

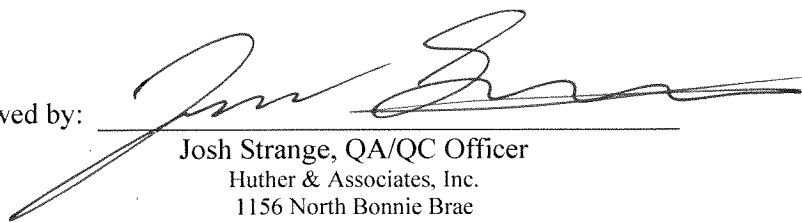
CITY OF MENA WWTF
OUTFALL 001

Chronic Biomonitoring Report
Permit Number NPDES AR0036692
AFIN 57-00423

Ceriodaphnia dubia
Pimephales promelas

March 23, 2021

Reviewed by:



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TOXICITY TEST REPORT - CHRONIC

Client City of Mena WWTF Sample Outfall 001
Facility Laboratory I.D. 32456
Permit No. NPDES AR0036692 Begin Date March 23, 2021

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 WWTF were delivered by Federal Express courier to Huthur & Associates on March 23, March 25, and March 27, 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 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 1415 hours, March 23, 2021. 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.

Huther and Associates

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

CLIENT City of Mena WWTP SAMPLE TYPE 24 Hour Composite
 TPDES # AR0036692 DATE COLLECTED 03/22/21 03/24/21 03/26/21
 LAB ID # 32456 DATE RECEIVED 03/23/21 03/25/21 03/27/21
 TEST TYPE 7 Day Chronic BEGIN DATE/TIME 03/23/21 1415
 TEST ORGANISM *Ceriodaphnia dubia* END DATE/TIME 03/30/21 1415
 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	2	2	4	3	2	5	3	4	2	4
	2	2	4	3	2	5	3	4	2	4
03/28/21	8	11	A	A	11	9	10	6	A	9
	10	13	4	3	13	14	13	10	2	13
03/29/21	A	A	7	9	A	A	A	A	8	A
	10	13	11	12	13	14	13	10	10	13
03/30/21	13	14	12	13	13	12	14	12	13	13
	23	27	23	25	26	26	27	22	23	26
x# Young 24.8 C.V. 7.56% 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	3	2	5	5	2	4	3	4	2	3
	3	2	5	5	2	4	3	4	2	3
03/28/21	A	6	8	7	9	A	9	8	11	7
	3	8	13	12	11	4	12	12	13	10
03/29/21	9	A	A	A	A	6	A	A	A	A
	12	8	13	12	11	10	12	12	13	10
03/30/21	12	12	13	12	14	13	13	13	14	12
	24	20	26	24	25	23	25	25	27	22
x# Young 24.1 C.V. 8.40% 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	4	3	3	2	5	2	3	5	3	4
	4	3	3	2	5	2	3	5	3	4
03/28/21	A	A	9	6	7	11	9	8	10	A
	4	3	12	8	12	13	12	13	13	4
03/29/21	8	11	A	A	A	A	A	A	A	7
	12	14	12	8	12	13	12	13	13	11
03/30/21	12	13	14	12	12	14	13	13	13	12
	24	27	26	20	24	27	25	26	26	23
x# Young 24.8 C.V. 8.67% 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	3	5	3	4	2	2	5	3	4	4
	3	5	3	4	2	2	5	3	4	4
03/28/21	9	7	10	A	7	6	A	7	11	6
	12	12	13	4	9	8	5	10	15	10
03/29/21	A	A	A	9	A	A	8	A	A	A
	12	12	13	13	9	8	13	10	15	10
03/30/21	13	12	13	14	12	12	13	12	14	13
	25	24	26	27	21	20	26	22	29	23
x# Young 24.3 C.V. 11.65% x%Survival 100% C.V. 0.00%										

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

ex 1.

A	alive today
4	total young to date

ex 2.

