

November 19, 2018

Test Results of
Acute 48 hour Renewal
Biomonitoring Testing
for
SPE110518
Van Buren, AR South Plant

Control No. 228567-1

Prepared for:

Ms. Kim Redo
Van Buren Municipal Utilities
2806 Bryan Road
Van Buren, AR 72956

Prepared by:

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Van Buren Municipal Utilities
ATTN: Ms. Kim Redo
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Re: Acute 48 hour Renewal Biomonitoring utilizing *Pimephales promelas* (Fathead Minnow) and *Daphnia pulex*
SPE110518 - Van Buren, AR South Plant
Client NPDES Permit No. AR0021482 AFIN#17-00062

Dear Ms. Kim Redo:

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 29% effluent, and the LC-50 value was >29% effluent; the sample, therefore, **PASSED** at low flow of 22% effluent for lethal effects.

Acute *Daphnia pulex* Survival Test: The No Observable Effects Concentration (NOEC) for survival was 29% effluent, and the LC-50 value was >29% effluent; the sample, therefore, **PASSED** at low flow of 22% effluent for lethal effects.

AMERICAN INTERPLEX CORPORATION



John Overbey
Chief Operating Officer

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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 November 07, 2018 at 1645 to November 09, 2018 at 1645.

The *Pimephales promelas* test was conducted from November 07, 2018 at 1655 to November 09, 2018 at 1620.

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
<i>Daphnia pulex</i>	Control Survival >= 90%	100	PASS
<i>Pimephales promelas</i>	Control Survival >= 90%	100	PASS

III. Outlined Report

A. Introduction

1. Permit Number: AR0021482 AFIN#17-00062
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: SPE110518
 - b. Chemical Data:

Analysis	Sample 1	Sample 2
Dissolved oxygen (mg/l)	7.0	7.4
pH (standard units)	7.2	7.9
Alkalinity (mg/l as CaCO ₃)	38	29
Hardness (mg/l as CaCO ₃)	46	40
Conductivity (umhos/cm)	580	600
Residual Chlorine (mg/l)	<0.05	<0.05

2. Dilution Water Samples: Synthetic Moderately Hard Water
 a. Dates Collected: NA
 b. Chemical Data:

Analysis	228314
Dissolved oxygen (mg/l)	6.8
pH (standard units)	7.8
Alkalinity (mg/l as CaCO ₃)	63
Hardness (mg/l as CaCO ₃)	82
Conductivity (umhos/cm)	300
Residual Chlorine (mg/l)	<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	<i>Pimephales promelas</i>	<i>Daphnia pulex</i>
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	November 07, 2018 at 1655	November 07, 2018 at 1645
Test Terminated	November 09, 2018 at 1620	November 09, 2018 at 1645
Feeding	None required	None required
Age of Test Organisms	7 days	<24 hours

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 cultured in moderately hard reconstituted water.
Pimephales promelas
 Organisms were obtained from in-house cultures. The organisms were cultured in moderately hard reconstituted water.

E. Quality Assurance

1. Toxicity Tests

a. Reference Toxicant: Sodium Chloride

b. Date of test:

Daphnia pulex: October 03, 2018 at 1700 to October 05, 2018 at 1700

Pimephales promelas: October 03, 2018 at 1535 to October 05, 2018 at 1535

c. Synthetic moderately hard dilution water used

Organism	LC50	Warning Limits
<i>Daphnia pulex</i>	1.74 g/l	1.65-1.85 g/l
<i>Pimephales promelas</i>	7.15 g/l	6.29-8.43 g/l

F. Organism History

Daphnia pulex

Date: November 07, 2018 at 1645

Age: <24 hours

Source: In-house culture

Pimephales promelas (Fathead minnow)

Date: November 07, 2018 at 1655

Age: 7 days

Source: In-house culture

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 9%, 12%, 17%, 22%, 29%. The low-flow concentration was 22%. Test results were based on survival.

