39310
3	42 %	1	1.00000	1.39310
3	42 %	2	1.00000	1.39310
3	42 %	3	1.00000	1.39310
3	42 %	4	1.00000	1.39310
3	42 %	5	1.00000	1.39310
4	56 %	1	1.00000	1.39310
4	56 %	2	1.00000	1.39310
4	56 %	3	1.00000	1.39310
4	56 %	4	1.00000	1.39310
4	56 %	5	1.00000	1.39310
5	75 %	1	1.00000	1.39310
5	75 %	2	1.00000	1.39310
5	75 %	3	1.00000	1.39310
5	75 %	4	1.00000	1.39310
5	75 %	5	1.00000	1.39310
6	100 %	1	1.00000	1.39310
6	100 %	2	1.00000	1.39310
6	100 %	3	1.00000	1.39310
6	100 %	4	1.00000	1.39310
6	100 %	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	32 %	27.50	16.00	5.00	
3	42 %	27.50	16.00	5.00	
4	56 %	27.50	16.00	5.00	
5	75 %	27.50	16.00	5.00	
6	100 %	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
D = 0.05239		
W = 0.962		
Critical W = 0.9	(alpha = 0.01, N = 30)	
Critical W = 0.927	(alpha = 0.05, N = 30)	
Data PASS normality test (alpha = 0.01).		

Bartlett's Test for Homogeneity of Variance		No Transformation
Calculated B1 statistic = 4.714		
Critical B = 15.086	(alpha = 0.01, df = 5)	
Data PASS B1 homogeneity test at 0.01 level.		

Appendix A2: Statistics

Pimephales promelas (Fathead minnow) Growth

ANOVA Table				No Transformation
SOURCE	DF	SS	MS	F
Between	5	0.002833	0.0005666	0.2596
Within (Error)	24	0.05239	0.002183	
Total	29	0.05522		

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	0.3808	0.3808		
2	32 %	0.3762	0.3762	0.1557	
3	42 %	0.3784	0.3784	0.08122	
4	56 %	0.3736	0.3736	0.2437	
5	75 %	0.3882	0.3882	-0.2504	
6	100 %	0.3564	0.3564	0.8257	

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	32 %	5	0.06974	18.3	0.0046
3	42 %	5	0.06974	18.3	0.0024
4	56 %	5	0.06974	18.3	0.0072
5	75 %	5	0.06974	18.3	-0.0074
6	100 %	5	0.06974	18.3	0.0244

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
32 %	10	0	10
Total	20	0	20

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

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
42 %	10	0	10
Total	20	0	20

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

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
56 %	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
75 %	10	0	10
Total	20	0	20

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

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
100 %	10	0	10
Total	20	0	20

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

Summary of Fisher's Exact Test				
Group	Identification	Exposed	Dead	Sig 0.05
0	Control	10	0	
1	32 %	10	0	
2	42 %	10	0	
3	56 %	10	0	
4	75 %	10	0	
5	100 %	10	0	

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

Kolmogorov Test for Normality		No Transformation
D = 0.1008		
D* = 0.7908		
Critical D* = 1.035	(alpha = 0.01, N = 60)	
Data PASS normality test (alpha = 0.01).		

Bartlett's Test for Homogeneity of Variance		No Transformation
Calculated B1 statistic = 13.83		
Critical B = 15.086	(alpha = 0.01, df = 5)	
Data PASS B1 homogeneity test at 0.01 level.		

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

ANOVA Table				No Transformation
SOURCE	DF	SS	MS	F
Between	5	406.4	81.28	2.675
Within (Error)	54	1641	30.39	
Total	59	2047		

Critical F = 3.38 (alpha = 0.01, df = 5,54)
2.38 (alpha = 0.05, df = 5,54)

Since F > Critical F REJECT Ho: All equal (alpha = 0.05)

Dunnett's Test - Table 1 of 2 — No Transformation

Ho:Control<Treatment

Group	Identification	Transformed Mean	Mean In Original Units	T Stat	Sig 0.05
1	Control	23.8	23.8		
2	32 %	31.4	31.4	-3.083	
3	42 %	31.1	31.1	-2.961	
4	56 %	29.6	29.6	-2.353	
5	75 %	30.9	30.9	-2.88	
6	100 %	29	29	-2.109	

Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,54)

Dunnett's Test - Table 2 of 2 — No Transformation

Ho:Control<Treatment

Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control
1	Control	10			
2	32 %	10	5.695	23.9	-7.6
3	42 %	10	5.695	23.9	-7.3
4	56 %	10	5.695	23.9	-5.8
5	75 %	10	5.695	23.9	-7.1
6	100 %	10	5.695	23.9	-5.2

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: March 1, 2016 at 1134
Date and Time Test Terminated: March 8, 2016 at 1545

Effluent Conc.: Control		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.5	8.2	8.2	7.3	8.7	8.0	7.9
	Final *1	7.8	7.1	8.3	7.4	7.9	7.1	7.0
	Final *2	7.9	7.4	8.1	8.6	8.0	8.1	
pH, units	Initial	7.5	7.6	7.6	7.4	7.7	7.8	7.6
	Final *1	7.6	7.4	7.6	7.4	7.7	7.3	7.4
	Final *2	7.7	7.7	7.8	7.8	7.5	7.8	
Alkalinity, mg CaCO3/l		58	NA	58	NA	58	NA	NA
Hardness, mg CaCO3/l		82	NA	90	NA	90	NA	NA
Conductivity, umhos/cm		280	280	280	290	280	290	270
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

Effluent Conc.: 32 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.5	8.2	8.6	6.7	8.6	8.2	7.9
	Final *1	7.7	6.6	8.2	7.4	7.8	6.6	7.0
	Final *2	7.7	7.6	8.3	8.6	7.6	7.7	
pH, units	Initial	7.4	7.6	7.5	7.5	7.5	7.9	7.5
	Final *1	7.8	7.4	7.6	7.6	7.9	7.4	7.5
	Final *2	7.8	7.9	8.0	7.9	7.7	7.9	

Effluent Conc.: 42 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.3	8.2	8.5	7.2	8.6	7.7	7.8
	Final *1	7.6	7.0	8.3	7.3	7.7	6.9	7.0
	Final *2	7.8	7.8	8.2	8.5	7.8	7.9	
pH, units	Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
	Final *1	7.8	7.6	7.7	7.6	7.9	7.5	7.6
	Final *2	7.8	8.0	8.1	8.0	7.7	7.9	

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: March 1, 2016 at 1134
Date and Time Test Terminated: March 8, 2016 at 1545

Effluent Conc.: 56 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.6	8.2	8.3	7.0	8.6	7.7	7.7
	Final *1	7.8	7.1	8.0	7.3	7.8	7.4	6.9
	Final *2	7.8	7.6	8.1	8.5	7.8	8.2	
pH, units	Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
	Final *1	7.8	7.7	7.5	7.7	8.0	7.6	7.7
	Final *2	7.9	8.0	8.1	8.0	7.8	8.0	

Effluent Conc.: 75 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.4	8.2	8.2	6.5	8.5	8.0	7.7
	Final *1	7.7	7.0	7.9	7.4	7.8	7.1	6.9
	Final *2	7.8	7.4	8.1	8.8	8.0	8.0	
pH, units	Initial	7.3	7.6	7.4	7.6	7.5	8.0	7.5
	Final *1	7.8	7.7	7.5	7.8	8.0	7.8	7.7
	Final *2	8.0	8.1	8.1	8.0	7.8	8.0	

