

March 6, 2013

Test Results of  
First Quarter  
Acute 48 hour Non-Renewal  
Biomonitoring Testing  
for  
Outfall 001  
Van Buren, AR South Plant

Control No. 165340-1

Prepared for:

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

Prepared by:

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



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

Re: Acute 48 hour Non-Renewal Biomonitoring utilizing *Pimephales promelas* (Fathead Minnow) and *Daphnia pulex*  
Outfall 001 - 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 laboratory director 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:

Renewal sample not received until after test reached completion.

Acute *Pimephales promelas* (Fathead Minnow) Survival Test: The No Observable Effects Concentration (NOEC) for survival was 35% effluent, and the LC-50 value was >35% effluent; the sample, therefore, **PASSED** at low flow of 26% effluent for lethal effects.

Acute *Daphnia pulex* Survival Test: The No Observable Effects Concentration (NOEC) for survival was 35% effluent, and the LC-50 value was >35% effluent; the sample, therefore, **PASSED** at low flow of 26% effluent for lethal effects.

AMERICAN INTERPLEX CORPORATION

A handwritten signature in black ink, appearing to read 'John Overbey', is written over a horizontal line.

John Overbey  
Laboratory Director

PDF cc: Van Buren Municipal Utilities  
ATTN: Ms. Kim Redo  
kim@vbmua.arcoxmail.com

Table of Contents

- I. Introduction and Summary
  - II. Control Acceptance Criteria
  - III. Outlined Report
    - A. Introduction
    - B. Source of Effluent and Dilution Water
    - C. Test Methods
    - D. Test Organisms
    - E. Quality assurance
    - F. Organism History
  - IV. Results Summary
    - Daphnia pulex*
    - Pimephales promelas*
- Appendix A: Raw Data
- A1: *Daphnia pulex* Survival
  - Pimephales promelas* Survival
  - A2: Statistics
  - A3: Reference Toxicant
  - A4: Water Chemistry
- Appendix B: Completed Data Sheets for DEQ
- Daphnia pulex* Survival
  - Daphnia pulex* Chemical Parameters Chart
  - Pimephales promelas* Survival
  - Pimephales promelas* Chemical Parameters Chart
- Appendix C: Chains of Custody

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 February 28, 2013 at 1530 to March 2, 2013 at 1450.

The *Pimephales promelas* test was conducted from February 28, 2013 at 1530 to March 2, 2013 at 1340.

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: Outfall 001  
February 27 to February 28
  - b. Chemical Data:

Analysis	Sample 1	Sample 2
Dissolved oxygen (mg/l)	8.2	NA
pH (standard units)	7.2	NA
Alkalinity (mg/l as CaCO3)	94	NA
Hardness (mg/l as CaCO3)	53	NA
Conductivity (umhos/cm)	120	NA
Residual Chlorine (mg/l)	<0.05	NA

2. Dilution Water Samples: Synthetic Moderately Hard Water #3966  
 a. Dates Collected/Prepared: February 24 through March 10, 2013  
 b. Chemical Data:

Analysis	Sample 1	Sample 2
Dissolved oxygen (mg/l)	8.3	NA
pH (standard units)	8.1	NA
Alkalinity (mg/l as CaCO <sub>3</sub> )	59	NA
Hardness (mg/l as CaCO <sub>3</sub> )	82	NA
Conductivity (umhos/cm)	300	NA
Residual Chlorine (mg/l)	<0.05	NA

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	February 28, 2013 at 1530	February 28, 2013 at 1530
Test Terminated	March 2, 2013 at 1340	March 2, 2013 at 1450
Feeding	None required	None required
Age of Test Organisms	7 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 CaCO <sub>3</sub> )	SM 2320 B
Hardness (mg/l as CaCO <sub>3</sub> )	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*: February 5, 2013 at 1600 to February 7, 2013 at 1400

*Pimephales promelas*: February 5, 2012 at 1500 to February 7, 2012 at 1325

c. Synthetic moderately hard dilution water used

Organism	LC50	Warning Limits
<i>Daphnia pulex</i>	2.01 g/l	1.22-2.45 g/l
<i>Pimephales promelas</i>	7.87 g/l	6.23-7.94 g/l

2. Chemical and Physical Analyses

Analysis	% Recovery	Relative % Difference
Alkalinity	NA	0.00
Hardness	98.3	1.07
pH	101	0.00
Conductivity	101	0.664

F. Organism History

*Daphnia pulex*

Date: February 28, 2013 at 1530

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: February 28, 2013 at 1530

Age: 7 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 11%, 15%, 20%, 26%, 35%. The low-flow concentration was 26%. Test results were based on survival.

