

**CITY OF ROGERS**  
OUTFALL 001

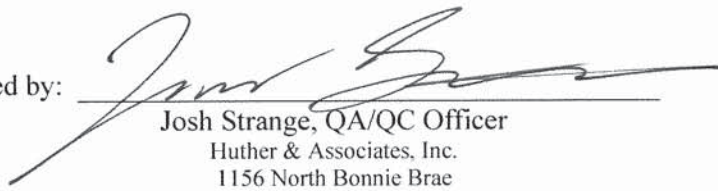
Chronic Biomonitoring Report  
Permit Number NPDES AR0043397

AFIN Number: 04-00155

*Ceriodaphnia dubia*  
*Pimephales promelas*

August 3, 2021

Reviewed by:



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TOXICITY TEST REPORT - CHRONIC

Client ..... City of Rogers                      Laboratory I.D. .... 32990  
Permit No. .... NPDES AR0043397                      Begin Date ..... August 3, 2021  
Sample ..... Outfall 001

Results: **Pass** *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth at the critical concentration (82% effluent).

**SAMPLE COLLECTION**

Composite effluent samples from City of Rogers were delivered by Federal Express courier to Huther & Associates on August 3, August 5 and August 7, 2021. 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, 23<sup>rd</sup> 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 1430 hours, August 3, 2021. Five concentrations were prepared (26%, 35%, 46%, 62% and 82% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Osage 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 ten 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 1430 hours, August 10, 2021. 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 the effluent concentrations tested. Therefore, statistical analyses were not required to determine a no effect concentration.

**LOEC: Not Applicable**  
**NOEC: 82% 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: 82% Effluent**

**PMSD: 10.4%**

**TEST SETUP**  
*Pimephales promelas*



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1530 hours, August 3, 2021. Five concentrations were prepared (26%, 35%, 46%, 62% and 82% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (Osage Creek). The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight organisms 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 beakers 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 1530 hours, August 10, 2021. 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: 82% 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: 8.2%**  
**NOEC: 82% Effluent**

**SUMMARY**

There were no statistically significant differences between the control and the critical low flow concentration (82% 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 AR0043397 for City of Rogers, 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 Rogers	SAMPLE TYPE 24 Hour Composite
NPDES # AR0043397	DATE COLLECTED 08/02/21 08/04/21 08/06/21
LAB ID # 32990	DATE RECEIVED 08/03/21 08/05/21 08/07/21
TEST TYPE 7 Day Chronic	BEGIN DATE/TIME 08/03/21 1430
TEST ORGANISM <i>Ceriodaphnia dubia</i>	END DATE/TIME 08/10/21 1430
ORGANISM AGE < 24-Hours	TEST TEMPERATURE (°C) 25 ± 1
ORGANISM SOURCE In House	PHOTO PERIOD 16-hr. Light 8-hr. Dark
RECEIVING WATER Osage Creek	LIGHT INTENSITY 50-100 ft. endl.
DILUTION WATER Laboratory	TECHNICIAN T. 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
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/07/21	4	5	4	2	3	4	2	2	4	3
	4	5	4	2	3	4	2	2	4	3
08/08/21	10	A	6	11	A	9	7	8	10	6
	14	5	10	13	3	13	9	10	14	9
08/09/21	A	7	A	A	8	A	A	A	A	A
	14	12	10	13	11	13	9	10	14	9
08/10/21	14	12	12	13	12	14	13	13	13	12
	28	24	22	26	23	27	22	23	27	21
x# Young 24.3 C.V. 10.27%										
x%Survival 100% C.V. 0.00%										

26%Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/07/21	3	4	2	5	3	5	5	2	3	3
	3	4	2	5	3	5	5	2	3	3
08/08/21	6	6	8	9	7	A	6	9	10	A
	9	10	10	14	10	5	11	11	13	3
08/09/21	A	A	A	A	A	8	A	A	A	7
	9	10	10	14	10	13	11	11	13	10
08/10/21	12	13	13	14	12	13	12	14	12	13
	21	23	23	28	22	26	23	25	25	23
x# Young 23.9 C.V. 8.70%										
x%Survival 100% C.V. 0.00%										

35%Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/07/21	5	4	2	3	5	3	2	4	2	2
	5	4	2	3	5	3	2	4	2	2
08/08/21	8	9	A	7	10	11	8	7	9	6
	13	13	2	10	15	14	10	11	11	8
08/09/21	A	A	7	A	A	A	A	A	A	A
	13	13	9	10	15	14	10	11	11	8
08/10/21	13	13	12	13	14	13	12	12	13	12
	26	26	21	23	29	27	22	23	24	20
x# Young 24.1 C.V. 118.1%										
x%Survival 100% C.V. 0.00%										

46%Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/07/21	4	2	3	3	2	4	3	4	2	3
	4	2	3	3	2	4	3	4	2	3
08/08/21	A	9	10	6	11	8	7	10	A	A
	4	11	13	9	13	12	10	14	2	3
08/09/21	8	A	A	A	A	A	A	A	7	8
	12	11	13	9	13	12	10	14	9	11
08/10/21	13	12	14	12	13	13	14	13	12	12
	25	23	27	21	26	25	24	27	21	23
x# Young 24.2 C.V. 9.10%										
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

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

Rogers

Lab ID# 32990

Test Date: August 3, 2021

62% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	0	0	0	0	0	0	0	0	0	0
	3	3	4	5	3	5	4	2	4	2
08/07/21	3	3	4	5	3	5	4	2	4	2
	11	6	A	10	A	7	9	8	6	8
08/08/21	14	9	4	15	3	12	13	10	10	10
	A	A	10	A	9	A	A	A	A	A
08/09/21	14	9	14	15	12	12	13	10	10	10
	13	12	13	13	12	12	13	12	12	14
08/10/21	27	21	27	28	24	24	26	22	22	24
x# Young		24.5				C.V.		9.86%		
x% Survival		100%				C.V.		0.00%		

82% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/04/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/05/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/06/21	0	0	0	0	0	0	0	0	0	0
	3	2	5	3	5	2	4	5	3	4
08/07/21	3	2	5	3	5	2	4	5	3	4
	9	A	8	A	A	11	9	A	6	9
08/08/21	12	2	13	3	5	13	13	5	9	13
	A	7	A	8	10	A	A	9	A	A
08/09/21	12	9	13	11	15	13	13	14	9	13
	12	12	13	12	14	13	13	13	12	13
08/10/21	24	21	26	23	29	26	26	27	21	26
x# Young		24.9				C.V.		10.45%		
x% Survival		100%				C.V.		0.00%		

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

ex1: 

A
4

 alive today  
total young to date

ex2: 

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

Rogers

Lab ID# 32990

Test Date: August 3, 2021

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	26%	35%	46%	62%	82%	
08/03/21	Start	25.0	1	8.46	8.45	8.41	8.34	8.22	8.11	ID
08/04/21	24 Hr.	24.0	1	8.50	8.47	8.44	8.40	8.33	8.28	JF
08/04/21	Renew	23.8	1	8.83	8.81	8.70	8.63	8.55	8.46	JF
08/05/21	48 Hr.	23.7	1	8.35	8.18	8.07	8.00	7.95	7.88	ID
08/05/21	Renew	25.0	2	8.32	8.13	8.06	7.98	7.90	7.88	ID
08/06/21	72 Hr.	23.7	2	8.23	8.12	8.13	8.15	8.16	8.17	ID
08/06/21	Renew	25.0	2	8.56	8.36	8.24	8.21	8.14	8.06	ID
08/07/21	96 Hr.	23.8	2	8.29	8.16	7.97	7.92	7.89	7.81	ID
08/07/21	Renew	25.0	3	8.31	8.12	7.96	7.90	7.89	7.79	ID
08/08/21	120 Hr.	23.9	3	8.44	8.36	8.39	8.40	8.42	8.40	ID
08/08/21	Renew	25.0	3	8.39	8.16	8.08	8.10	8.05	7.84	AM
08/09/21	144 Hr.	23.8	3	8.42	8.22	8.14	8.14	8.08	7.97	ID
08/09/21	Renew	25.0	3	8.32	8.24	8.16	8.16	8.10	7.98	ID
08/10/21	168 Hr.	23.9	3	8.94	8.77	8.68	8.67	8.69	8.71	ID

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	26%	35%	46%	62%	82%	
08/03/21	Start	25.0	1	8.18	8.48	8.63	8.03	8.64	8.13	ID
08/04/21	24 Hr.	24.0	1	7.71	7.92	8.60	7.67	7.70	7.71	JF
08/04/21	Renew	23.8	1	8.63	7.68	8.03	7.68	7.71	7.71	JF
08/05/21	48 Hr.	23.7	1	8.32	8.19	8.62	7.70	7.68	8.62	ID
08/05/21	Renew	25.0	2	8.32	8.16	7.99	7.97	7.97	8.45	ID
08/06/21	72 Hr.	23.7	2	7.06	7.29	8.18	8.46	8.12	8.26	ID
08/06/21	Renew	25.0	2	8.39	7.80	7.34	8.01	8.01	8.26	ID
08/07/21	96 Hr.	23.8	2	8.34	7.79	7.97	8.40	8.54	7.67	ID
08/07/21	Renew	25.0	3	8.02	7.99	8.21	8.14	8.14	8.06	ID
08/08/21	120 Hr.	23.9	3	7.78	7.79	8.47	8.61	8.18	8.50	ID
08/08/21	Renew	25.0	3	7.70	8.62	8.62	8.65	8.29	8.07	AM
08/09/21	144 Hr.	23.8	3	7.67	8.11	8.16	8.16	8.44	7.70	ID
08/09/21	Renew	25.0	3	8.32	8.39	8.63	8.52	7.72	8.09	ID
08/10/21	168 Hr.	23.9	3	8.64	7.95	8.19	8.33	7.83	7.53	ID



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

Rogers

Lab ID# 32990

Test Date: August 3, 2021

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH <sup>1</sup>	DO <sup>1</sup>	Hardness mg/L CaCO <sub>3</sub> <sup>1</sup>	Alkalinity mg/L CaCO <sub>3</sub> <sup>1</sup>	Conduct. μS/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
08/03/21	1	8.26	8.06	124	92	691	<0.01	N/A	ID
08/05/21	2	7.81	7.87	124	84	807	<0.01	N/A	ID
08/07/21	3	7.79	8.06	120	86	754	<0.01	N/A	ID
08/03/21	CON	8.46	8.18	120	72	417	-	-	JS

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

Huther and Associates, Inc.  
 Begin Date: August 03, 2021  
 Lab I.D.# 32990

*CERIODAPHNIA DUBIA* STATISTICAL ANALYSES  
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	21.000	28.000	24.300
2	26% Effluent	10	21.000	28.000	23.900
3	35% Effluent	10	20.000	29.000	24.100
4	46% Effluent	10	21.000	27.000	24.200
5	62% Effluent	10	21.000	28.000	24.500
6	82% Effluent	10	21.000	29.000	24.900

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	6.233	2.497	0.790	10.27
2	26% Effluent	4.322	2.079	0.657	8.70
3	35% Effluent	8.100	2.846	0.900	11.81
4	46% Effluent	4.844	2.201	0.696	9.10
5	62% Effluent	5.833	2.415	0.764	9.86
6	82% Effluent	6.767	2.601	0.823	10.45

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	0	20	19	18	3

Calculated Chi-Square goodness of fit test statistic = 7.8515  
 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 = 1.11