5	alive, 5 young today
12	total young to date

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

Mena WWTP

Lab ID# 32456

Test Date: March 23, 2021

56%Effluent

Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	4	5	4	2	5	3	5	4	4	3
	4	5	4	2	5	3	5	4	4	3
03/28/21	9	A	10	6	A	7	9	A	8	7
	13	5	14	8	5	10	14	4	12	10
03/29/21	A	7	A	A	9	A	A	8	A	A
	13	12	14	8	14	10	14	12	12	10
03/30/21	14	12	13	12	13	13	12	14	13	12
	27	24	27	20	27	23	26	26	25	22
x# Young 24.7 C.V. 9.74% 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	3	2	3	5	3	4	5	4	3	2
	3	2	3	5	3	4	5	4	3	2
03/28/21	8	7	A	11	9	A	10	9	6	8
	11	9	3	16	12	4	15	13	9	10
03/29/21	A	A	7	A	A	8	A	A	A	A
	11	9	10	16	12	12	15	13	9	10
03/30/21	13	13	12	13	14	12	12	13	12	13
	24	22	22	29	26	24	27	26	21	23
x# Young 24.4 C.V. 10.44% 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
03/24/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/25/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/26/21	A	A	A	A	A	A	A	A	A	A
	0	0	0	0	0	0	0	0	0	0
03/27/21	4	3	2	4	5	2	4	2	2	3
	11	9	7	8	10	A	6	A	9	10
03/28/21	15	12	9	12	15	2	10	2	11	13
	A	A	A	A	A	7	A	8	A	A
03/29/21	15	12	9	12	15	9	10	10	11	13
	14	13	12	12	13	13	12	12	13	14
03/30/21	29	25	21	24	28	22	22	22	24	27
	x# Young 24.4 C.V. 11.46% 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# 32456

Test Date: March 23, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
03/23/21	Start	25.0	1	8.11	7.64	7.09	7.14	6.90	6.92	6.80	TN
03/24/21	24 Hr.	24.2	1	8.00	7.64	7.29	6.98	6.82	6.83	6.90	LM
03/24/21	Renew	24.1	1	8.15	7.74	7.15	6.64	6.82	6.79	6.80	LM
03/25/21	48 Hr.	24.0	1	7.96	7.44	7.13	7.12	7.11	7.04	7.02	AN
03/25/21	Renew	25.0	2	8.06	7.71	7.50	7.24	7.20	7.05	7.09	AN
03/26/21	72 Hr.	24.0	2	7.98	7.04	6.96	6.95	6.97	6.97	6.95	TN
03/26/21	Renew	24.0	2	7.96	7.72	7.47	7.35	7.33	7.20	7.21	AN
03/27/21	96 Hr.	24.6	2	7.99	8.11	7.85	7.26	7.16	7.01	6.73	LM
03/27/21	Renew	25.0	3	8.03	7.94	7.32	7.04	7.02	6.94	6.87	LM
03/28/21	120 Hr.	24.5	3	7.82	7.92	7.44	7.19	7.08	6.96	6.93	LM
03/28/21	Renew	24.4	3	8.02	7.69	7.16	6.96	6.94	6.89	6.91	LM
03/29/21	144 Hr.	24.3	3	7.84	7.87	7.48	6.98	6.64	6.69	6.61	AN
03/29/21	Renew	24.3	3	7.92	7.86	7.34	7.05	6.81	6.74	6.71	AN
03/30/21	168 Hr.	24.6	3	7.75	7.11	7.02	7.00	6.91	6.99	6.98	TN

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
03/23/21	Start	25.0	1	8.48	8.45	8.46	8.53	8.40	8.59	8.52	TN
03/24/21	24 Hr.	24.2	1	8.38	7.22	7.33	7.72	7.03	7.70	8.18	LM
03/24/21	Renew	24.1	1	8.42	7.41	8.34	7.79	8.35	7.77	7.84	LM
03/25/21	48 Hr.	24.0	1	8.58	8.53	7.65	7.78	8.29	8.43	7.61	AN
03/25/21	Renew	25.0	2	7.20	7.76	8.45	8.50	8.48	8.14	8.45	AN
03/26/21	72 Hr.	24.0	2	7.36	7.73	7.56	7.69	7.27	7.85	7.99	TN
03/26/21	Renew	24.0	2	8.22	8.03	7.72	8.44	7.78	8.26	7.56	AN
03/27/21	96 Hr.	24.6	2	7.55	8.28	8.19	8.48	8.40	7.10	8.28	LM
03/27/21	Renew	25.0	3	8.39	8.03	7.33	7.71	8.54	8.33	7.85	LM
03/28/21	120 Hr.	24.5	3	7.67	8.07	7.98	7.65	7.75	7.10	7.77	LM
03/28/21	Renew	24.4	3	7.86	7.59	7.04	7.72	8.06	8.00	7.59	LM
03/29/21	144 Hr.	24.3	3	7.07	7.90	7.84	8.49	7.68	8.01	7.99	AN
03/29/21	Renew	24.3	3	8.15	8.14	8.15	7.31	7.85	7.72	7.66	AN
03/30/21	168 Hr.	24.6	3	8.05	7.77	7.39	7.88	7.85	8.46	8.00	TN

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

Mena WWTP

Lab ID# 32456

Test Date: March 23, 2021

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
03/23/21	1	6.80	8.52	40	18	154	<0.01	N/A	TN
03/25/21	2	7.09	8.45	48	32	150	<0.01	N/A	TN
03/27/21	3	6.87	7.85	36	20	154	<0.01	N/A	TN

