January 8, 2016

Test Results of
First Quarter
Acute 48 hour Renewal
Biomonitoring Testing
for
Helena Municipal Water and Sewer System

Control No. 197980-1

Prepared for:

Mr. Matt Bienvenu
McClelland Consulting Engineers, Inc.
Post Office Box 34087
Little Rock, AR 72203-4087

Prepared by:

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

McClelland Consulting Engineers, Inc.
ATTN: Mr. Matt Bienvenu
Post Office Box 34087
Little Rock, AR 72203-4087

Re: Acute 48 hour Renewal Biomonitoring utilizing *Pimephales promelas* (Fathead Minnow) and *Daphnia pulex*
- Helena Municipal Water and Sewer System
Client NPDES Permit No. AR0043389

Dear Mr. Matt Bienvenu:

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 appropriate Chief Operating Officer or qualified designee.

Testing procedures and Quality Assurance were in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" EPA-821-R-02-012, Fifth Edition, October 2002. Test results are summarized below:

Acute *Pimephales promelas* (Fathead Minnow) Survival Test: The No Observable Effects Concentration (NOEC) for survival was 0.133% effluent, and the LC-50 value was >0.133% effluent; the sample, therefore, **PASSED** at low flow of 0.100% effluent for lethal effects.

Acute *Daphnia pulex* Survival Test: The No Observable Effects Concentration (NOEC) for survival was 0.133% effluent, and the LC-50 value was >0.133% effluent; the sample, therefore, **PASSED** at low flow of 0.100% effluent for lethal effects.

AMERICAN INTERPLEX CORPORATION

John Overbey
Chief Operating Officer

PDF cc: McClelland Consulting Engineers, Inc.
ATTN: Mr. Matt Bienvenu
mbienvenu@mcclelland-engrs.com

McClelland Consulting Engineers, Inc.
ATTN: Mr. Dan Beranek
dberanek@mcclelland-engrs.com

Table of Contents

I. Introduction and Summary

Biomonitoring testing of 48-hour renewal definitive toxicity tests using *Daphnia pulex* and *Pimephales promelas* were performed.

The *Daphnia pulex* test was conducted from January 5, 2016 at 1640 to January 7, 2016 at 1440.

The *Pimephales promelas* test was conducted from January 5, 2016 at 1645 to January 7, 2016 at 1500.

The tests were performed in accordance with EPA-821-R-02-012. Statistical analyses were performed on the observed data.

The tests were conducted in temperature and light cycle controlled environmental chamber. The test temperature was 25 degrees C +/- 1 degree for the *Daphnia pulex* and 25 degrees C +/- 1 degree for the *Pimephales promelas*.

II. Control Acceptance Criteria

ORGANISM	CRITERIA	RESULTS	PASS/FAIL
Daphnia pulex	Control Survival >= 90%	100	PASS
Pimephales promelas	Control Survival >= 90%	100	PASS

III. Outlined Report

A. Introduction

1. Permit Number: AR0043389
2. Test Requirements: 48-hour renewal definitive toxicity test using:
   Daphnia pulex
   Pimephales promelas

B. Source of Effluent/Dilution Water

1. Effluent Samples:
   a. Sampling Point:

January 4 to January 5

b. Chemical Data:

Analysis	Sample 1	Sample 2
Dissolved oxygen (mg/l)	9.0	8.8
pH (standard units)	8.0	8.1
Alkalinity (mg/l as CaCO3)	320	310
Hardness (mg/l as CaCO3)	120	120
Conductivity (umhos/cm)	2700	2700
Residual Chlorine (mg/l)	0.080	0.21

2. Dilution Water Samples: Synthetic Moderately Hard Water #4288
   a. Dates Collected/Prepared: December 28, 2015 through January 11, 2016
   b. Chemical Data:

Analysis	Sample 1	Sample 2
Dissolved oxygen (mg/l)	8.5	8.5
pH (standard units)	7.5	7.5
Alkalinity (mg/l as CaCO3)	61	61
Hardness (mg/l as CaCO3)	87	87
Conductivity (umhos/cm)	280	280
Residual Chlorine (mg/l)	<0.05	<0.05