*Daphnia pulex*

The *Daphnia pulex* test was conducted from February 28, 2013 at 1530 to March 2, 2013 at 1450.

Statistical analyses:  
NOEC = 35%  
LC50 = >35%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
11%	100	100
15%	100	100
20%	100	100
26%	100	100
35%	100	100

*Pimephales promelas*

The *Pimephales promelas* test was conducted from February 28, 2013 at 1530 to March 2, 2013 at 1340.

Statistical analyses:  
NOEC = 35%  
LC50 = >35%

Concentration	24 hour % Survival	48 hour % Survival
Control	100	100
11%	100	100
15%	100	100
20%	100	100
26%	100	100
35%	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		
11%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
15%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
20%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
26%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
35%	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		
11%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
15%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
20%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
26%	rep. A	8	8	100	0.00
	rep. B	8	8		
	rep. C	8	8		
	rep. D	8	8		
	rep. E	8	8		
35%	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	11%	1	1.00000	1.39310
2	11%	2	1.00000	1.39310
2	11%	3	1.00000	1.39310
2	11%	4	1.00000	1.39310
2	11%	5	1.00000	1.39310
3	15%	1	1.00000	1.39310
3	15%	2	1.00000	1.39310
3	15%	3	1.00000	1.39310
3	15%	4	1.00000	1.39310
3	15%	5	1.00000	1.39310
4	20%	1	1.00000	1.39310
4	20%	2	1.00000	1.39310
4	20%	3	1.00000	1.39310
4	20%	4	1.00000	1.39310
4	20%	5	1.00000	1.39310
5	26%	1	1.00000	1.39310
5	26%	2	1.00000	1.39310
5	26%	3	1.00000	1.39310
5	26%	4	1.00000	1.39310
5	26%	5	1.00000	1.39310
6	35%	1	1.00000	1.39310
6	35%	2	1.00000	1.39310
6	35%	3	1.00000	1.39310
6	35%	4	1.00000	1.39310
6	35%	5	1.00000	1.39310

Appendix A2: Statistics

*Daphnia pulex*

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	11%	27.50	16.00	5.00	
3	15%	27.50	16.00	5.00	
4	20%	27.50	16.00	5.00	
5	26%	27.50	16.00	5.00	
6	35%	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	11%	1	1.00000	1.39310
2	11%	2	1.00000	1.39310
2	11%	3	1.00000	1.39310
2	11%	4	1.00000	1.39310
2	11%	5	1.00000	1.39310
3	15%	1	1.00000	1.39310
3	15%	2	1.00000	1.39310
3	15%	3	1.00000	1.39310
3	15%	4	1.00000	1.39310
3	15%	5	1.00000	1.39310
4	20%	1	1.00000	1.39310
4	20%	2	1.00000	1.39310
4	20%	3	1.00000	1.39310
4	20%	4	1.00000	1.39310
4	20%	5	1.00000	1.39310
5	26%	1	1.00000	1.39310
5	26%	2	1.00000	1.39310
5	26%	3	1.00000	1.39310
5	26%	4	1.00000	1.39310
5	26%	5	1.00000	1.39310
6	35%	1	1.00000	1.39310
6	35%	2	1.00000	1.39310
6	35%	3	1.00000	1.39310
6	35%	4	1.00000	1.39310
6	35%	5	1.00000	1.39310

