Sanitary Sewer Overflow (SSO) Monthly Report

Facility Name: NASHVILLE WWTP NPDES Permit No.: AR0021776 Monitoring Period (Month/Year): 10, 2012

☒ No Sanitary Sewer Overflows This Monitoring Period

Summary Report Code Descriptions				
Cause(s) of SSO		SSO Impact	Action(s) Taken	Ultimate Discharge Location
CO-Construction	D-Debris	NEAH-No Evidence Adverse Health/ Environmental. Impact		CR-Creek/Stream/River (specify)
E-Equipment Failure	G-Grease	OEHC-Observed or Evidence of Human Contact	EC-Environmental Cleanup	DI-Ditch
HC-Hydro Clean	LF-Line Failure	EFK-Evidence of Fish Kill	HC-Hydro Cleaned	DR-Drop Inlet
R-Rainfall	RG-Roots / Grease		HR-Hand Rodded	GR-Ground Surface
RO-Roots	V-Vandalism		EN-Referred to Engineering	PA-Paved Area
			PN-Public Notification	CB-Contained in Building

Location	Manhole #	Start Date of SSO	End Date of SSO	Estimated Volume (in gallons)	Cause of SSO	Environmental Impact	Action (s) Taken to Address SSO	Discharge Location

Signature of Cognizant or Ranking Official — Date: 11-19-12

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 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 knowing violations."

NASHVILLE PUBLIC WORKS

426 North Main, Nashville, AR 71852
PH (870) 845-4015, FAX (870) 845-4522

November 19, 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 Third Quarter - 2012

Dear Mr. Anderson:

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

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

Sincerely,

Larry Dunaway

Larry Dunaway
Public Works Director

cc: Pretreatment File, Bio-monitoring, 2012

August 29, 2012

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

Control No. 160317-1

Prepared for:

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

CERIODAPHNIA DUBIA THIRD RETEST PASSED REPRODUCTION 2012 PASSED BOTH FATHEAD MINNOW

Prepared by:

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

AMERICAN INTERPLEX CORPORATION
LABORATORIES

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, AR
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 73 % effluent, which is equal to the critical dilution of 73 %. **The sample, therefore, PASSED both lethal and 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

Table of Contents

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	0.315	PASS
Control Growth CV < or = 40%	4.73	PASS
Growth Minimum Significant Difference 12 to 30%	27.3	PASS
Critical Dilution CV < or = 40%	9.97	PASS

Ceriodaphnia dubia Method 1002.0

CRITERIA	RESULTS	PASS/FAIL
Control Survival > or = 80%	100	PASS
Control Reproduction > or = 15 per Surviving Female	17.6	PASS
Control CV < or = 40% per Surviving Female	25.2	PASS
Reproduction Minimum Significant Difference 13 to 47%	24.5	PASS
Critical Dilution CV < or = 40%	22.7	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:
   b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	7.9	8.0	8.8
pH (standard units)	8.7	8.5	8.4
Alkalinity (mg/l as CaCO3)	140	130	140
Hardness (mg/l as CaCO3)	40	37	40
Conductivity (umhos/cm)	780	780	800
Residual Chlorine (mg/l)	<0.05	<0.05	<0.05
Ammonia as N (mg/l)	0.85	0.90	0.98

2. Dilution Water Samples: Synthetic Soft Water #3899
   a. Dates Prepared: August 7 through August 21, 2012
   b. Chemical Data:

Analysis	Sample 1	Sample 2	Sample 3
Dissolved oxygen (mg/l)	7.9	7.9	8.1
pH (standard units)	7.9	7.9	8.0
Alkalinity (mg/l as CaCO3)	30	30	30
Hardness (mg/l as CaCO3)	46	40	41
Conductivity (umhos/cm)	170	170	170
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:	August 21, 2012 at 1430
Date & Time Test Terminated:	August 28, 2012 at 1245
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:	August 21, 2012 at 1400
Date & Time Test Terminated:	August 28, 2012 at 1405
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 Bartlett's test and analyzed with Dunnett's Test to determine the No Observable Effects Concentration (NOEC) for Reproduction. Dunnett's Test was used to calculate the PMSD.