C. Test Methods
   1. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, (Fifth Ed.), EPA-821-R-02-012, 48-hour acute definitive test.
      a. Endpoints:
         Death; the criteria employed to establish death are:
            i. No movement
            ii. No reaction to gentle prodding

Criteria	*Pimephales promelas*	*Daphnia pulex*
Type and Volume of Test Chamber	500 ml disposable beaker	30 ml disposable beaker
Volume of Sample	250 ml	25 ml
Organisms per chamber	8	8
Replicates per dilution	5	5
Test Temperature	25 deg. C	25 deg. C
Test Initiated	January 5, 2016 at 1645	January 5, 2016 at 1640
Test Terminated	January 7, 2016 at 1500	January 7, 2016 at 1440
Feeding	None required	None required
Age of Test Organisms	6 days	<24 hours

2. Chemical Methods Employed:

Analysis	Method
Dissolved oxygen (mg/l)	SM 4500-O C
pH (standard units)	SM 4500-H+ B
Alkalinity (mg/l as CaCO3)	SM 2320 B
Hardness (mg/l as CaCO3)	EPA 200.7
Conductivity (umhos/cm)	EPA 120.1
Residual Chlorine (mg/l)	SM 4500-CL- F
Temperature (deg.C)	EPA 170.1

D. Test Organisms
1. Scientific Name
Daphnia pulex
Pimephales promelas

2. Acclimation of test organisms:
Daphnia pulex
Organisms were obtained from in-house cultures. The organisms were raised in moderately hard reconstituted water.
Pimephales promelas
Organisms were obtained from in-house cultures. The organisms were raised in moderately hard reconstituted water.

E. Quality Assurance
1. Toxicity Tests
a. Reference Toxicant: Sodium Chloride
b. Date of test:
Daphnia pulex: December 3, 2015 at 1155 to December 5, 2015 at 1110
Pimephales promelas: December 3, 2015 at 1135 to December 5, 2015 at 1030
c. Synthetic moderately hard dilution water used

Organism	LC50	Warning Limits
Daphnia pulex	1.68 g/l	1.27-2.53 g/l
Pimephales promelas	7.11 g/l	5.60-8.82 g/l

2. Chemical and Physical Analyses

Analysis	% Recovery	Relative % Difference
Alkalinity	NA	0.00
Hardness	97.8	2.82
pH	101	0.00
Conductivity	107	6.54

F. Organism History
Daphnia pulex
Date: January 5, 2016 at 1640
Age: <24 hours
Source: In-house culture
Water Chemistry Record:
Alkalinity: 57-64 mg/l
Hardness: 80-100 mg/l
Temperature: 25 deg.C
Pimephales promelas (Fathead minnow)
Date: January 5, 2016 at 1645
Age: 6 days
Source: In-house culture
Water Chemistry Record:
Alkalinity: 57-64 mg/l
Hardness: 80-100 mg/l
Temperature: 25 deg.C

IV. Results Summary

Daphnia pulex and *Pimephales promelas* are exposed in a static renewal system to different concentrations of effluent and dilution water. Effluent dilutions for this test were 0.042%, 0.056%, 0.075%, 0.100%, 0.133%. The low-flow concentration was 0.100%. Test results were based on survival.

Daphnia pulex

The *Daphnia pulex* test was conducted from January 5, 2016 at 1640 to January 7, 2016 at 1440.

Statistical analyses:

NOEC = 0.133%
LC50 = >0.133%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
0.042%	100	100
0.056%	100	100
0.075%	100	100
0.100%	100	100
0.133%	100	97.5

Pimephales promelas

The *Pimephales promelas* test was conducted from January 5, 2016 at 1645 to January 7, 2016 at 1500.