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	6.083	1.217	0.202
Within (Error)	54	324.900	6.017	
Total	59	330.983		

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

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

Grp	Identification	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	24.300	24.300		
2	26% Effluent	23.900	23.900	0.365	
3	35% Effluent	24.100	24.100	0.182	
4	46% Effluent	24.200	24.200	0.091	
5	62% Effluent	24.500	24.500	-0.182	
6	82% Effluent	24.900	24.900	-0.547	

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

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

Grp	Identification	Num of Reps	Minimum Sig	% of	Difference
			Diff (In Orig. Units)	Control	from Control
1	Control	10			
2	26% Effluent	10	2.534	10.4	0.400
3	35% Effluent	10	2.534	10.4	0.200
4	46% Effluent	10	2.534	10.4	0.100
5	62% Effluent	10	2.534	10.4	-0.200
6	82% Effluent	10	2.534	10.4	-0.600

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

CLIENT	City of Rogers	SAMPLE TYPE	24 Hour Composite
NPDES #	AR0043397	DATE COLLECTED	08/02/21 08/04/21 08/06/21
LAB ID #	32990	DATE RECEIVED	08/03/21 08/05/21 08/07/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	08/03/21 1530
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	08/10/21 1530
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Osage Creek	LIGHT INTENSITY	50-100 ft. cndl.
DILUTION WATER	Laboratory	TECHNICIAN	J. Castillo

**SURVIVAL SUMMARY**

Conc.	08/04/21					08/05/21					08/06/21					08/07/21					08/08/21				
	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
26%	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
35%	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
46%	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
62%	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
82%	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.	08/09/21					08/10/21					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
26%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
35%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
46%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
62%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
82%	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	0.4640	0.4490	0.4270	0.4850	0.4200	0.4490	5.94
26%	0.4530	0.4870	0.4450	0.4820	0.4630	0.4660	3.89
35%	0.4790	0.4260	0.4830	0.4570	0.4650	0.4620	4.91
46%	0.4820	0.4290	0.4670	0.4360	0.4850	0.4598	5.65
62%	0.4670	0.4530	0.4880	0.4250	0.4670	0.4600	5.05
82%	0.4800	0.4210	0.4790	0.4860	0.4390	0.4610	6.32

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

Rogers

Lab ID# 32990

Test Date: August 3, 2021

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	26%	35%	46%	62%	82%	
08/03/21	Start	25.0	1	8.46	8.45	8.41	8.34	8.22	8.11	ID
08/04/21	24 Hr.	24.1	1	8.43	8.37	8.30	8.29	8.23	8.12	JF
08/04/21	Renew	23.8	1	8.83	8.81	8.70	8.63	8.55	8.46	JF
08/05/21	48 Hr.	24.1	1	8.09	7.95	7.95	7.94	7.93	7.95	ID
08/05/21	Renew	25.0	2	8.32	8.13	8.06	7.98	7.90	7.88	ID
08/06/21	72 Hr.	24.2	2	8.07	8.21	8.27	8.24	8.24	8.11	ID
08/06/21	Renew	25.0	2	8.56	8.36	8.24	8.21	8.14	8.06	ID
08/07/21	96 Hr.	24.1	2	8.13	8.11	8.01	7.91	8.03	8.04	ID
08/07/21	Renew	25.0	3	8.31	8.12	7.96	7.90	7.89	7.79	ID
08/08/21	120 Hr.	24.1	3	7.98	8.01	8.04	8.05	8.09	7.98	AM
08/08/21	Renew	25.0	3	8.39	8.16	8.08	8.10	8.05	7.84	AM
08/09/21	144 Hr.	24.2	3	8.38	8.25	8.25	8.18	8.18	7.97	ID
08/09/21	Renew	25.0	3	8.32	8.24	8.16	8.16	8.10	7.98	ID
08/10/21	168 Hr.	24.2	3	8.47	8.34	8.43	8.37	8.15	8.23	ID

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	26%	35%	46%	62%	82%	
08/03/21	Start	25.0	1	8.18	8.48	8.63	8.03	8.64	8.13	ID
08/04/21	24 Hr.	24.1	1	7.66	7.68	8.52	8.58	8.61	8.63	JF
08/04/21	Renew	23.8	1	8.63	7.68	8.03	7.68	7.71	8.71	JF
08/05/21	48 Hr.	24.1	1	7.76	8.35	8.08	8.02	8.38	7.29	ID
08/05/21	Renew	25.0	2	8.32	8.16	7.99	7.97	7.97	8.45	ID
08/06/21	72 Hr.	24.2	2	8.35	8.18	8.00	8.16	7.43	8.22	ID
08/06/21	Renew	25.0	2	8.39	7.80	7.34	8.01	8.01	8.26	ID
08/07/21	96 Hr.	24.1	2	7.83	8.58	8.53	8.38	8.63	8.42	ID
08/07/21	Renew	25.0	3	8.02	7.99	8.21	8.14	8.14	8.06	ID
08/08/21	120 Hr.	24.1	3	7.73	7.46	7.66	8.65	8.65	7.66	AM
08/08/21	Renew	25.0	3	8.70	8.62	8.62	8.65	8.29	8.07	AM
08/09/21	144 Hr.	24.2	3	7.71	8.30	8.12	8.35	8.39	7.72	ID
08/09/21	Renew	25.0	3	8.32	8.39	8.63	8.52	7.72	8.09	ID
08/10/21	168 Hr.	24.2	3	7.77	7.71	7.27	8.13	8.38	8.35	ID

