

# **NASHVILLE PUBLIC WORKS**

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June 1, 2012

STATE OF ARKANSAS  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, AR 72118-5317

Attn: Mr. Allen Anderson  
Administrative Assistant, NPDES Enforcement

Re: NPDES Permit #AR0021776, AFIN # 31-00036  
Bio-monitoring Results Second Quarter - 2012

Dear Mr. Anderson:

Please find enclosed our results for the second quarter of 2012. Results have indicated that we passed both tests for fathead minnow and passed survival and failed reproduction tests for the ceriodaphnia-dubia. We have rescheduled for just ceriodaphnia dubia.

If you have any questions of concern, please contact me at 870-845-4015.

Sincerely,



Larry Dunaway  
Public Works Director

cc: Pretreatment File, Bio-monitoring, 2012

May 31, 2012

Test Results of  
Second Quarter  
Chronic 7-Day Renewal  
Biomonitoring Testing  
for  
Nashville Effluent

Control No. 157972-1

Prepared for:

Mr. Ed Carlyle  
City of Nashville  
426 North Main  
Nashville, AR 71852

Prepared by:

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

City of Nashville  
ATTN: Mr. Ed Carlyle  
426 North Main  
Nashville, AR 71852

Re: Chronic 7-Day Renewal utilizing *Pimephales promelas* (Fathead minnow) and *Ceriodaphnia dubia*  
Nashville Effluent  
NPDES Permit No. NPDES AR0021776 AFIN 31-00036

Dear Mr. Ed Carlyle:

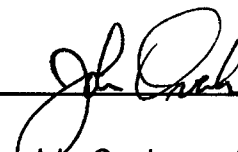
This report is the analytical results and supporting information for the samples submitted to American Interplex Corporation (AIC). The following results are applicable only to the sample identified by the control number referenced above. Accurate assessment of the data requires access to the entire 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 1000.0 Chronic *Pimephales promelas* (Fathead minnow) Survival and Growth Test: The No Observable Effects Concentration (NOEC) for survival occurred at 97 % effluent, which is above the critical dilution of 73 %. The NOEC for growth occurred at 97 % effluent, which is above the critical dilution of 73 %. **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 97 % effluent, which is above the critical dilution of 73 %. The NOEC for reproduction occurred at 31 % effluent, which is below the critical dilution of 73 %. **The sample PASSED lethal effects, however, FAILED sub-lethal effects for the *Ceriodaphnia dubia* test.**

AMERICAN INTERPLEX CORPORATION

  
\_\_\_\_\_  
John Overbey  
Laboratory Director

PDF cc: City of Nashville  
ATTN: Mr. Ed Carlyle  
mredcarlyle@yahoo.com

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Appendix A: Raw Data

A1: Test 1000.0

*Pimephales promelas* (Fathead minnow) Survival and Growth

Test 1002.0

*Ceriodaphnia dubia* Survival and Reproduction

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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	0.440	PASS
Control Growth CV < or = 40%	11.5	PASS
Growth Minimum Significant Difference 12 to 30%	12.0	PASS
Critical Dilution CV < or = 40%	3.69	PASS

*Ceriodaphnia dubia* Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	24.6	PASS
Control CV < or = 40% per Surviving Female	14.7	PASS
Reproduction Minimum Significant Difference 13 to 47%	15.2	PASS
Critical Dilution CV < or = 40%	17.9	PASS

II. Outlined Report

A. Introduction

1. Permit Number: NPDES AR0021776 AFIN 31-00036
2. Test Requirements: Test Methods 1000.0 and 1002.0
3. Receiving Stream: Ouachita River Basin

B. Source of Effluent/Dilution Water

1. Effluent Samples:

- a. Sampling Point: Nashville Effluent
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	7.3	7.3	7.3
pH (standard units)	7.9	7.6	8.3
Alkalinity (mg/l as CaCO <sub>3</sub> )	79	78	76
Hardness (mg/l as CaCO <sub>3</sub> )	26	22	23
Conductivity (umhos/cm)	320	330	370
Residual Chlorine (mg/l)	0.050	<0.05	0.050
Ammonia as N (mg/l)	1.0	0.89	0.41

2. Dilution Water Samples: Synthetic Laboratory Soft Water #3874

- a. Dates Prepared: May 11 through May 25, 2012
- b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	7.5	7.7	7.7
pH (standard units)	8.0	7.8	7.7
Alkalinity (mg/l as CaCO <sub>3</sub> )	31	31	31
Hardness (mg/l as CaCO <sub>3</sub> )	44	43	47
Conductivity (umhos/cm)	120	120	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 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: May 22, 2012 at 1630  
Date & Time Test Terminated: May 29, 2012 at 1445  
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: May 22, 2012 at 1500  
Date & Time Test Terminated: May 29, 2012 at 1435  
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 analyzed with Steel's Many-One Rank 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.

*Pimephales promelas* (Fathead minnow)

Chronic reference tests are performed monthly.

A chronic reference test was performed on May 8, 2012 at 1645 to May 15, 2012 at 1505

The results were as follows: (Control No. 157572-2.)

Survival LC-50: 5482.6 mg/l

Growth IC-25: 4443 mg/l

Growth PMSD: 18.7

*Ceriodaphnia dubia*

Chronic reference tests are performed monthly.

A chronic reference test was performed on May 8, 2012 at 1435 to May 15, 2012 at 1510

The results were as follows: (Control No. 157572-1.)

Survival LC-50: 1673 mg/l

Growth IC-25: 1086 mg/l

Growth PMSD: 31.2

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	99.3	1.38
pH	SM 4500-H+ B	99.3	0.407
Conductivity	EPA 120.1	91.6	1.55

VI. Organism History

*Pimephales promelas* (Fathead minnow)

Date: May 22, 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

*Ceriodaphnia dubia*

Date: May 22, 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 *Pimephales promelas*, Fathead minnow Larval Survival and Growth Test -- Method 1000.0

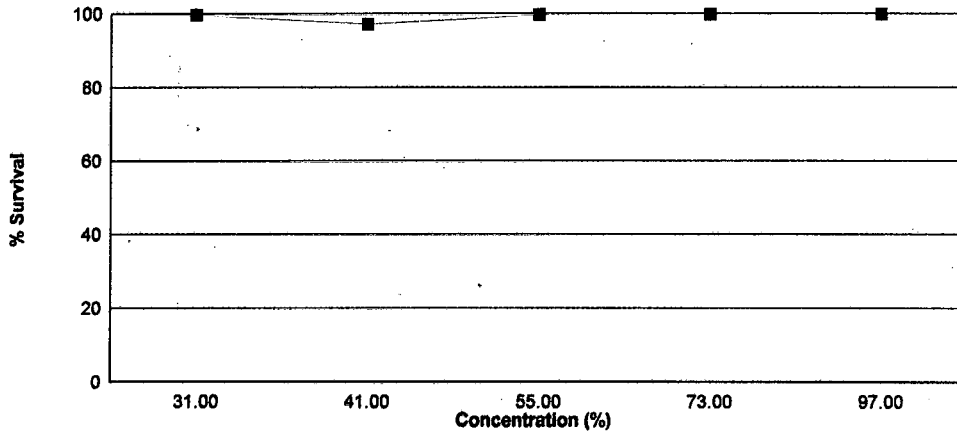
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

Effluent dilutions for this test were 31 %, 41 %, 55 %, 73 %, 97 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 73 % effluent.