Statistical analyses:

NOEC = 0.133%
LC50 = >0.133%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
0.042%	97.5	97.5
0.056%	97.5	97.5
0.075%	100	100
0.100%	97.5	97.5
0.133%	100	100

Appendix: A1

Daphnia pulex
Survival Data

Number of organisms per chamber: 8
Volume of test chamber: 30 ml

Age of organisms: <24 hours
Volume of test solution: 25 ml

Effluent Concentration		Number of Survivors 24 Hours	Number of Survivors 48 Hours	% Survival	CV %
Control	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.042%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.056%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.075%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.100%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.133%	rep. A	8	7	97.5	5.73
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		

CV = Coefficient of variance = standard deviation X 100/mean

Appendix: A1

Pimephales promelas
Survival Data

Number of organisms per chamber: 8
Volume of test chamber: 500 ml

Age of organisms: 6 days
Volume of test solution: 250 ml

Effluent Concentration		Number of Survivors 24 Hours	Number of Survivors 48 Hours	% Survival	CV %
Control	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.042%	rep. A	8	8	97.5	5.73
	rep. B	8	8		
	rep. C	7	7		
	rep. D	8	8		
	rep. E	8	8		
0.056%	rep. A	8	8	97.5	5.73
	rep. B	7	7		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.075%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
0.100%	rep. A	8	8	97.5	5.73
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	7	7		
0.133%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		

CV = Coefficient of variance = standard deviation X 100/mean

Appendix A2: Statistics

Daphnia pulex

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	0.042%	1	1.00000	1.39310
2	0.042%	2	1.00000	1.39310
2	0.042%	3	1.00000	1.39310
2	0.042%	4	1.00000	1.39310
2	0.042%	5	1.00000	1.39310
3	0.056%	1	1.00000	1.39310
3	0.056%	2	1.00000	1.39310
3	0.056%	3	1.00000	1.39310
3	0.056%	4	1.00000	1.39310
3	0.056%	5	1.00000	1.39310
4	0.075%	1	1.00000	1.39310
4	0.075%	2	1.00000	1.39310
4	0.075%	3	1.00000	1.39310
4	0.075%	4	1.00000	1.39310
4	0.075%	5	1.00000	1.39310
5	0.1%	1	1.00000	1.39310
5	0.1%	2	1.00000	1.39310
5	0.1%	3	1.00000	1.39310
5	0.1%	4	1.00000	1.39310
5	0.1%	5	1.00000	1.39310
6	0.133%	1	0.87500	1.20940
6	0.133%	2	1.00000	1.39310
6	0.133%	3	1.00000	1.39310
6	0.133%	4	1.00000	1.39310
6	0.133%	5	1.00000	1.39310

Appendix A2: Statistics

Daphnia pulex

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	0.042%	27.50	16.00	5.00	
3	0.056%	27.50	16.00	5.00	
4	0.075%	27.50	16.00	5.00	
5	0.1%	27.50	16.00	5.00	
6	0.133%	25.00	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix A2: Statistics

Pimephales promelas

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	0.042%	1	1.00000	1.39310
2	0.042%	2	1.00000	1.39310
2	0.042%	3	0.87500	1.20940
2	0.042%	4	1.00000	1.39310
2	0.042%	5	1.00000	1.39310
3	0.056%	1	1.00000	1.39310
3	0.056%	2	0.87500	1.20940
3	0.056%	3	1.00000	1.39310
3	0.056%	4	1.00000	1.39310
3	0.056%	5	1.00000	1.39310
4	0.075%	1	1.00000	1.39310
4	0.075%	2	1.00000	1.39310
4	0.075%	3	1.00000	1.39310
4	0.075%	4	1.00000	1.39310
4	0.075%	5	1.00000	1.39310
5	0.1%	1	1.00000	1.39310
5	0.1%	2	1.00000	1.39310
5	0.1%	3	1.00000	1.39310
5	0.1%	4	1.00000	1.39310
5	0.1%	5	0.87500	1.20940
6	0.133%	1	1.00000	1.39310
6	0.133%	2	1.00000	1.39310
6	0.133%	3	1.00000	1.39310
6	0.133%	4	1.00000	1.39310
6	0.133%	5	1.00000	1.39310

