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**NORTH LITTLE ROCK WASTEWATER UTILITY
FAULKNER LAKE PLANT
OUTFALL 001**

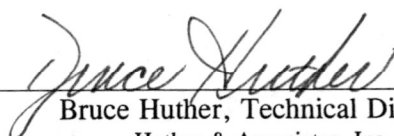
Chronic Biomonitoring Report
Permit Number NPDES AR0020303

Ceriodaphnia dubia
Pimephales promelas

August 11, 2015

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NLR WASTEWATER

Reviewed by:



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TOXICITY TEST REPORT - CHRONIC

ClientNorth Little Rock Wastewater Utility Sample.....Outfall 001
Facility.Faulkner Lake Plant Laboratory I.D. 24486
Permit No.NPDES AR0020303 Begin Date August 11, 2015

Results: Pass *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth at the critical low flow concentration (8% effluent).

SAMPLE COLLECTION

Composite effluent samples from North Little Rock Wastewater Utility, Faulkner Lake Plant were delivered by Greyhound Package Express courier to Huther & Associates on August 11, August 13, and August 15, 2015. Effluent samples were collected and composited from Outfall 001 using an automatic sampler by facility personnel. Two toxicity tests were requested: a seven-day *Ceriodaphnia dubia* survival and reproduction test (EPA Method 1002.0), and a seven-day *Pimephales promelas* larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013).

The effluent samples were analyzed for total residual chlorine (Standard Methods, 22nd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and laboratory dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

TEST SETUP
Ceriodaphnia dubia



The seven-day *Ceriodaphnia dubia* survival and reproduction test was initiated at 1440 hours, August 11, 2015. Five concentrations were prepared (3%, 5%, 6%, 8%, and 11% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Arkansas River). The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). *C. dubia* neonates were less than 24 hours old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL *Selenastrum capricornutum* and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A control of 10 replicate beakers containing one neonate each in distilled, deionized, reconstituted water (same as diluent) was conducted concurrently with the test. There was 100% survival in the control. The test ended at 1440 hours, August 18, 2015. Survival and reproduction data were statistically analyzed ($p = 0.05$) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL
Ceriodaphnia dubia

There was 100% survival to *C. dubia* in all of the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

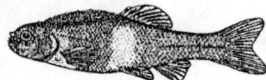
LOEC: Not Applicable
NOEC: 11% Effluent

REPRODUCTION
Ceriodaphnia dubia

C. dubia reproduction data were normally distributed at the 0.01 alpha level (13.277) using Chi-Square test for normality. Reproduction data were homogeneous using Bartlett's test at the 0.01 alpha level (15.09) without data transformations. Therefore, a parametric test was performed on the homogeneous data. Dunnett's test on *C. dubia* reproduction data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

LOEC: Not Applicable **PMSD: 10.0%**
NOEC: 11% Effluent

TEST SETUP
Pimephales promelas



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1555 hours, August 11, 2015. Five concentrations were prepared (3%, 5%, 6%, 8%, and 11% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Arkansas River). The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight larvae per beaker, five beakers per concentration). *P. promelas* larvae were less than 24-hours old at test initiation and originated from a minimum of three in-house spawnings. Fresh solutions were prepared and renewed daily. Larvae in each test chamber were fed <24-hour-old *Artemia* (brine shrimp) three times per day. The test proceeded for seven days during which survival and water quality data were collected daily.

Huther and Associates

7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

CLIENT	North Little Rock, Faulkner Lake Plant	SAMPLE TYPE	24 Hour Composite
NPDES #	AR0020303	DATE COLLECTED	08/10/15 08/12/15 08/14/15
LAB ID #	24486	DATE RECEIVED	08/11/15 0/13/15 08/15/15
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	08/11/15 1440
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	08/18/15 1440
ORGANISM AGE	< 24 Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Arkansas River	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Laboratory	TECHNICIAN	Z. Geiger