Daphnia pulex

The *Daphnia pulex* test was conducted from November 07, 2018 at 1645 to November 09, 2018 at 1645.

Statistical analyses:

NOEC = 29%

LC50 = >29%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
9%	100	100
12%	100	100
17%	100	100
22%	100	100
29%	100	100

Pimephales promelas

The *Pimephales promelas* test was conducted from November 07, 2018 at 1655 to November 09, 2018 at 1620.

Statistical analyses:

NOEC = 29%

LC50 = >29%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
9%	100	100
12%	100	100
17%	100	100
22%	100	100
29%	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		% Survival	CV %
		24 Hours	48 Hours		
Control	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
9%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
12%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
17%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
22%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
29%	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: A1

Pimephales promelas
Survival Data

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

Age of organisms: 7 days
Volume of test solution: 250 ml

Effluent Concentration		Number of Survivors		% Survival	CV %
		24 Hours	48 Hours		
Control	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
9%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
12%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
17%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
22%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
29%	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	9%	1	1.00000	1.39310
2	9%	2	1.00000	1.39310
2	9%	3	1.00000	1.39310
2	9%	4	1.00000	1.39310
2	9%	5	1.00000	1.39310
3	12%	1	1.00000	1.39310
3	12%	2	1.00000	1.39310
3	12%	3	1.00000	1.39310
3	12%	4	1.00000	1.39310
3	12%	5	1.00000	1.39310
4	17%	1	1.00000	1.39310
4	17%	2	1.00000	1.39310
4	17%	3	1.00000	1.39310
4	17%	4	1.00000	1.39310
4	17%	5	1.00000	1.39310
5	22%	1	1.00000	1.39310
5	22%	2	1.00000	1.39310
5	22%	3	1.00000	1.39310
5	22%	4	1.00000	1.39310
5	22%	5	1.00000	1.39310
6	29%	1	1.00000	1.39310
6	29%	2	1.00000	1.39310
6	29%	3	1.00000	1.39310
6	29%	4	1.00000	1.39310
6	29%	5	1.00000	1.39310

Appendix A2: Statistics

Daphnia pulex

Shapiro - Wilk's Test for Normality		Transform: Arc Sin(Square Root(Y))
<p>D = 0 W = 0 Critical W = 0.9 (alpha = 0.01, N = 30) Critical W = 0.927 (alpha = 0.05, N = 30)</p> <p>Data FAIL normality test (alpha = 0.01).</p>		

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	9%	27.50	16.00	5.00	
3	12%	27.50	16.00	5.00	
4	17%	27.50	16.00	5.00	
5	22%	27.50	16.00	5.00	
6	29%	27.50	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	9%	1	1.00000	1.39310
2	9%	2	1.00000	1.39310
2	9%	3	1.00000	1.39310
2	9%	4	1.00000	1.39310
2	9%	5	1.00000	1.39310
3	12%	1	1.00000	1.39310
3	12%	2	1.00000	1.39310
3	12%	3	1.00000	1.39310
3	12%	4	1.00000	1.39310
3	12%	5	1.00000	1.39310
4	17%	1	1.00000	1.39310
4	17%	2	1.00000	1.39310
4	17%	3	1.00000	1.39310
4	17%	4	1.00000	1.39310
4	17%	5	1.00000	1.39310
5	22%	1	1.00000	1.39310
5	22%	2	1.00000	1.39310
5	22%	3	1.00000	1.39310
5	22%	4	1.00000	1.39310
5	22%	5	1.00000	1.39310
6	29%	1	1.00000	1.39310
6	29%	2	1.00000	1.39310
6	29%	3	1.00000	1.39310
6	29%	4	1.00000	1.39310
6	29%	5	1.00000	1.39310