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

Rogers

Lab ID# 32990

Test Date: August 3, 2021

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH <sup>1</sup>	DO <sup>1</sup>	Hardness mg/L CaCO <sub>3</sub> <sup>1</sup>	Alkalinity mg/L CaCO <sub>3</sub> <sup>1</sup>	Conduct. μS/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
08/03/21	1	8.26	8.06	124	92	691	<0.01	N/A	ID
08/05/21	2	7.81	7.87	124	84	807	<0.01	N/A	ID
08/07/21	3	7.79	8.06	120	86	754	<0.01	N/A	ID
08/03/21	CON	8.46	8.18	120	72	417	-	-	JS

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

*PIMEPHALES PROMELAS* STATISTICAL ANALYSES  
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.420	0.485	0.449
2	26% Effluent	5	0.445	0.487	0.466
3	35% Effluent	5	0.426	0.483	0.462
4	46% Effluent	5	0.429	0.485	0.460
5	62% Effluent	5	0.425	0.488	0.460
6	82% Effluent	5	0.421	0.486	0.461

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.027	0.012	5.94
2	26% Effluent	0.000	0.018	0.008	3.89
3	35% Effluent	0.001	0.023	0.010	4.91
4	46% Effluent	0.001	0.026	0.012	5.65
5	62% Effluent	0.001	0.023	0.010	5.05
6	82% Effluent	0.001	0.029	0.013	6.32

Shapiro - Wilk's Test For Normality

D = 0.014

W = 0.930

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 = 0.93

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	0.267
Within (Error)	24	0.014	0.001	
Total	29	0.015		

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	T Stat	Sig
		Mean	Calculated In Original Units		
1	Control	0.449	0.449		
2	26% Effluent	0.466	0.466	-1.095	
3	35% Effluent	0.462	0.462	-0.837	
4	46% Effluent	0.460	0.460	-0.696	
5	62% Effluent	0.460	0.460	-0.708	
6	82% Effluent	0.461	0.461	-0.773	

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

No statistically significant difference

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

Grp	Identification	Num of Reps	Minimum Sig	% of	Difference
			Diff (In Orig. Units)	Control	from Control
1	Control	5			
2	26% Effluent	5	0.037	8.2	-0.017
3	35% Effluent	5	0.037	8.2	-0.013
4	46% Effluent	5	0.037	8.2	-0.011
5	62% Effluent	5	0.037	8.2	-0.011
6	82% Effluent	5	0.037	8.2	-0.012

**APPENDIX A  
RAW DATA**

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Rogers

OUTFALL 001

LAB ID # 32990

START DATE/TIME 8-3-21 TG 1430

END DATE/TIME 08-10-21 DM 1430

Con

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	A	A	A	TG	1430
08/07	4	5	4	2	3	4	2	2	4	3	DM	1130
08/08	10	A	6	11	A	9	7	8	10	6	DM	1445
8/9	A	7	A	A	8	A	A	A	A	A	TG	1315
08/10	14	12	12	13	12	14	13	13	13	12	DM	1430
	28	24	22	26	23	27	22	23	27	21		

$\bar{x}$  # Young w/o Dead = 24.3 CV% = 10.27

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

$\bar{x}$  % Survival = 100 CV% = 0.00

26

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	A	A	A	TG	1430
08/07	3	4	2	5	3	5	5	2	3	3	DM	1130
08/08	6	6	8	9	7	A	6	9	10	A	DM	1445
8/9	A	A	A	A	A	8	A	A	A	7	TG	1315
08/10	12	13	13	14	12	13	12	14	12	13	DM	1430
	21	23	23	28	22	26	23	25	25	23		

$\bar{x}$  # Young w/o Dead = 23.9 CV% = 8.70

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

$\bar{x}$  % Survival = 100 CV% = 0.00

35

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	A	A	A	TG	1430
08/07	5	4	2	3	5	3	2	4	2	2	DM	1130
08/08	8	9	A	7	10	11	8	7	9	6	DM	1445
8/9	A	A	7	A	A	A	A	A	A	A	TG	1315
08/10	13	13	12	13	14	13	12	12	13	12	DM	1430
	26	26	21	23	29	27	22	23	24	20		

$\bar{x}$  # Young w/o Dead = 24.1 CV% = 11.81

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

$\bar{x}$  % Survival = 100 CV% = 0.00

46

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	A	A	A	TG	1430
08/07	4	2	3	3	2	4	3	4	2	3	DM	1130
08/08	A	9	10	6	11	8	7	10	A	A	DM	1445
8/9	8	A	A	A	A	A	A	A	7	8	TG	1315
08/10	13	12	14	12	13	13	14	13	12	12	DM	1430
	25	23	27	21	26	25	24	27	21	23		

$\bar{x}$  # Young w/o Dead = 24.2 CV% = 9.10

$\bar{x}$  # 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 Rogers  
 OUTFALL 007  
 LAB ID # 32990

START DATE/TIME 8-3-21 TG 1430  
 END DATE/TIME 08-10-21 DM 1430

62

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	A	A	A	TG	1430
08/07	3	3	4	5	3	5	4	2	4	2	DM	1130
08/08	11	6	A	10	A	7	9	8	6	8	DM	1445
8/9	A	A	10	A	9	A	A	A	A	A	TG	1315
08/10	13	12	13	13	12	12	13	12	12	14	DM	1430
	27	21	27	28	24	24	26	22	22	24		

82

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/4	A	A	A	A	A	A	A	A	A	A	TG	1430
8/5	A	A	A	A	A	A	A	A	A	A	TG	1415
8/6	A	A	A	A	A	A	A	#A	A	A	TG	1430
08/07	3	2	5	3	5	2	4	5	3	4	DM	1130
08/08	9	A	8	A	A	11	9	A	6	9	DM	1445
8/9	A	7	A	8	10	A	A	9	A	A	TG	1315
08/10	12	12	13	12	14	13	13	13	12	13	DM	1430
	24	21	26	23	29	26	26	27	21	26		

$\bar{x}$  # Young w/o Dead = 24.5      CV% = 9.86  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