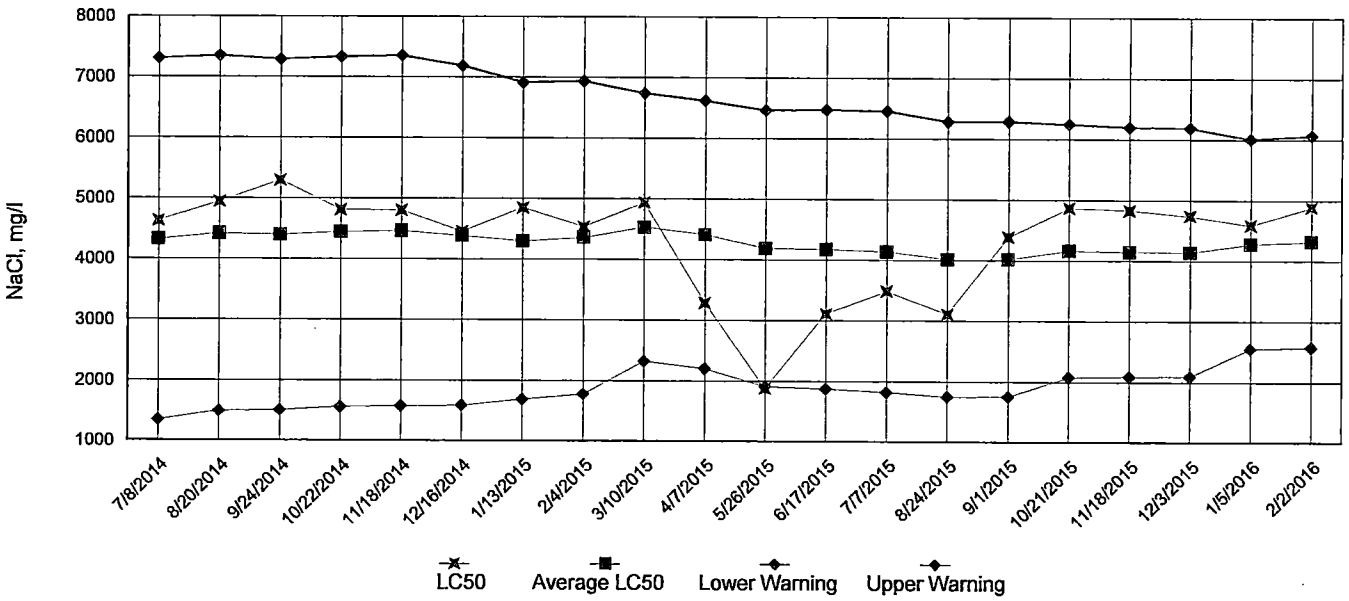
Effluent Conc.: 100 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	8.1	8.2	8.1	6.3	8.5	7.8	7.6
	Final *1	7.6	6.4	7.4	7.4	7.7	6.7	6.8
	Final *2	7.7	7.4	8.3	8.6	7.9	7.9	
pH, units	Initial	7.3	7.4	7.4	7.6	7.4	8.0	7.4
	Final *1	8.0	7.7	7.2	7.7	8.0	7.6	7.7
	Final *2	8.0	8.2	8.2	8.1	7.9	8.1	
Alkalinity, mg CaCO3/l		150	NA	170	NA	120	NA	NA
Hardness, mg CaCO3/l		210	NA	190	NA	180	NA	NA
Conductivity, umhos/cm		1200	1200	1100	1100	1000	1000	990
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

