

# Springdale Water Utilities

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Enforcement Branch  
Arkansas Dept. of Environmental Quality  
5301 Northshore Dr.  
North Little Rock, AR 72118-5317

**RE: NPDES Permit No. AR0022063  
AFIN #72-00003  
Springdale, AR**

December 17, 2015

Dear Sir or Madame:

Enclosed please find the results of fourth quarter Ceriodaphnia dubia and Pimephales promelas analyses conducted on Springdale Water Utilities' wastewater treatment facility effluent for 2015. These analyses are required by our NPDES Permit.

Please feel free to call Ms. Jennifer Enos at (479)756-3657 if you have any questions concerning these analyses.

Sincerely yours,

Heath A. Ward  
Executive Director

JEE/jee

Enclosures

Cc: Jennifer Enos, SWU  
Mary Barnett, ADEQ  
File

**CITY OF SPRINGDALE WWTF  
OUTFALL 001**

Chronic Biomonitoring Report  
Permit Number NPDES AR0022063  
AFIN Number 72-00003

*Ceriodaphnia dubia*  
*Pimephales promelas*

November 3, 2015

Reviewed by:



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Ryan Kasper, QA/QC Officer  
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TOXICITY TEST REPORT - CHRONIC

Client ..... City of Springdale WWTF Laboratory I.D. .... 24841
Permit No. .... NPDES AR0022063 Begin Date ..... November 3, 2015
Sample..... Outfall 001

Results: Pass Ceriodaphnia dubia survival and reproduction and Pimephales promelas survival and growth at the critical low flow concentration (97% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Springdale WWTF were delivered by Greyhound Package Express courier to Huthur & Associates on November 3, November 5, and November 7, 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-C1 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 1450 hours, November 3, 2015. Five concentrations were prepared (31%, 41%, 55%, 73%, and 97% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Spring Creek). 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 1450 hours, November 10, 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: 97% 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**  
**NOEC: 97% Effluent**

**PMSD: 9.4%**

**TEST SETUP**  
*Pimephales promelas*



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1540 hours, November 3, 2015. Five concentrations were prepared (31%, 41%, 55%, 73%, and 97% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Spring Creek). 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.

A control of five replicate chambers containing eight larvae 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 1540 hours, November 10, 2015. At test termination, all larvae were sacrificed, dried for 24-hours, and weighed. Survival and growth (weight) 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*****Pimephales promelas***

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

**LOEC: Not Applicable**

**NOEC: 97% Effluent**

**GROWTH*****Pimephales promelas***

*P. promelas* growth data were normally distributed at the 0.01 alpha level (0.900) using Shapiro Wilk's test for normality. Growth 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 *P. promelas* growth data demonstrated that there were no statistically significant differences between the control and any of the effluent concentrations.

**LOEC: Not Applicable**

**PMSD: 9.3%**

**NOEC: 97% Effluent**

**SUMMARY**

There were no statistically significant differences between the control and the critical low flow concentration (97% effluent) for *C. dubia* survival and reproduction and *P. promelas* survival and growth. Based on biomonitoring requirements for Outfall 001 contained in Permit Number NPDES AR0022063 for City of Springdale WWTF, Outfall 001 passed for this testing period.

Huther and Associates

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

CLIENT City of Springdale WWTP SAMPLE TYPE 24 Hour Composite  
 NPDES # AR0022063 DATE COLLECTED 11/02/15 11/04/15 11/06/15  
 LAB ID # 24841 DATE RECEIVED 11/03/15 11/05/15 11/07/15  
 TEST TYPE 7 Day Chronic BEGIN DATE/TIME 11/03/15 1450  
 TEST ORGANISM *Ceriodaphnia dubia* END DATE/TIME 11/10/15 1450  
 ORGANISM AGE < 24 Hours TEST TEMPERATURE (°C) 25 ± 1  
 ORGANISM SOURCE In House PHOTO PERIOD 16-hr. Light 8-hr. Dark  
 RECEIVING WATER Spring Creek LIGHT INTENSITY 50-100 ft. cndf.  
 DILUTION WATER Laboratory TECHNICIAN R. Kasper

**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
11/04/15	A	A	A	A	A	A	A	A	A	A
11/05/15	0	0	0	0	0	0	0	0	0	0
11/06/15	A	A	A	A	A	A	A	A	A	A
11/07/15	0	0	0	0	0	0	0	0	0	0
11/08/15	4	3	5	2	4	3	4	3	2	4
11/09/15	7	7	10	6	7	8	9	11	9	9
11/10/15	15	13	12	11	13	15	11	13	14	13
	26	23	27	19	24	26	24	27	25	26
x # Young 24.7 C.V. 9.74% x% Survival 100% C.V. 0.00%										

31% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/04/15	A	A	A	A	A	A	A	A	A	A
11/05/15	0	0	0	0	0	0	0	0	0	0
11/06/15	A	A	A	A	A	A	A	A	A	A
11/07/15	0	0	0	0	0	0	0	0	0	0
11/08/15	3	3	4	2	4	4	3	2	3	3
11/09/15	9	10	7	8	7	8	10	7	11	10
11/10/15	13	11	12	12	12	13	11	12	14	12
	25	24	23	22	23	25	24	21	28	25
x # Young 24.0 C.V. 8.10% x% Survival 100% C.V. 0.00%										

41% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/04/15	A	A	A	A	A	A	A	A	A	A
11/05/15	0	0	0	0	0	0	0	0	0	0
11/06/15	A	A	A	A	A	A	A	A	A	A
11/07/15	0	0	0	0	0	0	0	0	0	0
11/08/15	3	4	2	3	3	2	3	4	3	3
11/09/15	10	10	7	10	10	11	7	10	8	10
11/10/15	18	14	9	13	13	13	10	14	11	13
	11	15	15	12	11	12	14	13	12	13
	24	28	24	25	24	25	24	27	23	26
x # Young 25.1 C.V. 7.14% x% Survival 100% C.V. 0.00%										

55% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/04/15	A	A	A	A	A	A	A	A	A	A
11/05/15	0	0	0	0	0	0	0	0	0	0
11/06/15	A	A	A	A	A	A	A	A	A	A
11/07/15	0	0	0	0	0	0	0	0	0	0
11/08/15	2	2	4	3	5	3	2	2	3	3
11/09/15	10	10	9	7	11	6	7	11	7	9
11/10/15	13	13	15	12	15	14	14	13	14	13
	25	25	28	22	31	23	23	26	24	25
x # Young 25.2 C.V. 10.55% x% Survival 100% C.V. 0.00%										

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

ex 1: 

A	alive today
4	total young to date

ex 2: 

5	alive, 5 young today
12	total young to date

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

City of Springdale WWTF

Lab ID# 24841

Test Date: November 3, 2015

73% Effluent														
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10				
11/04/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/05/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/06/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/07/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/08/15	2	3	4	3	2	2	3	4	2	3				
	2	3	4	3	2	2	3	4	2	3				
11/09/15	10	8	8	6	9	10	7	9	9	11				
	12	11	12	9	11	12	10	13	11	14				
11/10/15	15	15	13	14	13	14	15	15	12	15				
	27	26	25	23	24	26	25	28	23	29				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">x# Young 25.6</td> <td style="width: 50%;">C.V. 7.86%</td> </tr> <tr> <td>x% Survival 100%</td> <td>C.V. 0.00%</td> </tr> </table>											x# Young 25.6	C.V. 7.86%	x% Survival 100%	C.V. 0.00%
x# Young 25.6	C.V. 7.86%													
x% Survival 100%	C.V. 0.00%													

97% Effluent														
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10				
11/04/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/05/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/06/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/07/15	A	A	A	A	A	A	A	A	A	A				
	0	0	0	0	0	0	0	0	0	0				
11/08/15	2	2	3	4	2	3	2	2	3	3				
	2	2	3	4	2	3	2	2	3	3				
11/09/15	10	9	10	8	6	6	9	11	6	8				
	12	11	13	12	8	9	11	13	9	11				
11/10/15	13	13	15	13	12	12	13	14	13	15				
	25	24	28	25	20	21	24	27	22	26				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">x# Young 24.2</td> <td style="width: 50%;">C.V. 10.63%</td> </tr> <tr> <td>x% Survival 100%</td> <td>C.V. 0.00%</td> </tr> </table>											x# Young 24.2	C.V. 10.63%	x% Survival 100%	C.V. 0.00%
x# Young 24.2	C.V. 10.63%													
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

City of Springdale WWTF

Lab ID# 24841

Test Date: November 3, 2015

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	31%	41%	55%	73%	97%	
11/03/15	Start	25.0	1	7.67	7.61	7.58	7.53	7.50	7.44	GP
11/04/15	24 Hr.	24.4	1	7.51	7.50	7.57	7.53	7.50	7.51	TB
11/04/15	Renew	25.0	1	7.62	7.58	7.53	7.49	7.48	7.42	TB
11/05/15	48 Hr.	24.6	1	7.56	7.50	7.48	7.48	7.44	7.42	GP
11/05/15	Renew	25.0	2	7.83	7.71	7.64	7.57	7.50	7.38	GP
11/06/15	72 Hr.	24.3	2	7.70	7.57	7.60	7.62	7.49	7.40	GP
11/06/15	Renew	23.6	2	7.89	7.76	7.67	7.60	7.57	7.41	GP
11/07/15	96 Hr.	24.2	2	8.37	7.96	7.86	7.73	7.46	7.50	GP
11/07/15	Renew	25.0	3	8.47	8.13	8.00	7.86	7.62	7.50	GP
11/08/15	120 Hr.	24.2	3	8.33	7.99	7.89	7.79	7.50	7.55	RU
11/08/15	Renew	25.1	3	8.33	8.00	7.88	7.85	7.68	7.59	RU
11/09/15	144 Hr.	24.0	3	8.14	7.88	7.78	7.68	7.58	7.45	RU
11/09/15	Renew	23.1	3	8.32	8.09	7.92	7.79	7.68	7.56	RU
11/10/15	168 Hr.	24.5	3	7.76	7.66	7.68	7.65	7.65	7.63	GP

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	31%	41%	55%	73%	97%	
11/03/15	Start	25.0	1	8.65	8.96	8.56	8.91	8.86	8.92	GP
11/04/15	24 Hr.	24.4	1	8.38	8.19	8.39	8.35	8.27	8.29	TB
11/04/15	Renew	25.0	1	7.83	8.12	8.33	8.46	8.28	8.15	TB
11/05/15	48 Hr.	24.6	1	8.32	8.21	8.32	8.21	8.18	8.00	GP
11/05/15	Renew	25.0	2	8.65	8.82	8.89	8.68	8.48	8.89	GP
11/06/15	72 Hr.	24.3	2	8.65	8.45	8.97	8.02	7.80	8.32	GP
11/06/15	Renew	23.6	2	8.22	8.15	8.45	8.05	8.23	8.17	GP
11/07/15	96 Hr.	24.2	2	8.02	8.53	8.57	8.90	8.28	8.38	GP
11/07/15	Renew	25.0	3	8.67	8.93	8.95	8.91	8.95	8.98	GP
11/08/15	120 Hr.	24.2	3	7.89	7.64	7.67	8.84	8.38	7.95	RU
11/08/15	Renew	25.1	3	8.65	7.92	7.82	8.05	8.41	8.33	RU
11/09/15	144 Hr.	24.0	3	8.81	8.64	8.57	8.52	8.46	8.51	RU
11/09/15	Renew	23.1	3	8.54	8.59	8.58	8.48	8.57	8.55	RU
11/10/15	168 Hr.	24.5	3	8.68	8.87	8.03	8.11	8.77	7.90	GP

