

**CITY OF MENA  
MENA WASTEWATER TREATMENT PLANT  
OUTFALL 001**

Chronic Biomonitoring Report  
Permit Number NPDES AR0036692

AFIN 57-00423

*Ceriodaphnia dubia*  
*Pimephales promelas*

November 29, 2022

Reviewed by:



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Bruce Huther, Technical Director  
Huther & Associates, Inc.  
1156 North Bonnie Brae  
Denton, Texas 76201  
(940) 387-1025, Fax: (940) 387-1036

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A true control of five replicate beakers of eight larvae each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of five replicate beakers of eight larvae each in synthetic laboratory water was conducted concurrently with the test. The purpose of the performance control was to assess the health of the test larvae and to identify receiving water toxicity. The performance control data was not used in the statistical analysis of the test data. There was 100% survival in the performance control. At the end of the test, all larvae were sacrificed, dried, and weighed. The test ended at 1530 hours, December 6, 2022. 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: 100% 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: 6.5%****NOEC: 100% Effluent****SUMMARY**

There were no statistically significant differences between the control and the critical low flow concentration (100% 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 AR0036692 for City of Mena, Mena Wastewater Treatment Plant, 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 Mena, Mena WWTP	SAMPLE TYPE	24 Hour Composite
TPDES #	AR0036692	DATE COLLECTED	11/28/22 11/30/22 12/02/22
LAB ID #	34627	DATE RECEIVED	11/28/22 11/30/22 12/02/22
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	11/29/22 1600
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	12/06/22 1600
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	unnamed tributary of Prairie Creek	LIGHT INTENSITY	50-100 ft. candl.
DILUTION WATER	Laboratory	TECHNICIAN	M. Homer

**SURVIVAL & REPRODUCTION SUMMARY**

Performance Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
	3	4	4	2	5	4	2	3	3	3
12/03/22	3	4	4	2	5	4	2	3	3	3
	A	A	A	A	A	A	A	A	A	A
12/04/22	3	4	4	2	5	4	2	3	3	3
	8	10	10	7	6	9	8	11	11	10
12/05/22	11	14	14	9	11	13	10	14	14	13
	13	12	13	12	12	14	13	13	12	14
12/06/22	24	26	27	21	23	27	23	27	26	27
x# Young 25.1                      C.V. 8.70% x%Survival 100%                  C.V. 0.00%										

True Control

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
	4	2	4	5	3	2	5	4	3	5
12/03/22	4	2	4	5	3	2	5	4	3	5
	A	A	A	A	A	A	A	A	A	A
12/04/22	4	2	4	5	3	2	5	4	3	5
	10	8	9	8	8	11	7	8	10	9
12/05/22	14	10	13	13	11	13	12	12	13	14
	12	13	13	12	14	13	14	13	12	13
12/06/22	26	23	26	25	25	26	26	25	25	27
x# Young 25.4                      C.V. 4.23% x%Survival 100%                  C.V. 0.00%										

32% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
	4	5	3	3	4	2	5	4	5	3
12/03/22	4	5	3	3	4	2	5	4	5	3
	A	A	A	A	A	A	A	A	A	A
12/04/22	4	5	3	3	4	2	5	4	5	3
	7	11	8	7	11	9	9	8	10	7
12/05/22	11	16	11	10	15	11	14	12	15	10
	14	12	13	12	14	13	13	13	13	12
12/06/22	25	28	24	22	29	24	27	25	28	22
x# Young 25.4                      C.V. 9.86% x%Survival 100%                  C.V. 0.00%										

45% Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
	3	3	4	2	3	5	4	3	4	2
12/03/22	3	3	4	2	3	5	4	3	4	2
	A	A	A	A	A	A	A	A	A	A
12/04/22	3	3	4	2	3	5	4	3	4	2
	8	6	6	9	10	8	11	11	7	10
12/05/22	11	9	10	11	13	13	15	14	11	12
	13	14	14	12	13	12	12	14	13	13
12/06/22	24	23	24	23	26	25	27	28	24	25
x# Young 24.9                      C.V. 6.68% 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

Mena WWTP

Lab ID# 34627

Test Date: November 29, 2022

56%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/03/22	2	4	3	3	3	2	5	4	5	3
	2	4	3	3	3	2	5	4	5	3
12/04/22	A	A	A	A	A	A	A	A	A	A
	2	4	3	3	3	2	5	4	5	3
12/05/22	7	6	8	8	9	11	11	9	10	8
	9	10	11	11	12	13	16	13	15	11
12/06/22	14	14	13	13	14	12	13	12	14	
	23	24	24	24	25	27	28	26	27	25
x # Young 25.3                      C.V. 6.47%										
x%Survival 100%                      C.V. 0.00%										

80%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/03/22	3	3	4	4	2	3	5	4	3	5
	3	3	4	4	2	3	5	4	3	5
12/04/22	A	A	A	A	A	A	A	A	A	A
	3	3	4	4	2	3	5	4	3	5
12/05/22	8	10	11	7	7	7	9	6	10	7
	11	13	15	11	9	10	14	10	13	12
12/06/22	14	13	12	12	12	13	12	14	13	14
	25	26	27	23	21	23	26	24	26	26
x # Young 24.7                      C.V. 7.65%										
x%Survival 100%                      C.V. 0.00%										