Appendix A2: Statistics

Pimephales promelas

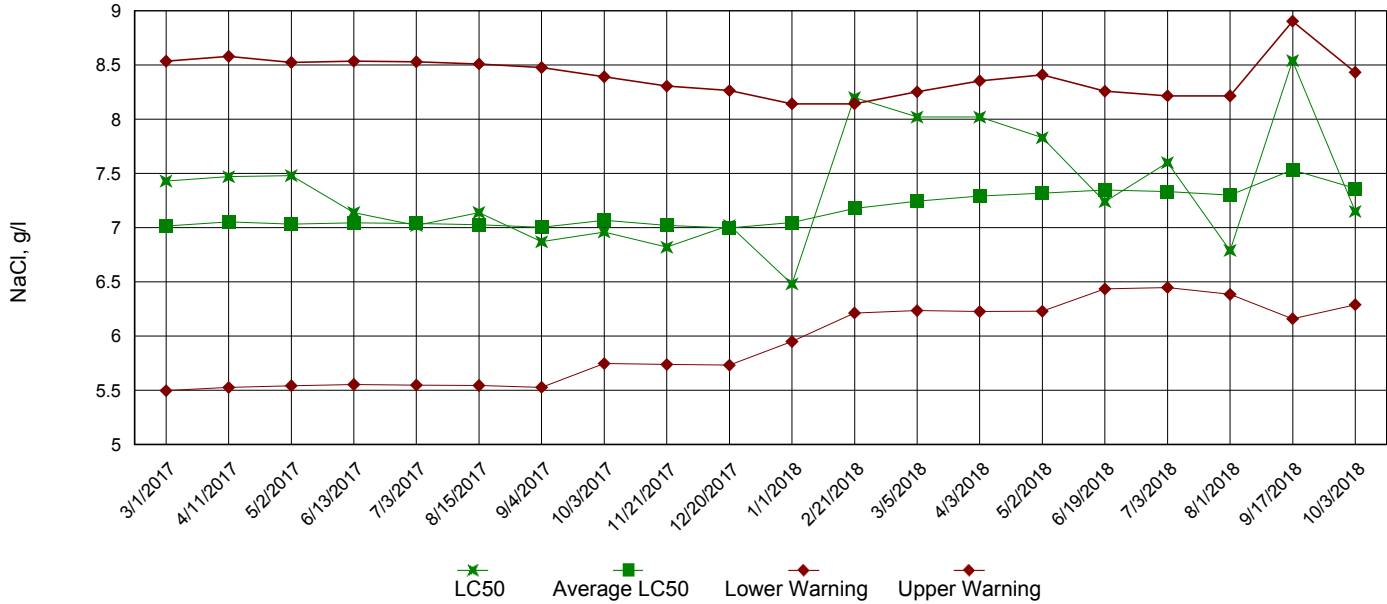
Shapiro - Wilk's Test for Normality		Transform: Arc Sin(Square Root(Y))
<p>D = 0 W = 0 Critical W = 0.9 (alpha = 0.01, N = 30) Critical W = 0.927 (alpha = 0.05, N = 30)</p> <p>Data FAIL normality test (alpha = 0.01).</p>		

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	9%	27.50	16.00	5.00	
3	12%	27.50	16.00	5.00	
4	17%	27.50	16.00	5.00	
5	22%	27.50	16.00	5.00	
6	29%	27.50	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix: A3