Appendix A2: Statistics

*Pimephales promelas*

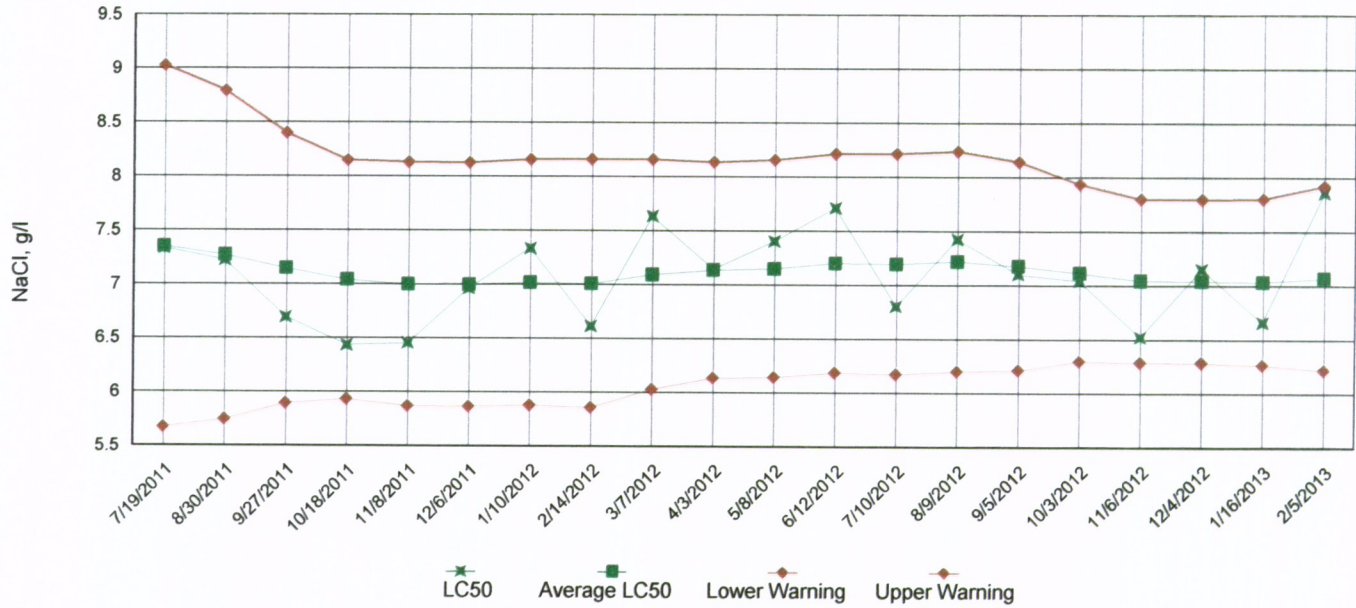
Shapiro - Wilk's Test for Normality		Transform: Arc Sin(Square Root(Y))
<p>D = 0 W = 0 Critical W = 0.9 (alpha = 0.01, N = 30) Critical W = 0.927 (alpha = 0.05, N = 30)</p> <p>Data FAIL normality test (alpha = 0.01).</p>		

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	11%	27.50	16.00	5.00	
3	15%	27.50	16.00	5.00	
4	20%	27.50	16.00	5.00	
5	26%	27.50	16.00	5.00	
6	35%	27.50	16.00	5.00	
Critical values are 1 tailed (k=5)					

Appendix: A3

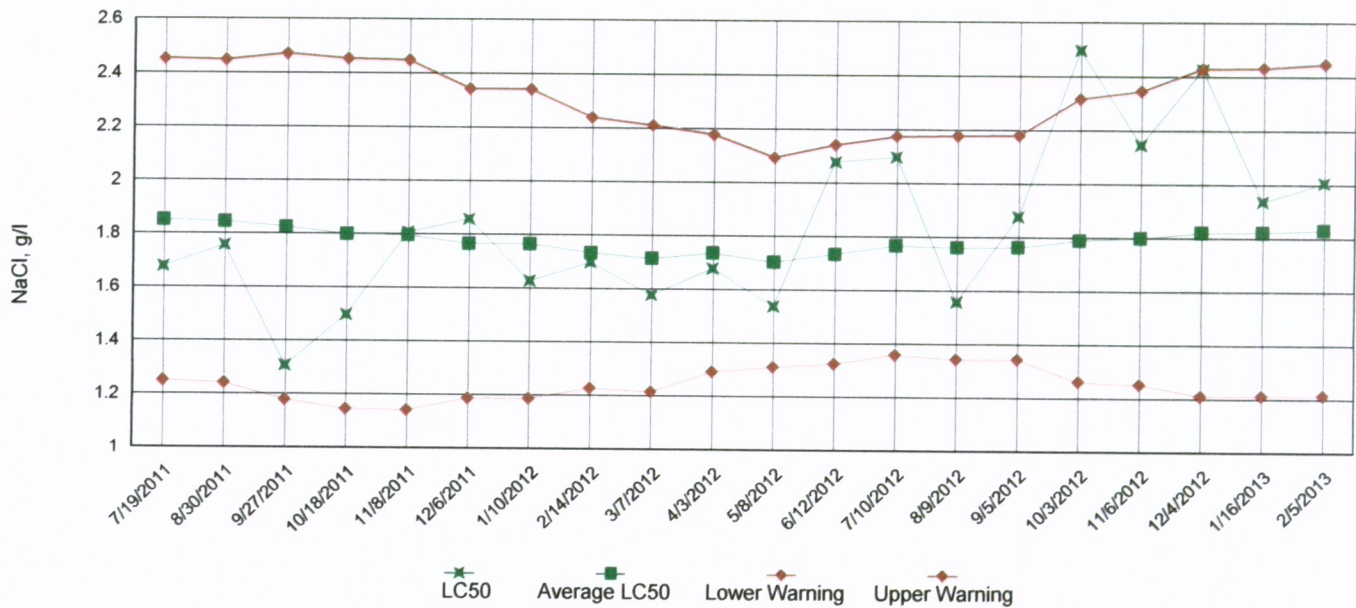
Acute Reference Toxicant, *Pimephales promelas* (Fathead Minnow)

