AMERICAN INTERPLEX CORPORATION
LABORATORIES

September 26, 2012

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

Control No. 161003-1

Prepared for:

Mr. Mike Spencer
Mena Water and Sewer
323 County Road 53
Mena, AR 71953

Prepared by:

AMERICAN INTERPLEX CORPORATION
8600 Kanis Road
Little Rock, AR 72204-2322

AMERICAN INTERPLEX CORPORATION
LABORATORIES

Mena Water and Sewer
ATTN: Mr. Mike Spencer
323 County Road 53
Mena, AR 71953

Re: Chronic 7-Day Renewal utilizing *Ceriodaphnia dubia*
Effluent - Mena, AR
NPDES Permit No. AR0036692 AFIN#5700042

Dear Mr. Mike Spencer:

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 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
Laboratory Director

PDF cc: Mena Water and Sewer
ATTN: Mr. Mike Spencer
menawwtp@gmail.com

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I. Control Acceptance Criteria

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	16.2	PASS
Control CV < or = 40% per Surviving Female	24.8	PASS
Reproduction Minimum Significant Difference 13 to 47%	24.8	PASS
Critical Dilution CV < or = 40%	19.9	PASS

II. Outlined Report

A. Introduction

1. Permit Number: AR0036692 AFIN#5700042
2. Test Requirements: Chronic Biomonitoring, Quarterly Test Method 1002.0
3. Receiving Stream: Ouachita River Basin

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)	6.7	6.4	6.6
pH (standard units)	7.2	7.3	7.6
Alkalinity (mg/l as CaCO3)	20	13	13
Hardness (mg/l as CaCO3)	28	28	27
Conductivity (umhos/cm)	220	260	240
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.37	0.43	<0.1

2. Dilution Water Samples: Synthetic Soft Water #3908
   a. Dates Prepared: September 5 through September 19, 2012
   b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	6.8	6.4	6.3
pH (standard units)	7.9	7.8	7.9
Alkalinity (mg/l as CaCO3)	30	30	30
Hardness (mg/l as CaCO3)	48	47	41
Conductivity (umhos/cm)	130	150	140
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05

C. Test Methods
1. Test methods used:
Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013; test Method 1002.0, *Ceriodaphnia dubia* Survival and Reproduction.
2. Endpoint: No Observable Effects Concentration (NOEC)
3. Test Conditions:

Ceriodaphnia dubia Survival and Growth Method 1002.0

Date & Time Test Initiated:	September 18, 2012 at 1125
Date & Time Test Terminated:	September 24, 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 1002.0 *Ceriodaphnia dubia*

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

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

IV. Standard Reference Toxicants

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

Ceriodaphnia dubia

Chronic reference tests are performed monthly.
A chronic reference test was performed on 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

Ceriodaphnia dubia

Date: September 18, 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 *Ceriodaphnia dubia*, Cladoceran Survival and Reproduction Test -- Method 1002.0

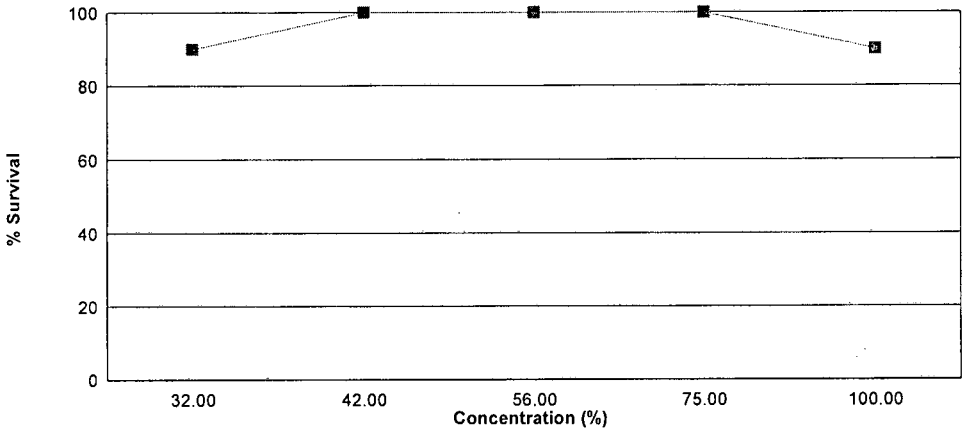
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