The test was initiated on May 22, 2012 at 1630 and continued through May 29, 2012 at 1445. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 97 % effluent
- b.) NOEC growth = 97 % effluent



Summary of the 7-day Fathead Minnow Survival and Growth		
Concentration	Percent Survival	Mean Growth (mg)
Control	100	0.440
31 %	100	0.474
41 %	97.5	0.467
55 %	100	0.472
73 %	100	0.455
97 %	100	0.483



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

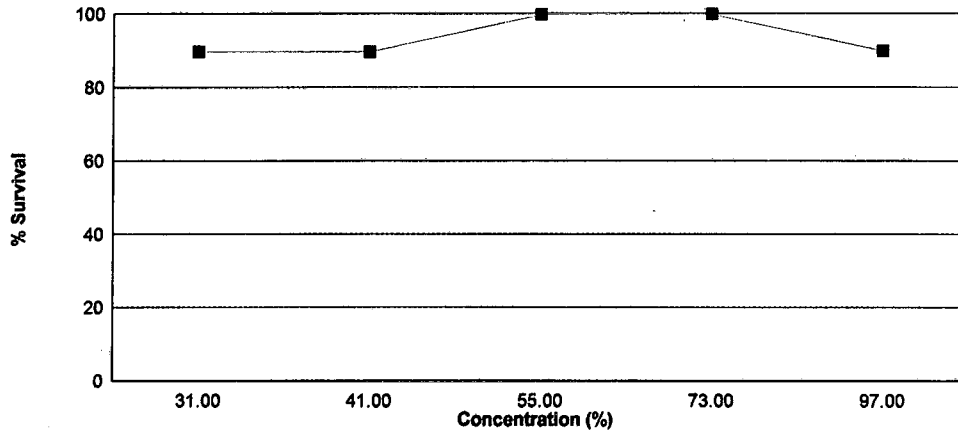
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

Effluent dilutions for this test were 31 %, 41 %, 55 %, 73 %, 97 % in accordance with the NPDES permit.

The low flow or 'critical' dilution is specified in the NPDES permit as 73 % effluent.

The test was initiated on May 22, 2012 at 1500 and continued through May 29, 2012 at 1435. Statistical analyses were performed on the observed data and the no observable effects concentrations (NOECs) were as follows:

- a.) NOEC survival = 97 % effluent
- b.) NOEC reproduction = 31 % effluent



Summary of the 7-day <i>Ceriodaphnia dubia</i> Survival and Reproduction Data		
Concentration	Percent Survival	Mean Reproduction
Control	100	24.6
31 %	90.0	20.8
41 %	90.0	18.2 *
55 %	100	20.0 *
73 %	100	16.7 *
97 %	90.0	14.4 *

\*Significant difference when compared to the control (p=0.05)

Appendix A1: Test 1000.0

*Pimephales promelas* (Fathead Minnow) 7-Day Survival

Date and Time Test Initiated: May 22, 2012 at 1630

Date and Time Test Terminated: May 29, 2012 at 1445

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
31 %	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
41 %	A	8	8	8	8	8	8	8
	B	8	8	8	8	8	8	8
	C	8	8	8	8	8	7	7
	D	8	8	8	8	8	8	8
	E	8	8	8	8	8	8	8
55 %	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
73 %	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
97 %	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: May 22, 2012 at 1630  
Test Terminated: May 29, 2012 at 1445

Drying Started: May 28, 2012 at 1903  
Drying Ended: May 30, 2012 at 1335

Concentration	Replicate	Weight of pan	Weight of pan + fish	Total weight of fish (g)	Original # of fish	Mean dry weight (mg)
Control	A	.95465	.95792	0.00327	8	0.409
	B	.94828	.95185	0.00357	8	0.446
	C	.94547	.94851	0.00304	8	0.380
	D	.94132	.94492	0.00360	8	0.450
	E	.95762	.96173	0.00411	8	0.514
31 %	A	.96292	.96676	0.00384	8	0.480
	B	.95656	.96029	0.00373	8	0.466
	C	.96846	.97190	0.00344	8	0.430
	D	.91832	.92216	0.00384	8	0.480
	E	.91742	.92155	0.00413	8	0.516
41 %	A	.91618	.91997	0.00379	8	0.474
	B	.91638	.92046	0.00408	8	0.510
	C	.91871	.92179	0.00308	8	0.385
	D	.91939	.92322	0.00383	8	0.479
	E	.91963	.92354	0.00391	8	0.489
55 %	A	.92146	.92510	0.00364	8	0.455
	B	.92168	.92560	0.00392	8	0.490
	C	.92163	.92520	0.00357	8	0.446
	D	.92058	.92425	0.00367	8	0.459
	E	.92130	.92540	0.00410	8	0.512
73 %	A	.92102	.92461	0.00359	8	0.449
	B	.91955	.92298	0.00343	8	0.429
	C	.92150	.92522	0.00372	8	0.465
	D	.92111	.92479	0.00368	8	0.460
	E	.92199	.92577	0.00378	8	0.472
97 %	A	.92380	.92791	0.00411	8	0.514
	B	.92360	.92729	0.00369	8	0.461
	C	.92126	.92511	0.00385	8	0.481
	D	.92213	.92578	0.00365	8	0.456
	E	.92134	.92536	0.00402	8	0.502

Appendix A1: Test 1002.0

*Ceriodaphnia dubia* Survival and Reproduction

Date and Time Test Initiated: May 22, 2012 at 1500

Date and Time Test Terminated: May 29, 2012 at 1435

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	0	10	0.00
2	0	0	0	0	0	0	0	0	0	0	0	0	10	0.00
3	0	1	2	2	0	1	0	0	0	0	6	10	0.600	
4	5	8	0	8	5	0	6	4	8	5	49	10	4.90	
5	9	0	9	0	11	7	9	8	0	10	63	10	6.30	
6	0	12	15	15	0	11	0	10	14	0	77	10	7.70	
7	11	10E	0	12E	15	0	13	0	0	12	51	10	5.10	
8														
<b>TOTAL</b>	<b>25</b>	<b>21</b>	<b>26</b>	<b>25</b>	<b>31</b>	<b>19</b>	<b>28</b>	<b>22</b>	<b>22</b>	<b>27</b>	<b>246</b>	<b>10</b>	<b>24.6</b>	

E = Excluded fourth brood neonates

Concentration: 31 %														
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	X	0	0	0	0	9	0.00	
3	0	0	0	0	0	0	X	0	0	0	0	9	0.00	
4	4	4	6	4	3	3	X	2	6	4	36	9	4.00	
5	9	9	7	0	8	8	X	6	12	8	67	9	7.44	
6	0	0	0	13	0	11	X	10	0	0	34	9	3.78	
7	10	9	11	9	9	0	X	0	13	10	71	9	7.89	
8														
<b>TOTAL</b>	<b>23</b>	<b>22</b>	<b>24</b>	<b>26</b>	<b>20</b>	<b>22</b>	<b>0</b>	<b>18</b>	<b>31</b>	<b>22</b>	<b>208</b>	<b>10</b>	<b>20.8</b>	

Concentration: 41 %														
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	X	0	0	0	0	0	9	0.00	
3	0	0	0	0	0	X	0	0	0	0	0	9	0.00	
4	8	5	3	2	4	X	0	2	0	4	28	9	3.11	
5	8	7	0	0	6	X	6	7	8	9	51	9	5.67	
6	0	0	9	9	0	X	12	10	11	0	51	9	5.67	
7	10	9	10	0	12	X	0	0	0	11	52	9	5.78	
8														
<b>TOTAL</b>	<b>26</b>	<b>21</b>	<b>22</b>	<b>11</b>	<b>22</b>	<b>0</b>	<b>18</b>	<b>19</b>	<b>19</b>	<b>24</b>	<b>182</b>	<b>10</b>	<b>18.2</b>	

Appendix A1: Test 1002.0

*Ceriodaphnia dubia* Survival and Reproduction

Date and Time Test Initiated: May 22, 2012 at 1500

Date and Time Test Terminated: May 29, 2012 at 1435

Concentration: 55 %														
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	0	10	0.00
2	0	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	0	10	0.00
4	3	3	2	4	3	0	0	0	4	3	22	10	2.20	
5	6	8	0	0	8	0	6	7	8	8	51	10	5.10	
6	0	0	11	10	11	8	9	9	0	0	58	10	5.80	
7	10	10	8	9	0	10	0	0	12	10	69	10	6.90	
8														
TOTAL	19	21	21	23	22	18	15	16	24	21	200	10	20.0	