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

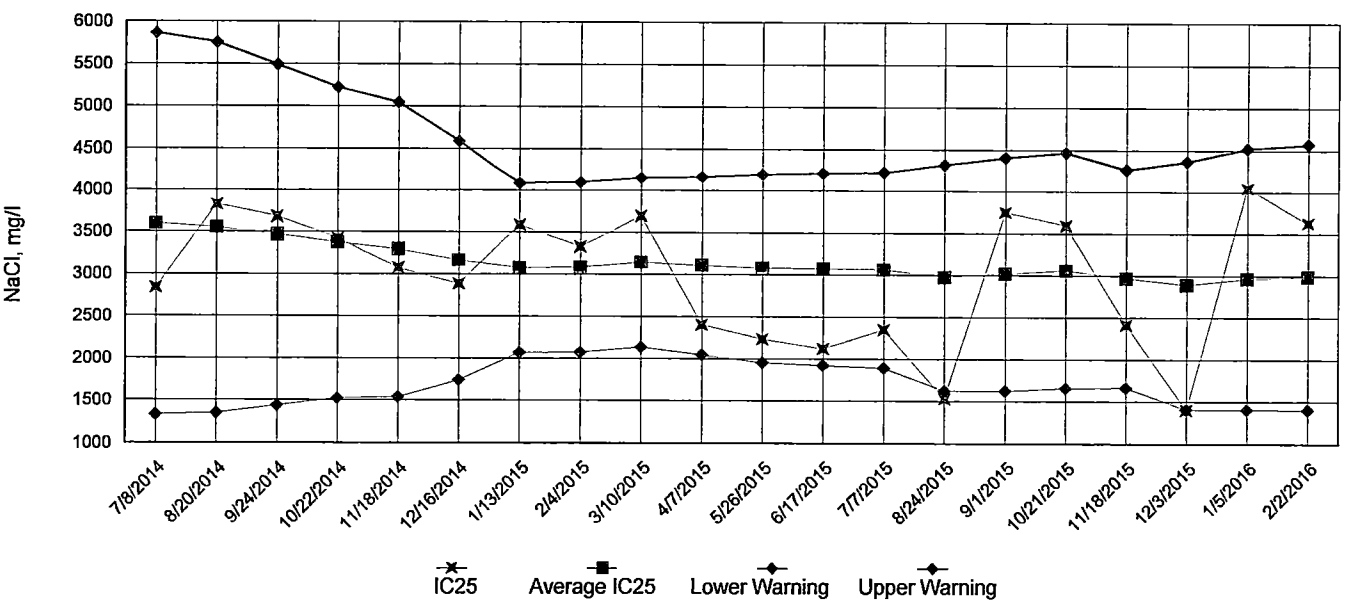
Appendix A4: Test 1000.0

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

LC50 Survival Data



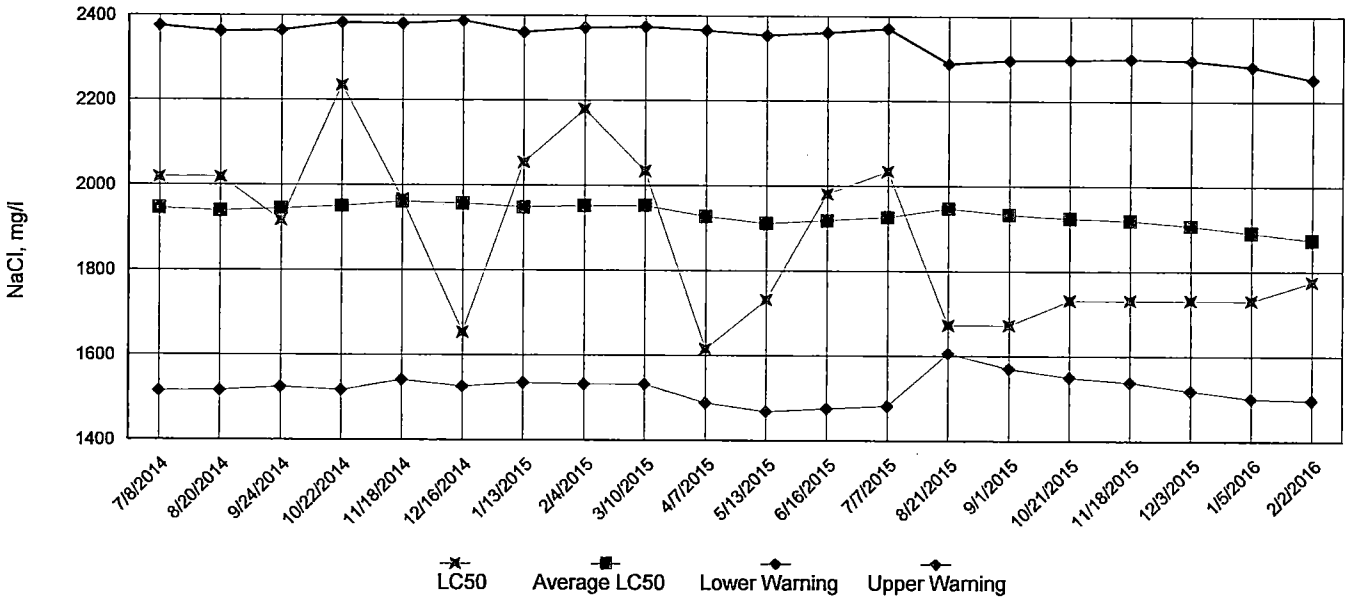
IC25 Growth Data



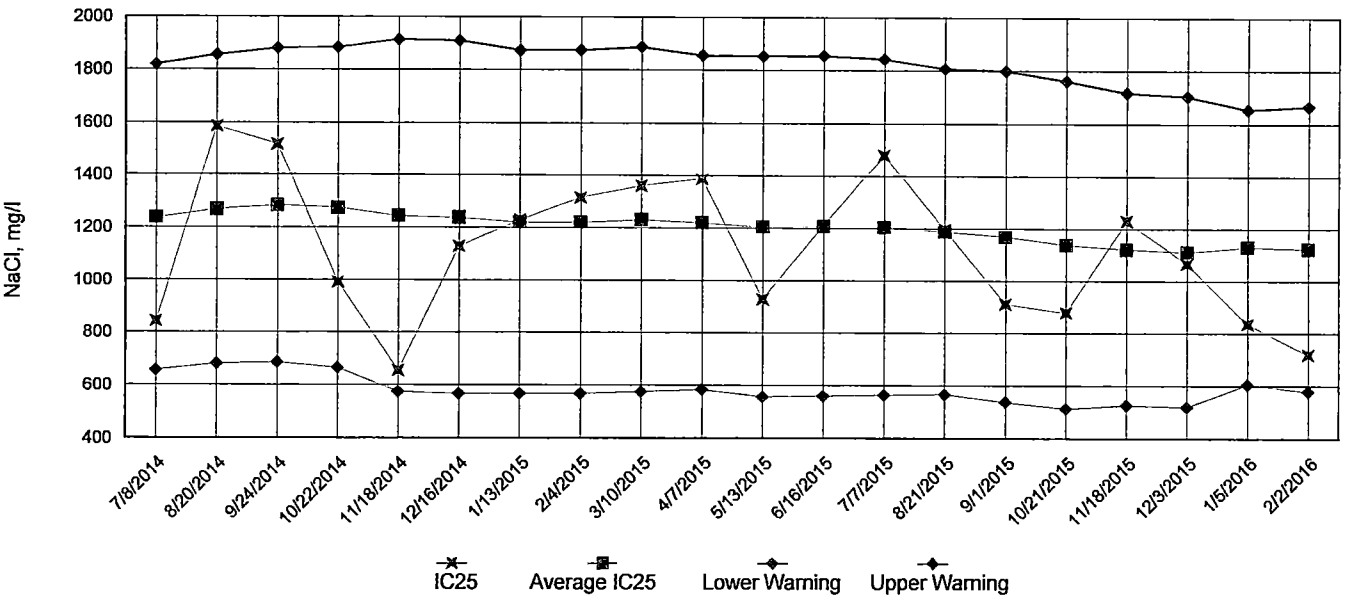
Appendix A4: Test 1002.0

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: Huntsville Water Utilities

NPDES No.: AR0022004 AFIN# 44-00018

Date and Time Test Initiated: March 1, 2016 at 1700
Date and Time Test Terminated: March 8, 2016 at 1545
Dilution water used: Synthetic Moderately Hard Water #4309

DATA TABLE FOR SURVIVAL

Effluent Conc. %	Percent Survival in replicate chambers A	B	C	D	E	Mean percent survival 24 hr	48 hr	7 days	CV%
Control	100	100	100	100	100	100	100	100	0.00
32 %	100	100	100	100	100	100	100	100	0.00
42 %	100	100	100	100	100	100	100	100	0.00
56 %	100	100	100	100	100	100	100	100	0.00
75 %	100	100	100	100	100	100	100	100	0.00
100 %	100	100	100	100	100	100	100	100	0.00

DATA TABLE FOR GROWTH

Effluent Conc. %	Average dry weight, mg replicate chambers A	B	C	D	E	Mean dry weight, mg	CV%
Control	0.416	0.364	0.374	0.371	0.379	0.381	5.36
32 %	0.384	0.345	0.418	0.329	0.405	0.376	10.2
42 %	0.301	0.394	0.316	0.450	0.431	0.378	17.7
56 %	0.328	0.346	0.374	0.379	0.441	0.374	11.5
75 %	0.382	0.355	0.416	0.452	0.336	0.388	12.0
100 %	0.295	0.416	0.319	0.351	0.401	0.356	14.5