LC50 Survival Data



Acute Reference Toxicant, *Daphnia pulex*

LC50 Survival Data



Appendix: A4

Chemical Data for  
*Pimephales promelas*  
and  
*Daphnia pulex*

Day 1	Control	11%	15%	20%	26%	35%
DO, mg/l	8.3	8.8	8.9	8.9	9.1	8.6
pH, su	8.1	7.7	7.7	7.6	7.6	7.6
Alkalinity, mg/l	59	NA	NA	NA	75	NA
Hardness, mg/l	82	NA	NA	NA	79	NA
Conductivity, umho/cm	300	370	400	430	450	480
Residual Chlorine, mg/l	<0.05	NA	NA	NA	<0.05	NA

Day 2	Control	11%	15%	20%	26%	35%
DO, mg/l Final 1*	7.7	7.6	7.5	7.5	7.5	7.3
DO, mg/l Final 2*	7.7	7.7	7.6	7.1	7.0	6.9
pH, su Final 1*	8.0	8.0	7.9	8.0	8.0	8.0
pH, su Final 2*	8.1	8.2	8.1	8.2	8.2	8.2

\*1 data from *Pimephales promelas*

\*2 data from *Daphnia pulex*

Appendix: B

*Daphnia pulex* Survival Data

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	26%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	Outfall 001
Contact:	Ms. Kim Redo	Species Age:	<24 hours
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 298, 304, 307
Dilution Water:	Synthetic Moderately Hard Water #3966		
Test Initiated:	February 28, 2013 at 1530		
Test Terminated:	March 2, 2013 at 1450		

PERCENT SURVIVAL

24 hours	Control	11%	15%	20%	26%	35%
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	11%	15%	20%	26%	35%
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 26%: \_\_\_\_\_ Yes                        X   No  
b) 1/2 Low Flow (NA): \_\_\_\_\_ Yes                      \_\_\_\_\_ No

If you answered No to 1a) enter [0], otherwise enter [1]: \_\_\_\_\_   0  

Enter response to item 2 on the DMR Form, parameter #TEM3D.

NOEL *Daphnia pulex* lethality #TOM3D: \_\_\_\_\_   35%  

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

Enter percent effluent corresponding to LC-50 below.

LC-50 effluent: >35%  
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on February 5, 2013 at 1600 to February 7, 2013 at 1400:

LC-50 effluent: 2.01 g/l  
Warning Limits: 1.22 to 2.45 g/l



Appendix: B

*Daphnia pulex* Chemical Parameters Chart

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	26%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	Outfall 001
Contact:	Ms. Kim Redo	Species Age:	<24 hours
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 298, 304, 307
Dilution Water:	Synthetic Moderately Hard Water #3966		
Test Initiated:	February 28, 2013 at 1530		
Test Terminated:	March 2, 2013 at 1450		

Day 1	Control	11%	15%	20%	26%	35%
DO, mg/l	8.3	8.8	8.9	8.9	9.1	8.6
pH, su	8.1	7.7	7.7	7.6	7.6	7.6
Alkalinity, mg/l	59	NA	NA	NA	75	NA
Hardness, mg/l	82	NA	NA	NA	79	NA
Conductivity, umho/cm	300	370	400	430	450	480
Residual Chlorine, mg/l	<0.05	NA	NA	NA	<0.05	NA

Day 2	Control	11%	15%	20%	26%	35%
DO, mg/l Final	7.7	7.7	7.6	7.1	7.0	6.9
pH, su Final	8.1	8.2	8.1	8.2	8.2	8.2