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

City of Springdale WWTF

Lab ID# 24841

Test Date: November 3, 2015

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH	DO	Hardness mg/L CaCO <sub>3</sub> <sup>1</sup>	Alkalinity mg/L CaCO <sub>3</sub> <sup>1</sup>	Conduct. umhos/cm <sup>1</sup>	Resid. Cl <sub>2</sub> mg/L <sup>1</sup>	Dechlor(mL) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L <sup>1</sup>	Analyst
11/03/15	1	7.58	8.68	88	96	466	<0.01	N/A	RK
11/05/15	2	7.19	8.34	96	90	861	<0.01	N/A	RK
11/07/15	3	7.33	8.81	88	98	506	<0.01	N/A	RK
11/03/15	Con	7.67	8.65	152	90	393	--	--	RK

<sup>1</sup> Measurements taken in 100% solution.

Huther and Associates, Inc.  
 Begin Date: November 03, 2015  
 Lab I.D.# 24841

**CERIODAPHNIA DUBIA STATISTICAL ANALYSES**  
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	19.000	27.000	24.700
2	31% Effluent	10	21.000	28.000	24.000
3	41% Effluent	10	23.000	29.000	25.100
4	55% Effluent	10	22.000	31.000	25.200
5	73% Effluent	10	23.000	29.000	25.600
6	97% Effluent	10	20.000	28.000	24.200

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	5.789	2.406	0.761	9.74
2	31% Effluent	3.778	1.944	0.615	8.10
3	41% Effluent	3.211	1.792	0.567	7.14
4	55% Effluent	7.067	2.658	0.841	10.55
5	73% Effluent	4.044	2.011	0.636	7.86
6	97% Effluent	6.622	2.573	0.814	10.63

Chi-Square Test For Normality: Actual And Expected Frequencies

Interval	< -1.5	-1.5 to -0.5	-0.5 to 0.5	> 0.5 to 1.5	> 1.5
Expected	4.020	14.520	22.920	14.520	4.020
Observed	3	17	20	16	4

Calculated Chi-Square goodness of fit test statistic = 1.2053  
 Table Chi-Square value (alpha = 0.01) = 13.277

Data Pass normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.27

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)  
 Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data Pass B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	19.000	3.800	0.747
Within (Error)	54	274.600	5.085	
Total	59	293.600		

Critical F value = 2.45 (0.05,5,40)  
 Since F < Critical F Fail to Reject Ho: All equal

Dunnnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Transformed	Mean	T Stat	Sig
		Mean	Calculated In Original Units		
1	Control	24.700	24.700		
2	31% Effluent	24.000	24.000	0.694	
3	41% Effluent	25.100	25.100	-0.397	
4	55% Effluent	25.200	25.200	-0.496	
5	73% Effluent	25.600	25.600	-0.892	
6	97% Effluent	24.200	24.200	0.496	

Dunnnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)  
 No statistically significant difference

Dunnnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Num of Reps	Minimum Sig Diff (In Orig. Units)	Difference	
				% of Control	from Control
1	Control	10			
2	31% Effluent	10	2.330	9.4	0.700
3	41% Effluent	10	2.330	9.4	-0.400
4	55% Effluent	10	2.330	9.4	-0.500
5	73% Effluent	10	2.330	9.4	-0.900
6	97% Effluent	10	2.330	9.4	0.500

Huther and Associates  
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

CLIENT	City of Springdale WWTF	SAMPLE TYPE	24 Hour Composite
NPDES #	AR0022063	DATE COLLECTED	11/02/15 11/04/15 11/06/15
LAB ID #	24841	DATE RECEIVED	11/03/15 11/05/15 11/07/15
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	11/03/15 1540
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	11/10/15 1540
ORGANISM AGE	< 24 Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Spring Creek	LIGHT INTENSITY	50-100 ft. candl.
DILUTION WATER	Laboratory	TECHNICIAN	R. Kasper

**SURVIVAL SUMMARY**

Conc.	11/04/15					11/05/15					11/06/15					11/07/15					11/08/15				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
31%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
41%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
55%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
73%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
97%	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Conc.	11/09/15					11/10/15					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
Con	8	8	8	8	8	8	8	8	8	8	100.0	0.00
31%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
41%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
55%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
73%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
97%	8	8	8	8	8	8	8	8	8	8	100.0	0.00

**MEAN DRY WEIGHT PER REP**

% Effluent	Rep A	Rep B	Rep C	Rep D	Rep E	x	C.V. %
Con	0.4280	0.4910	0.4450	0.4670	0.4820	0.4626	5.63
31%	0.4950	0.4260	0.4750	0.4810	0.4450	0.4644	6.07
41%	0.4690	0.4510	0.5040	0.4720	0.4950	0.4782	4.45
55%	0.4950	0.4460	0.4720	0.4850	0.4270	0.4650	6.04
73%	0.4690	0.5040	0.4440	0.4920	0.4260	0.4670	6.95
97%	0.5030	0.4160	0.4820	0.4750	0.5010	0.4754	7.43