$\bar{x}$  # Young w/o Dead = 24.9      CV% = 10.45  
 $\bar{x}$  # 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: Rogers DATE/TIME STARTED: 8-3-21 Jc 1530

DATE/TIME ENDED: 8-10-21 Jc 1530

OUTFALL #: 001 PROJECT #: 32990

ORGANISM ID#: PF0-21-214

Conc.	8-4-21 Jc 1530					8-5-21 Jc 945					8-6-21 Jc 0930					8-7-21 Jc 1105					8-8-21 Jc 1015									
	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					
001	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
20	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
35	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
40	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
62	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
82	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	8-4-21 Jc 1530					8-5-21 Jc 945					8-6-21 Jc 0930					8-7-21 Jc 1105					8-8-21 Jc 1015									

Conc.	8-9-21 Jc 0920					8-10-21 Jc 1530					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
26	8	8	8	8	8	8	8	8	8	8	100.0
35	8	8	8	8	8	8	8	8	8	8	100.0
46	8	8	8	8	8	8	8	8	8	8	100.0
62	8	8	8	8	8	8	8	8	8	8	100.0
82	8	8	8	8	8	8	8	8	8	8	100.0
Initials Date/Time	8-9-21 Jc 0920					8-10-21 Jc 1530					





**Huther and Associates, Inc.**

*environmental toxicologists, biologists, and consultants*

Client / Facility Rogers  
 Lab ID Number 32990  
 Outfall Number 001  
 Test Date 8-3-21

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Sample No.	pH	DO	Hardness mg/L CaCO <sub>3</sub>	Alkalinity mg/L CaCO <sub>3</sub>	Conductance umhos/cm	Resid. Cl <sub>2</sub> mg/L	Dechloro(m/L) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L	Analyst
8-3-21	1	8.26	8.06	124	92	691	20.01	N/A	ID
8-5-21	2	7.81	7.87	124	84	807	20.01	N/A	ID
8-7-21	3	7.79	8.06	120	86	754	20.01	N/A	ID
8-3-21	Con	8.46	8.18	120	72	417	—	—	JS

**INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER**

Date	Sample No.	pH	DO	Hardness mg/L CaCO <sub>3</sub>	Alkalinity mg/L CaCO <sub>3</sub>	Conductance umhos/cm	Resid. Cl <sub>2</sub> mg/L	Dechloro(m/L) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L	Analyst

Notes:

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**APPENDIX B  
REFERENCE TOXICANTS**

**CHRONIC REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 7-Days

TEST NUMBER: 8

TEST DATE: 08/04/21 - 08/11/21  
1615 Hrs - 1615 Hrs

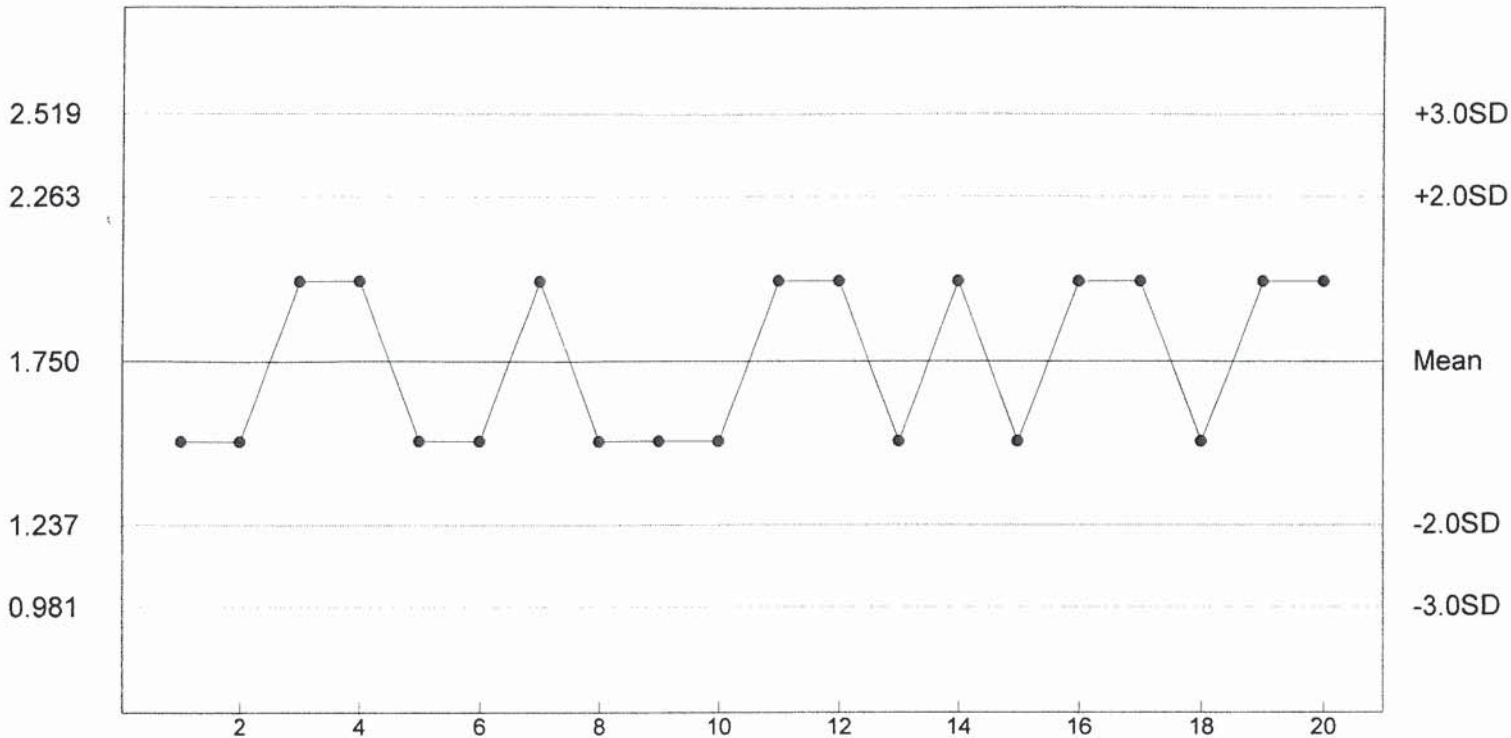
STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	1
2.5	10	10
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
<b>2.5 g/L</b>	<b>2.0 g/L</b>	<b>1.0 g/L</b>	<b>0.5 g/L</b>