IV. Standard Reference Toxicants

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

Pimephales promelas (Fathead minnow)

Chronic reference tests are performed monthly.
A chronic reference test was performed on August 9, 2012 at 1440 to August 16, 2012 at 1450
The results were as follows: (Control No. 160011-2.)
Survival LC-50: 5808 mg/l
Growth IC-25: 5283 mg/l
Growth PMSD: 15.3

Ceriodaphnia dubia

Chronic reference tests are performed monthly.
A chronic reference test was performed on August 9, 2012 at 1200 to August 15, 2012 at 1320
The results were as follows: (Control No. 160011-1.)
Survival LC-50: 2469 mg/l
Growth IC-25: 1245 mg/l
Growth PMSD: 11.4

V. Chemical Analysis/Quality Control

Parameter	Method	% Recovery	Relative % Difference
Alkalinity	SM 2320 B	NA	0.00
Hardness	EPA 200.7	98.7	2.27
pH	SM 4500-H+ B	101	0.134
Conductivity	EPA 120.1	103	1.32

VI. Organism History

Pimephales promelas (Fathead minnow)

Date: August 21, 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: August 21, 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

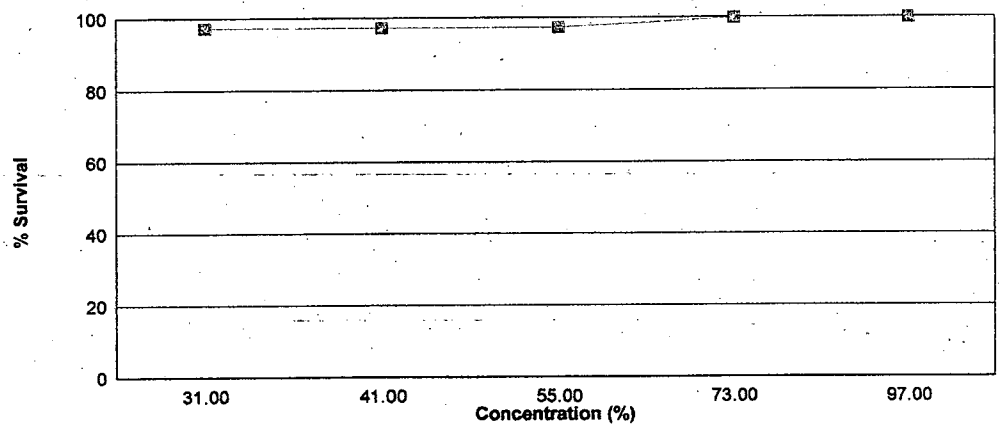
Larvae are exposed in a static renewal system for seven days to different concentrations of effluent with dilution water. Test results are based on the survival and growth (increase in weight) of the larvae.

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 August 21, 2012 at 1430 and continued through August 28, 2012 at 1245. 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	0.315
31 %	97.5	0.346
41 %	97.5	0.360
55 %	97.5	0.328
73 %	100	0.299
97 %	100	0.317

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

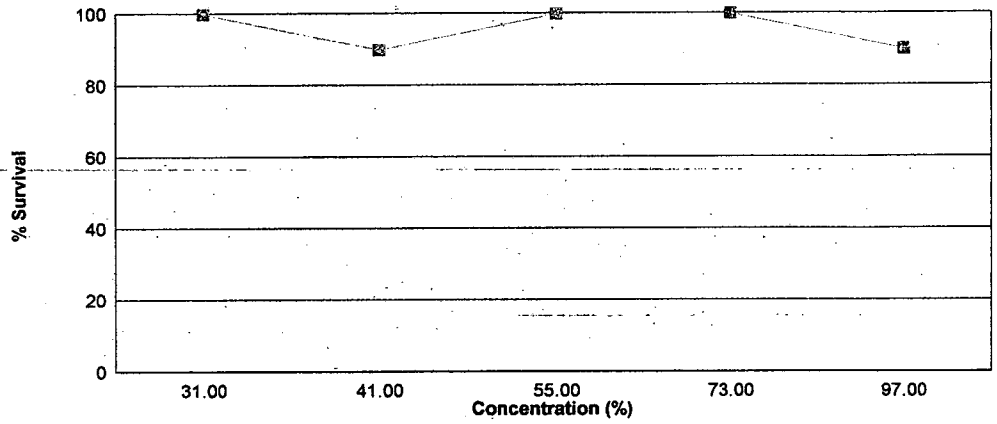
Neonates are exposed in a static renewal system to different concentrations of effluent with dilution water until 60% of surviving control organisms have three broods of offspring with an average of at least 15 young per female.