Huthier and Associates  
7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

City of Springdale WWTF

Lab ID# 24841

Test Date: November 3, 2015

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	31%	41%	55%	73%	97%	
11/03/15	Start	25.0	1	7.67	7.61	7.58	7.53	7.50	7.44	GP
11/04/15	24 Hr.	24.5	1	7.27	7.24	7.31	7.23	7.26	7.35	TB
11/04/15	Renew	25.0	1	7.62	7.58	7.53	7.49	7.48	7.42	TB
11/05/15	48 Hr.	24.8	1	7.59	7.60	7.63	7.65	7.62	7.73	GP
11/05/15	Renew	25.0	2	7.83	7.71	7.64	7.57	7.50	7.38	GP
11/06/15	72 Hr.	24.3	2	7.74	7.74	7.75	7.80	7.81	7.86	GP
11/06/15	Renew	23.6	2	7.89	7.76	7.67	7.60	7.57	7.41	GP
11/07/15	96 Hr.	24.1	2	7.56	7.62	7.62	7.66	7.68	7.73	GP
11/07/15	Renew	25.0	3	8.47	8.13	8.00	7.86	7.62	7.50	GP
11/08/15	120 Hr.	23.2	3	7.52	7.57	7.22	7.32	7.06	7.92	RU
11/08/15	Renew	25.1	3	8.33	8.00	7.88	7.85	7.68	7.59	RU
11/09/15	144 Hr.	24.0	3	7.97	8.11	8.08	8.17	8.21	8.20	RU
11/09/15	Renew	23.1	3	8.32	8.09	7.92	7.79	7.68	7.56	RU
11/10/15	168 Hr.	24.7	3	7.52	7.56	7.63	7.67	7.69	7.78	GP

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	31%	41%	55%	73%	97%	
11/03/15	Start	25.0	1	8.65	8.96	8.56	8.91	8.86	8.92	GP
11/04/15	24 Hr.	24.5	1	8.47	8.69	8.60	8.52	8.83	8.67	TB
11/04/15	Renew	25.0	1	7.83	8.12	8.33	8.46	8.28	8.15	TB
11/05/15	48 Hr.	24.8	1	7.86	7.62	8.62	7.60	7.63	8.25	GP
11/05/15	Renew	25.0	2	8.65	8.82	8.89	8.68	8.48	8.89	GP
11/06/15	72 Hr.	24.3	2	8.72	8.30	8.47	8.83	8.83	8.63	GP
11/06/15	Renew	23.6	2	8.22	8.15	8.45	8.05	8.23	8.17	GP
11/07/15	96 Hr.	24.1	2	8.61	8.63	8.60	8.54	7.76	8.54	GP
11/07/15	Renew	25.0	3	8.67	8.93	8.95	8.91	8.95	8.98	GP
11/08/15	120 Hr.	23.2	3	8.61	7.51	8.17	8.61	8.39	8.53	RU
11/08/15	Renew	25.1	3	8.65	7.92	7.82	8.05	8.41	8.33	RU
11/09/15	144 Hr.	24.0	3	8.78	8.69	8.73	8.73	8.73	8.68	RU
11/09/15	Renew	23.1	3	8.54	8.59	8.58	8.48	8.57	8.55	RU
11/10/15	168 Hr.	24.7	3	8.48	8.33	7.73	8.45	8.39	8.42	GP

Huther and Associates  
 7-Day *Pimephales promelas* Survival and Growth Chronic Toxicity Test

City of Springdale WWTF

Lab ID# 24841

Test Date: November 3, 2015

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH	DO	Hardness mg/L CaCO <sub>3</sub> <sup>1</sup>	Alkalinity mg/L CaCO <sub>3</sub> <sup>1</sup>	Conduct. umhos/cm <sup>1</sup>	Resid. Cl <sub>2</sub> mg/L <sup>1</sup>	Dechlor(mL) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L <sup>1</sup>	Analyst
11/03/15	1	7.58	8.68	88	96	466	<0.01	N/A	RK
11/05/15	2	7.19	8.34	96	90	861	<0.01	N/A	RK
11/07/15	3	7.33	8.81	88	98	506	<0.01	N/A	RK
11/03/15	Con	7.67	8.65	152	90	393	--	--	RK

<sup>1</sup>Measurements taken in 100% solution.

Huther and Associates, Inc.  
 Begin Date: November 03, 2015  
 Lab I.D.# 24841

**PIMEPHALES PROMELAS STATISTICAL ANALYSES**  
**Growth**

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.428	0.491	0.463
2	31% Effluent	5	0.426	0.495	0.464
3	41% Effluent	5	0.451	0.504	0.478
4	55% Effluent	5	0.427	0.495	0.465
5	73% Effluent	5	0.426	0.504	0.467
6	97% Effluent	5	0.416	0.503	0.475

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V. %
1	Control	0.001	0.026	0.012	5.63
2	31% Effluent	0.001	0.028	0.013	6.07
3	41% Effluent	0.000	0.021	0.010	4.45
4	55% Effluent	0.001	0.028	0.013	6.04
5	73% Effluent	0.001	0.032	0.015	6.95
6	97% Effluent	0.001	0.035	0.016	7.43

Shapiro - Wilk's Test For Normality

D = 0.020

W = 0.933

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

Data Pass normality test at P=0.01 level. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 1.09

Table Chi-square value = 15.09 (alpha = 0.01, DF = 5)

Table Chi-square value = 11.07 (alpha = 0.05, DF = 5)

Data Pass B1 homogeneity test at 0.01 level. Continue analysis.

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.001	0.000	0.248
Within (Error)	24	0.020	0.001	
Total	29	0.021		

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F Fail to Reject Ho: All equal

Dunnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Transformed Mean	Mean	T Stat	Sig
			Calculated In Original Units		
1	Control	0.463	0.463		
2	31% Effluent	0.464	0.464	-0.098	
3	41% Effluent	0.478	0.478	-0.853	
4	55% Effluent	0.465	0.465	-0.131	
5	73% Effluent	0.467	0.467	-0.241	
6	97% Effluent	0.475	0.475	-0.700	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, DF=24,5)

No statistically significant difference

Dunnett's Test - Table 1 of 2 Ho:Control < Treatment

Grp	Identification	Num of Reps	Minimum Sig Diff (In Orig. Units)	% of Control	Difference from
					Control
1	Control	5			
2	31% Effluent	5	0.043	9.3	-0.002
3	41% Effluent	5	0.043	9.3	-0.016
4	55% Effluent	5	0.043	9.3	-0.002
5	73% Effluent	5	0.043	9.3	-0.004
6	97% Effluent	5	0.043	9.3	-0.013