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
03/23/21	RS1	7.64	8.45	24	32	63	<0.01	N/A	TN
03/25/21	RS2	7.71	7.76	32	32	63	<0.01	N/A	TN
03/27/21	RS3	7.94	8.03	24	20	57	<0.01	N/A	TN

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	27.000	24.100
2	32% Effluent	10	20.000	27.000	24.800
3	45% Effluent	10	20.000	29.000	24.300
4	56% Effluent	10	20.000	27.000	24.700
5	80% Effluent	10	21.000	29.000	24.400
6	100% Effluent	10	21.000	29.000	24.400

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	4.100	2.025	0.640	8.40
2	32% Effluent	4.622	2.150	0.680	8.67
3	45% Effluent	8.011	2.830	0.895	11.65
4	56% Effluent	5.789	2.406	0.761	9.74
5	80% Effluent	6.489	2.547	0.806	10.44
6	100% Effluent	7.822	2.797	0.884	11.46

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	15	18	20	3

Calculated Chi-Square goodness of fit test statistic = 3.3991
 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 = 1.57

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	3.350	0.670	0.109
Within (Error)	54	331.500	6.139	
Total	59	334.850		

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	24.100	24.100		
2	32% Effluent	24.800	24.800	-0.632	
3	45% Effluent	24.300	24.300	-0.180	
4	56% Effluent	24.700	24.700	-0.541	
5	80% Effluent	24.400	24.400	-0.271	
6	100% Effluent	24.400	24.400	-0.271	

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	Difference from Control
			Diff (In Orig. Units)	% of Control	
1	Control	10			
2	32% Effluent	10	2.560	10.6	-0.700
3	45% Effluent	10	2.560	10.6	-0.200
4	56% Effluent	10	2.560	10.6	-0.600
5	80% Effluent	10	2.560	10.6	-0.300
6	100% Effluent	10	2.560	10.6	-0.300

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

CLIENT	City of Mena WWTP	SAMPLE TYPE	24 Hour Composite
TPDES #	AR0036692	DATE COLLECTED	03/22/21 03/24/21 03/26/21
LAB ID #	32456	DATE RECEIVED	03/23/21 03/25/21 03/27/21
TEST TYPE	7 Day Chronic	BEGIN DATE/TIME	03/23/21 1430
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	03/30/21 1430
ORGANISM AGE	<24-Hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	unnamed tributary of Prairie Creek	LIGHT INTENSITY	50-100 ft. endl.
DILUTION WATER	Laboratory	TECHNICIAN	J. Castillo

SURVIVAL SUMMARY

Conc.	03/24/21					03/25/21					03/26/21					03/27/21					03/28/21				
	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
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
45%	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.	03/29/21					03/30/21					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
45%	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	0.4290	0.4810	0.4670	0.4220	0.4750	0.4548	6.01
TCON	0.4540	0.4290	0.4570	0.4810	0.4210	0.4484	5.34
32%	0.4630	0.4580	0.4550	0.4760	0.4860	0.4676	2.79
45%	0.4730	0.4820	0.4250	0.4690	0.4730	0.4644	4.85
56%	0.4540	0.4790	0.4360	0.4780	0.4700	0.4634	3.95
80%	0.4210	0.4670	0.4890	0.4650	0.4780	0.4640	5.58
100%	0.4760	0.4830	0.4190	0.4570	0.4820	0.4634	5.81

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

Mena WWTP

Lab ID# 32456

Test Date: March 23, 2021

WET CHEMISTRY MEASUREMENTS

Date	Time	Temp	Samp. No.	pH of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
03/23/21	Start	25.0	1	8.11	7.64	7.09	7.14	6.90	6.92	6.80	TN
03/24/21	24 Hr.	24.2	1	7.76	7.13	6.80	6.70	6.73	6.70	6.77	LM
03/24/21	Renew	24.1	1	8.15	7.74	7.15	6.64	6.82	6.79	6.80	LM
03/25/21	48 Hr.	24.0	1	7.66	6.92	6.82	6.74	6.63	6.67	6.67	TN
03/25/21	Renew	25.0	2	8.06	7.71	7.50	7.24	7.20	7.05	7.09	AN
03/26/21	72 Hr.	24.0	2	7.51	7.02	6.66	6.73	6.64	6.66	6.65	AN
03/26/21	Renew	24.0	2	7.96	7.72	7.47	7.35	7.33	7.20	7.21	AN
03/27/21	96 Hr.	24.6	2	7.19	6.71	6.63	6.63	6.59	6.67	6.65	TN
03/27/21	Renew	25.0	3	8.03	7.94	7.32	7.04	7.02	6.94	6.87	LM
03/28/21	120 Hr.	24.5	3	7.33	6.79	6.45	6.50	6.34	6.39	6.37	LM
03/28/21	Renew	24.4	3	8.02	7.69	7.16	6.96	6.94	6.89	6.91	LM
03/29/21	144 Hr.	24.3	3	7.74	7.41	6.85	6.81	6.70	6.69	6.67	AN
03/29/21	Renew	24.3	3	7.92	7.86	7.34	7.05	6.81	6.74	6.71	AN
03/30/21	168 Hr.	24.6	3	7.20	6.51	6.32	6.47	6.34	6.40	6.43	TN

