

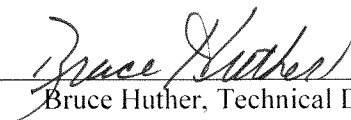
CITY OF MENA
MENA WASTEWATER TREATMENT PLANT
OUTFALL 001

Chronic Biomonitoring Report
Permit Number NPDES AR0036692
AFIN 57-00423

Ceriodaphnia dubia
Pimephales promelas

August 9, 2022

Reviewed by:



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TOXICITY TEST REPORT - CHRONIC

ClientCity of Mena Sample Outfall 001
FacilityMena Wastewater Treatment Plant Laboratory I.D. 34235
Permit No. NPDES AR0036692 Begin DateAugust 9, 2022

Results: Pass Ceriodaphnia dubia survival and reproduction and Pimephales promelas survival and growth at the critical low flow concentration (100% effluent).

SAMPLE COLLECTION

Composite effluent samples from City of Mena, Mena Wastewater Treatment Plant were picked up by Huther & Associates on August 8, August 10, and August 12, 2022. 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 and receiving water samples were analyzed for total residual chlorine (Standard Methods, 23rd Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and receiving 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 1315 hours, August 9, 2022. Five concentrations were prepared (32%, 45%, 56%, 80%, and 100% effluent) utilizing receiving water (unnamed tributary of Prairie Creek) as dilution water. 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 true control of ten replicate beakers containing one neonate each in receiving water was conducted concurrently with the test. There was 100% survival in the true control. In addition, a performance control of ten replicate beakers containing one neonate 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 organisms 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. The test ended at 1315 hours, August 16, 2022. 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: 100% 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: 100% Effluent

PMSD: 8.7%

TEST SETUP

Pimephales promelas



The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1520 hours, August 9, 2022. Five concentrations were prepared (32%, 45%, 56%, 80%, and 100% effluent) utilizing receiving water (unnamed tributary of Prairie Creek) as dilution water. 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 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 1520 hours, August 16, 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: 8.3%**
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.

Huthur 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	08/08/22 08/10/22 08/12/22
LAB ID #	34235	DATE RECEIVED	08/08/22 08/10/22 08/12/22
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	08/09/22 1345
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	08/16/22 1345
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. cndl.
DILUTION WATER	Laboratory	TECHNICIAN	T. Geiger

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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	5	5	2	4	3	4	3	3	3	4
	A	A	A	A	A	A	A	A	A	A
08/14/22	5	5	2	4	3	4	3	3	3	4
	A	A	A	A	A	A	A	A	A	A
08/15/22	8	10	7	7	9	11	8	10	11	7
	13	15	9	11	12	15	11	13	14	11
08/16/22	14	12	13	13	12	15	14	12	13	13
	27	27	22	24	24	30	25	25	27	24
x # Young 25.5 C.V. 8.91% 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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	2	4	5	2	3	3	3	2	4	3
	A	A	A	A	A	A	A	A	A	A
08/14/22	2	4	5	2	3	3	3	2	4	3
	A	A	A	A	A	A	A	A	A	A
08/15/22	6	9	10	8	10	9	9	7	11	8
	8	13	15	10	13	12	12	9	15	11
08/16/22	12	12	13	14	13	13	13	12	13	13
	20	25	28	24	26	25	25	21	28	24
x # Young 24.6 C.V. 10.53% 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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	3	4	5	4	4	4	5	3	3	2
	A	A	A	A	A	A	A	A	A	A
08/14/22	3	4	5	4	4	4	5	3	3	2
	A	A	A	A	A	A	A	A	A	A
08/15/22	9	7	10	7	6	8	9	11	8	11
	12	11	15	11	10	12	14	14	11	13
08/16/22	13	13	13	12	14	13	13	14	14	12
	25	24	28	23	24	25	27	28	25	25
x # Young 25.4 C.V. 6.74% 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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	2	5	2	4	2	5	4	2	4	3
	A	A	A	A	A	A	A	A	A	A
08/14/22	2	5	2	4	2	5	4	2	4	3
	A	A	A	A	A	A	A	A	A	A
08/15/22	7	7	9	7	10	10	8	11	7	10
	9	12	11	11	12	15	12	13	11	13
08/16/22	14	13	12	14	14	13	13	12	12	12
	23	25	23	25	26	28	25	25	23	25
x # Young 24.8 C.V. 6.25% 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