SURVIVAL & REPRODUCTION SUMMARY

Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	3	3	4	3	5	3	2	4	2	2
	3	3	4	3	5	3	2	4	2	2
08/17/15	7	6	8	10	6	11	10	7	11	7
	10	9	12	13	11	14	12	11	13	9
08/18/15	13	11	13	14	15	11	12	13	12	14
	23	20	25	27	26	25	24	24	25	23
<p>x # Young 24.2 C.V. 7.98%</p> <p>x% Survival 100% C.V. 0.00%</p>										

3% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	3	2	2	4	3	4	2	4	3	2
	3	2	2	4	3	4	2	4	3	2
08/17/15	8	8	7	9	6	10	7	9	9	9
	11	10	9	13	9	14	9	13	12	11
08/18/15	13	12	13	13	14	15	13	15	11	13
	24	22	22	26	23	29	22	28	23	24
<p>x # Young 24.3 C.V. 10.46%</p> <p>x% Survival 100% C.V. 0.00%</p>										

5% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	3	3	2	3	3	4	3	2	2	3
	3	3	2	3	3	4	3	2	2	3
08/17/15	9	8	7	10	9	6	7	7	7	8
	12	11	9	13	12	10	10	9	9	11
08/18/15	14	13	13	12	15	12	12	14	14	14
	26	24	22	25	27	22	22	23	23	25
<p>x # Young 23.9 C.V. 7.50%</p> <p>x% Survival 100% C.V. 0.00%</p>										

6% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	3	5	4	2	2	2	2	4	2	3
	3	5	4	2	2	2	2	4	2	3
08/17/15	8	6	11	9	8	8	9	9	8	11
	11	11	15	11	10	10	11	13	10	14
08/18/15	14	15	12	11	12	13	13	14	15	14
	25	26	27	22	22	23	24	27	25	28
<p>x # Young 24.9 C.V. 8.56%</p> <p>x% Survival 100% C.V. 0.00%</p>										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A
4

 alive today
 total young to date

ex 2:

5
12

 alive, 5 young today
 total young to date

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

North Little Rock, Faulkner Lake Plant

Lab ID# 24486

Test Date: August 11, 2015

8% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	4	2	3	2	2	5	4	2	2	3
	4	2	3	2	2	5	4	2	2	3
08/17/15	11	7	6	11	8	6	6	10	8	9
	15	9	9	13	10	11	10	12	10	12
08/18/15	12	15	13	14	14	12	14	13	11	14
	27	24	22	27	24	23	24	25	21	26
x # Young 24.3 C.V. 8.24% x% Survival 100% C.V. 0.00%										

11% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/12/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/14/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/15/15	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/16/15	3	3	3	2	4	3	2	3	3	2
	3	3	3	2	4	3	2	3	3	2
08/17/15	11	8	11	7	11	11	6	7	9	10
	14	11	14	9	15	14	8	10	12	12
08/18/15	15	15	11	12	15	14	12	13	14	14
	29	26	25	21	30	28	20	23	26	26
x # Young 25.4 C.V. 12.88% x% Survival 100% C.V. 0.00%										

where: A = Alive
 5 = Alive, 5 young
 D = Dead
 D5 = 5 Young, Female died

ex 1:

A
4

 alive today
 total young to date

ex 2:

5
12

 alive, 5 young today
 total young to date

Huther and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

North Little Rock, Faulkner Lake Plant

Lab ID# 24486

Test Date: August 11, 2015

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	3%	5%	6%	8%	11%	
08/11/15	Start	25.0	1	7.89	7.87	7.82	7.78	7.74	7.71	CA
08/12/15	24 Hr.	24.7	1	7.75	7.62	7.55	7.52	7.50	7.47	TB
08/12/15	Renew	25.0	1	7.61	7.61	7.60	7.58	7.59	7.54	TB
08/13/15	48 Hr.	25.6	1	7.52	7.85	7.79	7.76	7.73	7.71	CA
08/13/15	Renew	25.0	2	7.42	7.42	7.41	7.40	7.39	7.38	CA
08/14/15	72 Hr.	25.9	2	7.47	7.58	7.80	7.77	7.72	7.64	CA
08/14/15	Renew	25.0	2	7.49	7.62	7.59	7.55	7.53	7.51	CA
08/15/15	96 Hr.	25.1	2	7.61	7.55	7.67	7.70	7.75	7.77	CA
08/15/15	Renew	25.0	3	7.52	7.66	7.61	7.52	7.50	7.48	CA
08/16/15	120 Hr.	24.8	3	7.59	7.57	7.63	7.65	7.68	7.72	CA
08/16/15	Renew	25.0	3	7.63	7.59	7.55	7.52	7.49	7.43	CA
08/17/15	144 Hr.	24.7	3	7.60	7.55	7.52	7.49	7.43	7.44	CA
08/17/15	Renew	25.0	3	7.44	7.43	7.43	7.44	7.42	7.41	CA
08/18/15	168 Hr.	24.9	3	7.86	7.79	7.74	7.72	7.71	7.70	CA

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	3%	5%	6%	8%	11%	
08/11/15	Start	25.0	1	7.98	7.79	8.05	8.00	7.64	7.86	CA
08/12/15	24 Hr.	24.7	1	8.12	8.18	8.15	8.10	8.22	8.05	TB
08/12/15	Renew	25.0	1	8.31	8.15	8.23	8.13	8.08	8.03	TB
08/13/15	48 Hr.	25.6	1	7.77	7.67	8.34	7.76	8.40	7.62	CA
08/13/15	Renew	25.0	2	8.60	8.10	7.96	8.11	8.37	8.54	CA
08/14/15	72 Hr.	25.9	2	8.66	8.63	8.62	8.50	8.32	8.37	CA
08/14/15	Renew	25.0	2	7.73	7.73	7.60	7.78	7.81	7.71	CA
08/15/15	96 Hr.	25.1	2	8.30	8.22	8.25	8.36	8.34	8.19	CA
08/15/15	Renew	25.0	3	8.11	8.46	8.27	8.55	8.40	8.32	CA
08/16/15	120 Hr.	24.8	3	8.32	8.29	8.25	8.24	8.29	8.30	CA
08/16/15	Renew	25.0	3	8.02	8.22	8.18	8.15	8.23	8.25	CA
08/17/15	144 Hr.	24.7	3	8.26	8.27	8.20	8.15	8.17	8.16	CA
08/17/15	Renew	25.0	3	8.41	7.60	7.50	8.10	7.74	8.46	CA
08/18/15	168 Hr.	24.9	3	8.12	7.99	8.15	8.27	8.30	8.21	CA

Huthner and Associates
7-Day/3 Brood *Ceriodaphnia dubia* Survival and Reproduction Chronic Toxicity Test

North Little Rock, Faulkner Lake Plant

Lab ID# 24486

Test Date: August 11, 2015

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
08/11/15	1	7.29	8.80	68	52	433	<0.01	N/A	TG
08/13/15	2	7.01	8.10	72	50	338	<0.01	N/A	TG
08/15/15	3	7.05	8.13	76	48	347	<0.01	N/A	TG
08/11/15	Con	7.89	7.98	104	74	424	-	-	TG

¹ Measurements taken in 100% solution.



Huther and Associates, Inc.

environmental toxicologists, biologists, and consultants

Client / Facility North Little Rock Faulkner

Lab ID Number 24486

Outfall Number 001

Test Date 8-11-15

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
8/11	1	7.29	8.80	68	52	433	20.01	Na	TG
8/13	2	7.01	8.10	72	50	338	∫	∫	∫
8/15	3	7.05	8.13	76	48	347	∫	∫	∫
8/11	CON	7.89	7.98	104	74	424	—	—	

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst

Notes:

APPENDIX B
REFERENCE TOXICANTS

CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 7-Days

TEST NUMBER: 8

TEST DATE: 08/05/15 - 08/12/15
1500 Hrs - 1500 Hrs

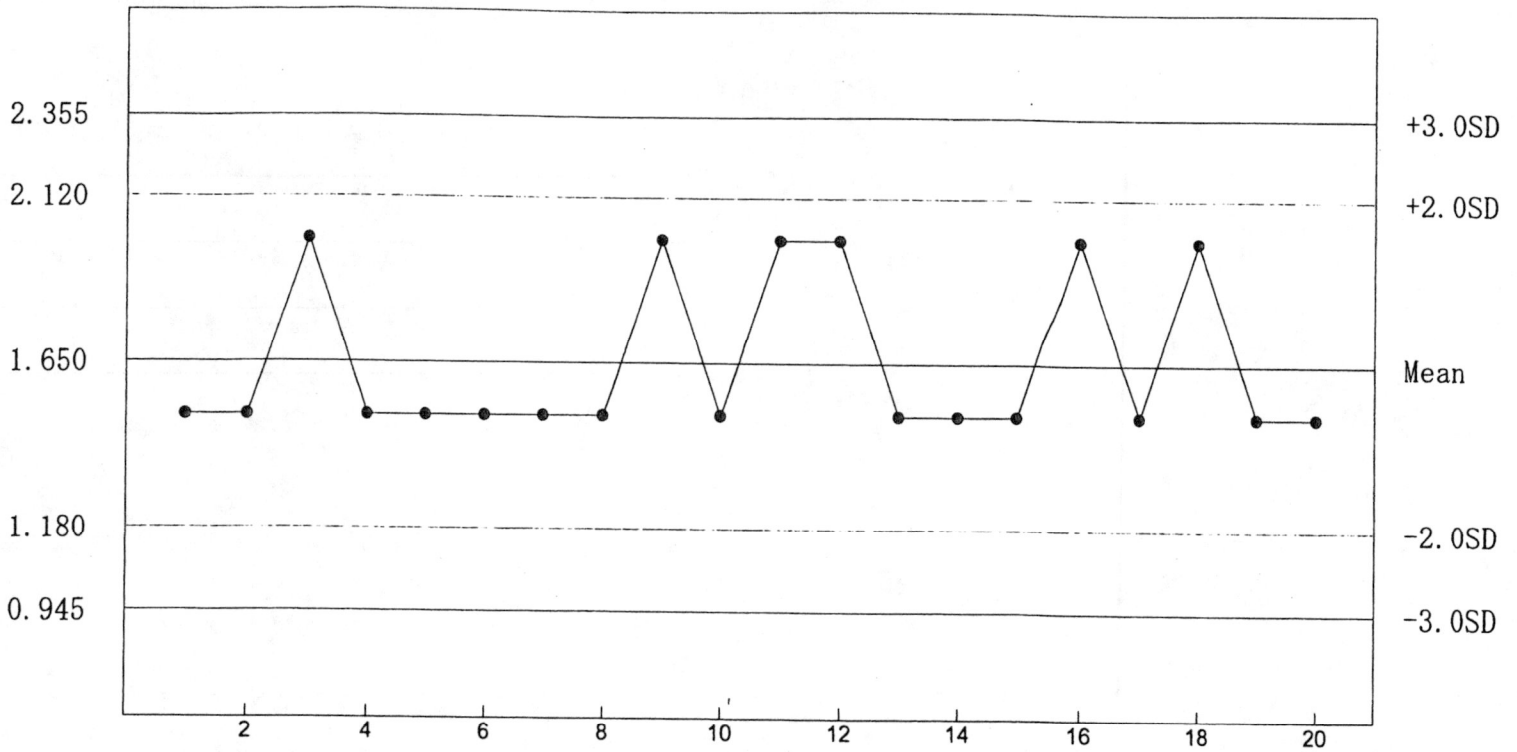
STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	10
2.5	10	10
3.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.5 g/L	1.0 g/L