Appendix A2: Statistics

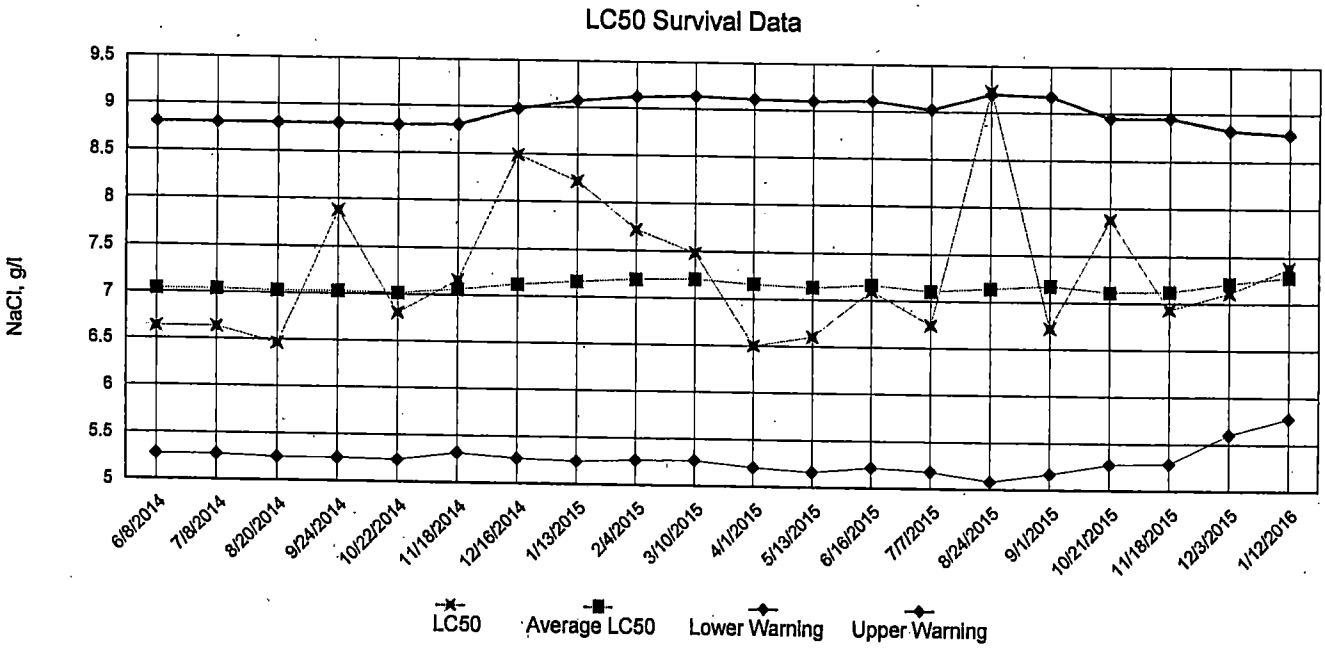
Pimephales promelas

Shapiro - Wilk's Test for Normality		Transform: Arc Sin(Square Root(Y))
D = 0.08099		
W = 0.5968		
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).		