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	(100 %)	____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	(100 %)	____YES	X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	____YES	____NO

3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP6C)

4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP6C)

5. NOEC Pimephales Lethality: 100 % (TOP6C)

6. LOEC Pimephales Lethality: 100 % (TXP6C)

7. NOEC Pimephales Sublethality: 100 % (TPP6C)

8. LOEC Pimephales Sublethality: 100 % (TYP6C)

9. Coefficient of variation for Pimephales growth: 14.5 (TQP6C)

Appendix B: Test 1000.0

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

PERMITTEE: Huntsville Water Utilities
NPDES NO.: AR0022004 AFIN# 44-00018
CONTACT: Mr. Bill Eoff
ANALYST: 280, 304, 310, 314

SAMPLE No. 1 COLLECTED ending: DATE: February 29, 2016 TIME: 0500
SAMPLE No. 2 COLLECTED ending: DATE: March 2, 2016 TIME: 0500
SAMPLE No. 3 COLLECTED ending: DATE: March 4, 2016 TIME: 0500
Test Initiated: DATE: March 1, 2016 TIME: 1700
Test Terminated: DATE: March 8, 2016 TIME: 1545

DILUTION Control	DAY 1	2	3	4	5	6	7
D.O. Initial	8.5	8.2	8.2	7.3	8.7	8.0	7.9
Final	7.8	7.1	8.3	7.4	7.9	7.1	7.0
pH Initial	7.5	7.6	7.6	7.4	7.7	7.8	7.6
Final	7.6	7.4	7.6	7.4	7.7	7.3	7.4
Alkalinity	58	NA	58	NA	58	NA	NA
Hardness	82	NA	90	NA	90	NA	NA
Conductivity	280	280	280	290	280	290	270
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 32 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.5	8.2	8.6	6.7	8.6	8.2	7.9
Final	7.7	6.6	8.2	7.4	7.8	6.6	7.0
pH Initial	7.4	7.6	7.5	7.5	7.5	7.9	7.5
Final	7.8	7.4	7.6	7.6	7.9	7.4	7.5
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	570	570	540	560	500	520	500
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 42 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.3	8.2	8.5	7.2	8.6	7.7	7.8
Final	7.6	7.0	8.3	7.3	7.7	6.9	7.0
pH Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
Final	7.8	7.6	7.7	7.6	7.9	7.5	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	650	650	610	640	570	580	560
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 56 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.6	8.2	8.3	7.0	8.6	7.7	7.7
Final	7.8	7.1	8.0	7.3	7.8	7.4	6.9
pH Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
Final	7.8	7.7	7.5	7.7	8.0	7.6	7.7
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	780	780	720	750	660	680	660
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 75 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.4	8.2	8.2	6.5	8.5	8.0	7.7
Final	7.7	7.0	7.9	7.4	7.8	7.1	6.9
pH Initial	7.3	7.6	7.4	7.6	7.5	8.0	7.5
Final	7.8	7.7	7.5	7.8	8.0	7.8	7.7
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	960	950	880	910	820	840	820
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 100 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	8.2	8.1	6.3	8.5	7.8	7.6
Final	7.6	6.4	7.4	7.4	7.7	6.7	6.8
pH Initial	7.3	7.4	7.4	7.6	7.4	8.0	7.4
Final	8.0	7.7	7.2	7.7	8.0	7.6	7.7
Alkalinity	150	NA	170	NA	120	NA	NA
Hardness	210	NA	190	NA	180	NA	NA
Conductivity	1200	1200	1100	1100	1000	1000	990
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

Appendix B: Test 1002.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

Permittee: Huntsville Water Utilities

NPDES No.: AR0022004 AFIN# 44-00018

Date and Time Test Initiated: March 1, 2016 at 1530
Date and Time Test Terminated: March 7, 2016 at 1350
Dilution water used: Synthetic Moderately Hard Water #4309