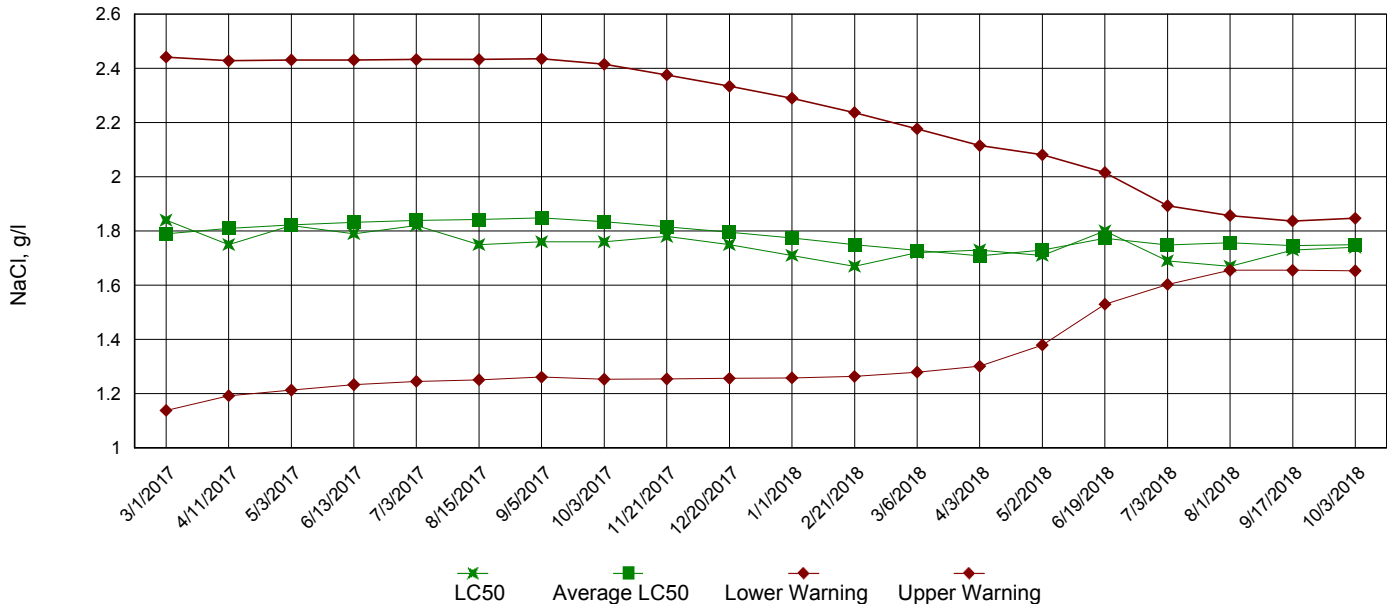
Acute Reference Toxicant, *Pimephales promelas* (Fathead Minnow)

LC50 Survival Data



Acute Reference Toxicant, *Daphnia pulex*

LC50 Survival Data



Appendix: A4

Chemical Data for
Pimephales promelas
and
Daphnia pulex

Day 1		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	6.8	6.9	6.8	7.0	7.1	7.3
DO, mg/l	Final 1*	7.4	7.4	7.0	7.0	7.1	7.1
DO, mg/l	Final 2*	8.1	7.6	7.7	7.5	7.4	7.6
pH, su	Initial	7.8	7.8	7.8	7.8	7.8	7.8
pH, su	Final 1*	8.7	8.8	8.7	8.7	8.7	8.7
pH, su	Final 2*	8.0	8.0	7.9	7.9	8.0	7.9
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		300	320	340	340	360	380
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

Day 2		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	7.3	7.3	7.1	6.9	7.2	7.2
DO, mg/l	Final 1*	7.3	7.2	7.3	6.8	7.0	7.0
DO, mg/l	Final 2*	7.8	7.4	7.5	7.5	7.4	7.6
pH, su	Initial	8.6	8.6	8.5	8.5	8.4	8.4
pH, su	Final 1*	8.6	8.7	8.6	8.7	8.6	8.6
pH, su	Final 2*	8.0	8.0	8.0	8.0	7.9	7.9
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		310	330	340	350	370	390
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

*1 data from *Pimephales promelas*

*2 data from *Daphnia pulex*

Appendix: B

Daphnia pulex Survival Data

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	22%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	SPE110518
Contact:	Ms. Kim Redo	Species Age:	<24 hours
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 310, 329
Dilution Water:	Synthetic Moderately Hard Water		
Test Initiated:	November 07, 2018 at 1645		
Test Terminated:	November 09, 2018 at 1645		

PERCENT SURVIVAL

24 hours	Control	9%	12%	17%	22%	29%
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	9%	12%	17%	22%	29%
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

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 22%:	_____	Yes	_____ X _____	No
b) 1/2 Low Flow (NA):	_____	Yes	_____	No

Pass/Fail #TEM3D: 0

NOEL *Daphnia pulex* lethality #TOM3D: 29%

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

Enter percent effluent corresponding to LC-50 below.