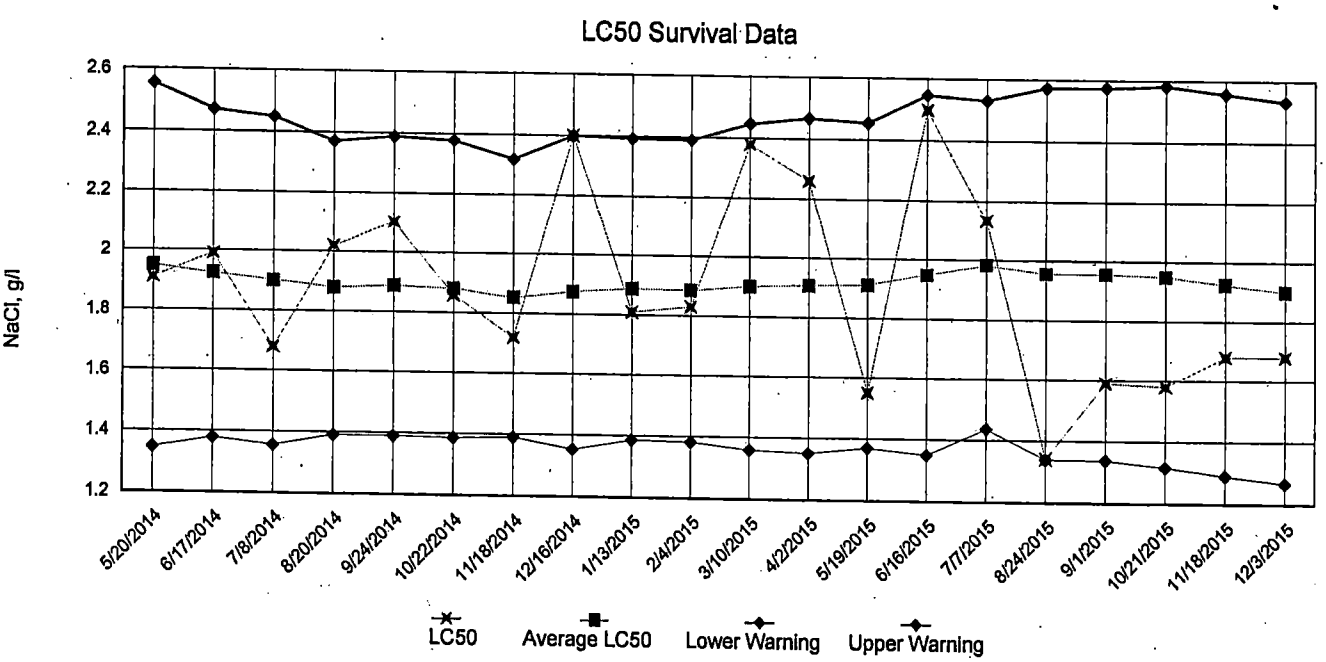
Steel's Many-One Rank Test					Transform: Arc Sin(Square Root(Y))
Ho:Control<Treatment					
Group	Identification	Rank Sum	Critical Value	DF	Sig 0.05
1	Control				
2	0.042%	25.00	16.00	5.00	
3	0.056%	25.00	16.00	5.00	
4	0.075%	27.50	16.00	5.00	
5	0.1%	25.00	16.00	5.00	
6	0.133%	27.50	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix: A3

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



Acute Reference Toxicant, *Daphnia pulex*



Appendix: A4

Chemical Data for
Pimephales promelas
and
Daphnia pulex

Day 1		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.3	8.5	8.4	8.6	8.6
DO, mg/l	Final 1*	8.5	8.5	8.2	8.4	8.5	8.5
DO, mg/l	Final 2*	8.4	8.5	8.4	8.0	8.3	8.4
pH, su	Initial	7.5	7.5	7.5	7.6	7.6	7.6
pH, su	Final 1*	7.5	7.5	7.5	7.5	7.5	7.5
pH, su	Final 2*	7.4	7.5	7.5	7.5	7.5	7.5
Alkalinity, mg/l		61	NA	NA	NA	60	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

Day 2		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.7	8.2	8.5	8.7	8.8
DO, mg/l	Final 1*	8.5	8.4	8.4	8.4	8.7	7.8
DO, mg/l	Final 2*	7.4	7.4	7.6	7.5	7.4	7.6
pH, su	Initial	7.5	7.5	7.5	7.5	7.5	7.5
pH, su	Final 1*	7.5	7.4	7.5	7.4	7.5	7.5
pH, su	Final 2*	7.4	7.5	7.5	7.5	7.6	7.6
Alkalinity, mg/l		61	NA	NA	NA	62	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

*1 data from *Pimephales promelas*
*2 data from *Daphnia pulex*

Appendix: B

Daphnia pulex Survival Data

Permitee: McClelland Consulting Engineers, Inc.
NPDES No: AR0043389
Contact: Mr. Matt Bienvenu
Test Type: 48-hour renewal definitive toxicity test
Dilution Water: Synthetic Moderately Hard Water #4288
Test Initiated: January 5, 2016 at 1640
Test Terminated: January 7, 2016 at 1440

Critical Dilution: 0.100%
Sample Source:
Species Age: <24 hours
Analysts: 280, 304, 310, 314