PERCENT SURVIVAL

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

NUMBER OF YOUNG PRODUCED PER FEMALE @ 6 DAYS

		Percent Effluent				
Replicates	Control	32 %	42 %	56 %	75 %	100 %
A	25	38	38	31	28	23
B	17	26	32	32	38	34
C	29	31	35	33	40	34
D	27	32	36	31	34	31
E	26	28	15	27	12	31
F	21	27	27	25	30	28
G	28	33	28	28	33	32
H	20	35	30	28	27	35
I	22	34	35	32	32	14
J	23	30	35	29	35	28
Mean per Adult	23.8	31.4	31.1	29.6	30.9	29.0
Mean per Surviving Adult	23.8	31.4	31.1	29.6	30.9	29.0
CV %	16.2	12.0	21.6	8.75	25.2	22.0

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

Appendix B: Test 1002.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

1. Fisher's Exact Test:

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

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

2. Dunnett's Test:

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

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

3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP3B)

4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP3B)

5. NOEC Ceriodaphnia Lethality: 100 % (TOP3B)

6. LOEC Ceriodaphnia Lethality: 100 % (TXP3B)

7. NOEC Ceriodaphnia Sublethality: 100 % (TPP3B)

8. LOEC Ceriodaphnia Sublethality: 100 % (TYP3B)

9. Coefficient of variation for Ceriodaphnia Reproduction: 22 (TQP3B)

Appendix B: Test 1002.0

CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
CHEMICAL PARAMETERS CHART

PERMITTEE: Huntsville Water Utilities
NPDES NO.: AR0022004 AFIN# 44-00018
CONTACT: Mr. Bill Eoff
ANALYST: 280, 304, 310, 314

SAMPLE No. 1 COLLECTED ending: DATE: February 29, 2016 TIME: 0500
SAMPLE No. 2 COLLECTED ending: DATE: March 2, 2016 TIME: 0500
SAMPLE No. 3 COLLECTED ending: DATE: March 4, 2016 TIME: 0500
Test Initiated: DATE: March 1, 2016 TIME: 1530
Test Terminated: DATE: March 7, 2016 TIME: 1350

DILUTION Control	DAY 1	2	3	4	5	6	7
D.O. Initial	8.5	8.2	8.2	7.3	8.7	8.0	7.9
Final	7.9	7.4	8.1	8.6	8.0	8.1	–
pH Initial	7.5	7.6	7.6	7.4	7.7	7.8	7.6
Final	7.7	7.7	7.8	7.8	7.5	7.8	–
Alkalinity	58	NA	58	NA	58	NA	NA
Hardness	82	NA	90	NA	90	NA	NA
Conductivity	280	280	280	290	280	290	270
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 32 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.5	8.2	8.6	6.7	8.6	8.2	7.9
Final	7.7	7.6	8.3	8.6	7.6	7.7	–
pH Initial	7.4	7.6	7.5	7.5	7.5	7.9	7.5
Final	7.8	7.9	8.0	7.9	7.7	7.9	–
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	570	570	540	560	500	520	500
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 42 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.3	8.2	8.5	7.2	8.6	7.7	7.8
Final	7.8	7.8	8.2	8.5	7.8	7.9	–
pH Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
Final	7.8	8.0	8.1	8.0	7.7	7.9	–
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	650	650	610	640	570	580	560
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 56 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.6	8.2	8.3	7.0	8.6	7.7	7.7
Final	7.8	7.6	8.1	8.5	7.8	8.2	–
pH Initial	7.4	7.6	7.5	7.6	7.5	7.9	7.5
Final	7.9	8.0	8.1	8.0	7.8	8.0	–
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	780	780	720	750	660	680	660
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 75 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.4	8.2	8.2	6.5	8.5	8.0	7.7
Final	7.8	7.4	8.1	8.8	8.0	8.0	–
pH Initial	7.3	7.6	7.4	7.6	7.5	8.0	7.5
Final	8.0	8.1	8.1	8.0	7.8	8.0	–
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	960	950	880	910	820	840	820
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 100 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	8.2	8.1	6.3	8.5	7.8	7.6
Final	7.7	7.4	8.3	8.6	7.9	7.9	–
pH Initial	7.3	7.4	7.4	7.6	7.4	8.0	7.4
Final	8.0	8.2	8.2	8.1	7.9	8.1	–
Alkalinity	150	NA	170	NA	120	NA	NA
Hardness	210	NA	190	NA	180	NA	NA
Conductivity	1200	1200	1100	1100	1000	1000	990
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

AMERICAN INTERPLEX CORPORATION
LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
(501) 224-5060
FAX (501) 224-5072

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: Huntsville Water Utilities
Project Reference: Bio Monitoring
Project Manager: Bill Eoff
Sampled By: Bill Eoff

PO No.