100%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
11/30/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/01/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/02/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
12/03/22	5	4	4	2	5	3	4	5	3	3
	5	4	4	2	5	3	4	5	3	3
12/04/22	A	A	A	A	A	A	A	A	A	A
	5	4	4	2	5	3	4	5	3	3
12/05/22	6	8	11	10	9	9	8	10	7	6
	11	12	15	12	14	12	12	15	10	9
12/06/22	13	12	12	14	13	14	12	14	14	13
	24	24	27	26	27	26	24	29	24	22
x # Young 25.3                      C.V. 8.13%										
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

Mena WWTP

Lab ID# 34627

Test Date: November 29, 2022

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
11/29/22	Start	25.0	1	7.51	7.06	6.70	6.47	6.31	6.41	6.33	AS
11/30/22	24 Hr.	23.2	1	8.33	8.36	8.16	7.94	7.52	7.43	8.32	HB
11/30/22	Renew	25.0	1	8.19	7.90	7.84	7.57	7.62	7.41	8.28	HB
12/01/22	48 Hr.	23.5	1	8.10	6.79	6.64	6.71	6.68	6.63	6.45	JP
12/01/22	Renew	25.0	2	8.06	6.57	6.56	6.59	6.54	6.53	6.37	JP
12/02/22	72 Hr.	23.6	2	8.23	7.12	7.23	7.17	6.93	6.99	6.55	JP
12/02/22	Renew	25.0	2	8.14	7.01	7.06	6.99	6.84	6.82	6.47	JP
12/03/22	96 Hr.	23.6	2	8.26	7.53	7.44	7.33	7.30	7.28	7.37	JP
12/03/22	Renew	25.0	3	7.76	6.56	6.33	6.04	6.30	6.45	6.46	JP
12/04/22	120 Hr.	23.0	3	7.79	7.58	7.22	7.07	6.99	6.92	7.01	AS
12/04/22	Renew	25.0	3	7.94	7.68	7.29	7.00	6.70	6.48	6.50	AS
12/05/22	144 Hr.	23.2	3	8.21	8.45	8.03	7.95	8.15	8.42	8.24	HB
12/05/22	Renew	25.0	3	7.91	8.01	8.15	7.79	8.38	8.17	7.88	HB
12/06/22	168 Hr.	23.6	3	7.92	7.43	7.19	7.12	7.07	7.09	6.90	AS

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
11/29/22	Start	25.0	1	7.79	7.82	7.78	7.70	8.65	7.72	7.74	AS
11/30/22	24 Hr.	23.2	1	8.30	8.18	7.83	8.46	8.54	8.28	8.32	HB
11/30/22	Renew	25.0	1	7.76	7.83	7.89	8.04	8.31	8.32	8.32	HB
12/01/22	48 Hr.	23.5	1	8.47	8.25	8.44	7.71	8.35	8.08	8.34	JP
12/01/22	Renew	25.0	2	8.11	8.48	8.02	8.38	8.56	8.48	8.10	JP
12/02/22	72 Hr.	23.6	2	7.94	7.79	8.05	7.75	8.07	7.80	8.37	JP
12/02/22	Renew	25.0	2	8.12	8.57	8.41	8.58	8.56	8.43	7.68	JP
12/03/22	96 Hr.	23.6	2	7.75	8.06	8.18	8.09	8.51	7.79	8.59	JP
12/03/22	Renew	25.0	3	7.92	8.46	7.92	8.27	8.18	7.81	7.92	JP
12/04/22	120 Hr.	23.0	3	8.22	7.69	7.79	8.58	8.28	8.04	8.03	AS
12/04/22	Renew	25.0	3	7.81	7.72	7.71	8.61	7.71	8.59	7.91	AS
12/05/22	144 Hr.	23.2	3	8.12	8.07	8.26	7.82	8.31	7.52	8.24	HB
12/05/22	Renew	25.0	3	7.78	7.95	7.87	8.38	7.70	8.48	8.32	HB
12/06/22	168 Hr.	23.6	3	7.74	7.78	7.82	8.21	7.98	8.08	8.53	AS



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

Mena WWTP

Lab ID# 34627

Test Date: November 29, 2022

**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
11/29/22	1	6.33	7.74	24	6	159	<0.01	N/A	AS
12/01/22	2	6.37	8.10	20	10	193	<0.01	N/A	JP
12/03/22	3	6.46	7.92	24	8	189	<0.01	N/A	JP

**INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER**

Date	Sample 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
11/29/22	RS1	7.06	7.82	28	6	49	<0.01	N/A	AS
12/01/22	RS2	6.57	8.48	28	6	51	<0.01	N/A	JP
12/03/22	RS3	6.56	8.46	28	6	55	<0.01	N/A	JP

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

*CERIODAPHNIA DUBIA* STATISTICAL ANALYSES  
 Reproduction

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	10	23.000	27.000	25.400
2	32% Effluent	10	22.000	29.000	25.400
3	45% Effluent	10	23.000	28.000	24.900
4	56% Effluent	10	23.000	28.000	25.300
5	80% Effluent	10	21.000	27.000	24.700
6	100% Effluent	10	22.000	29.000	25.300

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	1.156	1.075	0.340	4.23
2	32% Effluent	6.267	2.503	0.792	9.86
3	45% Effluent	2.767	1.663	0.526	6.68
4	56% Effluent	2.678	1.636	0.517	6.47
5	80% Effluent	3.567	1.889	0.597	7.65
6	100% Effluent	4.233	2.058	0.651	8.13

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	19	15	20	3

Calculated Chi-Square goodness of fit test statistic = 6.7048

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 = 6.24

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	4.333	0.867	0.252
Within (Error)	54	186.000	3.444	
Total	59	190.333		