PERCENT SURVIVAL

24 hours	Control	0.042%	0.056%	0.075%	0.100%	0.133%
Rep. A	100	100	100	100	100	100
Rep. B	100	100	100	100	100	100
Rep. C	100	100	100	100	100	100
Rep. D	100	100	100	100	100	100
Rep. E	100	100	100	100	100	100

48 hours	Control	0.042%	0.056%	0.075%	0.100%	0.133%
Rep. A	100	100	100	100	100	87.5
Rep. B	100	100	100	100	100	100
Rep. C	100	100	100	100	100	100
Rep. D	100	100	100	100	100	100
Rep. E	100	100	100	100	100	100

Dunnett's Procedure or Steel's Many-One Rank Test as appropriate. Is the mean survival at 48 hours significantly different (p=0.05) than the control survival for the % effluent corresponding to:

a) Low Flow 0.100%: ____ Yes X No
b) 1/2 Low Flow (NA): ____ Yes ____ No

Pass/Fail #TEM3D. 0

NOEL *Daphnia pulex* lethality #TOM3D: 0.133%

Coefficient of variation for *Daphnia pulex* survival #TQM3D: 0

Enter percent effluent corresponding to LC-50 below.
LC-50 effluent: >0.133%
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on December 3, 2015 at 1155 to December 5, 2015 at 1110:
LC-50 effluent: 1.68 g/l
Warning Limits: 1.27 to 2.53 g/l

Appendix: B

Daphnia pulex Chemical Parameters Chart

Permitee: McClelland Consulting Engineers, Inc.
NPDES No: AR0043389
Contact: Mr. Matt Bienvenu
Test Type: 48-hour renewal definitive toxicity test
Dilution Water: Synthetic Moderately Hard Water #4288
Test Initiated: January 5, 2016 at 1640
Test Terminated: January 7, 2016 at 1440

Critical Dilution: 0.100%
Sample Source:
Species Age: <24 hours
Analysts: 280, 304, 310, 314

Day 1		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.3	8.5	8.4	8.6	8.6
DO, mg/l	Final	8.4	8.5	8.4	8.0	8.3	8.4
pH, su	Initial	7.5	7.5	7.5	7.6	7.6	7.6
pH, su	Final	7.4	7.5	7.5	7.5	7.5	7.5
Alkalinity, mg/l		61	NA	NA	NA	60	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

Day 2		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.7	8.2	8.5	8.7	8.8
DO, mg/l	Final	7.4	7.4	7.6	7.5	7.4	7.6
pH, su	Initial	7.5	7.5	7.5	7.5	7.5	7.5
pH, su	Final	7.4	7.5	7.5	7.5	7.6	7.6
Alkalinity, mg/l		61	NA	NA	NA	62	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

Appendix: B

Pimephales promelas Survival Data

Permitee: McClelland Consulting Engineers, Inc.
NPDES No: AR0043389
Contact: Mr. Matt Bienvenu
Test Type: 48-hour renewal definitive toxicity test
Dilution Water: Synthetic Moderately Hard Water #4288
Test Initiated: January 5, 2016 at 1645
Test Terminated: January 7, 2016 at 1500

Critical Dilution: 0.100%
Sample Source:
Species Age: 6 days
Analysts: 280, 304, 310, 314

PERCENT SURVIVAL

24 hours	Control	0.042%	0.056%	0.075%	0.100%	0.133%
Rep. A	100	100	100	100	100	100
Rep. B	100	100	87.5	100	100	100
Rep. C	100	87.5	100	100	100	100
Rep. D	100	100	100	100	100	100
Rep. E	100	100	100	100	87.5	100

48 hours	Control	0.042%	0.056%	0.075%	0.100%	0.133%
Rep. A	100	100	100	100	100	100
Rep. B	100	100	87.5	100	100	100
Rep. C	100	87.5	100	100	100	100
Rep. D	100	100	100	100	100	100
Rep. E	100	100	100	100	87.5	100