56%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	4	5	4	2	3	3	2	4	3	3
	4	5	4	2	3	3	2	4	3	3
08/14/22	A	A	A	A	A	A	A	A	A	A
	4	5	4	2	3	3	2	4	3	3
08/15/22	9	10	8	9	7	7	8	11	8	6
	13	15	12	11	10	10	10	15	11	9
08/16/22	14	13	13	12	12	14	13	13	13	13
	27	28	25	23	22	24	23	28	24	22
x# Young 24.6 C.V. 9.43% 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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	4	3	5	2	3	2	5	4	2	5
	4	3	5	2	3	2	5	4	2	5
08/14/22	A	A	A	A	A	A	A	A	A	A
	4	3	5	2	3	2	5	4	2	5
08/15/22	10	6	8	10	9	11	8	10	10	7
	14	9	13	12	12	13	13	14	12	12
08/16/22	13	12	12	13	14	14	12	12	13	13
	27	21	25	25	26	27	25	26	25	25
x# Young 25.2 C.V. 6.69% 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
08/10/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/11/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/12/22	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
08/13/22	4	4	5	5	5	2	3	5	4	4
	4	4	5	5	5	2	3	5	4	4
08/14/22	A	A	A	A	A	A	A	A	A	A
	4	4	5	5	5	2	3	5	4	4
08/15/22	10	6	8	11	9	7	10	8	8	9
	14	10	13	16	14	9	13	13	12	13
08/16/22	14	12	13	13	12	13	14	13	12	12
	28	22	26	29	26	22	27	26	24	25
x# Young 25.5 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

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

Mena WWTP

Lab ID# 34235

Test Date: August 9, 2022

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
08/09/22	Start	25.0	1	8.07	7.97	7.56	7.30	7.10	6.95	6.68	AE
08/10/22	24 Hr.	23.9	1	8.41	8.31	7.98	7.74	7.63	7.57	7.42	AE
08/10/22	Renew	25.0	1	8.26	8.11	7.84	7.63	7.60	7.40	7.28	AE
08/11/22	48 Hr.	23.9	1	8.43	8.21	7.72	7.47	7.16	6.86	6.44	AE
08/11/22	Renew	25.0	2	8.29	8.09	7.40	7.16	6.95	6.52	6.94	AE
08/12/22	72 Hr.	24.0	2	8.30	8.34	8.15	7.92	7.49	7.22	7.09	JP
08/12/22	Renew	25.0	2	8.41	8.43	8.20	8.19	7.72	7.75	7.26	JP
08/13/22	96 Hr.	24.0	2	8.75	8.55	8.14	7.89	7.71	7.56	7.35	AE
08/13/22	Renew	25.0	3	8.44	8.37	8.17	7.54	7.70	7.42	7.45	JP
08/14/22	120 Hr.	23.9	3	8.28	8.20	7.66	7.44	7.21	7.06	6.85	AE
08/14/22	Renew	25.0	3	8.25	8.34	7.83	7.52	7.31	7.19	6.95	AE
08/15/22	144 Hr.	24.0	3	8.31	8.26	8.03	7.97	7.90	7.88	7.28	JP
08/15/22	Renew	25.0	3	8.22	8.24	8.02	7.89	7.85	7.64	7.44	JP
08/16/22	168 Hr.	24.0	3	8.26	8.21	7.99	7.67	7.69	7.62	7.59	JP

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
08/09/22	Start	25.0	1	7.98	7.96	7.77	7.85	7.86	8.10	7.80	AE
08/10/22	24 Hr.	23.9	1	8.62	8.42	8.56	8.45	8.48	8.53	8.06	AE
08/10/22	Renew	25.0	1	8.37	8.44	8.44	8.34	8.23	8.52	7.89	AE
08/11/22	48 Hr.	23.9	1	8.55	7.68	8.53	8.63	7.67	7.80	8.29	AE
08/11/22	Renew	25.0	2	8.57	8.43	7.77	7.80	7.80	7.72	8.16	AE
08/12/22	72 Hr.	24.0	2	7.81	7.68	8.43	8.41	7.71	8.01	7.59	JP
08/12/22	Renew	25.0	2	8.02	8.59	8.52	7.84	8.39	7.72	7.88	JP
08/13/22	96 Hr.	24.0	2	7.74	8.48	8.51	8.56	8.53	8.51	8.27	AE
08/13/22	Renew	25.0	3	7.94	7.84	7.85	8.25	8.49	7.74	8.61	JP
08/14/22	120 Hr.	23.9	3	8.61	8.14	8.22	8.47	8.36	8.52	8.42	AE
08/14/22	Renew	25.0	3	8.58	8.47	8.43	8.56	8.57	8.57	8.50	AE
08/15/22	144 Hr.	24.0	3	7.23	7.83	8.08	8.22	8.26	8.28	7.99	JP
08/15/22	Renew	25.0	3	7.79	8.18	8.21	8.24	8.39	8.38	8.55	JP
08/16/22	168 Hr.	24.0	3	7.76	7.95	7.80	8.15	7.70	7.88	7.73	JP

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

Mena WWTP

Lab ID# 34235

Test Date: August 9, 2022

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
08/09/22	1	6.68	7.80	40	6	163	<0.01	N/A	AE
08/11/22	2	6.94	8.16	36	6	162	<0.01	N/A	AE
08/13/22	3	7.45	8.61	28	4	158	<0.01	N/A	JP

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Sample No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
08/09/22	RS1	7.97	7.96	28	16	78	<0.01	N/A	AE
08/11/22	RS2	8.09	8.43	28	12	78	<0.01	N/A	AE
08/13/22	RS3	8.37	7.84	24	16	85	<0.01	N/A	JP