Concentration: 73 %														
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	3	4	2	2	3	3	2	2	4	4	29	10	2.90	
5	7	0	7	0	6	6	7	6	8	7	54	10	5.40	
6	0	8	0	9	0	8	0	8	0	0	33	10	3.30	
7	8	0	10	0	8	0	9	0	8	8	51	10	5.10	
8														
TOTAL	18	12	19	11	17	17	18	16	20	19	167	10	16.7	

Concentration: 97 %														
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	X	0	0	0	9	0.00	
4	3	3	2	3	3	0	2	X	3	2	21	9	2.33	
5	8	7	6	0	8	4	7	X	8	7	55	9	6.11	
6	0	0	0	10	0	0	0	X	0	0	10	9	1.11	
7	9	8	8	0	9	7	8	X	0	9	58	9	6.44	
8														
TOTAL	20	18	16	13	20	11	17	0	11	18	144	10	14.4	

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	31 %	1	1.00000	1.39310
2	31 %	2	1.00000	1.39310
2	31 %	3	1.00000	1.39310
2	31 %	4	1.00000	1.39310
2	31 %	5	1.00000	1.39310
3	41 %	1	1.00000	1.39310
3	41 %	2	1.00000	1.39310
3	41 %	3	0.87500	1.20940
3	41 %	4	1.00000	1.39310
3	41 %	5	1.00000	1.39310
4	55 %	1	1.00000	1.39310
4	55 %	2	1.00000	1.39310
4	55 %	3	1.00000	1.39310
4	55 %	4	1.00000	1.39310
4	55 %	5	1.00000	1.39310
5	73 %	1	1.00000	1.39310
5	73 %	2	1.00000	1.39310
5	73 %	3	1.00000	1.39310
5	73 %	4	1.00000	1.39310
5	73 %	5	1.00000	1.39310
6	97 %	1	1.00000	1.39310
6	97 %	2	1.00000	1.39310
6	97 %	3	1.00000	1.39310
6	97 %	4	1.00000	1.39310
6	97 %	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))
<p>D = 0.027 W = 0.4161 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	31 %	27.50	16.00	5.00	
3	41 %	25.00	16.00	5.00	
4	55 %	27.50	16.00	5.00	
5	73 %	27.50	16.00	5.00	
6	97 %	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 = 0.02998 W = 0.9795 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 = 5.819 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	0.006001	0.0012	0.9608	
Within (Error)	24	0.02998	0.001249		
Total	29	0.03598			
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	0.4398	0.4398		
2	31 %	0.4744	0.4744	-1.548	
3	41 %	0.4674	0.4674	-1.235	
4	55 %	0.4724	0.4724	-1.458	
5	73 %	0.455	0.455	-0.68	
6	97 %	0.4828	0.4828	-1.924	
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	31 %	5	0.05275	12	-0.0346	
3	41 %	5	0.05275	12	-0.0276	
4	55 %	5	0.05275	12	-0.0326	
5	73 %	5	0.05275	12	-0.0152	
6	97 %	5	0.05275	12	-0.043	

Appendix A2: Statistics

*Ceriodaphnia dubia* Survival

Fisher's Exact Test			
Identification	Alive	Dead	Total Animals
Control	10	0	10
31 %	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
41 %	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
55 %	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
73 %	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
97 %	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	31 %	10	1	
2	41 %	10	1	
3	55 %	10	0	
4	73 %	10	0	
5	97 %	10	1	

Appendix A2: Statistics

*Ceriodaphnia dubia* Reproduction

Chi-Square Test for Normality	No Transformation
Chi-Square = 8.6535 Critical Chi-Square = 13.28	(alpha = 0.01, df = 4)
Data PASS normality test (alpha = 0.01).	

Kolmogorov Test for Normality	No Transformation
D = 0.1739 D* = 1.364 Critical D* = 1.035	(alpha = 0.01, N = 60)
Data FAIL normality test (alpha = 0.01).	

Steel's Many-One Rank Test					No Transformation
Ho: Control < Treatment					
Group	Identification	Rank Sum	Critical Value	DF	Sig 0.05
1	Control				
2	31 %	89.00	75.00	10.00	
3	41 %	74.00	75.00	10.00	*
4	55 %	71.00	75.00	10.00	*
5	73 %	57.00	75.00	10.00	*
6	97 %	57.00	75.00	10.00	*

Critical values are 1 tailed (k=5)

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	551.2	110.2	8.851	
Within (Error)	51	634.8	12.45		
Total	56	1186			
Critical F = 3.4 (alpha = 0.01, df = 5,51)					
2.4 (alpha = 0.05, df = 5,51)					
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	24.6	24.6			
2	31 %	23.111	23.111	0.9184		
3	41 %	20.222	20.222	2.7	*	
4	55 %	20	20	2.915	*	
5	73 %	16.7	16.7	5.006	*	
6	97 %	16	16	5.305	*	
Dunnett's critical value = 2.31 (1 Tailed, alpha = 0.05, df [used] = 5,40) (Actual df = 5,51)						
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	31 %	9	3.745	15.2	1.489	
3	41 %	9	3.745	15.2	4.378	
4	55 %	10	3.645	14.8	4.6	
5	73 %	10	3.645	14.8	7.9	
6	97 %	9	3.745	15.2	8.6	

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: May 22, 2012 at 1049

Date and Time Test Terminated: May 29, 2012 at 1445

Effluent Conc.: Control	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	7.5	7.9	7.7	7.3	7.7	7.7	7.9
	Final *1	7.3	7.0	6.9	7.2	6.9	7.1	7.5
	Final *2	7.7	7.7	7.8	7.8	7.7	8.0	7.9
pH, units	Initial	8.0	7.9	7.8	8.0	7.7	7.9	7.8
	Final *1	7.6	7.4	7.6	7.5	7.6	7.6	7.5
	Final *2	7.8	8.1	8.2	7.9	7.8	7.8	8.0
Alkalinity, mg CaCO <sub>3</sub> /l	31	NA	31	NA	31	NA	NA	
Hardness, mg CaCO <sub>3</sub> /l	44	NA	43	NA	47	NA	NA	
Conductivity, umhos/cm	120	120	120	130	140	140	130	
Res. Chlorine, mg/l	<0.05	NA	<0.05	NA	<0.05	NA	NA	

Effluent Conc.: 31 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	7.9	7.9	7.6	7.3	7.6	7.5	7.7
	Final *1	7.4	7.3	6.8	6.5	6.9	6.6	7.3
	Final *2	8.0	8.0	7.8	7.7	7.7	8.0	8.1
pH, units	Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
	Final *1	7.7	7.6	7.6	7.5	7.7	7.7	7.6
	Final *2	8.2	8.2	8.2	7.9	8.0	7.9	8.1

Effluent Conc.: 41 %	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
DO, mg/l	Initial	7.8	7.9	7.6	7.2	7.6	7.4	7.6
	Final *1	7.3	6.7	6.8	6.8	7.0	7.0	7.4
	Final *2	8.0	7.9	7.7	7.6	7.6	7.9	8.0
pH, units	Initial	7.8	7.8	7.8	7.9	7.7	7.9	7.7
	Final *1	7.8	7.5	7.7	7.5	7.7	7.7	7.7
	Final *2	8.2	8.1	8.2	7.9	7.9	8.0	8.2

Appendix A3: Water Chemistry

Routine Chemical and Physical Data

Date and Time Test Initiated: May 22, 2012 at 1049

Date and Time Test Terminated: May 29, 2012 at 1445

Effluent Conc.: 55 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.4	7.9	7.6	7.3	7.3	7.4	7.4
	Final *1	7.2	7.0	6.9	6.8	6.9	7.1	7.3
	Final *2	8.2	7.9	7.9	7.5	7.5	7.9	7.7
pH, units	Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
	Final *1	7.8	7.6	7.7	7.6	7.7	7.8	7.8
	Final *2	8.4	8.3	8.3	8.0	7.9	8.0	8.3