Reference Tox Sodium Chloride g/L

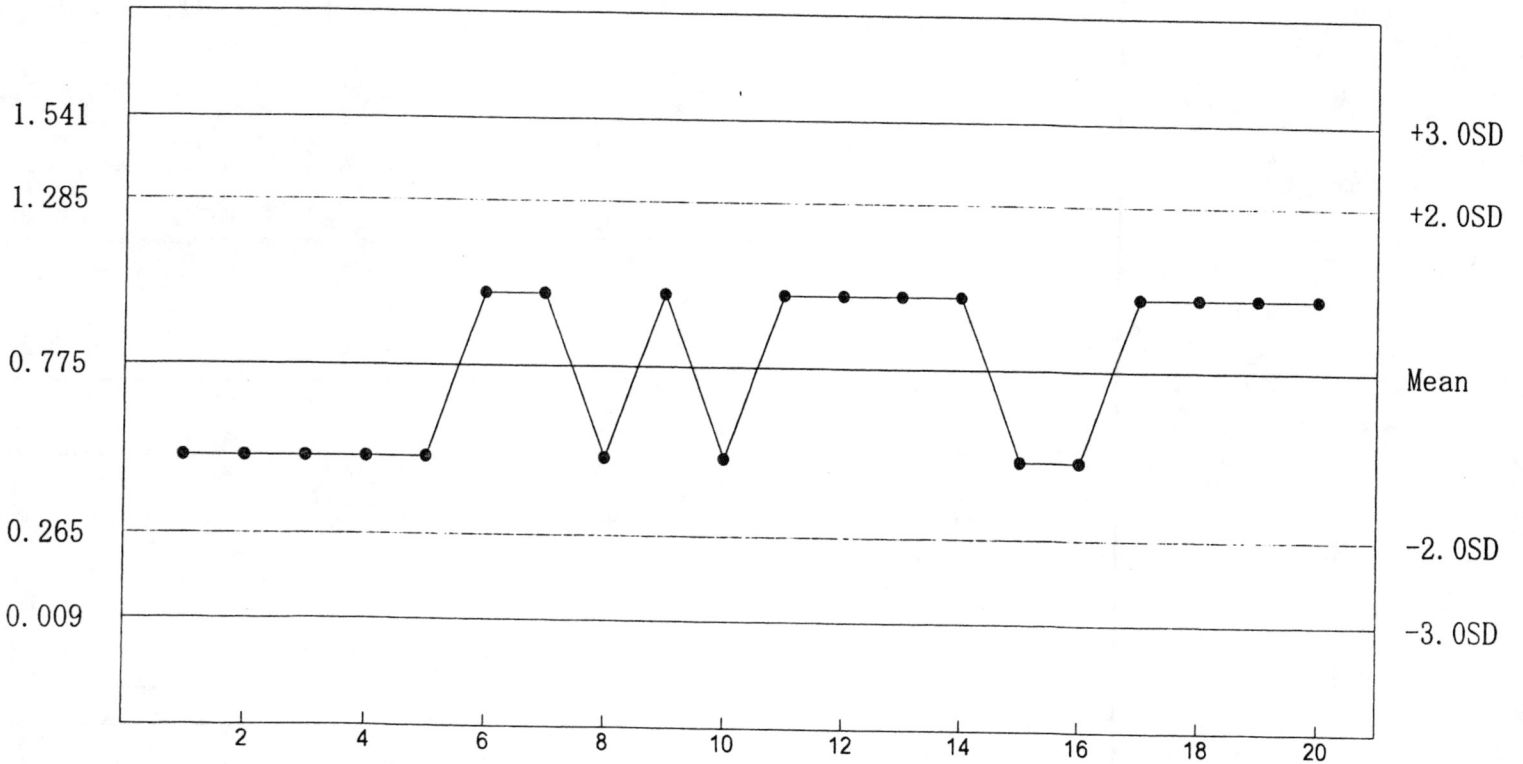
C. dubia Survival - NOEC



n= 20 Mean= 1.650 SD= 0.235 CV= 14.25% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.775 SD= 0.255 CV= 32.93% Min= 0.500 Max= 1.000