**APPENDIX A  
RAW DATA**



7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION  
DAILY RAW DATA TABLE  
PAGE 1 OF 2

CLIENT Springdale  
OUTFALL 001  
LAB ID # 24841

START DATE/TIME 11-3-15 RK 1440<sup>50</sup>  
END DATE/TIME 11-10-15 RK 1450

CON

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1030
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	4	3	5	2	4	3	4	3	2	4	TB	1045
11/9	7	7	10	6	7	8	9	11	9	9	RK	1045
11/10	15	13	12	11	13	15	11	13	14	13	RK	1450
	26	23	27	19	24	26	24	27	25	26		

$\bar{x}$  # Young w/o Dead = 24.7 CV% = 9.74  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

31

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1450
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1030
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	3	3	4	2	4	4	3	2	3	3	TB	1045
11/9	9	10	7	8	7	8	10	7	11	10	RK	1045
11/10	13	11	12	12	12	13	11	12	14	12	RK	1450
	25	24	23	22	23	25	24	21	28	25		

$\bar{x}$  # Young w/o Dead = 24.0 CV% = 8.10  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

41

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1030
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	3	4	2	3	3	2	3	4	3	3	TB	1045
11/9	10	10	7	10	10	11	7	10	8	10	RK	1045
11/10	11	15	15	12	11	12	14	13	12	13	RK	1450
	24	29	24	25	24	25	24	27	23	26		

$\bar{x}$  # Young w/o Dead = 25.1 CV% = 7.14  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

55

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1030
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	2	2	4	3	5	3	2	2	3	3	TB	1045
11/9	10	10	9	7	11	6	7	11	7	9	RK	1045
11/10	13	13	15	12	15	14	14	13	14	13	RK	1450
	25	25	28	22	31	23	23	26	24	25		

$\bar{x}$  # Young w/o Dead = 25.2 CV% = 10.55  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION  
 DAILY RAW DATA TABLE  
 PAGE 2 OF 2

CLIENT Springdale  
 OUTFALL 001  
 LAB ID # 24841

START DATE/TIME 11-3-75 RK 1450  
 END DATE/TIME 11-10-15 RK 1450

73

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	2	3	4	3	2	2	3	4	2	3	TB	1045
11/9	10	8	8	6	9	10	7	9	9	11	RK	1045
11/10	15	15	13	14	13	14	15	15	12	15	RK	1450
	27	26	25	23	24	26	25	28	23	29		

$\bar{x}$  # Young w/o Dead = 25.6 CV% = 7.86  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

97

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/4	A	A	A	A	A	A	A	A	A	A	RK	1450
11/5	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/6	A	A	A	A	A	A	A	A	A	A	ZG	1430
11/7	A	A	A	A	A	A	A	A	A	A	TB	1440
11/8	2	2	3	4	2	3	2	2	3	3	TB	1045
11/9	10	9	10	8	6	6	9	11	6	8	RK	1045
11/10	13	13	15	13	12	12	13	14	13	15	RK	1450
	25	24	28	25	20	21	24	27	22	26		

$\bar{x}$  # Young w/o Dead = 24.2 CV% = 10.63  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time

$\bar{x}$  # Young w/o Dead = CV% =  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = CV% =

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time

$\bar{x}$  # Young w/o Dead = CV% =  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = CV% =

**7-DAY CHRONIC TOXICITY TEST  
PIMEPHALES PROMELAS (fathead minnow) SURVIVAL**

CLIENT/FACILITY SPRINGDALE  
 OUTFALL # 001 PROJECT # 24841  
 ORGANISM ID# PPO-15-306

DATE/TIME STARTED 11-3-15 RK 1540  
 DATE/TIME ENDED 11-10-15 RK 1540

Conc.	A					B					C					D					E									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
CON	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
31	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
41	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
55	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
73	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
97	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Initials Date/Time	11-4-15 BB 1540					11-5-15 BB 0845					11-6-15 BB 0850					11-7-15 TB 0835					11-8-15 TB 0910									

Conc.	A					B					Mean Survival	C.V.%
	A	B	C	D	E	A	B	C	D	E		
CON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
31	8	8	8	8	8	8	8	8	8	8	100.0	0.00
41	8	8	8	8	8	8	8	8	8	8	100.0	0.00
55	8	8	8	8	8	8	8	8	8	8	100.0	0.00
73	8	8	8	8	8	8	8	8	8	8	100.0	0.00
97	8	8	8	8	8	8	8	8	8	8	100.0	0.00
Initials Date/Time	11-9-15 BB 0845					11-10-15 RK 1540						





**Huthier and Associates, Inc.**

*environmental toxicologists, biologists, and consultants*

Client / Facility Springdale  
Lab ID Number 24847  
Outfall Number 001  
Test Date 11-3-15

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH	DO	Hardness mg/L CaCO <sub>3</sub> <sup>1</sup>	Alkalinity mg/L CaCO <sub>3</sub> <sup>1</sup>	Conduct. umhos/cm <sup>1</sup>	Resid. Cl <sub>2</sub> mg/L <sup>1</sup>	Dechlor(mL) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L <sup>1</sup>	Analyst
11-3	1	7.58	8.68	88	96	466	20.01	N/A	RK
11-5	2	7.19	8.34	96	90	861	}	}	}
11-7	3	7.33	8.81	88	98	506			
11-3	CON	7.67	8.65	152	90	393	-	-	

**INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER**

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

Notes:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**APPENDIX B  
REFERENCE TOXICANTS**