¹ 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	20.000	28.000	24.600
2	32% Effluent	10	23.000	28.000	25.400
3	45% Effluent	10	23.000	28.000	24.800
4	56% Effluent	10	22.000	28.000	24.600
5	80% Effluent	10	21.000	27.000	25.200
6	100% Effluent	10	22.000	29.000	25.500

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	6.711	2.591	0.819	10.53
2	32% Effluent	2.933	1.713	0.542	6.74
3	45% Effluent	2.400	1.549	0.490	6.25
4	56% Effluent	5.378	2.319	0.733	9.43
5	80% Effluent	2.844	1.687	0.533	6.69
6	100% Effluent	5.389	2.321	0.734	9.10

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	4	12	28	12	4

Calculated Chi-Square goodness of fit test statistic = 2.0008
 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 = 3.89

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	8.083	1.617	0.378
Within (Error)	54	230.900	4.276	
Total	59	238.983		

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	Transformed	Mean	T Stat	Sig
		Mean	Calculated In Original Units		
1	Control	24.600	24.600		
2	32% Effluent	25.400	25.400	-0.865	
3	45% Effluent	24.800	24.800	-0.216	
4	56% Effluent	24.600	24.600	0.000	
5	80% Effluent	25.200	25.200	-0.649	
6	100% Effluent	25.500	25.500	-0.973	

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 Control	Difference
			Diff (In Orig. Units)	Diff		from Control
1	Control	10				
2	32% Effluent	10	2.136	8.7	8.7	-0.800
3	45% Effluent	10	2.136	8.7	8.7	-0.200
4	56% Effluent	10	2.136	8.7	8.7	0.000
5	80% Effluent	10	2.136	8.7	8.7	-0.600
6	100% Effluent	10	2.136	8.7	8.7	-0.900

Huther 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	08/08/22 08/10/22 08/12/22
LAB ID #	34235	DATE RECEIVED	08/08/22 08/10/22 08/12/22
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	08/09/22 1520
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	08/16/22 1520
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. cndl.
DILUTION WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	08/10/22					08/11/22					08/12/22					08/13/22					08/14/22				
	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.	08/15/22					08/16/22					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	0.4650	0.4820	0.4290	0.4670	0.4540	0.4594	4.29
TCON	0.4480	0.4230	0.4810	0.4350	0.4290	0.4432	5.21
32%	0.4670	0.4500	0.4720	0.4860	0.4260	0.4602	5.01
45%	0.4390	0.4860	0.4200	0.4760	0.4650	0.4572	5.95
56%	0.4880	0.4290	0.4650	0.4810	0.4370	0.4600	5.69
80%	0.4590	0.4860	0.4220	0.4650	0.4710	0.4606	5.17
100%	0.4760	0.4290	0.4880	0.4810	0.4570	0.4662	5.10

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

Mena WWTP

Lab ID# 34235

Test Date: August 9, 2022

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
08/09/22	Start	25.0	1	8.07	7.97	7.56	7.30	7.10	6.95	6.68	AE
08/10/22	24 Hr.	24.2	1	8.45	8.70	8.60	8.36	8.20	7.93	7.80	AE
08/10/22	Renew	25.0	1	8.26	8.11	7.84	7.63	7.60	7.40	7.28	AE
08/11/22	48 Hr.	24.2	1	8.35	8.56	8.25	8.34	8.05	7.94	7.80	AE
08/11/22	Renew	25.0	2	8.29	8.09	7.40	7.16	6.95	6.52	5.94	AE
08/12/22	72 Hr.	24.2	2	8.30	8.49	8.13	7.91	7.88	7.80	7.70	JP
08/12/22	Renew	25.0	2	8.41	8.43	8.20	8.19	7.72	7.75	7.26	JP
08/13/22	96 Hr.	24.1	2	7.78	7.91	7.62	7.29	7.21	7.21	7.16	JP
08/13/22	Renew	25.0	3	8.44	8.37	8.17	7.54	7.70	7.42	7.45	JP
08/14/22	120 Hr.	24.2	3	8.18	8.41	8.32	8.15	7.94	7.84	7.61	AE
08/14/22	Renew	25.0	3	8.25	8.34	7.83	7.52	7.31	7.19	6.95	AE
08/15/22	144 Hr.	24.2	3	8.27	8.21	8.13	7.99	7.85	7.76	7.65	JP
08/15/22	Renew	25.0	3	8.22	8.24	8.02	7.89	7.85	7.64	7.44	JP
08/16/22	168 Hr.	24.1	3	8.46	8.60	8.33	8.29	8.13	8.09	7.95	JP