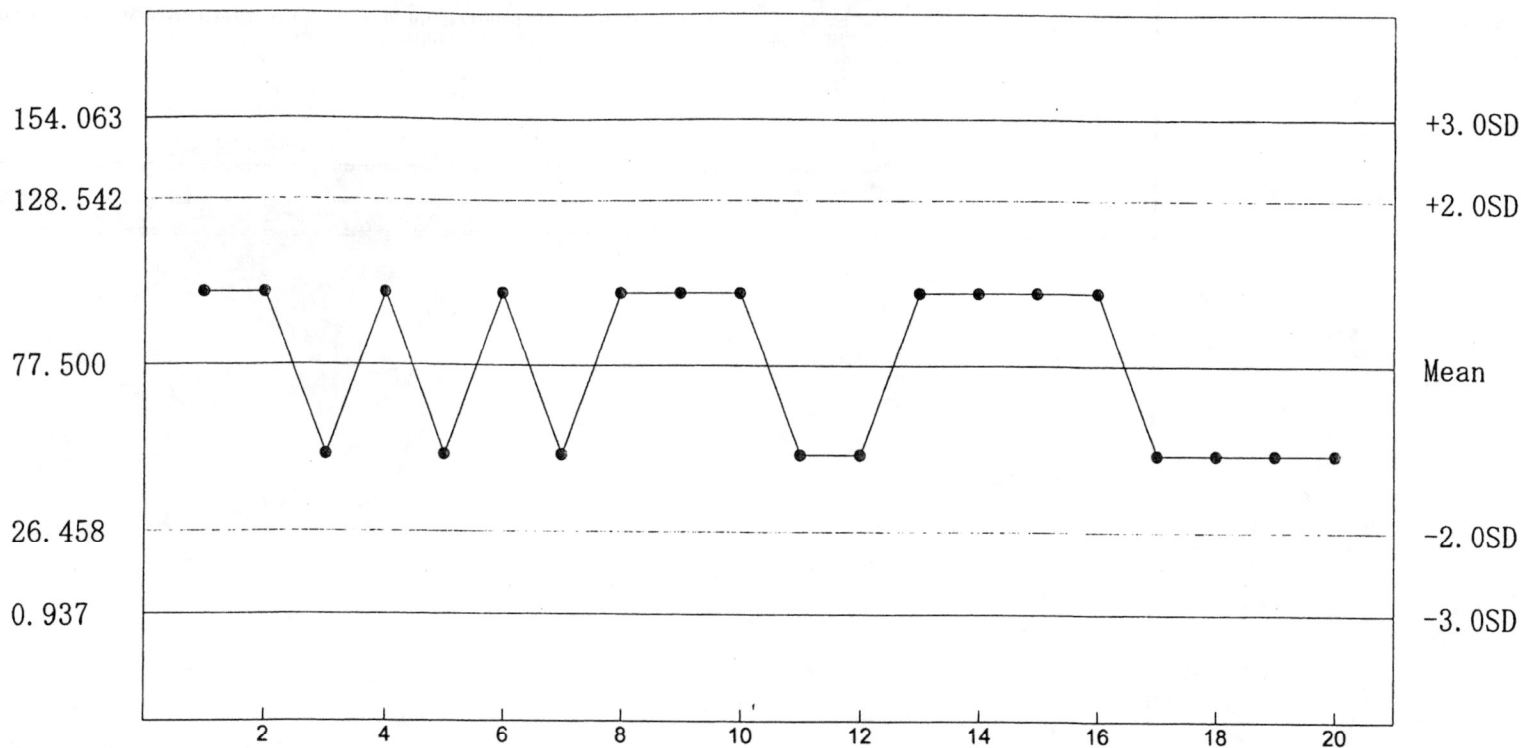
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 8
 TEST DATE: 08/05/15 - 08/12/15
 1540 Hrs - 1540 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	3
100	40	15
200	40	25
400	40	40
800	40	40