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 August 21, 2012 at 1400 and continued through August 28, 2012 at 1405. 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 = 73 % effluent



Summary of the 7-day *Ceriodaphnia dubia* Survival and Reproduction Data		
Concentration	Percent Survival	Mean Reproduction
Control	100	17.6
31 %	100	17.0
41 %	90.0	14.2
55 %	100	15.4
73 %	100	15.3
97 %	90.0	11.1 *

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

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 %)	____YES	X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	____YES	____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 %)	____YES	X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	____YES	____NO

3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP6C)
4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP6C)
5. NOEC Pimephales Lethality: 97 % (TOP6C)
6. LOEC Pimephales Lethality: 97 % (TXP6C)
7. NOEC Pimephales Sublethality: 97 % (TPP6C)
8. LOEC Pimephales Sublethality: 97 % (TYP6C)
9. Coefficient of variation for Pimephales growth: 9.97 (TQP6C)

Appendix B: Test 1000.0

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

PERMITTEE: City of Nashville
NPDES NO.: NPDES AR0021776 AFIN 31-000
CONTACT: Mr. Ed Carlyle
ANALYST: 275, 280, 298, 304

SAMPLE No. 1 COLLECTED ending: DATE: August 21, 2012 TIME: 0800
SAMPLE No. 2 COLLECTED ending: DATE: August 23, 2012 TIME: 0800
SAMPLE No. 3 COLLECTED ending: DATE: August 25, 2012 TIME: 0800
Test Initiated: DATE: August 21, 2012 TIME: 1430
Test Terminated: DATE: August 28, 2012 TIME: 1245

DILUTION Control	DAY 1	2	3	4	5	6	7
D.O. Initial	7.9	8.2	7.9	7.9	8.1	8.0	8.2
Final	7.9	7.9	8.2	7.7	7.6	7.2	6.8
pH Initial	7.9	7.6	7.9	7.8	8.0	8.0	7.8
Final	7.7	7.7	7.8	7.8	7.7	7.6	7.5
Alkalinity	30	NA	30	NA	30	NA	NA
Hardness	46	NA	40	NA	41	NA	NA
Conductivity	170	NA	170	NA	170	NA	NA
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 31 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	7.8	8.2	8.0	8.0	8.1	7.9
Final	7.7	7.3	7.9	7.9	7.4	7.1	6.6
pH Initial	8.4	8.0	8.1	8.1	8.2	8.2	8.0
Final	7.9	7.8	8.0	8.0	7.9	7.8	7.6
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 41 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.0	7.5	8.2	7.9	8.1	8.1	7.8
Final	7.6	7.7	6.8	7.7	7.1	6.7	6.6
pH Initial	8.5	8.0	8.2	8.1	8.2	8.2	8.1
Final	7.9	7.9	7.8	8.0	7.9	7.8	7.7
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 55 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	7.8	8.3	7.9	7.9	7.9	7.8
Final	7.8	7.8	7.2	8.1	7.4	7.0	6.5
pH Initial	8.6	8.1	8.2	8.2	8.2	8.3	8.1
Final	8.0	8.0	7.9	8.2	8.0	8.0	7.8
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 73 %	DAY 1	2	3	4	5	6	7
D.O. Initial	7.8	7.8	8.2	7.6	7.6	7.8	7.7
Final	7.4	7.8	7.3	7.7	7.4	6.8	6.9
pH Initial	8.6	8.2	8.2	8.2	8.2	8.4	8.2
Final	8.1	8.0	8.0	8.2	8.1	8.0	8.0
Alkalinity	100	NA	87	NA	100	NA	NA
Hardness	39	NA	38	NA	39	NA	NA
Conductivity	610	NA	620	NA	630	NA	NA
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 97 %	DAY 1	2	3	4	5	6	7
D.O. Initial	7.7	7.6	8.1	7.6	7.7	8.0	7.4
Final	7.4	7.1	7.0	7.8	7.4	6.8	6.6
pH Initial	8.7	8.3	8.4	8.3	8.3	8.4	8.2
Final	8.2	8.1	8.1	8.3	8.3	8.2	8.0
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
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: August 21, 2012 at 1400
Date and Time Test Terminated: August 28, 2012 at 1405
Dilution water used: Synthetic Soft Water #3899