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	25.400	25.400		
2	32% Effluent	25.400	25.400	0.000	
3	45% Effluent	24.900	24.900	0.602	
4	56% Effluent	25.300	25.300	0.120	
5	80% Effluent	24.700	24.700	0.843	
6	100% Effluent	25.300	25.300	0.120	

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	32% Effluent	10	1.917	7.5	0.000
3	45% Effluent	10	1.917	7.5	0.500
4	56% Effluent	10	1.917	7.5	0.100
5	80% Effluent	10	1.917	7.5	0.700
6	100% Effluent	10	1.917	7.5	0.100

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

CLIENT	City of Mena, Mena WWTP	SAMPLE TYPE	24 Hour Composite
TPDES #	AR0036692	DATE COLLECTED	11/28/22 11/30/22 12/02/22
LAB ID #	34627	DATE RECEIVED	11/28/22 11/30/22 12/02/22
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	11/29/22 1530
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	12/06/22 1530
ORGANISM AGE	< 24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	unnamed tributary of Prairie Creek	LIGHT INTENSITY	50-100 ft. candl.
DILUTION WATER	Laboratory	TECHNICIAN	H. Bohanan

**SURVIVAL SUMMARY**

Conc.	11/30/22					12/01/22					12/02/22					12/03/22					12/04/22				
	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
PCON	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
TCON	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
32%	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
42%	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
56%	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
80%	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
100%	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.	12/05/22					12/06/22					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
PCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
TCON	8	8	8	8	8	8	8	8	8	8	100.0	0.00
32%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
42%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
56%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
80%	8	8	8	8	8	8	8	8	8	8	100.0	0.00
100%	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. %
PCON	0.4670	0.4490	0.4260	0.4830	0.4560	0.4562	4.65
TCON	0.4220	0.4670	0.4590	0.4240	0.4460	0.4436	4.57
32%	0.4560	0.4730	0.4820	0.4560	0.4290	0.4592	4.41
45%	0.4680	0.4820	0.4350	0.4740	0.4560	0.4630	3.95
56%	0.4760	0.4880	0.4530	0.4620	0.4790	0.4716	2.96
80%	0.4820	0.4910	0.4230	0.4740	0.4530	0.4646	5.85
100%	0.4550	0.4520	0.4860	0.4890	0.4260	0.4616	5.68

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

Mena WWTP

Lab ID# 34627

Test Date: November 29, 2022

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
11/29/22	Start	25.0	1	7.51	7.06	6.70	6.47	6.31	6.41	6.33	AS
11/30/22	24 Hr.	23.3	1	7.65	7.54	6.70	6.58	6.66	6.52	6.50	HB
11/30/22	Renew	25.0	1	8.19	7.90	7.84	7.57	7.62	7.41	8.28	HB
12/01/22	48 Hr.	23.6	1	8.02	6.76	6.73	6.74	6.78	6.82	6.85	JP
12/01/22	Renew	25.0	2	8.06	6.57	6.56	6.59	6.54	6.53	6.37	JP
12/02/22	72 Hr.	23.8	2	7.76	6.58	6.40	6.42	6.74	6.52	6.71	JP
12/02/22	Renew	25.0	2	8.14	7.01	7.06	6.99	6.84	6.82	6.47	JP
12/03/22	96 Hr.	23.7	2	7.95	7.03	6.88	6.84	6.73	6.80	6.84	JP
12/03/22	Renew	25.0	3	7.76	6.56	6.33	6.04	6.30	6.45	6.46	JP
12/04/22	120 Hr.	23.1	3	7.65	7.33	6.86	6.74	6.67	6.61	6.64	AS
12/04/22	Renew	25.0	3	7.94	7.68	7.29	7.00	6.70	6.48	6.50	AS
12/05/22	144 Hr.	23.5	3	7.80	7.69	7.26	7.07	6.97	6.86	6.90	HB
12/05/22	Renew	25.0	3	7.91	8.01	8.15	7.79	8.38	8.17	7.88	HB
12/06/22	168 Hr.	23.4	3	7.42	6.97	6.75	6.88	6.65	6.67	6.57	AS

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
11/29/22	Start	25.0	1	7.79	7.82	7.78	7.70	8.65	7.72	7.74	AS
11/30/22	24 Hr.	23.3	1	8.23	8.20	8.15	8.18	8.17	8.11	8.10	HB
11/30/22	Renew	25.0	1	7.76	7.83	7.89	8.04	8.31	8.32	8.32	HB
12/01/22	48 Hr.	23.6	1	8.26	8.22	8.09	8.16	7.97	8.10	7.92	JP
12/01/22	Renew	25.0	2	8.11	8.48	8.02	8.38	8.56	8.48	8.10	JP
12/02/22	72 Hr.	23.8	2	8.12	8.43	7.89	7.99	8.64	7.83	7.79	JP
12/02/22	Renew	25.0	2	8.12	8.57	8.41	8.58	8.56	8.43	7.68	JP
12/03/22	96 Hr.	23.7	2	8.08	7.80	7.99	7.95	7.72	8.54	7.70	JP
12/03/22	Renew	25.0	3	7.92	8.46	7.92	8.27	8.18	7.81	7.92	JP
12/04/22	120 Hr.	23.1	3	7.69	8.47	8.30	7.93	8.43	8.46	8.62	AS
12/04/22	Renew	25.0	3	7.81	7.72	7.71	8.61	7.71	8.59	7.91	AS
12/05/22	144 Hr.	23.5	3	8.30	8.62	7.70	8.49	8.40	8.48	8.24	HB
12/05/22	Renew	25.0	3	7.78	7.95	7.87	8.38	7.70	8.48	8.32	HB
12/06/22	168 Hr.	23.4	3	8.30	8.36	8.33	7.79	8.35	8.25	8.04	AS