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
08/09/22	Start	25.0	1	7.98	7.96	7.77	7.85	7.86	8.10	7.80	AE
08/10/22	24 Hr.	24.2	1	8.63	8.53	8.59	8.53	7.89	8.02	8.04	AE
08/10/22	Renew	25.0	1	8.37	8.44	8.44	8.34	8.23	8.52	7.89	AE
08/11/22	48 Hr.	24.2	1	8.32	8.36	7.91	8.25	8.21	8.21	8.25	AE
08/11/22	Renew	25.0	2	8.57	8.43	7.77	7.80	7.80	7.72	8.16	AE
08/12/22	72 Hr.	24.2	2	7.97	8.63	7.74	8.49	8.60	7.79	8.41	JP
08/12/22	Renew	25.0	2	8.02	8.59	8.52	7.84	8.39	7.72	7.88	JP
08/13/22	96 Hr.	24.1	2	8.53	8.43	8.31	8.43	8.41	8.53	8.11	JP
08/13/22	Renew	25.0	3	7.94	7.84	7.85	8.25	8.49	7.74	8.61	JP
08/14/22	120 Hr.	24.2	3	7.70	8.59	7.84	7.90	7.95	8.02	8.03	AE
08/14/22	Renew	25.0	3	8.58	8.47	8.43	8.56	8.57	8.57	8.50	AE
08/15/22	144 Hr.	24.2	3	8.04	7.78	7.90	8.01	7.18	7.56	8.03	JP
08/15/22	Renew	25.0	3	7.79	8.18	8.21	8.24	8.39	8.38	8.55	JP
08/16/22	168 Hr.	24.1	3	7.64	7.59	7.32	8.11	8.20	7.40	7.55	JP

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

Mena WWTP

Lab ID# 34235

Test Date: August 9, 2022

INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
08/09/22	1	6.68	7.80	40	6	163	<0.01	N/A	AE
08/11/22	2	6.94	8.16	36	6	162	<0.01	N/A	AE
08/13/22	3	7.45	8.61	28	4	158	<0.01	N/A	JP

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Sample No.	pH ¹	DO ¹	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. μS/cm ¹	Resid.Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
08/09/22	RS1	7.97	7.96	28	16	78	<0.01	N/A	AE
08/11/22	RS2	8.09	8.43	28	12	78	<0.01	N/A	AE
08/13/22	RS3	8.37	7.84	24	16	85	<0.01	N/A	JP

¹ 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	0.423	0.481	0.443
2	32% Effluent	5	0.426	0.486	0.460
3	45% Effluent	5	0.420	0.486	0.457
4	56% Effluent	5	0.429	0.488	0.460
5	80% Effluent	5	0.422	0.486	0.461
6	100% Effluent	5	0.429	0.488	0.466

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.023	0.010	5.21
2	32% Effluent	0.001	0.023	0.010	5.01
3	45% Effluent	0.001	0.027	0.012	5.95
4	56% Effluent	0.001	0.026	0.012	5.69
5	80% Effluent	0.001	0.024	0.011	5.17
6	100% Effluent	0.001	0.024	0.011	5.10

Shapiro - Wilk's Test For Normality

D = 0.014

W = 0.944

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 = 0.18

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	0.002	0.000	0.501
Within (Error)	24	0.014	0.001	
Total	29	0.016		

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	0.443	0.443		
2	32% Effluent	0.460	0.460	-1.094	
3	45% Effluent	0.457	0.457	-0.901	
4	56% Effluent	0.460	0.460	-1.082	
5	80% Effluent	0.461	0.461	-1.120	
6	100% Effluent	0.466	0.466	-1.481	

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	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	5			
2	32% Effluent	5	0.037	8.3	-0.017
3	45% Effluent	5	0.037	8.3	-0.014
4	56% Effluent	5	0.037	8.3	-0.017
5	80% Effluent	5	0.037	8.3	-0.017
6	100% Effluent	5	0.037	8.3	-0.023

**APPENDIX A
RAW DATA**

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

CLIENT Mena
OUTFALL 001
LAB ID # 34235

START DATE/TIME 8-9-22 TG 1345
END DATE/TIME 8-16-22 TG 1345

P001

T01

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/10	A	A	A	A	A	A	A	A	A	A	TG	1345
8/11	A	A	A	A	A	A	A	A	A	A	MH	1400
8/12	A	A	A	A	A	A	A	A	A	A	TG	1315
8/13	5	5	2	4	3	4	3	3	3	4	MH	1430
8/14	A	A	A	A	A	A	A	A	A	A	MH	1245
8/15	8	10	7	7	9	11	8	10	11	7	TG	1400
8/16	14	12	13	13	12	15	14	12	13	13	TG	1345
	27	27	22	24	24	30	25	25	27	24		

\bar{x} # Young w/o Dead = 25.5 CV% = 8.91
 \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
8/10	A	A	A	A	A	A	A	A	A	A	TG	1345
8/11	A	A	A	A	A	A	A	A	A	A	MH	1400
8/12	A	A	A	A	A	A	A	A	A	A	TG	1315
8/13	2	4	5	2	3	3	3	2	4	3	MH	1430
8/14	A	A	A	A	A	A	A	A	A	A	MH	1245
8/15	6	9	10	8	10	9	9	7	11	8	TG	1400
8/16	12	12	13	14	13	13	13	12	13	13	TG	1345
	20	25	28	24	26	25	25	21	28	24		