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 September 18, 2012 at 1125 and continued through September 24, 2012 at 1310. 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	16.2
32 %	90.0	16.8
42 %	100	16.3
56 %	100	17.6
75 %	100	17.7
100 %	90.0	13.3

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: September 18, 2012 at 1125
Date and Time Test Terminated: September 24, 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	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	3	4	0	0	4	0	2	0	0	0	13	10	1.30
4	0	0	4	3	0	4	0	4	3	3	21	10	2.10
5	9	10	9	7	8	8	7	10	8	7	83	10	8.30
6	8	7	0	0	6	7	6	5	6	0	45	10	4.50
7													
8													
TOTAL	20	21	13	10	18	19	15	19	17	10	162	10	16.2

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	3	0	2	0	0	3	0	0	0	0	8	10	0.800
4	0	0	0	4	5	0	5	4	4	5	27	10	2.70
5	9	10	8	8	0	9	0	9	9	0	62	10	6.20
6	8	11	9	0	9	9	8	7	X	10	71	9	7.89
7													
8													
TOTAL	20	21	19	12	14	21	13	20	13	15	168	10	16.8

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	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	2	5	5	3	0	4	0	4	4	2	29	10	2.90
5	7	0	0	9	8	6	9	8	7	8	62	10	6.20
6	7	8	12	0	10	7	11	8	9	0	72	10	7.20
7													
8													
TOTAL	16	13	17	12	18	17	20	20	20	10	163	10	16.3

Appendix A1: Test 1002.0

Ceriodaphnia dubia Survival and Reproduction

Date and Time Test Initiated: September 18, 2012 at 1125
Date and Time Test Terminated: September 24, 2012 at 1310

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	0	3	0	0	0	0	1	0	0	0	4	10	0.400
4	3	0	0	2	5	2	0	3	4	4	23	10	2.30
5	8	9	11	7	0	8	7	9	7	8	74	10	7.40
6	0	11	11	0	10	8	9	10	8	8	75	10	7.50
7													
8													
TOTAL	11	23	22	9	15	18	17	22	19	20	176	10	17.6

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	0	0	0	0	0	0	0	0	0	0	0	10	0.00
4	2	2	5	4	0	3	3	4	4	5	32	10	3.20
5	8	8	0	9	8	4	9	8	7	0	61	10	6.10
6	8	12	10	0	10	7	12	4	9	12	84	10	8.40
7													
8													
TOTAL	18	22	15	13	18	14	24	16	20	17	177	10	17.7

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	0	0	1	0	0	0	0	0	0	0	1	10	0.100
4	0	3	0	3	4	5	2	3	3	4	27	10	2.70
5	8	8	9	9	0	0	8	9	0	7	58	10	5.80
6	8	9	5	0	9	9	7	0	X	0	47	9	5.22
7													
8													
TOTAL	16	20	15	12	13	14	17	12	3	11	133	10	13.3

Appendix A2: Statistics

Ceriodaphnia dubia Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
32 %	9	1	10
Total	19	1	20

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

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

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

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

Appendix A2: Statistics

Ceriodaphnia dubia Reproduction

Chi-Square Test for Normality		No Transformation
Chi-Square = 5.9307		
Critical Chi-Square = 13.28	(alpha = 0.01, df = 4)	
Data PASS normality test (alpha = 0.01).		

Kolmogorov Test for Normality		No Transformation
D = 0.0867		
D* = 0.6802		
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 = 1.402		
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	129.1	25.82	1.588
Within (Error)	54	877.9	16.26	
Total	59	1007		

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	16.2	16.2		
2	32 %	16.8	16.8	-0.3327	
3	42 %	16.3	16.3	-0.05545	
4	56 %	17.6	17.6	-0.7763	
5	75 %	17.7	17.7	-0.8318	
6	100 %	13.3	13.3	1.608	

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

Dunnett's Test - Table 2 of 2					No Transformation
Ho:Control<Treatment					
Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control
1	Control	10			
2	32 %	10	4.166	25.7	-0.6
3	42 %	10	4.166	25.7	-0.1
4	56 %	10	4.166	25.7	-1.4
5	75 %	10	4.166	25.7	-1.5
6	100 %	10	4.166	25.7	2.9