Reference Tox Sodium Chloride g/L

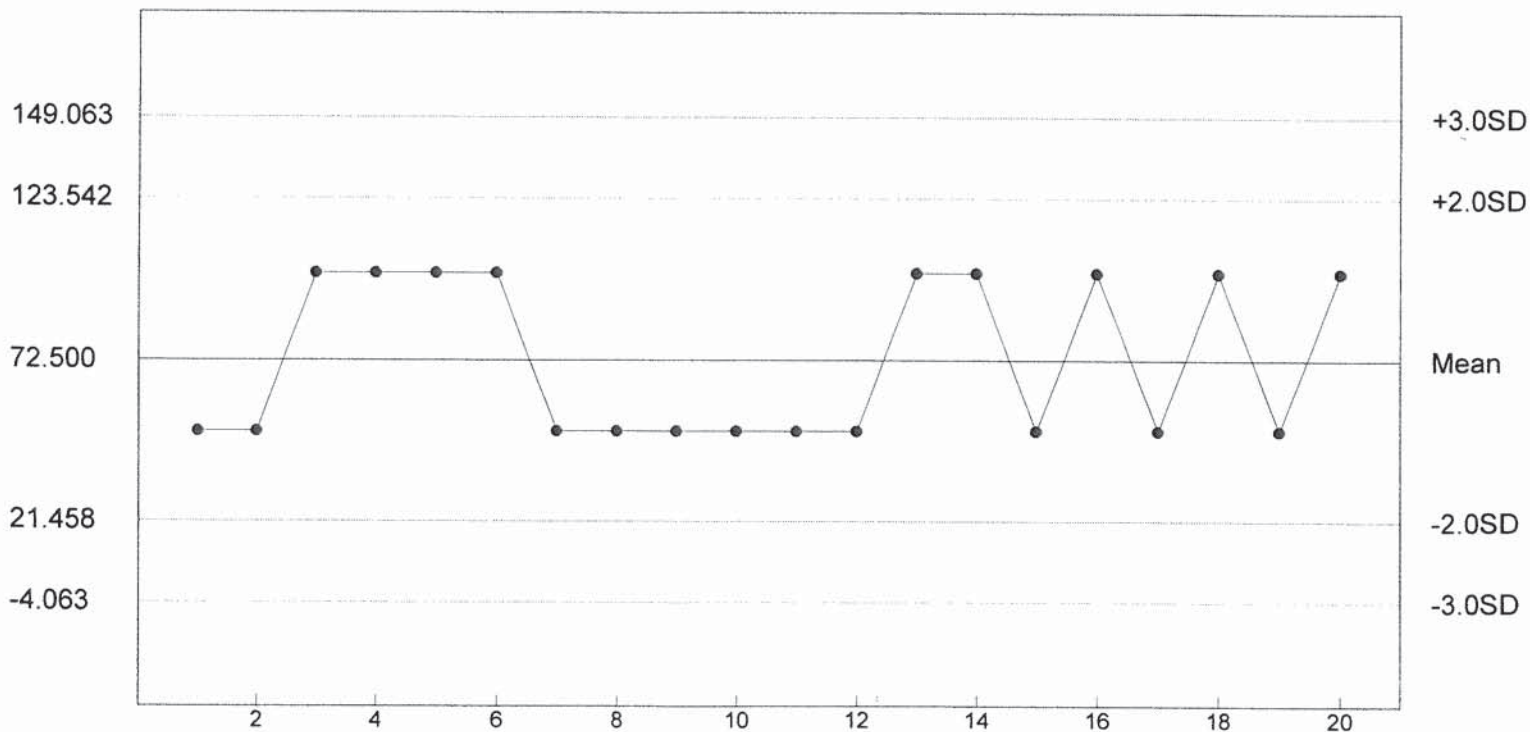
C. dubia Survival - NOEC



n= 20 Mean= 1.750 SD= 0.256 CV= 14.66% Min= 1.500 Max= 2.000

Reference Tox Copper Nitrate ug/L

P. promelas Growth - NOEC



n= 20 Mean= 72.500 SD= 25.521 CV= 35.20% Min= 50.000 Max= 100.000

**CHRONIC REFERENCE TOXICANT TEST RESULTS**

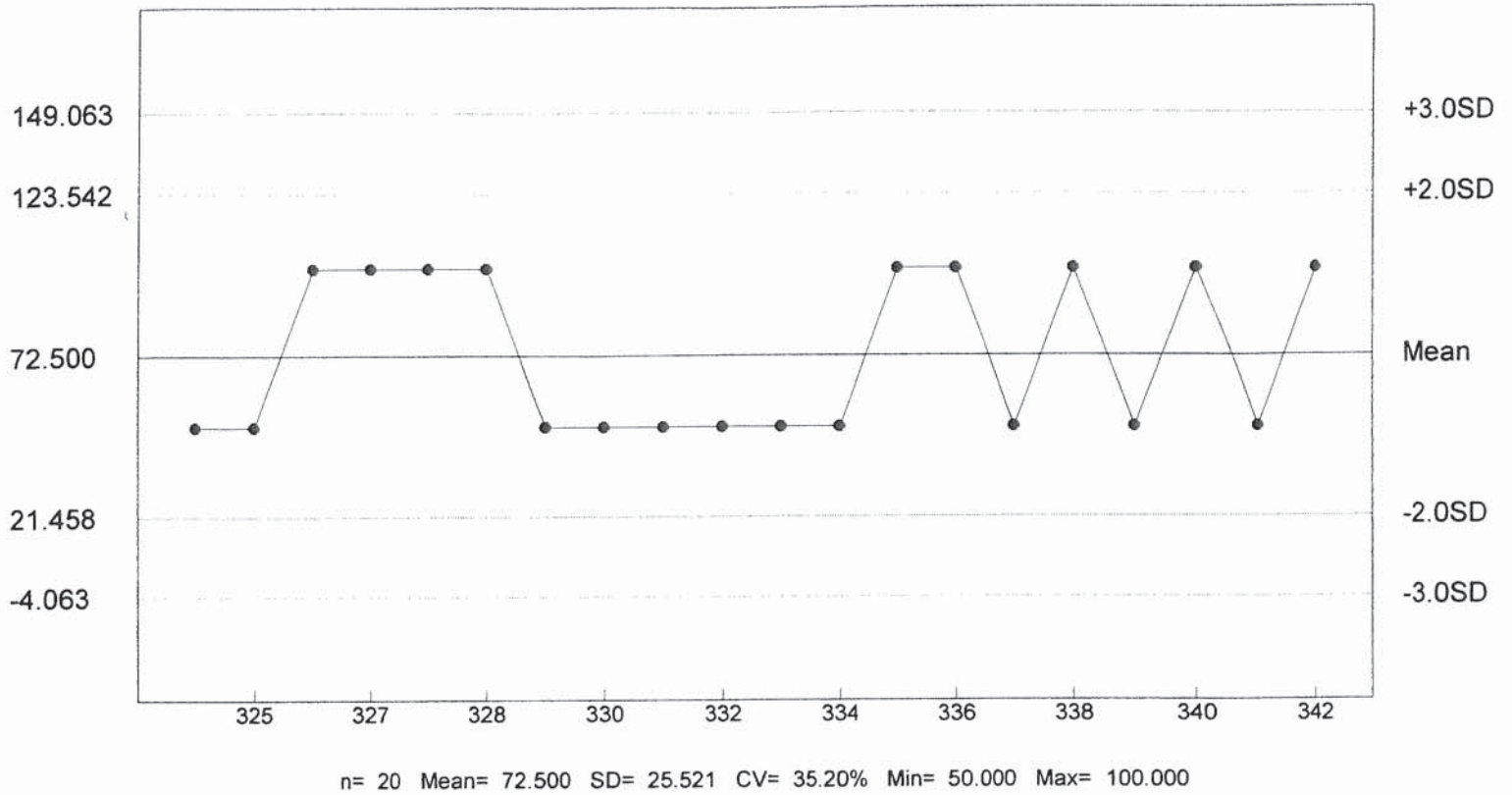