**CHRONIC REFERENCE TOXICANT TEST RESULTS**

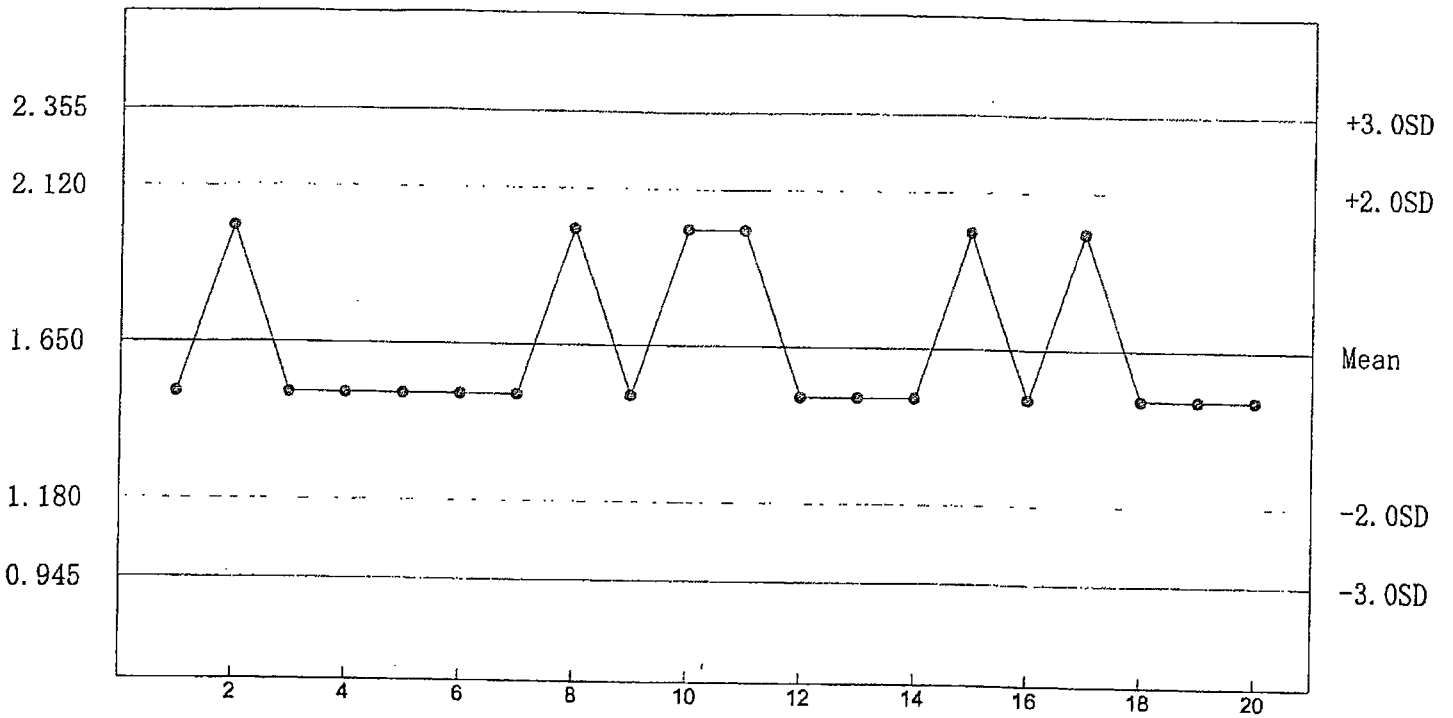
SPECIES: *Ceriodaphnia dubia*  
 CHEMICAL: Sodium Chloride  
 DURATION: 7-Days  
 TEST NUMBER: 9  
 TEST DATE: 09/02/15 - 09/09/15  
 1610 Hrs - 1610 Hrs  
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	6
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