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	69.9	13.98	0.9769
Within (Error)	52	744	14.31	
Total	57	813.9		

Critical F = 3.39 (alpha = 0.01, df = 5,52)
2.39 (alpha = 0.05, df = 5,52)

Since F < Critical F FAIL TO REJECT Ho: All equal (alpha = 0.05)

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

Ho:Control<Treatment

Group	Identification	Transformed Mean	Mean In Original Units	T Stat	Sig 0.05
1	Control	16.2	16.2		
2	32 %	17.222	17.222	-0.588	
3	42 %	16.3	16.3	-0.05911	
4	56 %	17.6	17.6	-0.8275	
5	75 %	17.7	17.7	-0.8867	
6	100 %	14.444	14.444	1.01	

Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,52)
WARNING - Unequal replicate sizes. Critical values assuming equal replicate sizes have been used.

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

Ho:Control<Treatment

Group	Identification	Num of Reps	Min Sig Diff (In Orig. Units)	% of Control	Difference From Control
1	Control	10			
2	32 %	9	4.015	24.8	-1.022
3	42 %	10	3.908	24.1	-0.1
4	56 %	10	3.908	24.1	-1.4
5	75 %	10	3.908	24.1	-1.5
6	100 %	9	4.015	24.8	1.756

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: September 18, 2012 at 0826
Date and Time Test Terminated: September 24, 2012 at 1310

Effluent Conc.: Control		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.7	6.4	6.2	6.3	6.2	6.6
	Final	6.6	6.4	6.6	6.6	7.0	7.4	NA
pH, units	Initial	7.9	7.8	7.8	7.9	7.9	8.0	7.8
	Final	8.2	8.1	8.2	8.0	8.3	8.0	NA
Alkalinity, mg CaCO3/l		30	NA	30	NA	30	NA	NA
Hardness, mg CaCO3/l		48	NA	47	NA	41	NA	NA
Conductivity, umhos/cm		130	150	150	140	140	140	160
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	6.9	6.8	6.2	6.3	6.5	6.5	6.8
	Final	6.6	6.4	6.7	6.7	7.0	7.4	NA
pH, units	Initial	7.7	7.6	7.6	7.6	7.7	7.9	7.4
	Final	8.1	8.0	8.1	7.8	8.2	7.9	NA

Effluent Conc.: 42 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.8	6.2	6.3	6.3	6.5	6.9
	Final	6.6	6.6	6.7	6.6	7.0	7.4	NA
pH, units	Initial	7.6	7.6	7.6	7.6	7.6	7.8	7.4
	Final	8.1	8.0	8.0	7.7	8.1	7.8	NA

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: September 18, 2012 at 0826
Date and Time Test Terminated: September 24, 2012 at 1310

Effluent Conc.: 56 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.9	6.7	6.4	6.3	6.2	6.4	6.7
	Final	6.8	6.6	6.6	6.6	7.1	7.3	NA
pH, units	Initial	7.6	7.5	7.5	7.5	7.6	7.8	7.3
	Final	8.0	8.0	8.0	7.7	8.0	7.8	NA