PERCENT SURVIVAL

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

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

		Percent Effluent				
Replicates	Control	31 %	41 %	55 %	73 %	97 %
A	26	9	12	11	21	17
B	14	18	0	14	14	13
C	17	20	14	15	10	7
D	19	16	21	22	19	0
E	15	24	23	19	17	12
F	13	17	12	11	18	11
G	19	17	13	15	13	10
H	14	23	13	15	12	11
I	15	15	13	14	13	11
J	24	11	21	18	16	19
Mean per Adult	17.6	17.0	14.2	15.4	15.3	11.1
Mean per Surviving Adult	17.6	17.0	15.8	15.4	15.3	12.3
CV %	25.2	27.7	28.5	22.3	22.7	29.5

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 %)	____YES	X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	____YES	____NO

2. Dunnett's Test:

   Is the mean number of young produced per female significantly different (p=0.05) than the control's number of young per female for the % effluent corresponding to (significant non-lethal effects):

a.) LOW FLOW OR CRITICAL DILUTION	(73 %)	____YES	X NO
b.) 1/2 LOW FLOW DILUTION	(NA)	____YES	____NO

3. If you answered NO to 1.a) enter [0] otherwise enter [1]: 0 (TLP3B)
4. If you answered NO to 2.a) enter [0] otherwise enter [1]: 0 (TGP3B)
5. NOEC Ceriodaphnia Lethality: 97 % (TOP3B)
6. LOEC Ceriodaphnia Lethality: 97 % (TXP3B)
7. NOEC Ceriodaphnia Sublethality: 73 % (TPP3B)
8. LOEC Ceriodaphnia Sublethality: 97 % (TYP3B)
9. Coefficient of variation for Ceriodaphnia Reproduction: 25.2 (TQP3B)

AMERICAN INTERPLEX CORPORATION LABORATORIES

Appendix B: Test 1002.0

CHRONIC TOXICITY SUMMARY FORM
Ceriodaphnia dubia
CHEMICAL PARAMETERS CHART

PERMITTEE: City of Nashville
NPDES NO.: NPDES AR0021776 AFIN 31-000
CONTACT: Mr. Ed Carlyle
ANALYST: 275, 280, 298, 304

SAMPLE No. 1 COLLECTED ending: DATE: August 21, 2012 TIME: 0800
SAMPLE No. 2 COLLECTED ending: DATE: August 23, 2012 TIME: 0800
SAMPLE No. 3 COLLECTED ending: DATE: August 25, 2012 TIME: 0800
Test Initiated: DATE: August 21, 2012 TIME: 1400
Test Terminated: DATE: August 28, 2012 TIME: 1405

DILUTION Control	DAY 1	2	3	4	5	6	7
D.O. Initial	7.9	8.2	7.9	7.9	8.1	8.0	8.2
Final	8.3	8.3	8.2	8.5	8.0	8.2	7.4
pH Initial	7.9	7.6	7.9	7.8	8.0	8.0	7.8
Final	8.1	8.2	8.2	8.3	8.2	8.1	7.8
Alkalinity	30	NA	30	NA	30	NA	NA
Hardness	46	NA	40	NA	41	NA	NA
Conductivity	170	NA	170	NA	170	NA	NA
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 31 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	7.8	8.2	8.0	8.0	8.1	7.9
Final	8.5	8.3	8.3	8.8	8.2	8.2	7.3
pH Initial	8.4	8.0	8.1	8.1	8.2	8.2	8.0
Final	8.4	8.4	8.4	8.5	8.6	8.3	7.9
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 41 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.0	7.5	8.2	7.9	8.1	8.1	7.8
Final	8.4	8.3	8.4	8.4	8.1	8.1	7.1
pH Initial	8.5	8.0	8.2	8.1	8.2	8.2	8.1
Final	8.4	8.5	8.4	8.4	8.5	8.4	8.0
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 55 %	DAY 1	2	3	4	5	6	7
D.O. Initial	8.1	7.8	8.3	7.9	7.9	7.9	7.8
Final	8.5	8.4	8.3	8.5	8.4	8.2	7.0
pH Initial	8.6	8.1	8.2	8.2	8.2	8.3	8.1
Final	8.6	8.6	8.6	8.6	8.6	8.5	8.0
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