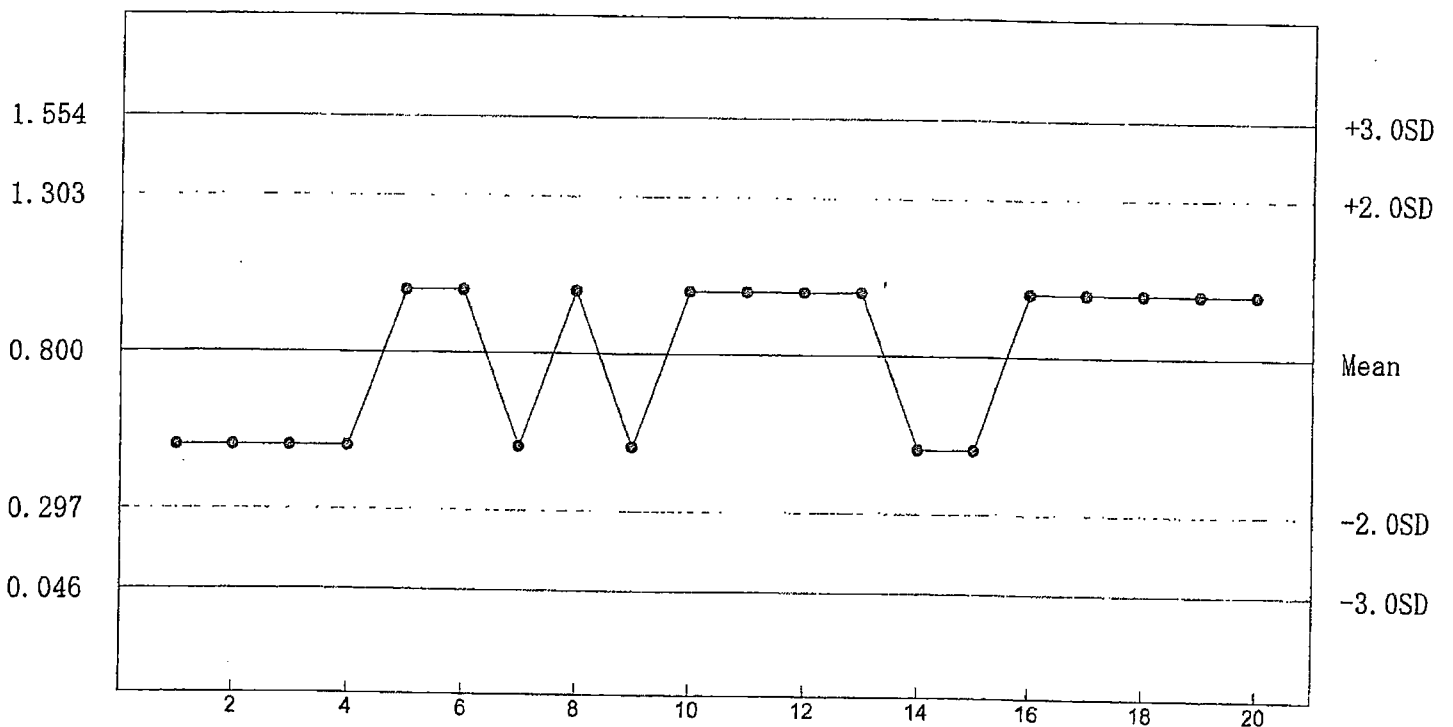
*C. dubia* Survival - NOEC



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= 0.800 SD= 0.251 CV= 31.41% Min= 0.500 Max= 1.000



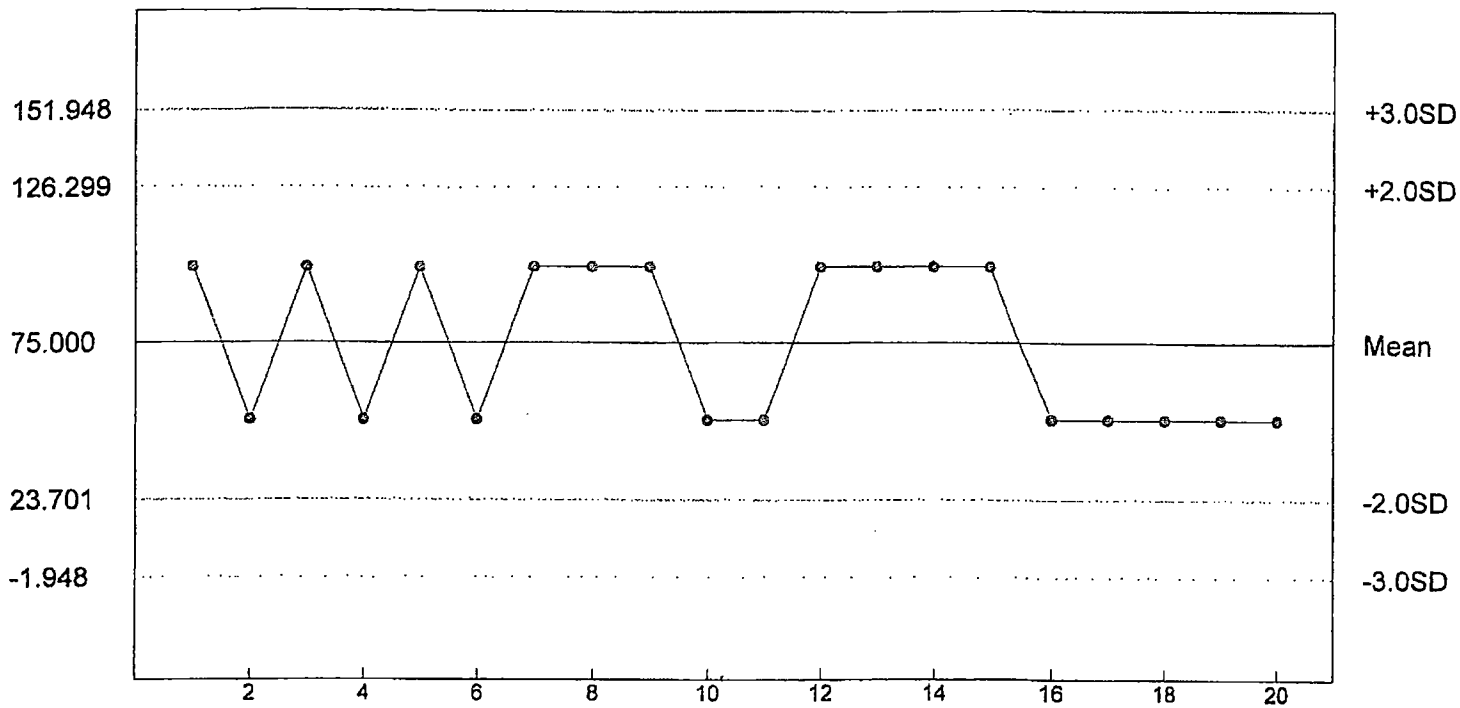
**CHRONIC REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Pimephales promelas*  
 CHEMICAL: Copper Nitrate  
 DURATION: 7-Days  
 TEST NUMBER: 9  
 TEST DATE: 09/02/15 - 09/09/15  
 1530 Hrs - 1530 Hrs  
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	10
200	40	28
400	40	39
800	40	40