Effluent Conc.: 73 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.7	7.9	7.6	7.5	7.4	7.5	7.5
	Final *1	7.3	7.0	7.1	6.6	6.7	6.7	7.5
	Final *2	8.1	7.9	8.1	7.6	7.6	7.9	8.0
pH, units	Initial	7.8	7.9	7.8	7.9	7.7	7.9	7.8
	Final *1	7.9	7.6	7.7	7.6	7.8	7.8	7.8
	Final *2	8.3	8.3	8.3	8.0	8.0	8.0	8.2
Alkalinity, mg CaCO <sub>3</sub> /l	62	NA	62	NA	62	NA	NA	NA
Hardness, mg CaCO <sub>3</sub> /l	32	NA	30	NA	29	NA	NA	NA
Conductivity, umhos/cm	330	300	270	280	300	300	290	
Res. Chlorine, mg/l	0.060	NA	<0.05	NA	<0.05	NA	NA	NA

Effluent Conc.: 97 %		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
DO, mg/l	Initial	7.5	8.0	7.5	7.5	7.3	7.5	7.2
	Final *1	7.5	7.0	6.6	7.0	6.9	6.8	7.3
	Final *2	8.0	7.9	7.9	7.5	7.3	7.6	8.0
pH, units	Initial	7.9	7.9	7.8	8.0	7.8	7.9	7.8
	Final *1	8.0	7.7	7.8	7.7	7.8	7.8	7.9
	Final *2	8.4	8.3	8.4	8.0	8.0	8.1	8.3

\*1 = data from the *Pimephales promelas* (Fathead Minnow) test

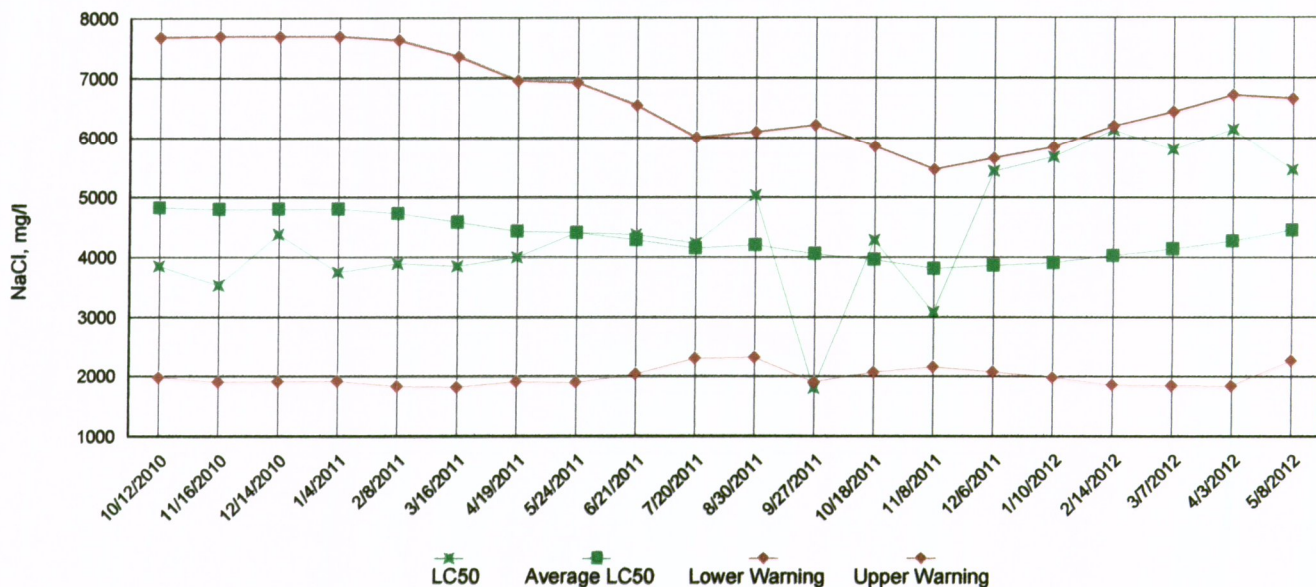
\*2 = data from the *Ceriodaphnia dubia* test