\bar{x} # Young w/o Dead = 24.6 CV% = 10.53
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

32

41

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/10	A	A	A	A	A	A	A	A	A	A	TG	1345
8/11	A	A	A	A	A	A	A	A	A	A	MH	1400
8/12	A	A	A	A	A	A	A	A	A	A	TG	1315
8/13	3	4	5	4	4	4	5	3	3	2	MH	1430
8/14	A	A	A	A	A	A	A	A	A	A	MH	1245
8/15	9	7	10	7	6	8	9	11	8	11	TG	1400
8/16	13	13	12	14	13	13	14	14	12	12	TG	1345
	24	28	23	24	25	27	28	25	25			

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/10	A	A	A	A	A	A	A	A	A	A	TG	1345
8/11	A	A	A	A	A	A	A	A	A	A	MH	1400
8/12	A	A	A	A	A	A	A	A	A	A	TG	1315
8/13	2	5	2	4	2	5	4	2	4	3	MH	1430
8/14	A	A	A	A	A	A	A	A	A	A	MH	1245
8/15	7	7	9	7	10	10	8	11	7	10	TG	1400
8/16	14	13	12	14	14	13	13	12	12	12	TG	1345
	23	25	23	25	26	28	25	25	23	25		

\bar{x} # Young w/o Dead = 25.4 CV% = 6.74
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

\bar{x} # Young w/o Dead = 24.8 CV% = 6.25
 \bar{x} # Young w/Dead = CV% =
 \bar{x} % Survival = 100 CV% = 0.00

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

CLIENT/FACILITY: MELAK DATE/TIME STARTED: 8-9-22 JC 1520
 OUTFALL #: 001 PROJECT #: 34235 DATE/TIME ENDED: 8/16/22 R3 1520
 ORGANISM ID#: PR0-22-720

Conc.	8-10-22 JC 1520					8-11-22 JC 1520					8-12-22 R3 0830					8-13-22 JC 1100					8-14-22 JC 1445									
	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
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
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.	8/15/22 R5 0920					8/16/22 R3 1520					C.V.S
	A	B	C	D	E	A	B	C	D	E	
Pear	8	8	8	8	8	8	8	8	8	8	100.0
100	8	8	8	8	8	8	8	8	8	8	100.0
32	8	8	8	8	8	8	8	8	8	8	100.0
42	8	8	8	8	8	8	8	8	8	8	100.0
56	8	8	8	8	8	8	8	8	8	8	100.0
80	8	8	8	8	8	8	8	8	8	8	100.0
100	8	8	8	8	8	8	8	8	8	8	100.0

**APPENDIX B
REFERENCE TOXICANTS**

CHRONIC REFERENCE TOXICANT TEST RESULTS

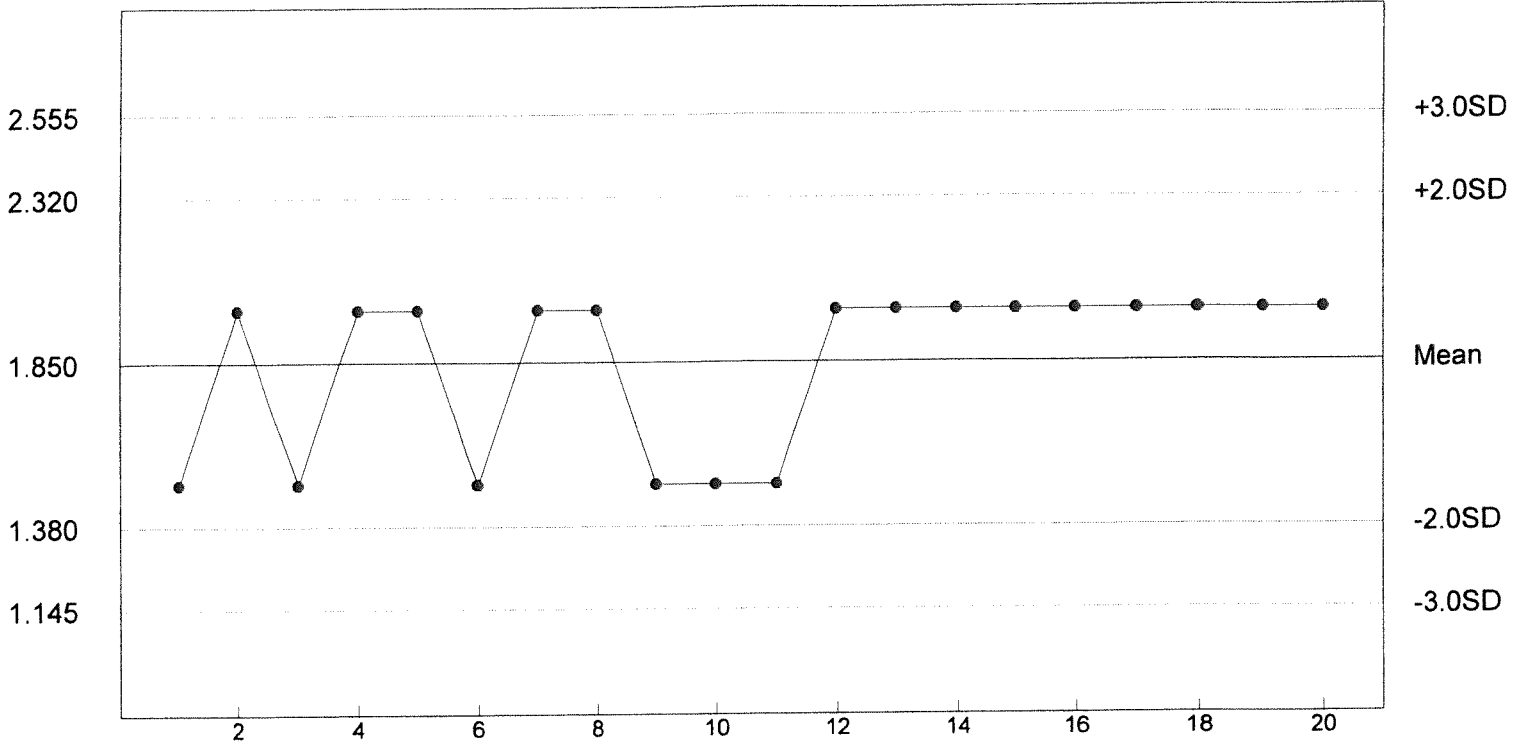
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 8
 TEST DATE: 08/03/22 - 08/10/22
 1545 Hrs - 1545 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	0
2.0	10	2
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