DILUTION 73 %	DAY 1	2	3	4	5	6	7
D.O. Initial	7.8	7.8	8.2	7.6	7.6	7.8	7.7
Final	8.5	8.3	8.3	8.5	8.4	8.1	6.9
pH Initial	8.6	8.2	8.2	8.2	8.2	8.4	8.2
Final	8.6	8.6	8.6	8.6	8.7	8.6	8.1
Alkalinity	100	NA	87	NA	100	NA	NA
Hardness	39	NA	38	NA	39	NA	NA
Conductivity	610	NA	620	NA	630	NA	NA
Chlorine	<0.05	NA	<0.05	NA	<0.05	NA	NA

DILUTION 97 %	DAY 1	2	3	4	5	6	7
D.O. Initial	7.7	7.6	8.1	7.6	7.7	8.0	7.4
Final	8.7	8.1	8.3	8.5	8.3	8.2	6.7
pH Initial	8.7	8.3	8.4	8.3	8.3	8.4	8.2
Final	8.6	8.7	8.7	8.6	8.7	8.6	8.3
Alkalinity	NA	NA	NA	NA	NA	NA	NA
Hardness	NA	NA	NA	NA	NA	NA	NA
Conductivity	NA	NA	NA	NA	NA	NA	NA
Chlorine	NA	NA	NA	NA	NA	NA	NA

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

WASTE TREATMENT PLANT LABORATORY ANALYSIS FOR BIOMONITORING REPORTS

COLLECTION DATE: 8/20-21/12

COLLECTION TIME: 0800 - 0800

COLLECTION PLACE: NA001

CBOD	3.86	**mg/L**	**#5210B**
TSS	11	**mg/L**	**#2540D**
AMMN	.51	**mg/L**	**#4500-NH3 A-B**
FECAL COL.	38	**mg/L**	**#9222D**
CHLORINE	.04	**mg/L**	**#4500-CI D**
pH	6.67	**mg/L**	**#4500 – H**
DO	7.69	**mg/L**	**#4500 – OG**

ANALYST: JP **COLLECTED BY:** ED

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: 8/22-23/12

COLLECTION TIME: 0800-0800

COLLECTION PLACE: NA001

CBOD	3.03	**mg/L**	**#5210B**
TSS	7	**mg/L**	**#2540D**
AMMN	.87	**mg/L**	**#4500-NH3 A-B**
FECAL COL.	16	**mg/L**	**#9222D**
CHLORINE	.02	**mg/L**	**#4500-CI D**
pH	7.87	**mg/L**	**#4500 – H**
DO	7.86	**mg/L**	**#4500 – OG**

ANALYST: JP **COLLECTED BY:** ED

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: 8/24-25/12

COLLECTION TIME: 0800-0800

COLLECTION PLACE: NA001

CBOD	3.76	**mg/L**	**#5210B**
TSS	9	**mg/L**	**#2540D**
AMMN	.75	**mg/L**	**#4500-NH3 A-B**
FECAL COL.	49	**mg/L**	**#9222D**
CHLORINE	.05	**mg/L**	**#4500-CI D**
pH	8.29	**mg/L**	**#4500 – H**
DO	7.78	**mg/L**	**#4500 – OG**

ANALYST: BP **COLLECTED BY:** ED.

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

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: CITY OF NASHVILLE
Project Reference: BIOMONITORING 3RDQ
Project Manager: ED CARLYLE JR
Sampled By: Ed Carlyle Jr.

PO No.