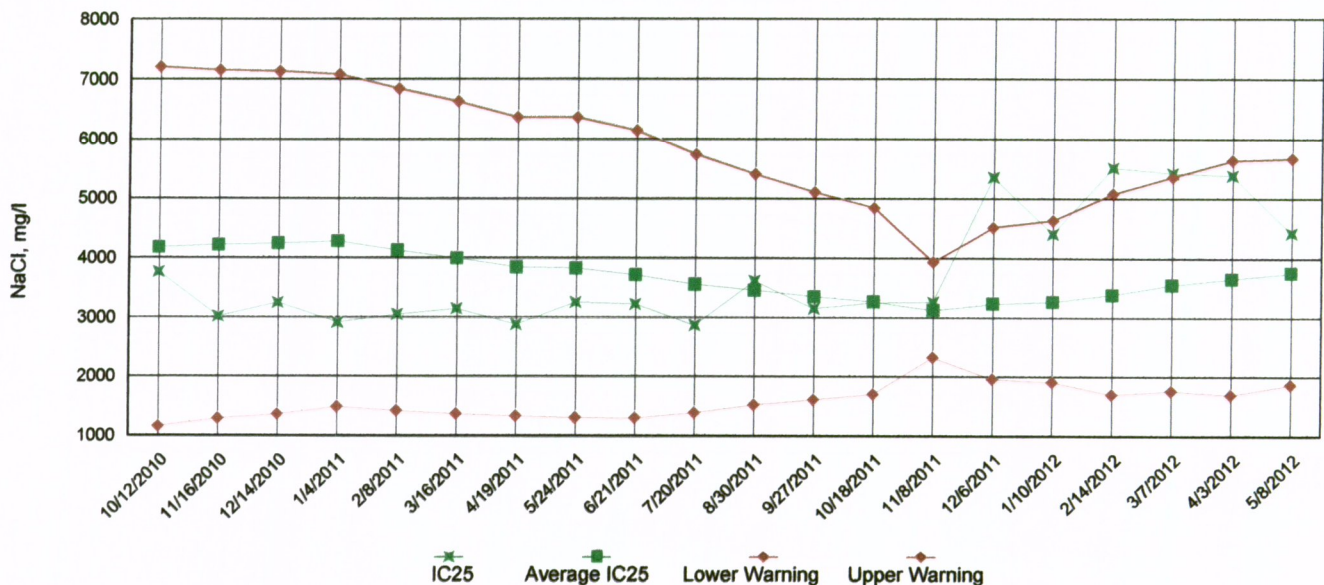
Appendix A4: Test 1000.0

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

LC50 Survival Data

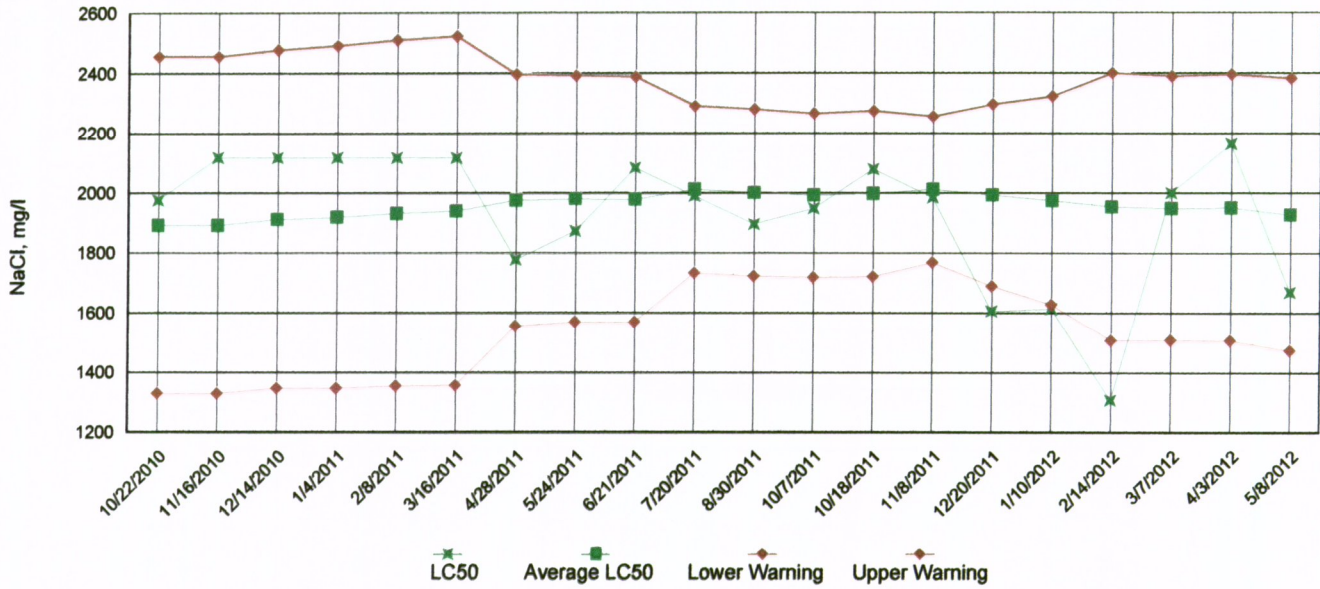


IC25 Growth Data

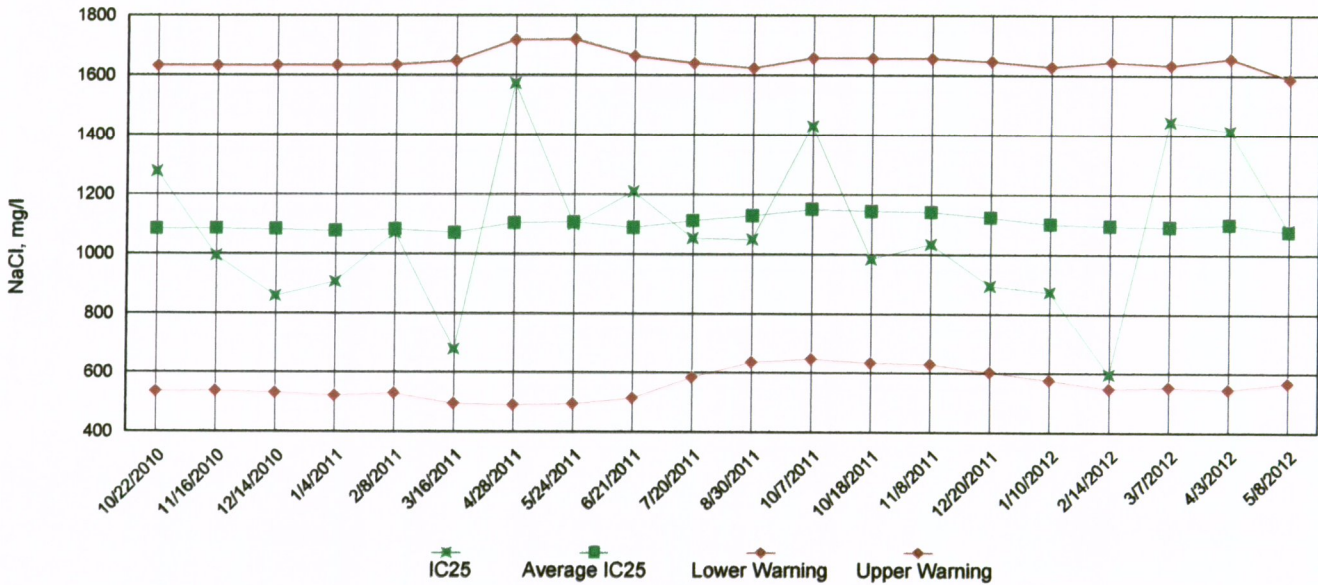


Appendix A4: Test 1002.0  
Chronic Reference Toxicant, *Ceriodaphnia dubia*

LC50 Survival Data



IC25 Reproduction Data



Appendix B: Test 1000.0

**SUMMARY REPORTING FORMS  
CHRONIC BIOMONITORING  
*Pimephales promelas* (Fathead Minnow)  
SURVIVAL AND GROWTH**

Permittee: City of Nashville

NPDES No.: NPDES AR0021776 AFIN 31-00036

Date and Time Test Initiated: May 22, 2012 at 1630

Date and Time Test Terminated: May 29, 2012 at 1445

Dilution water used: Synthetic Laboratory Soft Water #3874

DATA TABLE FOR SURVIVAL

Effluent Conc. %	Percent Survival in replicate chambers					Mean percent survival			CV%
	A	B	C	D	E	24 hr	48 hr	7 days	
Control	100	100	100	100	100	100	100	100	0.00
31 %	100	100	100	100	100	100	100	100	0.00
41 %	100	100	87.5	100	100	100	100	97.5	5.73
55 %	100	100	100	100	100	100	100	100	0.00
73 %	100	100	100	100	100	100	100	100	0.00
97 %	100	100	100	100	100	100	100	100	0.00

DATA TABLE FOR GROWTH

Effluent Conc. %	Average dry weight, mg replicate chambers					Mean dry weight, mg	CV%
	A	B	C	D	E		
Control	0.409	0.446	0.380	0.450	0.514	0.44	11.5
31 %	0.480	0.466	0.430	0.480	0.516	0.474	6.53
41 %	0.474	0.510	0.385	0.479	0.489	0.467	10.3
55 %	0.455	0.490	0.446	0.459	0.512	0.472	5.85
73 %	0.449	0.429	0.465	0.460	0.472	0.455	3.69
97 %	0.514	0.461	0.481	0.456	0.502	0.483	5.22

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	(73 %)	<u>          </u> YES	<u>  X  </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u>          </u> YES	<u>          </u> 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	(73 %)	<u>          </u> YES	<u>  X  </u> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<u>          </u> YES	<u>          </u> NO

- |                                                              |                 |         |
|--------------------------------------------------------------|-----------------|---------|
| 3. If you answered NO to 1.a) enter [0] otherwise enter [1]: | <u>  0  </u>    | (TLP6C) |
| 4. If you answered NO to 2.a) enter [0] otherwise enter [1]: | <u>  0  </u>    | (TGP6C) |
| 5. NOEC <i>Pimephales</i> Lethality:                         | <u>  97 %  </u> | (TOP6C) |
| 6. LOEC <i>Pimephales</i> Lethality:                         | <u>  97 %  </u> | (TXP6C) |
| 7. NOEC <i>Pimephales</i> Sublethality:                      | <u>  97 %  </u> | (TPP6C) |
| 8. LOEC <i>Pimephales</i> Sublethality:                      | <u>  97 %  </u> | (TYP6C) |
| 9. Coefficient of variation for <i>Pimephales</i> growth:    | <u>  11.5  </u> | (TQP6C) |

Appendix B: Test 1000.0

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

PERMITTEE: City of Nashville SAMPLE No. 1 COLLECTED ending: DATE: May 22, 2012 TIME: 0800  
 NPDES NO.: NPDES AR0021776 AFIN 31-000 SAMPLE No. 2 COLLECTED ending: DATE: May 24, 2012 TIME: 0800  
 CONTACT: Mr. Ed Carlyle SAMPLE No. 3 COLLECTED ending: DATE: May 26, 2012 TIME: 1600  
 ANALYST: 275, 280, 298, 304 Test Initiated: DATE: May 22, 2012 TIME: 1630  
 Test Terminated: DATE: May 29, 2012 TIME: 1445