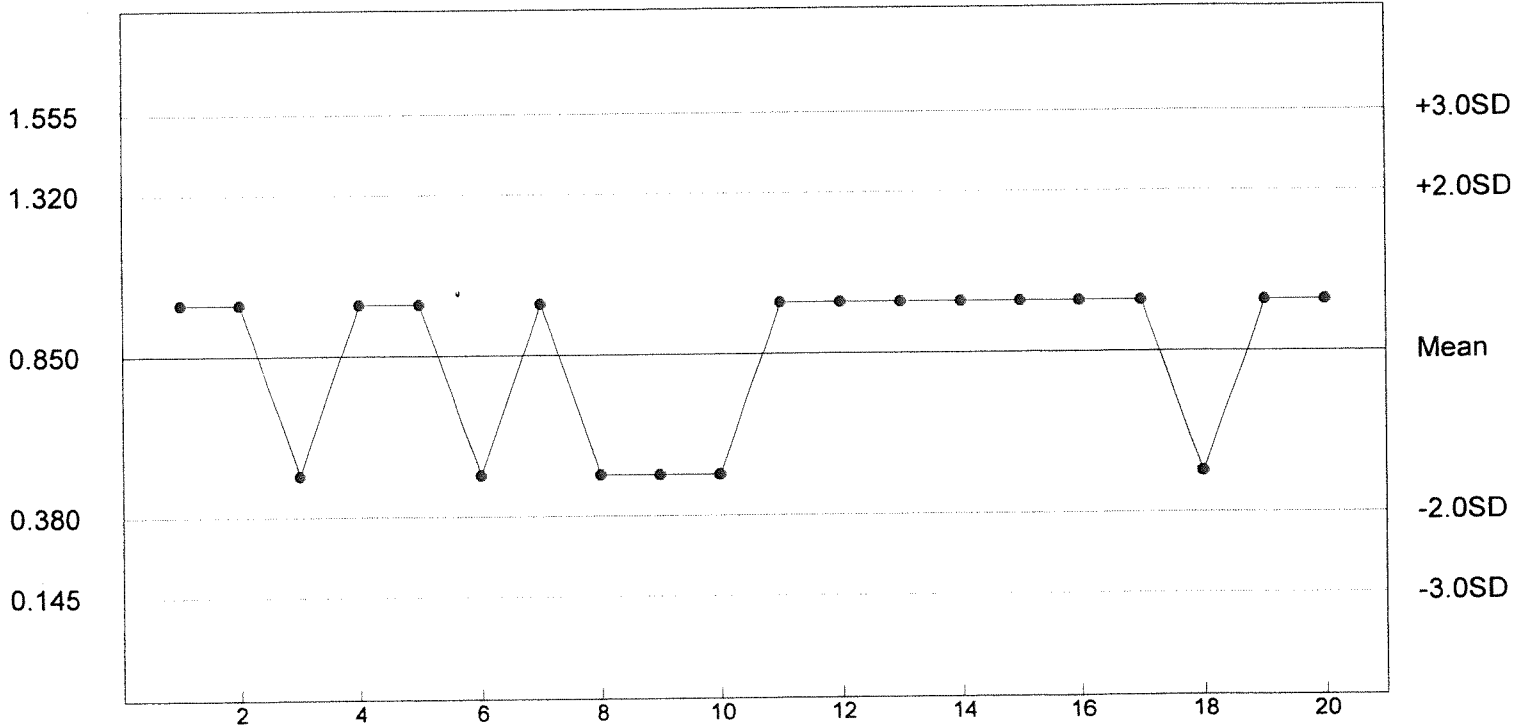
C. dubia Survival - NOEC



n= 20 Mean= 1.850 SD= 0.235 CV= 12.71% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.850 SD= 0.235 CV= 27.66% Min= 0.500 Max= 1.000