SPECIES: *Pimephales promelas*  
 CHEMICAL: Copper Nitrate  
 DURATION: 7-Days  
 TEST NUMBER: 8  
 TEST DATE: 08/04/21 - 08/11/21  
 1550 Hrs -1550 Hrs  
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	0
200	40	18
400	40	30
800	40	40

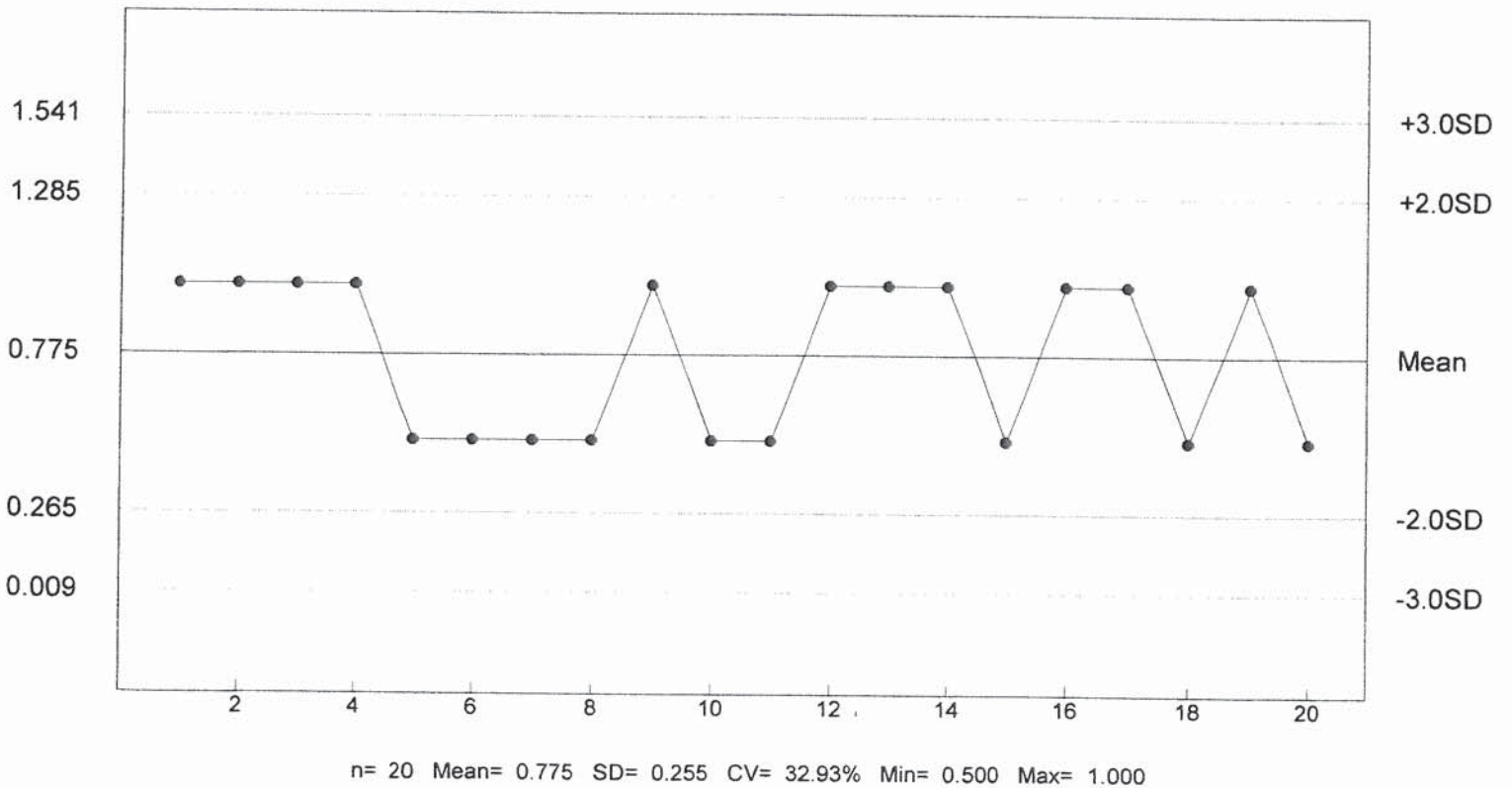
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
200 ug/L	100 ug/L	200 ug/L	100 ug/L