DILUTION	DAY						
	1	2	3	4	5	6	7
Control							
D.O. Initial	7.5	7.9	7.7	7.3	7.7	7.7	7.9
Final	7.3	7.0	6.9	7.2	6.9	7.1	7.5
pH Initial	8.0	7.9	7.8	8.0	7.7	7.9	7.8
Final	7.6	7.4	7.6	7.5	7.6	7.6	7.5
Alkalinity	31	NA	31	NA	31	NA	NA
Hardness	44	NA	43	NA	47	NA	NA
Conductivity	120	120	120	130	140	140	130
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
31 %							
D.O. Initial	7.9	7.9	7.6	7.3	7.6	7.5	7.7
Final	7.4	7.3	6.8	6.5	6.9	6.6	7.3
pH Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
Final	7.7	7.6	7.6	7.5	7.7	7.7	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	190	180	190	190	210	210	200
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
41 %							
D.O. Initial	7.8	7.9	7.6	7.2	7.6	7.4	7.6
Final	7.3	6.7	6.8	6.8	7.0	7.0	7.4
pH Initial	7.8	7.8	7.8	7.9	7.7	7.9	7.7
Final	7.8	7.5	7.7	7.5	7.7	7.7	7.7
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	250	230	210	210	230	230	220
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
55 %							
D.O. Initial	7.4	7.9	7.6	7.3	7.3	7.4	7.4
Final	7.2	7.0	6.9	6.8	6.9	7.1	7.3
pH Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
Final	7.8	7.6	7.7	7.6	7.7	7.8	7.8
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	470	240	230	240	260	260	250
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
73 %							
D.O. Initial	7.7	7.9	7.6	7.5	7.4	7.5	7.5
Final	7.3	7.0	7.1	6.6	6.7	6.7	7.5
pH Initial	7.8	7.9	7.8	7.9	7.7	7.9	7.8
Final	7.9	7.6	7.7	7.6	7.8	7.8	7.8
Alkalinity	62	NA	62	NA	62	NA	NA
Hardness	32	NA	30	NA	29	NA	NA
Conductivity	330	300	270	280	300	300	290
Chlorine	0.060	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
97 %							
D.O. Initial	7.5	8.0	7.5	7.5	7.3	7.5	7.2
Final	7.5	7.0	6.6	7.0	6.9	6.8	7.3
pH Initial	7.9	7.9	7.8	8.0	7.8	7.9	7.8
Final	8.0	7.7	7.8	7.7	7.8	7.8	7.9
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	320	320	320	330	360	360	340
Chlorine	NA	NA	NA	NA	NA	NA	NA

Appendix B: Test 1002.0

SUMMARY REPORTING FORMS  
CHRONIC BIOMONITORING  
*Ceriodaphnia dubia*  
SURVIVAL AND REPRODUCTION

Permittee: City of Nashville

NPDES No.: NPDES AR0021776 AFIN 31-00036

Date and Time Test Initiated: May 22, 2012 at 1500

Date and Time Test Terminated: May 29, 2012 at 1435

Dilution water used: Synthetic Laboratory Soft Water #3874

PERCENT SURVIVAL

Time of Reading	Control	Percent Effluent				
		31 %	41 %	55 %	73 %	97 %
24 hour	100	100	100	100	100	100
48 hour	100	90.0	90.0	100	100	100
7 day	100	90.0	90.0	100	100	90.0

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

Replicates	Control	Percent Effluent				
		31 %	41 %	55 %	73 %	97 %
A	25	23	26	19	18	20
B	21	22	21	21	12	18
C	26	24	22	21	19	16
D	25	26	11	23	11	13
E	31	20	22	22	17	20
F	19	22	0	18	17	11
G	28	0	18	15	18	17
H	22	18	19	16	16	0
I	22	31	19	24	20	11
J	27	22	24	21	19	18
Mean per Adult	24.6	20.8	18.2	20.0	16.7	14.4
Mean per Surviving Adult	24.6	23.1	20.2	20.0	16.7	16.0
CV %	14.7	16.1	21.2	14.7	17.9	22.1

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	(73 %)	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<input type="checkbox"/> YES	<input type="checkbox"/> NO

2. Steel's Many-One Rank 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	(73 %)	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
b.) 1/2 LOW FLOW DILUTION	(NA)	<input type="checkbox"/> YES	<input type="checkbox"/> 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]: 1 (TGP3B)

5. NOEC *Ceriodaphnia* Lethality: 97 % (TOP3B)

6. LOEC *Ceriodaphnia* Lethality: 97 % (TXP3B)

7. NOEC *Ceriodaphnia* Sublethality: 31 % (TPP3B)

8. LOEC *Ceriodaphnia* Sublethality: 41 % (TYP3B)

9. Coefficient of variation for *Ceriodaphnia* Reproduction: 17.9 (TQP3B)

## Appendix B: Test 1002.0

**CHRONIC TOXICITY SUMMARY FORM**  
*Ceriodaphnia dubia*  
**CHEMICAL PARAMETERS CHART**

PERMITTEE: <u>City of Nashville</u>	SAMPLE No. 1 COLLECTED ending: <u>DATE: May 22, 2012</u>	TIME: <u>0800</u>
NPDES NO.: <u>NPDES AR0021776 AFIN 31-000</u>	SAMPLE No. 2 COLLECTED ending: <u>DATE: May 24, 2012</u>	TIME: <u>0800</u>
CONTACT: <u>Mr. Ed Carlyle</u>	SAMPLE No. 3 COLLECTED ending: <u>DATE: May 26, 2012</u>	TIME: <u>1600</u>
ANALYST: <u>275, 280, 298, 304</u>	Test Initiated: <u>DATE: May 22, 2012</u>	TIME: <u>1500</u>
	Test Terminated: <u>DATE: May 29, 2012</u>	TIME: <u>1435</u>

DILUTION	DAY						
	1	2	3	4	5	6	7
Control							
D.O. Initial	7.5	7.9	7.7	7.3	7.7	7.7	7.9
Final	7.7	7.7	7.8	7.8	7.7	8.0	7.9
pH Initial	8.0	7.9	7.8	8.0	7.7	7.9	7.8
Final	7.8	8.1	8.2	7.9	7.8	7.8	8.0
Alkalinity	31	NA	31	NA	31	NA	NA
Hardness	44	NA	43	NA	47	NA	NA
Conductivity	120	120	120	130	140	140	130
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
31 %							
D.O. Initial	7.9	7.9	7.6	7.3	7.6	7.5	7.7
Final	8.0	8.0	7.8	7.7	7.7	8.0	8.1
pH Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
Final	8.2	8.2	8.2	7.9	8.0	7.9	8.1
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	190	180	190	190	210	210	200
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
41 %							
D.O. Initial	7.8	7.9	7.6	7.2	7.6	7.4	7.6
Final	8.0	7.9	7.7	7.6	7.6	7.9	8.0
pH Initial	7.8	7.8	7.8	7.9	7.7	7.9	7.7
Final	8.2	8.1	8.2	7.9	7.9	8.0	8.2
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	250	230	210	210	230	230	220
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
55 %							
D.O. Initial	7.4	7.9	7.6	7.3	7.3	7.4	7.4
Final	8.2	7.9	7.9	7.5	7.5	7.9	7.7
pH Initial	7.9	7.8	7.8	7.9	7.7	7.9	7.7
Final	8.4	8.3	8.3	8.0	7.9	8.0	8.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	470	240	230	240	260	260	250
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
73 %							
D.O. Initial	7.7	7.9	7.6	7.5	7.4	7.5	7.5
Final	8.1	7.9	8.1	7.6	7.6	7.9	8.0
pH Initial	7.8	7.9	7.8	7.9	7.7	7.9	7.8
Final	8.3	8.3	8.3	8.0	8.0	8.0	8.2
Alkalinity	62	NA	62	NA	62	NA	NA
Hardness	32	NA	30	NA	29	NA	NA
Conductivity	330	300	270	280	300	300	290
Chlorine	0.060	NA	<0.05	NA	<0.05	NA	NA

DILUTION	DAY						
	1	2	3	4	5	6	7
97 %							
D.O. Initial	7.5	8.0	7.5	7.5	7.3	7.5	7.2
Final	8.0	7.9	7.9	7.5	7.3	7.6	8.0
pH Initial	7.9	7.9	7.8	8.0	7.8	7.9	7.8
Final	8.4	8.3	8.4	8.0	8.0	8.1	8.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	320	320	320	330	360	360	340
Chlorine	NA	NA	NA	NA	NA	NA	NA





CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: <b>CITY OF NASHVILLE</b>			PO No.		No of BOTTLES	Analyses Requested										AIC Control No: <b>157972</b>			
Project Reference: <b>BIOMONITORING 2QUART.</b>			Sample Matrix			FATHAD MINNOW CERIODAPHNIA DUBIA											AIC Proposal No:		
Project Manager: <b>ED CARLYLE JR.</b>			WATER	SOIL													WASTE	Carrier: <b>Ed</b>	
Sampled By: <b>Ed Carlyle Jr.</b>																		G R A B	C O M P
AIC No.	Sample Identification	Date/Time Collected																	
<b>1</b>	<b>NASHUB02Q</b>	<b>5/21-22/12</b>			<b>X</b>	<b>3</b>	<b>X</b>			<b>X</b>									
	<b>EFF</b>	<b>0800-0800</b>																	
Container Type					<b>P</b>											Field pH calibration on _____ @ _____			
Preservative					<b>NO</b>											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									
<b>NORMAL TURNAROUND</b> <b>CONTACT: ED CARLYLE, JR.</b> <b>870-557-3143 FAX: 870-845-7409</b> <b>REPORT TO: ED CARLYLE, JR.</b> <b>426 NORTH MAIN</b> <b>NASHVILLE, AR 71852</b>						Relinquished By: <b>Ed Carlyle Jr.</b>	Date/Time: <b>5/22/12 10:30</b>	Received By:	Date/Time:										
						Relinquished By:	Date/Time:	Received in Lab By: <b>Cynthia Hopton</b>	Date/Time: <b>5-22-12 1030</b>										
						Comments: <b>1st sample of 3 hand delivered to laboratory</b>													



CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: <b>CITY OF NASHVILLE</b>			PO No.		No of BOTTLES	Analyses Requested										AIC Control No: <b>157972</b>					
Project Reference: <b>BIOMONITORING 2ND QUART</b>			Sample Matrix			FATHEAD	MINNOW	CERIO DAPHNIA	DUBIA											AIC Proposal No:	
Project Manager: <b>ED CARLYLE JR</b>			W	S						W	Carrier:		Received Temperature °C		Remarks						
Sampled By: <b>Ed Carlyle Jr.</b>			GRAB	COMP	WATER	SOIL	WASTE	Field pH calibration on _____ @ _____ Buffer:													
AIC No.	Sample Identification	Date/Time Collected																			
<b>2</b>	<b>NASHVID20</b>	<b>5/23-24/12</b>		<b>8</b>		<b>X</b>		<b>3</b>	<b>X</b>												
	<b>EPF (#2)</b>	<b>0800-0800</b>		<b>HR</b>																	
Container Type					<b>PO</b>																
Preservative																					
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									
<b>NORMAL TURNAROUND</b> <b>CONTACT: ED CARLYLE, JR.</b> <b>870-557-3143 FAX: 870-845-7409</b> <b>REPORT TO: ED CARLYLE, JR.</b> <b>426 NORTH MAIN</b> <b>NASHVILLE, AR 71852</b>					Relinquished By: <b>Ed Carlyle Jr.</b>		Date/Time: <b>5/24/12 12:30 pm</b>		Received By: <b>[Signature]</b>		Date/Time										
					Relinquished By:		Date/Time		Received in Lab By: <b>[Signature]</b>		Date/Time: <b>5-24-12 1230</b>										
					Comments: <b>2ND SAMPLE OF 3 HAND DELIVERED TO LABORATORY</b>																



CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client: <b>CITY OF NASHVILLE</b>			PO No.		No of BOTTLES	Analyses Requested										AIC Control No: <b>157972</b>	
Project Reference: <b>BIDMONITORING QUARTER</b>			Sample Matrix			WATER	SOIL	WASTE	FATHEND	MINNOW	CERIODAPHNIA	DUBIA	AIC Proposal No:				
Project Manager: <b>ED CARLYLE JR.</b>			G R A B C O M P										Carrier: <b>UPS</b> <small>5-26-12</small>				
Sampled By: <b>Ed Carlyle Jr.</b>			Date/Time Collected		Received Temperature °C		Remarks										
AIC No.	Sample Identification	Date/Time Collected	G R A B	C O M P	WATER	SOIL	WASTE	FATHEND	MINNOW	CERIODAPHNIA	DUBIA						
<b>3</b>	<b>NASHV B102Q</b>	<b>5/25-26/12</b>		<b>8</b>			<b>X</b>	<b>X</b>		<b>X</b>							
	<b>EFF #3</b>	<b>0800-1600</b>		<b>HR</b>													
			Container Type		Preservative		Field pH calibration on _____ @ _____		Buffer:								
			G = Glass P = Plastic NO = none 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								
<b>T: NORMAL TURNAROUND</b> <b>E: CONTACT: ED CARLYLE, JR.</b> <b>M: 870-557-3143 FAX: 870-845-7409</b> <b>P: REPORT TO: ED CARLYLE, JR.</b> <b>R: 426 NORTH MAIN</b> <b>NASHVILLE, AR 71852</b>			Relinquished By: <b>Ed Carlyle Jr.</b>		Date/Time: <b>5/26/12 9:30</b>		Received By: <b>EXE</b>		Date/Time								
			Relinquished By:		Date/Time		Received in Lab By: <b>Shawn Worm</b>		Date/Time: <b>5-26-12 0930</b>		<b>0930</b>						
			Comments:		<b>3RD SAMPLE OF 3</b>												

CITY OF NASHVILLE  
426 NORTH MAIN STREET  
NASHVILLE, AR 71852  
870-845-4015

WASTE TREATMENT PLANT  
LABORATORY ANALYSIS  
FOR BIOMONITORING REPORTS

COLLECTION DATE: 5-25-12

COLLECTION TIME: 0800 - 1600

COLLECTION PLACE: OUTFALL 001

CBOD	<u>2.03</u>	mg/L	#5210B
TSS	<u>4</u>	mg/L	#2540D
AMMN	<u>Sorrell's (not ready)</u>	mg/L	#4500-NH3 A-B
FECAL COL.	<u>91</u>	mg/L	#9222D
CHLORINE	<u>.04</u>	mg/L	#4500-CI D
pH	<u>7.52</u>	mg/L	#4500 - H
DO	<u>7.29</u>	mg/L	#4500 - OG

ANALYST: dg COLLECTED BY: jh

Analysis include 10% replication  
Test performed as required in Standards Methods  
Samples are iced at time of collection

CITY OF NASHVILLE  
426 NORTH MAIN STREET  
NASHVILLE, AR 71852  
870-845-4015

WASTE TREATMENT PLANT  
LABORATORY ANALYSIS  
FOR BIOMONITORING REPORTS

COLLECTION DATE: 5-21-12  
COLLECTION TIME: 0800-1600  
COLLECTION PLACE: OUTFALL 001

CBOD	<u>5.29</u>	mg/L	#5210B
TSS	<u>25</u>	mg/L	#2540D
AMMN	<u>Sorrell's (not ready)</u>	mg/L	#4500-NH3 A-B
FECAL COL.	<u>1000</u>	mg/L	#9222D
CHLORINE	<u>.05</u>	mg/L	#4500-CI D
pH	<u>7.98</u>	mg/L	#4500 - H
DO	<u>7.94</u>	mg/L	#4500 - OG

ANALYST: sq COLLECTED BY: jh

Analysis include 10% replication  
Test performed as required in Standards Methods  
Samples are iced at time of collection

CITY OF NASHVILLE  
426 NORTH MAIN STREET  
NASHVILLE, AR 71852  
870-845-4015

WASTE TREATMENT PLANT  
LABORATORY ANALYSIS  
FOR BIOMONITORING REPORTS

COLLECTION DATE: 5-23-12

COLLECTION TIME: 0800 - 1600

COLLECTION PLACE: OUTFALL 001

CBOD	<u>3.63</u>	mg/L	#5210B
TSS	<u>20</u>	mg/L	#2540D
AMMN	<u>Sorrells (not ready)</u>	mg/L	#4500-NH3 A-B
FECAL COL.	<u>302</u>	mg/L	#9222D
CHLORINE	<u>.05</u>	mg/L	#4500-CI D
pH	<u>7.68</u>	mg/L	#4500 - H
DO	<u>7.13</u>	mg/L	#4500 - OG