Appendix: B

*Pimephales promelas* Survival Data

Permittee:	Van Buren Municipal Utilities	Critical Dilution:	26%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	Outfall 001
Contact:	Ms. Kim Redo	Species Age:	7 days
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 298, 304, 307
Dilution Water:	Synthetic Moderately Hard Water #3966		
Test Initiated:	February 28, 2013 at 1530		
Test Terminated:	March 2, 2013 at 1340		

PERCENT SURVIVAL

24 hours	Control	11%	15%	20%	26%	35%
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	11%	15%	20%	26%	35%
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 26%: \_\_\_\_\_ Yes        X   No  
b) 1/2 Low Flow (NA): \_\_\_\_\_ Yes      \_\_\_\_\_ No

If you answered No to 1a) enter [0], otherwise enter [1]: \_\_\_\_\_   0  

Enter response to item 2 on the DMR Form, parameter #TEM6C.

NOEL *Pimephales promelas* lethality #TOM6C: \_\_\_\_\_   35%  

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

Enter percent effluent corresponding to LC-50 below.

LC-50 effluent: >35%  
Method of LC-50 calculation: NA

Reference Toxicity Test Performed on February 5, 2012 at 1500 to February 7, 2012 at 1325:

LC-50 effluent: 7.87 g/l  
Warning Limits: 6.23 to 7.94 g/l

Appendix: B

*Pimephales promelas* Chemical Parameters Chart

Permitee:	Van Buren Municipal Utilities	Critical Dilution:	26%
NPDES No:	AR0021482 AFIN#17-00062	Sample Source:	Outfall 001
Contact:	Ms. Kim Redo	Species Age:	7 days
Test Type:	48-hour renewal definitive toxicity test	Analysts:	280, 298, 304, 307
Dilution Water:	Synthetic Moderately Hard Water #3966		
Test Initiated:	February 28, 2013 at 1530		
Test Terminated:	March 2, 2013 at 1340		

Day 1	Control	11%	15%	20%	26%	35%
DO, mg/l	8.3	8.8	8.9	8.9	9.1	8.6
pH, su	8.1	7.7	7.7	7.6	7.6	7.6
Alkalinity, mg/l	59	NA	NA	NA	75	NA
Hardness, mg/l	82	NA	NA	NA	79	NA
Conductivity, umho/cm	300	370	400	430	450	480
Residual Chlorine, mg/l	<0.05	NA	NA	NA	<0.05	NA

Day 2	Control	11%	15%	20%	26%	35%
DO, mg/l      Final	7.7	7.6	7.5	7.5	7.5	7.3
pH, su          Final	8.0	8.0	7.9	8.0	8.0	8.0

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

U22813  
U65340

Client: Van Buren Municipal Utilities  
Project Reference: South Plant

Project Manager: Kim Reda  
Sampled By: Kim Reda

PO No. \_\_\_\_\_ No of BOTTLES \_\_\_\_\_  
Analyses Requested \_\_\_\_\_

AIC No.	Sample Identification	Date/Time Collected	G R A B	C O M P	Sample Matrix		W A T E R	S O I L	No of BOTTLES	Acid	Base	Tablet	Metal	Ma	AIC Control No.	AIC Proposal No.	Carrier	Received Temperature °C	pH (su)	Temp (C)	D												
1	VBSP1	2/26/27/13 7:55 AM	✓	✓					1	✓					U65339		FedEx	3.6	7.49	1.5	2												
	VBSP1	2/26-27/13 7:55 AM	✓	✓					1										7.49	1.5	2												
	VBSP1	2/26-27/13 7:55 AM	✓	✓					1										7.25	4.4	2												
} preserved with HNO <sub>3</sub>																																	

Container Type \_\_\_\_\_ Preservative \_\_\_\_\_  
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: Kim Reda  
Phone: 479-474-0941 Fax: 479-3969  
Report Attention to: Kim Reda  
Report Address to: kim@vbmu.arco.com

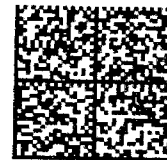
Relinquished By: Kim Reda Date/Time: 2/27/13  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received in Lab By: [Signature] Date/Time: 2/28/13 1:00

Comments: FED EX 9.10.2019 0298656 15001007





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P.O. DRAWER 1269  
VAN BUREN, AR 72957



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NPDES Enforcement Section  
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North Little Rock, AR 72118-5317