AIC CONTROL NO: 199771
AIC PROPOSAL NO:
Carrier:
Received on Ice (4°C)? (YES) NO

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	SAMPLE MATRIX: WATER	SOIL	NO OF BOTTLES	ANALYSES REQUESTED: Cd & Fh Chronic	Remarks
1	Huntsville#1	2/28/16 @ 7:00 - 2/29/16 @ 5:00		X	X		3	X	
		Container Type	P						Field pH calibration
		Preservative	4C						on _____ @ _____
									Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: Bill Eoff
Phone: (479) - 738 - 2081 Fax: (479) - 738 - 1285
Report Attention to: Bill Eoff
Report Address to: Bill Eoff
Huntsville Water Utilities
P.O. Box 430

Relinquished By:	Date/Time	Received By:	Date/Time
BM	2/29/16 @ 8:00		
Relinquished By:	Date/Time	Received In Lab By:	Date/Time
			3/1/16 0930

Comments:
FedEx# 801940810102

AMERICAN INTERPLEX CORPORATION
LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
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CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: Huntsville Water Utilities
Project Reference: Bio Monitoring
Project Manager: Bill Eoff
Sampled By: Bill Eoff

PO No.

AIC CONTROL NO: 109771
AIC PROPOSAL NO:
Carrier:
Received on Ice (4°C)? (YES) 0.1 NO

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	SAMPLE MATRIX: WATER	SOIL	NO OF BOTTLES	ANALYSES REQUESTED: Cd & Fh Chronic	Remarks
2	Huntsville#2	3-1-16 @7:00 - 3-2-16 @5:00		X	X		3	X	
		Container Type	P						Field pH calibration
		Preservative	4C						on ____ @ ____
									Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: ____
Who should AIC contact with questions: Bill Eoff
Phone: (479) - 738 - 208 Fax: (479) - 738 - 1285
Report Attention to: Bill Eoff
Report Address to: Bill Eoff
Huntsville Water Utilities
P.O. Box 430

Relinquished By:	Date/Time	Received By:	Date/Time
BM	3/2/16 @8:00		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
			3/3/16 0845

Comments:
FedEx# 861940816098

AMERICAN INTERPLEX CORPORATION
LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
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CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: Huntsville Water Utilities
Project Reference: Bio Monitoring
Project Manager: Bill Eoff
Sampled By: Bill Eoff

PO No.

AIC CONTROL NO: 199771
AIC PROPOSAL NO:
Carrier: FedEx
Received on Ice (4°C)? (YES) 2.1° NO

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	SAMPLE MATRIX: WATER	SOIL	NO OF BOTTLES	ANALYSES REQUESTED: Cd & Fh Chronic	Remarks
3	Huntsville#3	3/3/16 @ 7:00 3/4/16 @ 5:00		X	X		3	X	
		Container Type	P						Field pH calibration
		Preservative	4C						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)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: Bill Eoff
Phone: (479) - 738 - 2081 Fax: (479) - 738 - 1285
Report Attention to: Bill Eoff
Report Address to: Bill Eoff
Huntsville Water Utilities
P.O. Box 430

Relinquished By:	Date/Time	Received By:	Date/Time
BM	3/4/16 @ 8:00		
Relinquished By:	Date/Time	Received in Lab By: Shawn Wren	Date/Time 3/4/16 (0825)

Comments:

Huntsville Water Utilities
P.O. Box 430
Huntsville, AR 72740

A.D.E.Q.
Water Division Enforcement
5301 Northshore Drive
North Little Rock, AR 72118