SAMPLE MATRIX: WATER, SOIL, WASTE

NO OF BOTTLES

ANALYSES REQUESTED[1]: FATHEAD MINNOW, CERIODAPHNIA DUBIA

AIC CONTROL NO: 160317
AIC PROPOSAL NO:
Carrier/Tracking No.
Received Temperature C: 2°C
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	WASTE	NO OF BOTTLES	FATHEAD MINNOW	CERIODAPHNIA DUBIA
1	NASHVBIO	8/20-21/12		24			X	3	X	X
	3RDQ	0800-0800		HR						
								1 GAL P		
		Container Type						XX		
		Preservative								

Field pH calibration on ____ @ ____ Buffer:

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

Relinquished By	Date/Time	Received By	Date/Time
Ed Carlyle Jr	8/21/12 10:05	[illegible]	
Relinquished By:	Date/Time	Received in Lab By: Eugene Hopkins	Date/Time 8-21-12 1005

Comments: hand delivered on ice 3RD SAMPLE (1ST OF 3)

NORMAL TURNAROUND
CONTACT: ED CARLYLE, JR.
870-557-3143 FAX: 870-845-7409
REPORT TO: ED CARLYLE, JR.
426 NORTH MAIN
NASHVILLE, AR 71852

FORM 0060

AMERICAN INTERPLEX CORPORATION
LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: CITY OF NASHVILLE
Project Reference: BIOMONITORING 3Q12-2
Project Manager: ED CARLYLE JR
Sampled By: Ed Carlyle Sr.

PO No.

SAMPLE MATRIX: WATER, SOIL, WASTE

NO OF BOTTLES

ANALYSES REQUESTED: FATHEAD, MINNOW, CERIODAPHNIA, DUBIA

AIC CONTROL NO: 160317
AIC PROPOSAL NO:
Carrier/Tracking No. FD
Received Temperature C: 2
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	WASTE	NO OF BOTTLES	FATHEAD	MINNOW	CERIODAPHNIA	DUBIA
2	NASHVBIO	8/22-23/12		24			X	3	X		X	
	3Q12-2	0800-0800		H								
				R				1				
								G				
								A				
								L				
		Container Type						90				
		Preservative						120				

Field pH calibration on _____ @ _____ Buffer:

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

Relinquished By:	Date/Time	Received By:	Date/Time
Ed Carlyle Sr	8/23/12 11:40		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
		Cupe Hopton	8-23-12 1140

Comments: hand delivered on ice record of three samples

FORM 0060

NORMAL TURNAROUND
CONTACT: ED CARLYLE, JR.
870-557-3143 FAX: 870-845-4522
REPORT TO: ED CARLYLE, JR.
426 NORTH MAIN
NASHVILLE, AR 71852

AMERICAN INTERPLEX CORPORATION LABORATORIES

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: CITY OF NASHVILLE
Project Reference: BIOMONITORING 3Q
Project Manager: ED CARLYLE JR
Sampled By: Ed Carlyle

PO No.

SAMPLE MATRIX: WATER, SOIL, WASTE

NO OF BOTTLES

ANALYSES REQUESTED[1]: FATHEAD, MINNOW, CERIODAPHNIA, DUBIA

AIC CONTROL NO: 160317
AIC PROPOSAL NO:
Carrier/Tracking No. 3rd C.
Received Temperature C 2
Remarks

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	WASTE	NO OF BOTTLES	FATHEAD	MINNOW	CERIODAPHNIA	DUBIA
3	NASHVBIO	8/24-25/12		24			X	3	X		X	
	3Q12-3	0800-0800		H								
				R				1				
								G				
								A				
								L				
		Container Type						P				
		Preservative						NO				

Field pH calibration on _____ @ _____ Buffer:

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

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

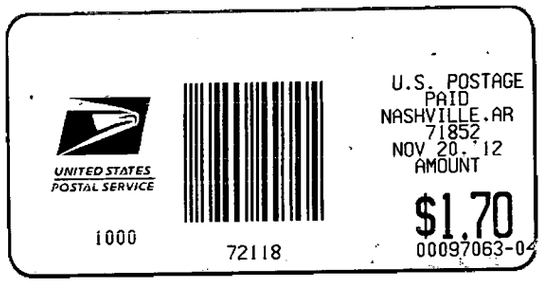
Relinquished By:	Date/Time	Received By:	Date/Time
Ed Carlyle	8/25/12 10:30		
Relinquished By:	Date/Time	Received in Lab By:	Date/Time
			8-25-12 1030

Comments: third sample - hand delivered on ice

19-Oct-09

FORM 0060

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



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