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

Mena WWTP

Lab ID# 34627

Test Date: November 29, 2022

**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
11/29/22	1	6.33	7.74	24	6	159	<0.01	N/A	AS
12/01/22	2	6.37	8.10	20	10	193	<0.01	N/A	JP
12/03/22	3	6.46	7.92	24	8	189	<0.01	N/A	JP

**INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER**

Date	Sample 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
11/29/22	RS1	7.06	7.82	28	6	49	<0.01	N/A	AS
12/01/22	RS2	6.57	8.48	28	6	51	<0.01	N/A	JP
12/03/22	RS3	6.56	8.46	28	6	55	<0.01	N/A	JP

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

Huther and Associates, Inc.  
 Begin Date: November 29, 2022  
 Lab I.D.# 34627

*PIMEPHALES PROMELAS* STATISTICAL ANALYSES  
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.422	0.467	0.444
2	32% Effluent	5	0.429	0.482	0.459
3	45% Effluent	5	0.435	0.482	0.463
4	56% Effluent	5	0.453	0.488	0.472
5	80% Effluent	5	0.453	0.488	0.473
6	100% Effluent	5	0.426	0.489	0.462

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.000	0.020	0.009	4.57
2	32% Effluent	0.000	0.020	0.009	4.41
3	45% Effluent	0.000	0.018	0.008	3.95
4	56% Effluent	0.000	0.014	0.006	2.96
5	80% Effluent	0.000	0.015	0.007	3.11
6	100% Effluent	0.001	0.026	0.012	5.68

Shapiro - Wilk's Test For Normality

D = 0.009

W = 0.958

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 = 1.98

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	0.003	0.001	1.481
Within (Error)	24	0.009	0.000	
Total	29	0.012		

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	Mean		T Stat	Sig
		Transformed Mean	Calculated In Original Units		
1	Control	0.444	0.444		
2	32% Effluent	0.459	0.459	-1.273	
3	45% Effluent	0.463	0.463	-1.582	
4	56% Effluent	0.472	0.472	-2.284	
5	80% Effluent	0.473	0.473	-2.382	
6	100% Effluent	0.462	0.462	-1.468	

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	32% Effluent	5	0.029	6.5	-0.016
3	45% Effluent	5	0.029	6.5	-0.019
4	56% Effluent	5	0.029	6.5	-0.028
5	80% Effluent	5	0.029	6.5	-0.029
6	100% Effluent	5	0.029	6.5	-0.018

**APPENDIX A  
RAW DATA**

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

CLIENT Mena  
OUTFALL 001  
LAB ID # 34627

START DATE/TIME 11-29-22 MH 1600  
END DATE/TIME 12-6-22 MH 1600

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	3	4	4	2	5	4	2	3	3	3	Jc	1545
12/4	A	A	A	A	A	A	A	A	A	A	Jc	1330
12/5	8	10	10	7	6	9	8	10	11	10	TG	1400
12/6	13	12	13	12	12	14	13	13	12	14	MH	1600
	24	26	27	21	23	27	23	27	26	27		

$\bar{x}$  # Young w/o Dead = 25.1      CV% = 8.70  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	4	2	4	5	3	2	5	4	3	5	Jc	1545
12/4	A	A	A	A	A	A	A	A	A	A	Jc	1330
12/5	10	8	9	8	8	11	7	8	10	9	TG	1400
12/6	12	13	13	12	14	13	14	13	12	13	MH	1600
	26	23	26	25	25	26	26	25	25	27		

$\bar{x}$  # Young w/o Dead = 25.4      CV% = 4.23  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

32

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	4	5	3	3	4	2	5	4	5	3	Jc	1545
12/4	A	A	A	A	A	A	A	A	A	A	Jc	1330
12/5	7	10	8	7	11	9	9	8	10	7	TG	1400
12/6	14	12	13	12	14	13	13	13	13	12	MH	1600
	25	28	24	22	29	24	27	25	28	22		

$\bar{x}$  # Young w/o Dead = 25.4      CV% = 9.86  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

45

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	3	3	4	2	3	5	4	3	4	2	Jc	1545
12/4	A	A	A	A	A	A	A	A	A	A	Jc	1330
12/5	8	6	6	9	10	8	11	11	7	10	TG	1400
12/6	13	14	14	12	13	12	12	14	13	13	MH	1600
	24	23	24	23	26	25	27	28	24	25		

$\bar{x}$  # Young w/o Dead = 24.9      CV% = 6.68  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00



7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

CLIENT Mena

START DATE/TIME 11-29-22 MH 1600

OUTFALL 001

END DATE/TIME 12-6-22 MH 1600

LAB ID # 34627

56

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	2	4	3	3	3	2	5	4	5	3	JC	1545
12/4	A	A	A	A	A	A	A	A	A	A	JC	1330
12/5	7	6	8	8	9	11	11	9	10	8	TG	1400
12/6	14	14	13	13	13	14	12	13	12	14	MH	1600

$\bar{x}$  # Young w/o Dead = 25.3 CV% = 6.47

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

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

80

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	3	3	4	4	2	3	5	4	3	5	JC	1545
12/4	A	A	A	A	A	A	A	A	A	A	JC	1330
12/5	8	10	11	7	7	7	9	6	10	7	TG	1400
12/6	14	13	12	12	12	13	12	14	13	14	MH	1600