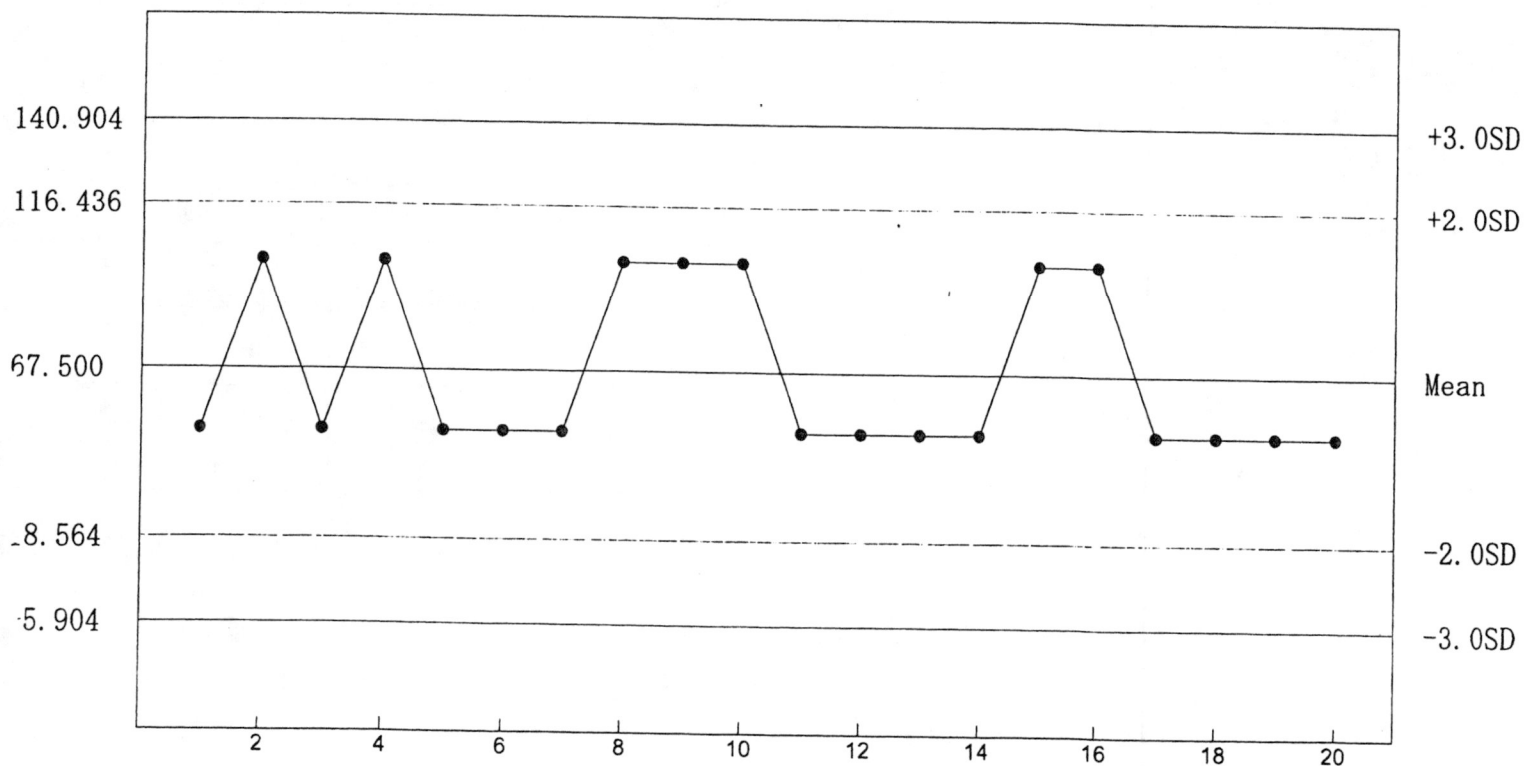
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