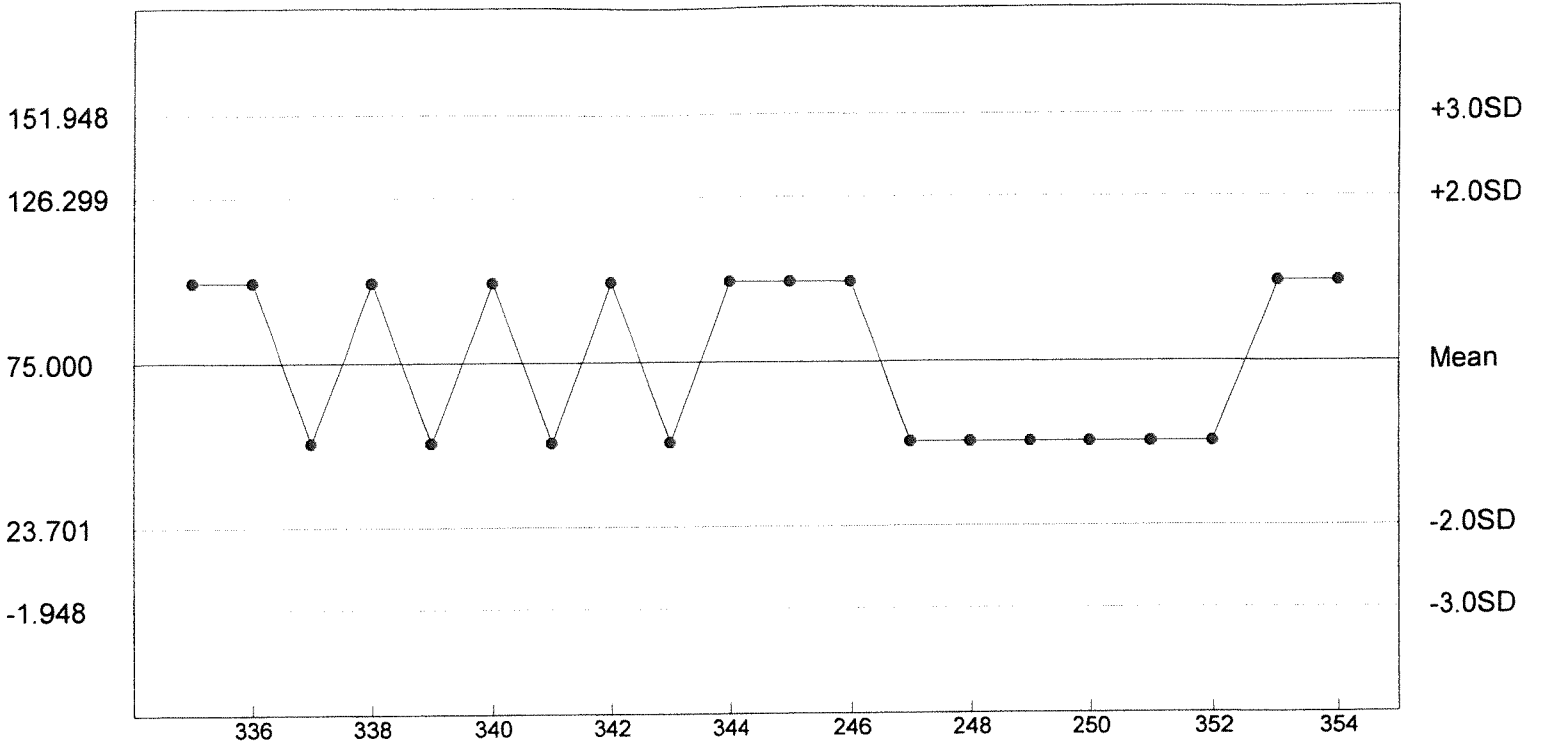
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 8
 TEST DATE: 08/03/22 - 08/10/22
 1530 Hrs -1530 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	4
200	40	11
400	40	37
800	40	40