$\bar{x}$  # Young w/o Dead = 24.7 CV% = 7.65

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

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

100

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
11/30	A	A	A	A	A	A	A	A	A	A	TG	1600
12/1	A	A	A	A	A	A	A	A	A	A	TG	1530
12/2	A	A	A	A	A	A	A	A	A	A	MH	1000
12/3	5	4	4	2	5	3	4	5	3	3	JC	1545
12/4	A	A	A	A	A	A	A	A	A	A	JC	1330
12/5	6	8	11	10	9	9	8	10	7	6	TG	1400
12/6	13	12	12	14	13	14	12	14	14	13	MH	1600

$\bar{x}$  # Young w/o Dead = 25.3 CV% = 8.13

$\bar{x}$  # 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% =

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

CLIENT/FACILITY: Mena DATE/TIME STARTED: 11-29-22 HB: 1530

OUTFALL #: 001 PROJECT #: 34627 DATE/TIME ENDED: 12-6-22 JC: 1530

ORGANISM ID#: PP0-22-332

Conc.	11-30-22 JC 1530					12-1-22 JC 1530					12-2-22 HB 950					12-3-22 RS 1120					12-4-22 RS 0920									
	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					
Pear	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
Tear	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
32	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
42	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
56	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
80	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
100	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

Conc.	12-5-22 TG 1055					12-4-22 JC 1530					Mean Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
Pear	8	8	8	8	8	8	8	8	8	8	100.0	0.00
Tear	8	8	8	8	8	8	8	8	8	8	100.0	0.00
32	8	8	8	8	8	8	8	8	8	8	100.0	0.00
42	8	8	8	8	8	8	8	8	8	8	100.0	0.00
56	8	8	8	8	8	8	8	8	8	8	100.0	0.00
80	8	8	8	8	8	8	8	8	8	8	100.0	0.00
100	8	8	8	8	8	8	8	8	8	8	100.0	0.00