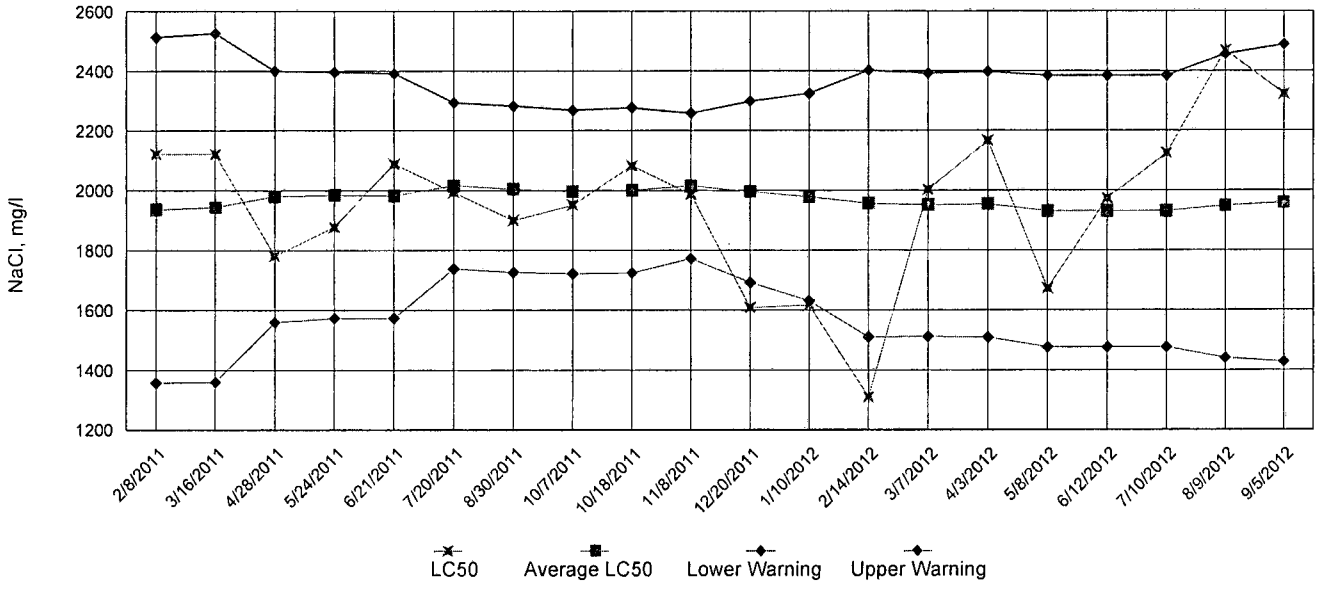
Effluent Conc.: 75 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.8	6.6	6.4	6.3	6.4	6.5	6.8
	Final	6.8	6.5	6.6	6.6	6.9	7.4	NA
pH, units	Initial	7.4	7.4	7.4	7.4	7.6	7.7	7.2
	Final	8.0	7.9	7.9	7.6	8.0	7.7	NA

Effluent Conc.: 100 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	6.7	6.8	6.4	6.3	6.6	6.6	7.4
	Final	6.7	6.5	6.7	6.7	6.9	7.6	NA
pH, units	Initial	7.2	7.3	7.3	7.2	7.6	7.6	6.9
	Final	7.9	7.8	7.8	7.6	7.9	7.7	NA
Alkalinity, mg CaCO3/l		20	NA	13	NA	13	NA	NA
Hardness, mg CaCO3/l		28	NA	28	NA	27	NA	NA
Conductivity, umhos/cm		220	260	260	250	240	240	270
Res. Chlorine, mg/l		<0.05	NA	<0.05	NA	<0.05	NA	NA