Reference Tox Copper Nitrate ug/L
P. promelas Chronic Survival - NOEC



n= 20 Mean= 77.500 SD= 25.521 CV= 32.93% Min= 50.000 Max= 100.000

Reference Tox Copper Nitrate ug/L
P. promelas Growth - NOEC



n= 20 Mean= 67.500 SD= 24.468 CV= 36.25% Min= 50.000 Max= 100.000

APPENDIX C
CHAIN OF CUSTODY SHEETS

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 24486 PROJECT NAME NLR Faulkner PERMIT# AR2020303

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
	<u>M. Eggleston</u>	<u>8-9-15 0755</u>	<u>8-10-15 0747</u>	<u>96</u>	<u>X</u>			<u>1</u>

Cl₂ = 0.22
PO# 151511

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED

TYPE OF TEST 7day C/F
 NAME OF RECEIVING WATER Arkansas River
 DILUTION WATER USED FOR THIS TEST Lab

RELINQUISHED BY: Margaret Eggleston DATE: 8-10-15 TIME: 1300 RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Matt Horner DATE: 8-11-15 TIME: 1100 SAMPLE TEMP. @ RECEIPT. 2.6

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 24486 PROJECT NAME NLR Faulkner PERMIT# AR 020303

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
	<u>M. Eggleston</u>	<u>8-11-15 0717</u>	<u>8-12-15 0725</u>	<u>96</u>	<u>X</u>			<u>1</u>

C12 = 0.15

DO# 151511

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED

TYPE OF TEST 7day C/F

NAME OF RECEIVING WATER Arkansas River

DILUTION WATER USED FOR THIS TEST Lab

RELINQUISHED BY: Margaret Eggleston DATE: 8-12-15 TIME: 1300 RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: [Signature] DATE: 8-13-15 TIME: 1000 SAMPLE TEMP. @ RECEIPT. 4.4

HUTHER & ASSOCIATES
 1156 NORTH BONNIE BRAE STREET
 DENTON, TX 76201
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 24486 PROJECT NAME NLR Faulkner PERMIT# AR 020303

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other _____

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSITED	METHODS OF COLLECTION AND COMPOSITE			# OF CONTAINERS TO BE SHIPPED
					AUTO COLL. AUTO COMP.	MANUAL COLL. MANUAL COMP.	AUTO COLL. MANUAL COMP.	
	<u>M. Eggleston</u>	<u>8-13-15</u> <u>0705</u>	<u>8-14-15</u> <u>0725</u>	<u>96</u>	<u>X</u>			<u>1</u>

C12=0.10

PO# 151511

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
 	 	 	 	
 	 	 	 	

TYPE OF TEST 2day C/F

NAME OF RECEIVING WATER Arkansas River

DILUTION WATER USED FOR THIS TEST Lab

RELINQUISHED BY: Margaret Eggleston DATE: 8-14-15 TIME: 130 RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____ RECEIVED BY AT THIS DATE/TIME _____

METHOD OF SHIPMENT: Greyhound Pick Up _____ Client Delivered _____ Other _____

RECEIVED: Matt Turner DATE: 8-15-15 TIME: 1030 SAMPLE TEMP. @ RECEIPT. 0.6

NORTH LITTLE ROCK WASTEWATER UTILITY
 FAULKNER LAKE PLANT
 NPDES PERMIT NO. AR0020303
 AFIN NO. 60-00274
 OUTFALL 001 DMR REPORTING
 TEST DATE: 08/11/15

I. *Ceriodaphnia dubia*

	Response
(A) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter No. TLP3B.	0
(B) Report the NOEC value for survival, Parameter No. TOP3B.	11%
(C) Report the NOEC value for reproduction, Parameter No. TPP3B.	11%
(D) If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter No. TGP3B.	0
(E) Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B.	8.24%

II. *Pimephales promelas* (fathead minnow)

	Response
(A) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter No. TLP6C.	0
(B) Report the NOEC value for survival, Parameter No. TOP6C.	11%
(C) Report the NOEC value for growth, Parameter No. TPP6C.	11%
(D) If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter No. TGP6C.	0
(E) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C.	7.01%