**APPENDIX B  
REFERENCE TOXICANTS**

**CHRONIC REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 7-Days

TEST NUMBER: 11

TEST DATE: 11/02/22 - 11/09/22  
1500 Hrs - 1500 Hrs

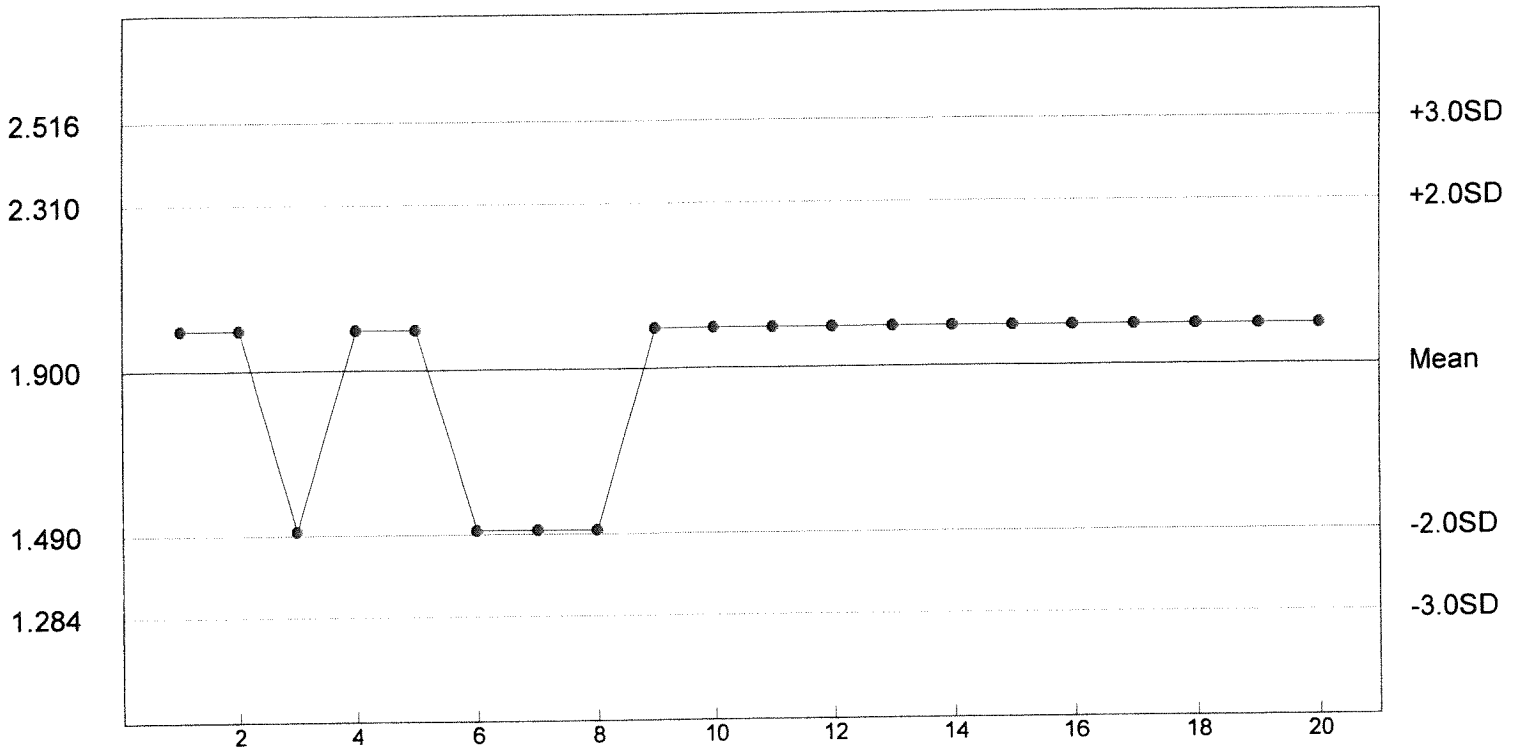
STATISTICAL METHOD: Dunnetts/Steels

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

Reference Tox Sodium Chloride g/L

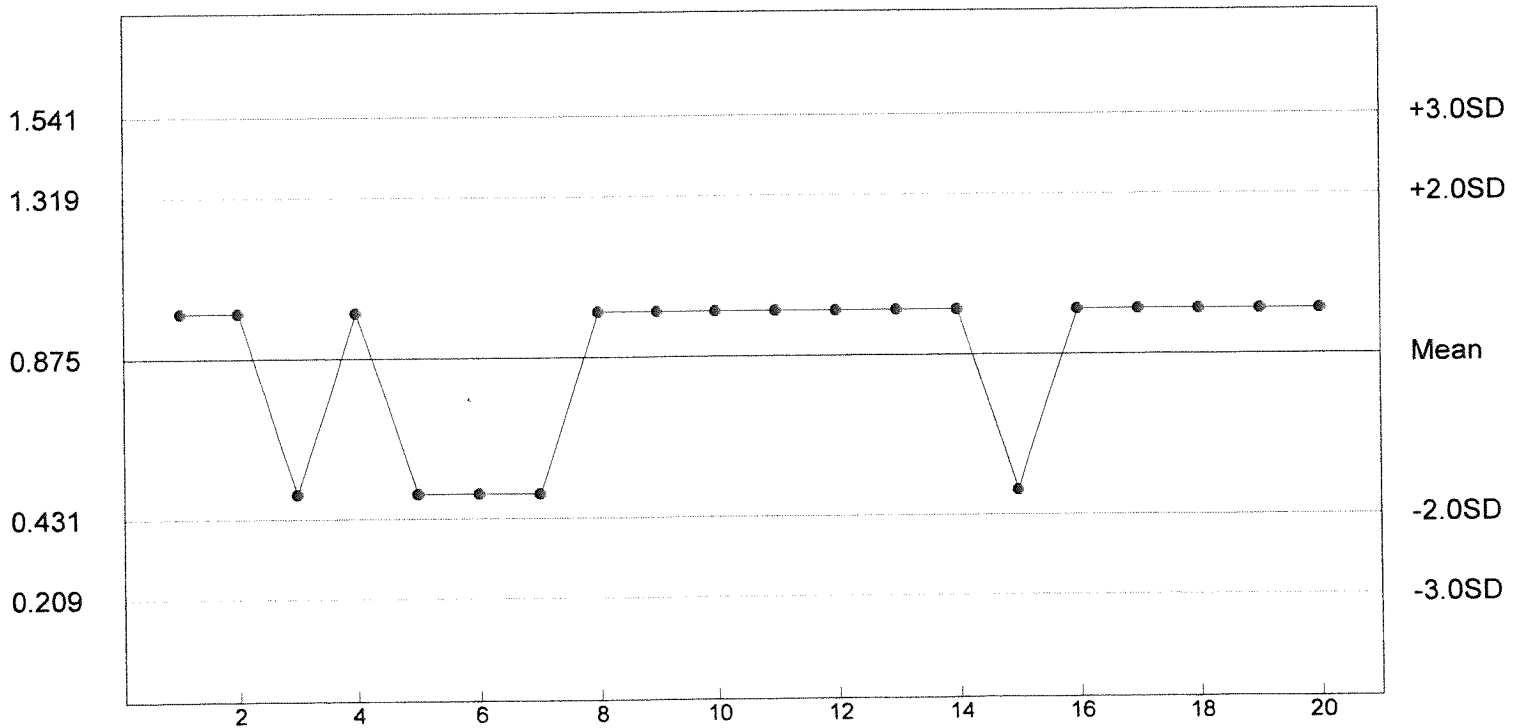
C. dubia Survival - NOEC



n= 20 Mean= 1.900 SD= 0.205 CV= 10.80% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.875 SD= 0.222 CV= 25.39% Min= 0.500 Max= 1.000