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



Reference Tox Sodium Chloride g/L  
*C. dubia* Reproduction - NOEC



**APPENDIX C**  
**CHAIN OF CUSTODY SHEETS**



**ROGERS POLLUTION CONTROL FACILITY  
CHAIN OF CUSTODY**

SAMPLE DESCRIPTION	SAMPLE ID	COLLECTION		CONTAINER		TYPE C/G	METH A/M	TEMP °C
		DATE	TIME	L	G/P			
Effluent		On: 8-1-21	0830	19.5	P	C	A	3.8
		Off: 8-2-21	0830					
Influent		On: 8-1-21	0836	16	P	C	A	4.0
		Off: 8-2-21	0836					
		On: .....						
		Off: .....						
		On: .....						
		Off: .....						

**ANALYSES**

T S S	C B O D	N H O 3	N O 2 & N O 3	T P 4	P O & O G	P H E N O L S	M E T A L S	T T O
								X

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Daniel C.					

COMMENTS: 1.40IRI #32990 FedEx  
 On: *Jean Vollett* Off: *Daniel C.*

\* Metals: Ag, As, Be, Cd, Cr, Cu, Mo, Ni, Pb, Sb, Se, Ti, Zn (preserved with HNO<sub>3</sub>)  
 \* WET: Whole Effluent Toxicity (Biomonitoring).  
 \* TTO Scan: Table II - Organic Toxic Pollutants as defined by 40 CFR 122 appendix D. (Volatiles, Acid Compounds, Base / Neutral, Pesticides)  
 \* NH<sub>3</sub>-N, TN, TP and O&G preserved with H<sub>2</sub>SO<sub>4</sub> \* CN preserved with NaOH \* PHENOL preserved with CuSO<sub>4</sub> + Phos Acid





**ROGERS POLLUTION CONTROL FACILITY  
CHAIN OF CUSTODY**

SAMPLE DESCRIPTION	SAMPLE ID	COLLECTION		CONTAINER		TYPE C/G	METH A/M	TEMP °C
		DATE	TIME	L	G/P			
Effluent		On: 8-5-21 Off: 8-6-21	0830 0830	19.8	P	C	A	3.5
Influent		On: 8-5-21 Off: 8-6-21	0836 0836	22.2	P	C	A	3.9
		On: ..... Off: .....						
		On: ..... Off: .....						
		On: ..... Off: .....						

**ANALYSES**

C B O D	N O 2 & N	T N P 4	P O & G	P H E N O L S	M E T A L S	W E T	T T O
T S S	N H 3	T N				X	

Relinquished by:	Received by:	Date:	Time:	Relinquished by:	Received by:	Date:	Time:
Daniel C.		8-6-21					
Relinquished by:	Received by:	Date:	Time:	Relinquished by:	Received by:	Date:	Time:
		8-7-21	1025				

COMMENTS: 180IR1 #32490 FedEx  
 On: Daniel C. Off: Daniel C.

Metals: Ag, As, Be, Cd, Cr, Cu, Mo, Ni, Pb, Sb, Se, Ti, Zn (preserved with HNO<sub>3</sub>)  
 WET: Whole Effluent Toxicity (Biomonitoring).  
 TTO Scan: Table II - Organic Toxic Pollutants as defined by 40 CFR 122 appendix D. (Volatiles, Acid Compounds, Base / Neutral, Pesticides)  
 NH<sub>3</sub>-N, TN, TP and O&G preserved with H<sub>2</sub>SO<sub>4</sub> \* CN preserved with NaOH \* PHENOL preserved with CuSO<sub>4</sub> + Phos Acid

**CITY OF ROGERS  
 NPDES PERMIT NO. AR0043397  
 AFIN NUMBER: 04-00155  
 BIOMONITORING REPORTING  
 TEST DATE: 08/03/21**

<b>I. <i>Ceriodaphnia dubia</i></b>	<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.	82%
(C) Report the NOEC value for reproduction, Parameter No. TPP3B.	82%
(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.	10.45%
<b>II. <i>Pimephales promelas</i> (fathead minnow)</b>	<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.	82%
(C) Report the NOEC value for growth, Parameter No. TPP6C.	82%
(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.	6.32%
22414 - 10	82%
22414 - PO	82%