ANALYST: Ag COLLECTED BY: jh

Analysis include 10% replication  
Test performed as required in Standards Methods  
Samples are iced at time of collection

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: NASHVILLE, CITY OF  
 ADDRESS: WASTEWATER TREATMENT PLANT  
 NASHVILLE, AR 71852

FACILITY: NASHVILLE WW TREATMENT PLANT  
 LOCATION: 743 HWY 27 SOUTH  
 NASHVILLE, AR 71852

ATTN: LARRY DUNAWAY, PUBLIC WKS DIR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0004

AR0021776	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
4/1/2012	6/30/2012

DMR Mailing ZIP CODE: 71852  
 MAJOR

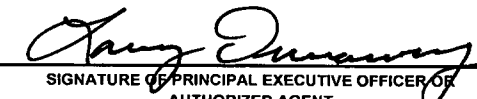
001-QUARTERLY-W.E.T. TESTING  
 External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Whole effluent toxicity	SAMPLE MEASUREMENT	*****	*****	*****	97	97	*****	%	0	1/90	Comp24
22414 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	73 MO AV MN	73 7 DA MIN	*****	%		Quarterly	COMP24
Pass/Fail Static Renewal 7 Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****	*****	1	*****		1	1/90	Comp24
TGP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Pass/Fail Statre 7Day Chronic Pimephales Promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp24
TGP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp24
TLP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp24
TLP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
NOEC Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp24
TOP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
NOEC Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp24
TOP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24

**LARRY DUNAWAY**  
**PUBLIC WORKS DIRECTOR**  
**426 NORTH MAIN**  
**NASHVILLE, AR 71852**

I, under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations.

 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
	870-845-4015	06/01/2012
	AREA Code	NUMBER
		MM/DD/YYYY

See all attachments here)

(PASS=0/FAIL=1) IF THE NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART II, CONDITION #10. 31-00036

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: NASHVILLE, CITY OF  
 ADDRESS: WASTEWATER TREATMENT PLANT  
 NASHVILLE, AR 71852

FACILITY: NASHVILLE WW TREATMENT PLANT

LOCATION: 743 HWY 27 SOUTH  
 NASHVILLE, AR 71852

ATTN: LARRY DUNAWAY, PUBLIC WKS DIR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0004

AR0021776	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
4/1/2012	6/30/2012

DMR Mailing ZIP CODE: 71852  
 MAJOR

001-QUARTERLY-W.E.T. TESTING  
 External Outfall


No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
NOEC Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	31	*****	%	1	1/90	Comp24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
NOEC Sub-Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
Coef Of Var Statre 7Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****	*****	17.9	*****	%	0	1/90	Comp24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
Coef Of Var Statre 7Day Chronic Pimephales	SAMPLE MEASUREMENT	*****	*****	*****	*****	11.5	*****	%	0	1/90	Comp24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24

AMERICAN INTERPLEX  
 8600 KANIS ROAD  
 LITTLE ROCK, AR 72204

LARRY DUNAWAY  
 PUBLIC WORKS DIRECTOR  
 426 NORTH MAIN  
 NASHVILLE, AR 71852

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather, evaluate, and report the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations.

 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		TELEPHONE	DATE
		870-845-4015	06/01/2012
AREA Code	NUMBER	MM/DD/YYYY	

See all attachments here)

(PASS=0/FAIL=1) IF THE NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART II, CONDITION #10. 31-00036



PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: NASHVILLE, CITY OF  
 ADDRESS: WASTEWATER TREATMENT PLANT  
 NASHVILLE, AR 71852

FACILITY: NASHVILLE WW TREATMENT PLANT  
 LOCATION: 743 HWY 27 SOUTH  
 NASHVILLE, AR 71852

ATTN: LARRY DUNAWAY, PUBLIC WKS DIR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0004

AR0021776	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
4/1/2012	6/30/2012

DMR Mailing ZIP CODE: 71852  
 MAJOR

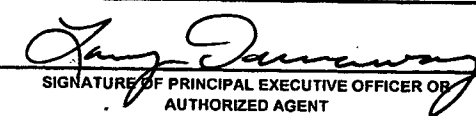
001-QUARTERLY-W.E.T. TESTING  
 External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Whole effluent toxicity	SAMPLE MEASUREMENT	*****	*****	*****	97	97	*****	%	0	1/90	Comp 24
22414 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	73 MO AV. MN	73 7 DA MIN	*****	%		Quarterly	COMP24
Pass/Fail Static Renewal 7 Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****	*****	1	*****		1	1/90	Comp 24
TGP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Pass/Fail Statre 7Day Chronic Pimephales Promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp 24
TGP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp 24
TLP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	*****		0	1/90	Comp 24
TLP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
NOEC Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp 24
TOP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
NOEC Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp 24
TOP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24

LARRY DUNAWAY  
 PUBLIC WORKS DIRECTOR  
 426 NORTH MAIN  
 NASHVILLE, AR 71852

I, under penalty of law that this document and all attachments were prepared under my direction or vision in accordance with a system designed to assure that qualified personnel properly gather, evaluate the information submitted. Based on my inquiry of the person or persons who manage the n, or those persons directly responsible for gathering the information, the information submitted is, best of my knowledge and belief, true, accurate, and complete. I am aware that there are cant penalties for submitting false information, including the possibility of fine and imprisonment for ng violations.

 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
	870-845-4015	06/01/2012
	AREA Code	NUMBER
		MM/DD/YYYY

ce all attachments here)

(PASS=0/FAIL=1) IF THE NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART II, CONDITION #10. 31-00036

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: NASHVILLE, CITY OF  
 ADDRESS: WASTEWATER TREATMENT PLANT  
 NASHVILLE, AR 71852

FACILITY: NASHVILLE WW TREATMENT PLANT

LOCATION: 743 HWY 27 SOUTH  
 NASHVILLE, AR 71852

ATTN: LARRY DUNAWAY, PUBLIC WKS DIR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0004

AR0021776	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
4/1/2012	6/30/2012

DMR Mailing ZIP CODE: 71852  
 MAJOR

001-QUARTERLY-W.E.T. TESTING  
 External Outfall


No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
NOEC Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	31	*****	%	1	1/90	Comp24
TPP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
NOEC Sub-Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	97	*****	%	0	1/90	Comp24
TPP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
Coef Of Var Statre 7Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****	*****	17.9	*****	%	0	1/90	Comp24
TQP3B 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24
Coef Of Var Statre 7Day Chronic Pimephales	SAMPLE MEASUREMENT	*****	*****	*****	*****	11.5	*****	%	0	1/90	Comp24
TQP6C 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24

AMERICAN INTERPLEX  
 8600 KANIS ROAD  
 LITTLE ROCK, AR 72204

LARRY DUNAWAY  
 PUBLIC WORKS DIRECTOR  
 426 NORTH MAIN  
 NASHVILLE, AR 71852

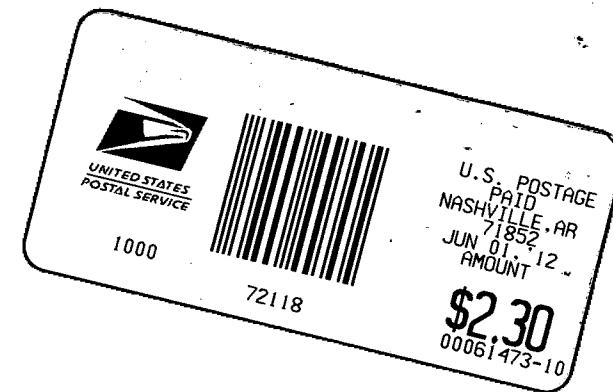
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		870-845-4015	06/01/2012
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**MR. LARRY DUNAWAY  
PUBLIC WORKS DIRECTOR  
426 NORTH MAIN  
NASHVILLE, AR 71852**



**Arkansas Department of  
Environmental Quality  
Attn: Mr. Allen Anderson  
Enforcement Assistant, NPDES  
5301 Northshore Drive  
Little Rock, AR 72118-5317**