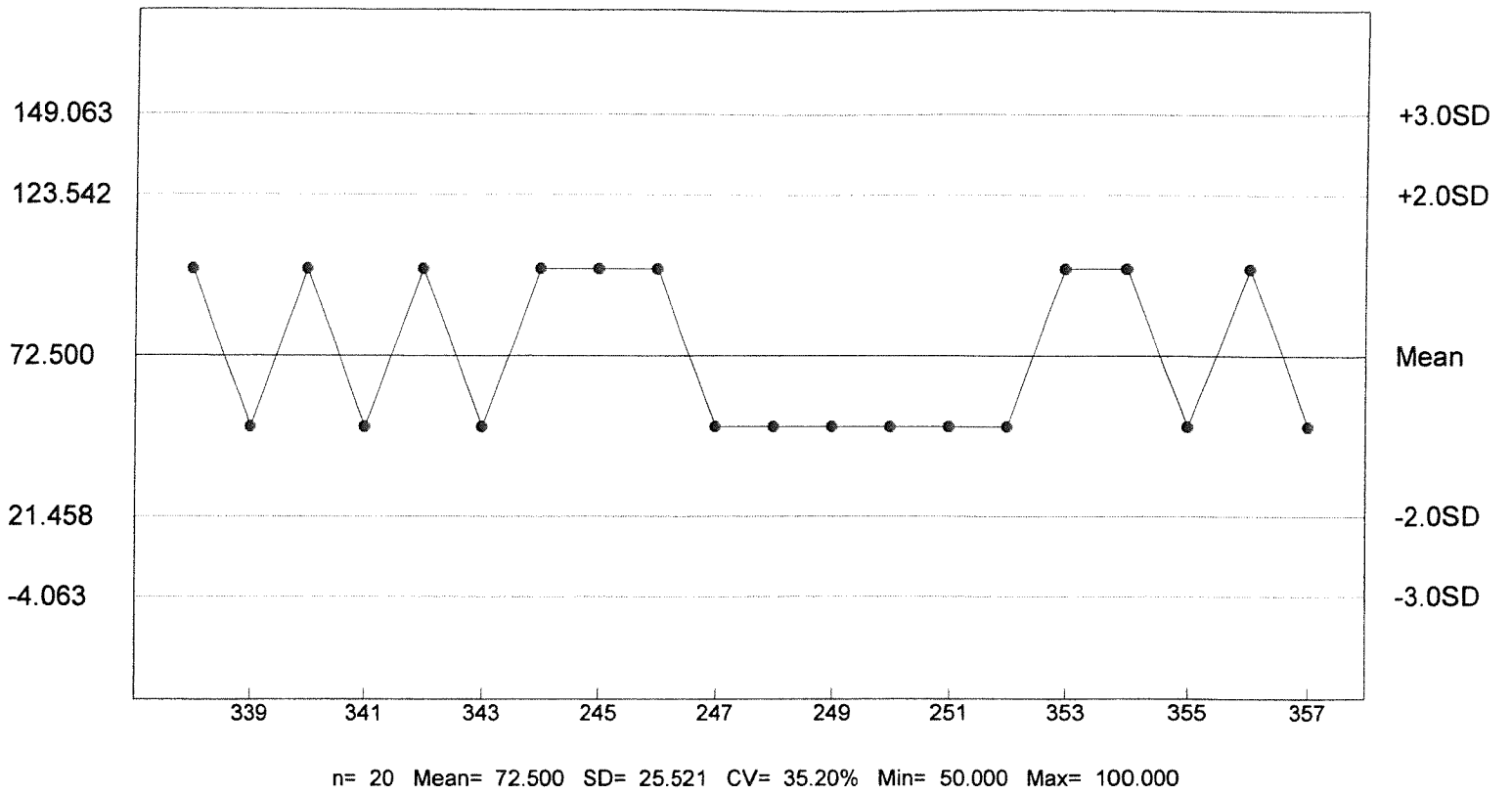
**CHRONIC REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Pimephales promelas*  
 CHEMICAL: Copper Nitrate  
 DURATION: 7-Days  
 TEST NUMBER: 11  
 TEST DATE: 11/03/22 - 11/10/22  
 1610 Hrs -1610 Hrs  
 STATISTICAL METHOD: Dunnetts/Steels

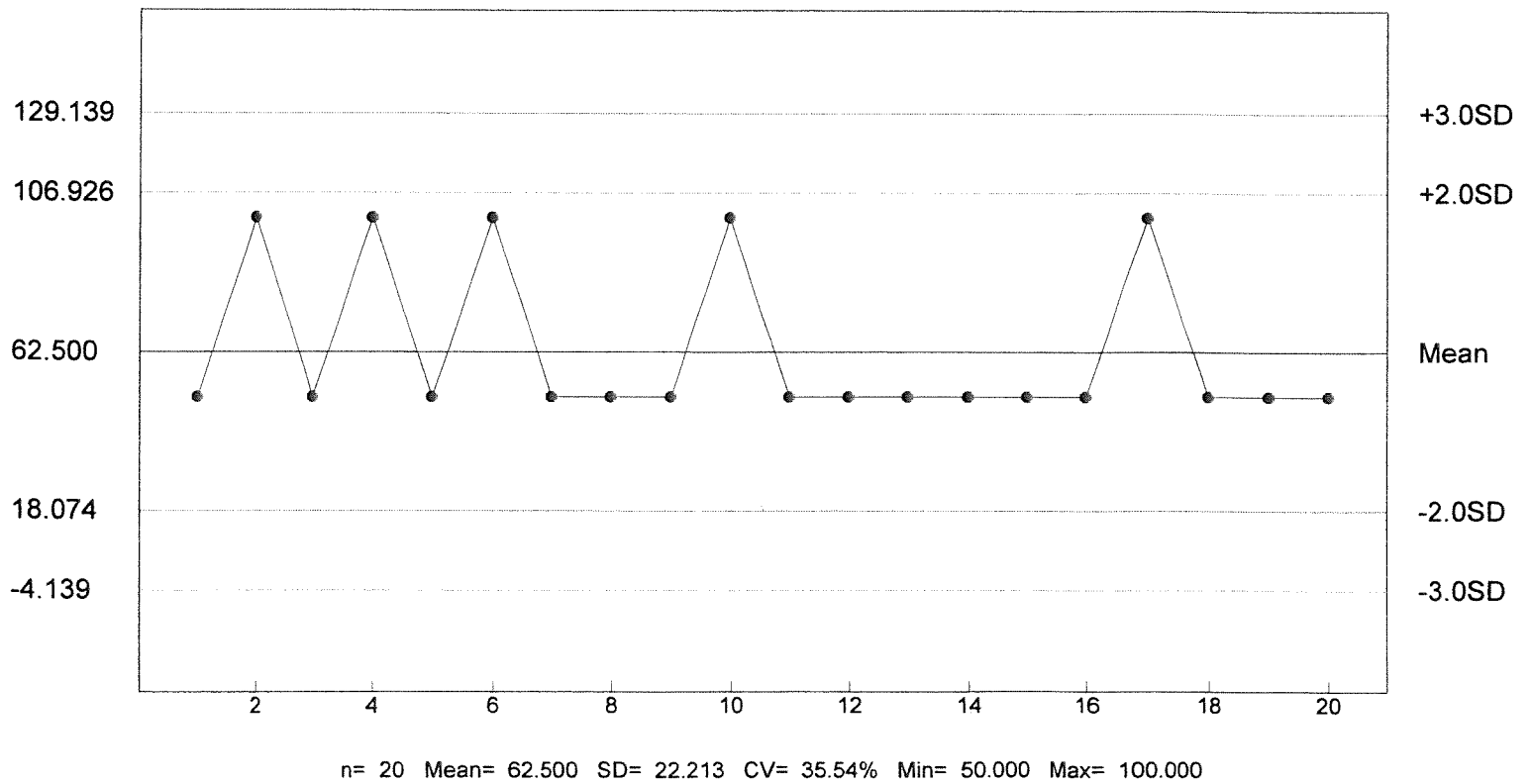
CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	16
200	40	12
400	40	39
800	40	40