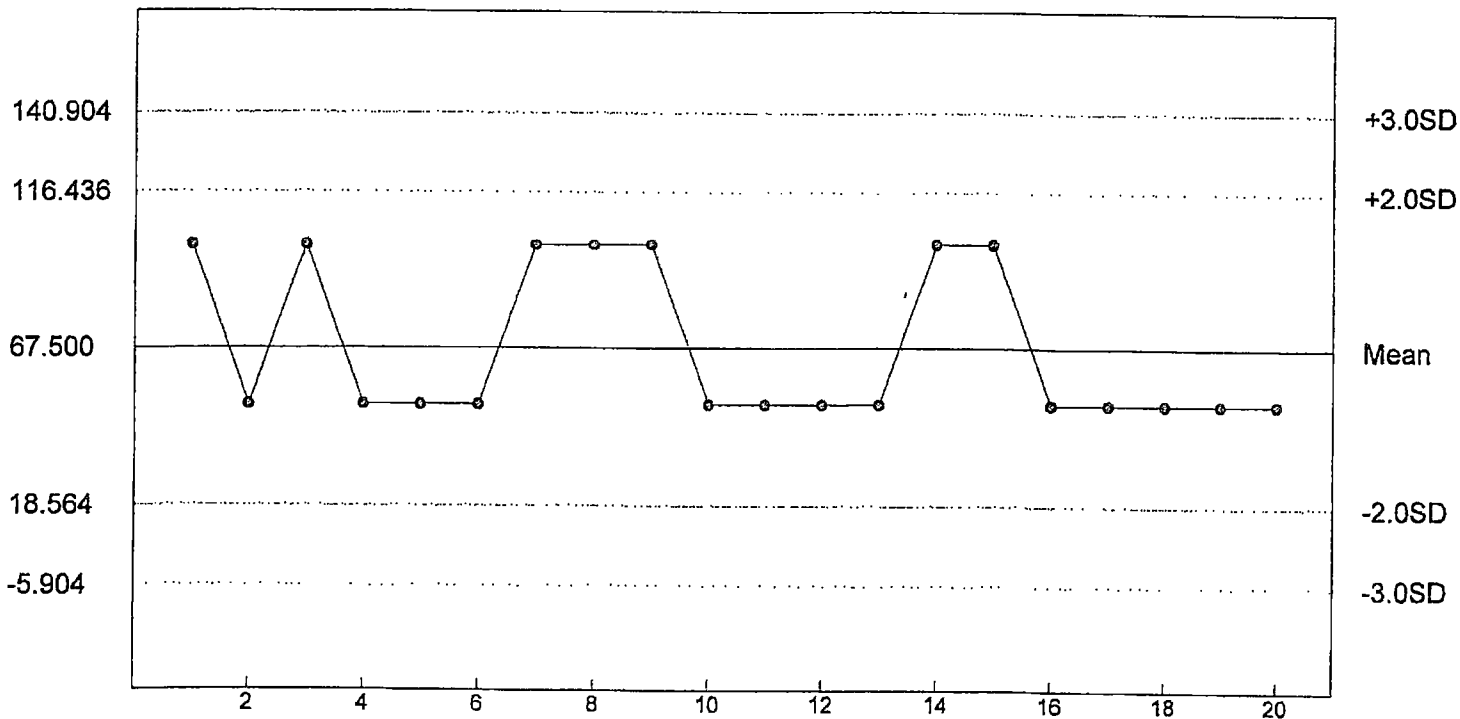
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

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



n= 20 Mean= 75.000 SD= 25.649 CV= 34.20% 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 # 24841 PROJECT NAME Springdale PERMIT# AR 00220163

#### OUTFALL SAMPLES

24-Hr Flow Weighted Composite \_\_\_\_\_ Other 24 Hr Flow Prop. Comp.

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.	
001	OPERATIONS STAFF	0600 11/01/15	0600 11/02/15	183	✓			(1)

#### RECEIVING WATER SAMPLES

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

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

RELINQUISHED BY: Mike Phillips DATE: 11/02/15 TIME: 0630 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 X Pick Up \_\_\_\_\_ Client Delivered \_\_\_\_\_ Other \_\_\_\_\_

RECEIVED: Matt Horner DATE: 11-3-15 TIME: 1045 SAMPLE TEMP. @ RECEIPT. 4.0

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

CHAIN OF CUSTODY RECORD

PROJECT # 24841 PROJECT NAME Springdale PERMIT# AL 0622063

OUTFALL SAMPLES

24-Hr Flow Weighted Composite \_\_\_\_\_ Other 24 Hr. Flow Prop. Comp.

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.	
001	OPERATIONS STAFF	0600 11/03/15	0600 11/04/15	282	✓			(1)

RECEIVING WATER SAMPLES

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

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

RELINQUISHED BY: Michelle Phillips DATE: 11/04/15 TIME: 0634 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 X Pick Up \_\_\_\_\_ Client Delivered \_\_\_\_\_ Other \_\_\_\_\_

RECEIVED: Matt Houser DATE: 11-5-15 TIME: 1045 SAMPLE TEMP. @ RECEIPT. 2.7

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

### CHAIN OF CUSTODY RECORD

PROJECT # 24841 PROJECT NAME Springdale PERMIT# AR 0022063

#### OUTFALL SAMPLES

24-Hr Flow Weighted Composite \_\_\_\_\_ Other 24 HR Flow Prop. Comp.

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.	
001	OPERATIONS STAFF	0600 11/05/15	0600 11/06/15	448	✓			(1)

#### RECEIVING WATER SAMPLES

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

TYPE OF TEST 7 day CF  
 NAME OF RECEIVING WATER Springdale Creek  
 DILUTION WATER USED FOR THIS TEST Lab

RELINQUISHED BY: Jeffery N. Malled DATE: 11/06/15 TIME: 0625 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 X Pick Up \_\_\_\_\_ Client Delivered \_\_\_\_\_ Other \_\_\_\_\_

RECEIVED: Matt Horner DATE: 11-7-15 TIME: 1000 SAMPLE TEMP. @ RECEIPT. 4.5



**CITY OF SPRINGDALE WWTF  
NPDES PERMIT NO. AR0022063  
AFIN NO. 72-00003  
BIOMONITORING REPORTING  
TEST DATE: 11/03/15**

**I. *Ceriodaphnia dubia***

	<b>Response</b>
(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.	97%
(C) Report the NOEC value for reproduction, Parameter No. TPP3B.	97%
(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.	10.63%

**II. *Pimephales promelas* (fathead minnow)**

	<b>Response</b>
(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.	97%
(C) Report the NOEC value for growth, Parameter No. TPP6C.	97%
(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.	7.43%
22415 Retest Number 1	Leave Blank
22416 Retest Number 2	Leave Blank

SPRINGDALE WATER UTILITIES  
526 OAK AVE  
SPRINGDALE, AR 72762



1000



72118

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R2305E126078-03

Mary Barnett  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, AR 72118-5317