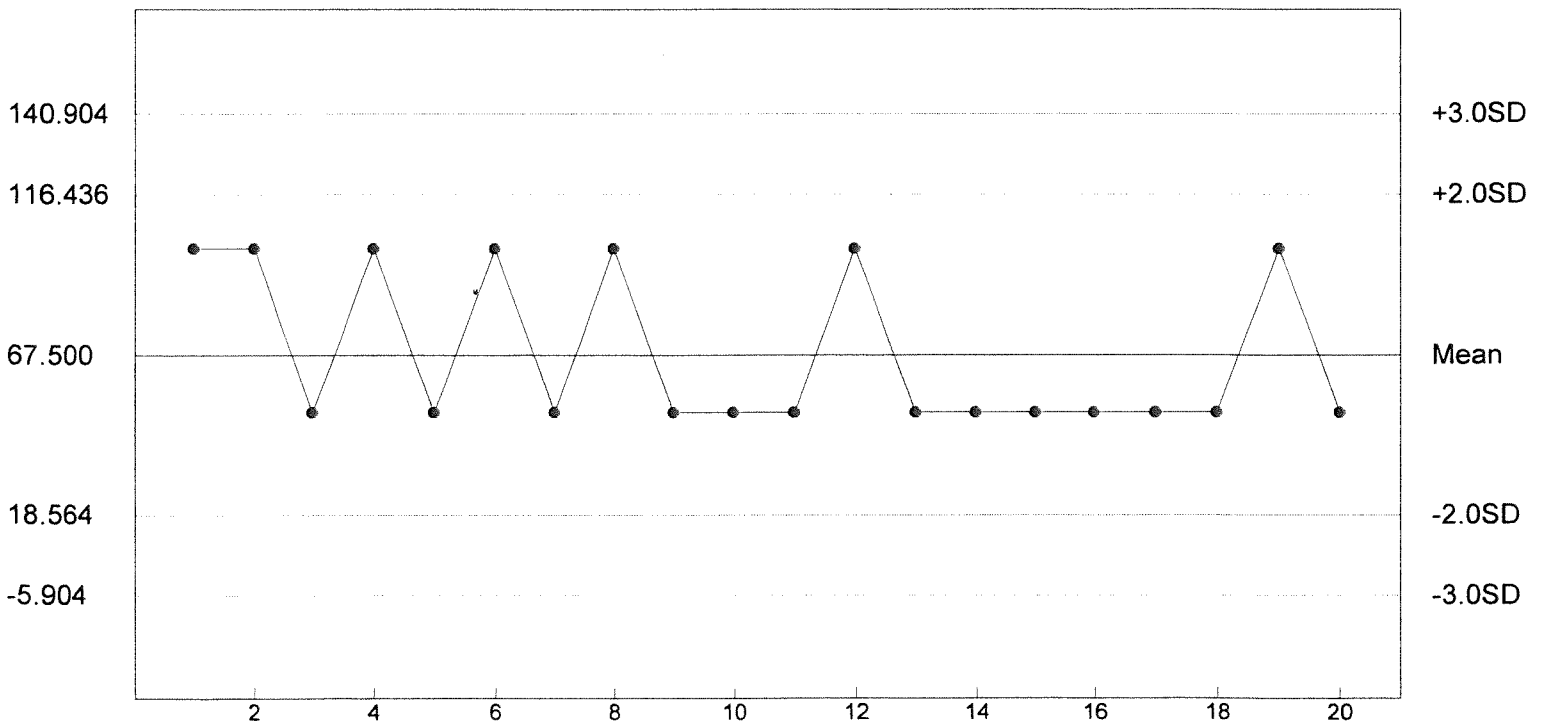
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
200 ug/L	100 ug/L	100 ug/L	50 ug/L

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 # 34235 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	L Hopper	0900 7 Aug 2022	0800 9 Aug 22	24	Auto	✓	Auto	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Marine Creek	L Hopper	8 Aug 2022	0800	1

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

RELINQUISHED BY: D Ryon DATE: 8 Aug TIME: 1030 RECEIVED BY AT THIS DATE/TIME: Patrice B/B26
 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 Parrett DATE: 8/8/22 TIME: 1730 SAMPLE TEMP. @ RECEIPT: 0.4°C

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

CHAIN OF CUSTODY RECORD

PROJECT # 34235 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	L Hooper	0800 9/29/22	0800 10/19/22	24	Auto	-	Auto	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Prairie Ck	L Hooper	8/29/22	0800	1

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

RELINQUISHED BY: D. Ruyon DATE: 10/30 TIME: 9030 RECEIVED BY AT THIS DATE/TIME: Rance BBo
 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 BBo DATE: 8/10/22 TIME: 1600 SAMPLE TEMP. @ RECEIPT: 2.0°C

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

CHAIN OF CUSTODY RECORD

PROJECT # 34235 PROJECT NAME Mena PERMIT# AR 0636692

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	L Hopper	0800 11 Aug	0800 12 Aug	24	Auto	-	Auto	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'NG) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Prairie Creek	L Hopper	17 Aug	0800	1

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

RELINQUISHED BY: D Runyon DATE: 17 Aug TIME: 1030 RECEIVED BY AT THIS DATE/TIME: RACE
 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: Rancey DATE: 8/12/22 TIME: 1630 SAMPLE TEMP. @ RECEIPT: 0.6221

**CITY OF MENA WWTP
 NPDES PERMIT NO. AR0036692
 AFIN 57-00423
 BIOMONITORING REPORTING
 TEST DATE: 08/09/22**

Ceriodaphnia dubia

Response

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	10.55%
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

Response

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	5.21%
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.	