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



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





**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 # 34627 PROJECT NAME Mena PERMIT# AR0036692

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.	
001	M Spencer	11/28/22 0800	11/28/22 0900	24	Auto	man	Auto	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H <sub>2</sub> O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Prairie Creek	D. Ruyon	11/28/22	0800	1

TYPE OF TEST 7 day CLF  
 NAME OF RECEIVING WATER Y.T. of Prairie Creek  
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: M Spencer DATE: 11/28/22 TIME: 1000 RECEIVED BY AT THIS DATE/TIME Alice B/Bow  
 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: Janice Spant DATE: 11/28/22 TIME: 1800 SAMPLE TEMP. @ RECEIPT. 1.4 DE

HUTHER & ASSOCIATES  
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 DENTON, TX 76201  
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CHAIN OF CUSTODY RECORD

PROJECT # 34627 PROJECT NAME Mena PERMIT# AR 0036692

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.	
001	M. Sencer	0800 Ignor	0800 30200	24	Auto	Man	Auto	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
Prairie Creek	M. Sencer	27 May 22	1000	1

TYPE OF TEST 7 day Cl/F  
 NAME OF RECEIVING WATER U.T.-of Prairie Creek  
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: M. Sencer DATE: 2020/05/22 TIME: 1030 RECEIVED BY AT THIS DATE/TIME: RS - Rance  
 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: Rance Sencer DATE: 11/30/22 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 1.1°C  
 1ST PAGE - LAB COPY 2ND PAGE - FACILITY COPY

HUTHER & ASSOCIATES  
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 DENTON, TX 76201  
 (940) 387-1025 • FAX (940) 387-1036

CHAIN OF CUSTODY RECORD

PROJECT # 34627 PROJECT NAME Mena PERMIT# AR0036692

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.	
001	M. Spencer	1 Dec 0900	2 Dec 0900	24	Auto	MAN	Auto	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	
					NAME OF RECEIVING WATER	DILUTION WATER USED FOR THIS TEST
Prairie Creek	M. Spencer	2 Nov 2000	0900	1	7 day chl	Prairie Creek
						RS

RELINQUISHED BY: M. Spencer DATE: 2 Nov 2000 TIME: 1000 RECEIVED BY AT THIS DATE/TIME: Rance B. Brown

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: Rance B. Brown DATE: 12/2/22 TIME: 1700 SAMPLE TEMP. @ RECEIPT: 0.2 221

**CITY OF MENA WWTP  
 NPDES PERMIT NO. AR0036692  
 AFIN 57-00423  
 BIOMONITORING REPORTING  
 TEST DATE: 11/29/22**

***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 TLP3B	0
B. Report the NOEC value for survival. Parameter TOP3B	100%
C. Report the NOEC value for reproduction. Parameter TPP3B	100%
D. If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter TGP3B	0
E. Report the higher (critical dilution or control) Coefficient of Variation (CV%), Parameter TQP3B	8.13%
F. Prior to the sub-lethal limit effective date (9/1/20), report the NOEC value for survival, Limit Parameter No. 51710	100%
G. Once the sub-lethal limit is effective (9/1/20), report the lowest NOEC value for survival or reproduction, Limit Parameter No. 51710	

***Pimephales promelas***

	<b>Response</b>
A. If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter TLP6C	0
B. Report the NOEC value for survival. Parameter TOP6C	100%
C. Report the NOEC value for growth. Parameter TPP6C	100%
D. If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0". Parameter TGP6C	0
E. Report the higher (critical dilution or control) Coefficient of Variation (CV%), Parameter TQP6C	5.68%
F. Prior to the sub-lethal limit effective date (9/1/20), report the NOEC value for survival, Limit Parameter No. 51714.	100%
G. Once the sub-lethal limit is effective (9/1/20), report the lowest NOEC value for survival or growth, Limit Parameter No. 51714.	