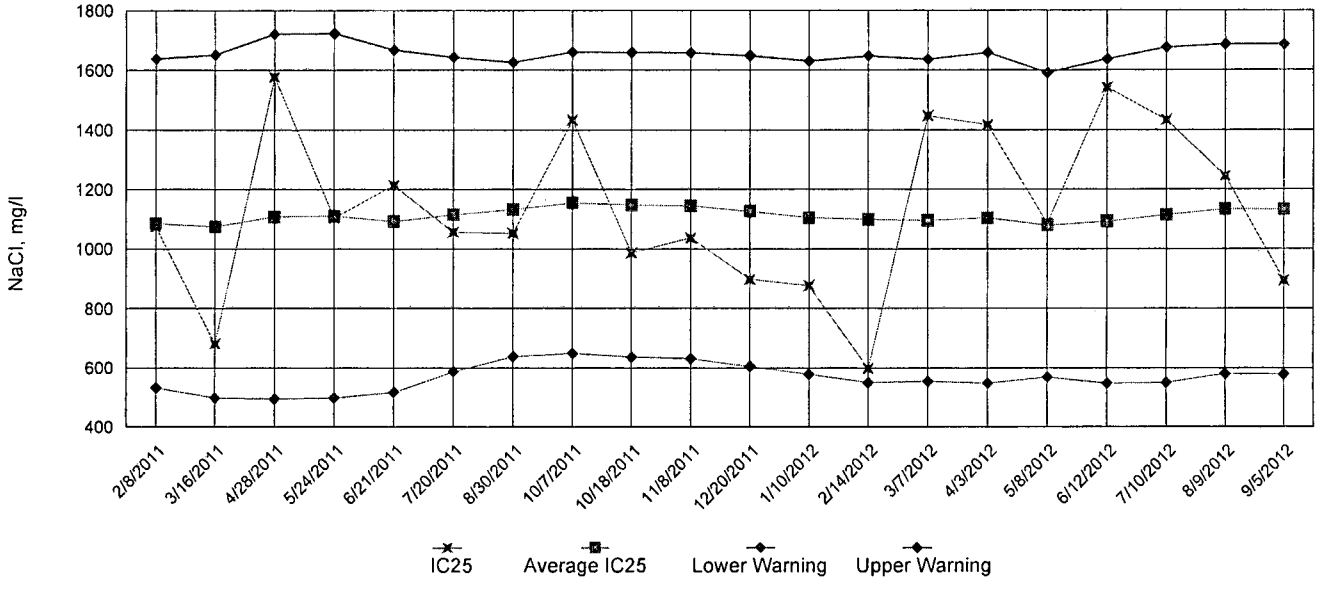
Appendix A4: Test 1002.0

Chronic Reference Toxicant, *Ceriodaphnia dubia*

LC50 Survival Data



IC25 Reproduction Data



Appendix B: Test 1002.0

SUMMARY REPORTING FORMS
CHRONIC BIOMONITORING
Ceriodaphnia dubia
SURVIVAL AND REPRODUCTION

Permittee: Mena Water and Sewer

NPDES No.: AR0036692 AFIN#5700042

Date and Time Test Initiated: September 18, 2012 at 1125
Date and Time Test Terminated: September 24, 2012 at 1310
Dilution water used: Synthetic Soft Water #3908

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	90.0	100	100	100	90.0

NUMBER OF YOUNG PRODUCED PER FEMALE @ 6 DAYS

		Percent Effluent				
Replicates	Control	32 %	42 %	56 %	75 %	100 %
A	20	20	16	11	18	16
B	21	21	13	23	22	20
C	13	19	17	22	15	15
D	10	12	12	9	13	12
E	18	14	18	15	18	13
F	19	21	17	18	14	14
G	15	13	20	17	24	17
H	19	20	20	22	16	12
I	17	13	20	19	20	3
J	10	15	10	20	17	11
Mean per Adult	16.2	16.8	16.3	17.6	17.7	13.3
Mean per Surviving Adult	16.2	17.2	16.3	17.6	17.7	14.4
CV %	24.8	21.3	21.8	26.8	19.8	19.9

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: __24.8__ (TQP3B)

Appendix B: Test 1002.0

CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
CHEMICAL PARAMETERS CHART

PERMITTEE: Mena Water and Sewer
NPDES NO.: AR0036692 AFIN#5700042
CONTACT: Mr. Mike Spencer
ANALYST: 275, 280, 298, 304

Test Initiated: DATE: September 18, 2012 TIME: 1125
Test Terminated: DATE: September 24, 2012 TIME: 1310