LC-50 effluent: >29%
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on October 03, 2018 at 1700 to October 05, 2018 at 1700:

LC-50 effluent: 1.74 g/l
Warning Limits: 1.65 to 1.85 g/l

Appendix: B

Daphnia pulex Chemical Parameters Chart

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	22%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	SPE110518
Contact:	Ms. Kim Redo	Species Age:	<24 hours
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 310, 329
Dilution Water:	Synthetic Moderately Hard Water		
Test Initiated:	November 07, 2018 at 1645		
Test Terminated:	November 09, 2018 at 1645		

Day 1		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	6.8	6.9	6.8	7.0	7.1	7.3
DO, mg/l	Final	8.1	7.6	7.7	7.5	7.4	7.6
pH, su	Initial	7.8	7.8	7.8	7.8	7.8	7.8
pH, su	Final	8.0	8.0	7.9	7.9	8.0	7.9
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		300	320	340	340	360	380
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

Day 2		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	7.3	7.3	7.1	6.9	7.2	7.2
DO, mg/l	Final	7.8	7.4	7.5	7.5	7.4	7.6
pH, su	Initial	8.6	8.6	8.5	8.5	8.4	8.4
pH, su	Final	8.0	8.0	8.0	8.0	7.9	7.9
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		310	330	340	350	370	390
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

Appendix: B

Pimephales promelas Survival Data

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	22%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	SPE110518
Contact:	Ms. Kim Redo	Species Age:	7 days
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 310, 329
Dilution Water:	Synthetic Moderately Hard Water		
Test Initiated:	November 07, 2018 at 1655		
Test Terminated:	November 09, 2018 at 1620		

PERCENT SURVIVAL

24 hours	Control	9%	12%	17%	22%	29%
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	9%	12%	17%	22%	29%
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

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 22%:	_____	Yes	_____ X	No
b) 1/2 Low Flow (NA):	_____	Yes	_____	No

Pass/Fail #TEM6C: 0

NOEL *Pimephales promelas* lethality #TOM6C: 29%

Coefficient of variation for *Pimephales promelas* survival #TQM6C: 0

Enter percent effluent corresponding to LC-50 below.

LC-50 effluent: >29%
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on October 03, 2018 at 1535 to October 05, 2018 at 1535:

LC-50 effluent: 7.15 g/l
Warning Limits: 6.29 to 8.43 g/l

Appendix: B

Pimephales promelas Chemical Parameters Chart

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	22%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	SPE110518
Contact:	Ms. Kim Redo	Species Age:	7 days
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 310, 329
Dilution Water:	Synthetic Moderately Hard Water		
Test Initiated:	November 07, 2018 at 1655		
Test Terminated:	November 09, 2018 at 1620		

Day 1		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	6.8	6.9	6.8	7.0	7.1	7.3
DO, mg/l	Final	7.4	7.4	7.0	7.0	7.1	7.1
pH, su	Initial	7.8	7.8	7.8	7.8	7.8	7.8
pH, su	Final	8.7	8.8	8.7	8.7	8.7	8.7
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		300	320	340	340	360	380
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