Dunnett's Procedure or Steel's Many-One Rank Test as appropriate. Is the mean survival at 48 hours significantly different (p=0.05) than the control survival for the % effluent corresponding to:

a) Low Flow 0.100%: _____ Yes X No
b) 1/2 Low Flow (NA): _____ Yes _____ No

Pass/Fail #TEM6C. 0

NOEL *Pimephales promelas* lethality #TOM6C: 0.133%

Coefficient of variation for *Pimephales promelas* survival #TQM6C: 5.73

Enter percent effluent corresponding to LC-50 below.
LC-50 effluent: >0.133%
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on December 3, 2015 at 1135 to December 5, 2015 at 1030:
LC-50 effluent: 7.11 g/l
Warning Limits: 5.60 to 8.82 g/l

Appendix: B

Pimephales promelas Chemical Parameters Chart

Permitee: McClelland Consulting Engineers, Inc.
NPDES No: AR0043389
Contact: Mr. Matt Bienvenu
Test Type: 48-hour renewal definitive toxicity test
Dilution Water: Synthetic Moderately Hard Water #4288
Test Initiated: January 5, 2016 at 1645
Test Terminated: January 7, 2016 at 1500

Critical Dilution: 0.100%
Sample Source:
Species Age: 6 days
Analysts: 280, 304, 310, 314

Day 1		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.3	8.5	8.4	8.6	8.6
DO, mg/l	Final	8.5	8.5	8.2	8.4	8.5	8.5
pH, su	Initial	7.5	7.5	7.5	7.6	7.6	7.6
pH, su	Final	7.5	7.5	7.5	7.5	7.5	7.5
Alkalinity, mg/l		61	NA	NA	NA	60	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

Day 2		Control	0.042%	0.056%	0.075%	0.100%	0.133%
DO, mg/l	Initial	8.5	8.7	8.2	8.5	8.7	8.8
DO, mg/l	Final	8.5	8.4	8.4	8.4	8.7	7.8
pH, su	Initial	7.5	7.5	7.5	7.5	7.5	7.5
pH, su	Final	7.5	7.4	7.5	7.4	7.5	7.5
Alkalinity, mg/l		61	NA	NA	NA	62	NA
Hardness, mg/l		87	NA	NA	NA	88	NA
Conductivity, umho/cm		280	280	280	280	280	280
Residual Chlorine, mg/l		<0.05	NA	NA	NA	<0.05	NA

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: MCE
Project Reference: HELENA WATER
Project Manager:
Sampled By: BENZONE Collier

PO No.

MATRIX: WATER, SOIL

ANALYSES REQUESTED: Dry Bio Monitoring

AIC CONTROL NO: 147980
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 0.1
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	NO OF BOTTLES	Dry Bio Monitoring
1	Helena AR0043389	01-03-16 8:00 AM 01-04-16 8:00 AM		✓	✓		2	✓
		Container Type						ICE
		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; A=$(NH_4)_2SO_4$, NH_4OH

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:

Email Address:

Relinquished By:	Date/Time	Received By:	Date/Time
Benzone Collier	1/5/16 1102	Jessie Brown	1/5/16 1102
Relinquished By: Jessie Brown	Date/Time 1/5/16 1537	Received in Lab By: D Bn	Date/Time 1-5-16 1535

Comments:

9/2014

FORM 0060

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: MCF
Project Reference: HELENA WATER
Project Manager:
Sampled By: BENZENE COLLIER

PO No.

MATRIX

ANALYSES REQUESTED

AIC CONTROL NO: 197180
AIC PROPOSAL NO:
Carrier:
Received Temperature C: 0.1
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	NO OF BOTTLES	2nd day BTEX/MTBE/Naphthalene
2	HELENA AR0043389	01-04-16 8 a.m. 01-05-16 8 A.M.		✓	✓		2	✓
		Container Type					P	
		Preservative					ICE	

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; A=$(NH_4)_2SO_4$, NH_4OH

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:
Email Address:

Relinquished By	Date/Time	Received By	Date/Time
BENZENE COLLIER	1/5/16 1102	[signature]	1/5/16 1102
[signature]	1/5/16 1535	D. B.	1-5-16 1535

Comments:

9/2014

FORM 0060

McClelland Consulting Engineers, Inc.
Water Lab
P.O. Box 34087
Little Rock, AR 72203-4087

Leslie Allen-Daniel
5301 Northshore Drive
North Little Rock, AR 72118-5317