DILUTION	DAY						
Control	1	2	3	4	5	6	7
D.O. Initial	6.8	6.7	6.4	6.2	6.3	6.2	6.6
Final	6.6	6.4	6.6	6.6	7.0	7.4	NA
pH Initial	7.9	7.8	7.8	7.9	7.9	8.0	7.8
Final	8.2	8.1	8.2	8.0	8.3	8.0	NA
Alkalinity	30	NA	30	NA	30	NA	NA
Hardness	48	NA	47	NA	41	NA	NA
Conductivity	130	150	150	140	140	140	160
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
32 %	1	2	3	4	5	6	7
D.O. Initial	6.9	6.8	6.2	6.3	6.5	6.5	6.8
Final	6.6	6.4	6.7	6.7	7.0	7.4	NA
pH Initial	7.7	7.6	7.6	7.6	7.7	7.9	7.4
Final	8.1	8.0	8.1	7.8	8.2	7.9	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	160	180	190	170	160	160	190
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
42 %	1	2	3	4	5	6	7
D.O. Initial	6.8	6.8	6.2	6.3	6.3	6.5	6.9
Final	6.6	6.6	6.7	6.6	7.0	7.4	NA
pH Initial	7.6	7.6	7.6	7.6	7.6	7.8	7.4
Final	8.1	8.0	8.0	7.7	8.1	7.8	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	170	190	190	180	170	170	210
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
56 %	1	2	3	4	5	6	7
D.O. Initial	6.9	6.7	6.4	6.3	6.2	6.4	6.7
Final	6.8	6.6	6.6	6.6	7.1	7.3	NA
pH Initial	7.6	7.5	7.5	7.5	7.6	7.8	7.3
Final	8.0	8.0	8.0	7.7	8.0	7.8	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	180	210	210	190	190	180	220
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
75 %	1	2	3	4	5	6	7
D.O. Initial	6.8	6.6	6.4	6.3	6.4	6.5	6.8
Final	6.8	6.5	6.6	6.6	6.9	7.4	NA
pH Initial	7.4	7.4	7.4	7.4	7.6	7.7	7.2
Final	8.0	7.9	7.9	7.6	8.0	7.7	NA
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	200	230	230	210	210	210	240
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
100 %	1	2	3	4	5	6	7
D.O. Initial	6.7	6.8	6.4	6.3	6.6	6.6	7.4
Final	6.7	6.5	6.7	6.7	6.9	7.6	NA
pH Initial	7.2	7.3	7.3	7.2	7.6	7.6	6.9
Final	7.9	7.8	7.8	7.6	7.9	7.7	NA
Alkalinity	20	NA	13	NA	13	NA	NA
Hardness	28	NA	28	NA	27	NA	NA
Conductivity	220	260	260	250	240	240	270
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: MENA
Project Reference: MENA WWTP
Project Manager: MIKE SPENCER
Sampled By: Jeff

PO No.

Sample Matrix: WATER, SOIL

No of BOTTLES

Analyses Requested: Flea-Request Sub-Lethal

AIC Control No: 161603
AIC Proposal No:
Carrier:
Received Temperature °C: 2
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	No of BOTTLES	Analyses Requested
1	Eff	0800 17 SEP 2012		X			3	X
		Container Type					P	
		Preservative						

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)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: _____
Phone: _____ Fax: _____
Report Attention to: _____
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	17 SEP 2012 11:15		
Relinquished By:	Date/Time	Received in Lab By: [signature]	Date/Time 9-17-12 1115

Comments:

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: Mena
Project Reference: Mena WWTP
Project Manager: Mike Spencer
Sampled By: Jeff

PO No.

Sample Matrix: WATER, SOIL

Analyses Requested: Flea - Retest <LD subtle effect

AIC Control No: 161003
AIC Proposal No:
Carrier:
Received Temperature °C: 2°C

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	No of BOTTLES
1	Eff	19 SEP 2017 1200		X			3
		Container Type					P
		Preservative					

Remarks

Field pH calibration 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: _____
Phone: _____ Fax: _____
Report Attention to: _____
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	19 SEP 2017 1500	Office Store	19 Sep 17 1500
Relinquished By:	Date/Time	Received in Lab By: [signature]	Date/Time 9-20-17 1030

Comments:
12WF0666 0141124804

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: MENA
Project Reference: MENA WWTP
Project Manager: Mike Spencer
Sampled By: Jeff

PO No.:

AIC Control No: 161003
AIC Proposal No:
Carrier:
Received Temperature °C: 5°C

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL		No of BOTTLES	Flea Retest CD Sublethal												Remarks
1	EFF	21SEP2012 0800		X	X			3	X												
																					Field pH calibration
		Container Type						P													on ________ @ ______
		Preservative																			Buffer:

3

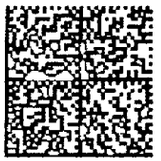
G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: ____________________
Who should AIC contact with questions: ____________________
Phone: ____________________ Fax: ____________________
Report Attention to: ____________________
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	21 SEP 2012 / 1050		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
		[signature]	9-21-12 1050

Comments:

MENA WWTP
323 POLK 53
MENA AR
71953



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