Day 2		Control	9%	12%	17%	22%	29%
DO, mg/l	Initial	7.3	7.3	7.1	6.9	7.2	7.2
DO, mg/l	Final	7.3	7.2	7.3	6.8	7.0	7.0
pH, su	Initial	8.6	8.6	8.5	8.5	8.4	8.4
pH, su	Final	8.6	8.7	8.6	8.7	8.6	8.6
Alkalinity, mg/l		63	NA	NA	NA	NA	NA
Hardness, mg/l		82	NA	NA	NA	NA	NA
Conductivity, umho/cm		310	330	340	350	370	390
Residual Chlorine, mg/l		<0.05	NA	NA	NA	NA	NA

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 1 OF 2

Client: <u>Van Buren Municipal Utility</u>		PO No.		ANALYSES REQUESTED		AIC CONTROL NO: <u>228567</u>	
Project Reference: <u>Biomonitoring - Acute</u>		SAMPLE MATRIX		NO OF BOTTLES		AIC PROPOSAL NO:	
Project Manager: <u>Kim Bede</u>		WATER		1		Carrier: <u>Feeder</u>	
Sampled By:		GRA B		TIME AS 7:55 AM		Received on Ice (4°C)? YES <u>0.8</u> NO	
AIC No. <u>1</u>		COMP <u>✓</u>		pH (25) <u>7.79</u>		Temp (°C) <u>4.2</u>	
Sample Identification <u>SPE 110518</u>		Date/Time Collected <u>11/5-16/18</u>		DO = <u>10.72 mg/L</u>			
Container Type		V = VOA vials		H = HCl to pH2		Field pH calibration	
Preservative		N = Nitric acid pH2		B = NaOH to pH12		on @	
G = Glass		S = Sulfuric acid pH2		T = Sodium Thiosulfate		Buffer:	
NO = none		Relinquished By: <u>Kim Bede</u>		Z = Zinc acetate			
Turnaround Time Requested: (Please circle) <u>NORMAL</u> or EXPEDITED IN ___ DAYS		Date/Time Relinquished <u>11/6/18</u>		Received By:		Date/Time	
Expedited results requested by:		Date/Time Relinquished <u>Tofed</u>		Received in Lab		Date/Time	
Who should AIC contact with questions: <u>Kim Bede</u>		By:		By: <u>336</u>		10:40	
Phone: <u>479-474-0941</u> Fax: <u>479-471-8969</u>		Relinquished By:		By: <u>336</u>		11-7-18	
Report Attention to: <u>Kim Bede</u>		Comments:					
Report Address to: <u>kim@vbm.u.ar.cas.com</u>							



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 Little Rock, AR 72204-2322
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 FAX (501) 224-5072

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE 2 OF 2

Client: Van Buren Municipal Utilities		PO No.		NO OF BOTTLES		ANALYSES REQUESTED		AIC CONTROL NO: 668507	
Project Reference: Biomonitoring - Aute - South - Grant		SAMPLE MATRIX		BOTTLES				AIC PROPOSAL NO:	
Project Manager: Kim Redo		WATER		1				Carrier: FedEx	
Sample Identification: SE440618		SOIL						Received on Ice (4°C)? YES NO 05	
Date/Time Collected: 11/6-7/18		GRA B						pH = 6.65 s.u.	
Container Type: Preservative		COMP						Temp = 4.5 s.u.	
G = Glass P = Plastic V = VOA vials		C						D.O. = 10.8 mg/L	
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2		R						Field pH calibration on @ Buffer:	
H = HCl to pH2 B = NaOH to pH12		A						T = Sodium Thiosulfate Z = Zinc acetate	
Turnaround Time Requested: (Please circle) NORMAL or EXPEDITED IN _____ DAYS		B						Received Date/Time	
Expedited results requested by:		O						By: AC341	
Who should AIC contact with questions: Kim Redo		T						Received in Lab Date/Time	
Phone: 479-474-0941 Fax: 479-971-8969		R						By: AC341 10:20	
Report Attention to: Kim Redo		E						Comments: FX: 773671821162	
Report Address to: Kim@vbm.u.arcoxmail.com		L							