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst	
				PCON	TCON	32%	45%	56%	80%		100%
03/23/21	Start	25.0	1	8.48	8.45	8.46	8.53	8.40	8.59	8.52	TN
03/24/21	24 Hr.	24.2	1	7.62	8.48	8.48	7.89	8.51	8.45	8.04	LM
03/24/21	Renew	24.1	1	8.42	7.41	8.34	7.79	8.35	7.77	7.84	LM
03/25/21	48 Hr.	24.0	1	7.81	7.35	8.17	7.89	7.97	7.55	7.55	TN
03/25/21	Renew	25.0	2	7.20	7.76	8.45	8.50	8.48	8.14	8.45	AN
03/26/21	72 Hr.	24.0	2	7.37	7.96	7.53	7.36	8.34	7.99	8.24	AN
03/26/21	Renew	24.0	2	8.22	8.03	7.72	8.44	7.78	8.26	7.56	AN
03/27/21	96 Hr.	24.6	2	7.06	8.33	7.04	7.80	7.02	7.78	7.20	TN
03/27/21	Renew	25.0	3	8.39	8.03	7.33	7.71	8.54	8.33	7.85	LM
03/28/21	120 Hr.	24.5	3	7.74	8.46	7.20	7.84	7.74	8.64	7.67	LM
03/28/21	Renew	24.4	3	7.86	7.59	7.04	7.72	8.06	8.00	7.59	LM
03/29/21	144 Hr.	24.3	3	7.91	7.27	7.31	7.17	7.74	7.74	8.27	AN
03/29/21	Renew	24.3	3	8.15	8.14	8.15	7.31	7.85	7.72	7.66	AN
03/30/21	168 Hr.	24.6	3	7.04	7.74	7.50	7.78	7.26	7.05	7.13	TN

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

Mena WWTP

Lab ID# 32456

Test Date: March 23, 2021

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
03/23/21	1	6.80	8.52	40	18	154	<0.01	N/A	TN
03/25/21	2	7.09	8.45	48	32	150	<0.01	N/A	TN
03/27/21	3	6.87	7.85	36	20	154	<0.01	N/A	TN

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
03/23/21	RS1	7.64	8.45	24	32	63	<0.01	N/A	TN
03/25/21	RS2	7.71	7.76	32	32	63	<0.01	N/A	TN
03/27/21	RS3	7.94	8.03	24	20	57	<0.01	N/A	TN

¹ Measurements taken in 100% solution.

Huther and Associates, Inc.
 Begin Date: March 23, 2021
 Lab I.D.# 32456

PIMEPHALES PROMELAS STATISTICAL ANALYSES
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.421	0.481	0.448
2	32% Effluent	5	0.455	0.486	0.468
3	45% Effluent	5	0.425	0.482	0.464
4	56% Effluent	5	0.436	0.479	0.463
5	80% Effluent	5	0.421	0.489	0.464
6	100% Effluent	5	0.419	0.483	0.463

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.024	0.011	5.34
2	32% Effluent	0.000	0.013	0.006	2.79
3	45% Effluent	0.001	0.023	0.010	4.85
4	56% Effluent	0.000	0.018	0.008	3.95
5	80% Effluent	0.001	0.026	0.012	5.58
6	100% Effluent	0.001	0.027	0.012	5.81

Shapiro - Wilk's Test For Normality

D = 0.012

W = 0.917

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 = 2.28

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	0.463
Within (Error)	24	0.012	0.000	
Total	29	0.013		

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	0.448	0.448		
2	32% Effluent	0.468	0.468	-1.362	
3	45% Effluent	0.464	0.464	-1.135	
4	56% Effluent	0.463	0.463	-1.064	
5	80% Effluent	0.464	0.464	-1.106	
6	100% Effluent	0.463	0.463	-1.064	

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 Control	Difference from Control
			Diff (In Orig. Units)	Diff		
1	Control	5				
2	32% Effluent	5	0.033	7.4	7.4	-0.019
3	45% Effluent	5	0.033	7.4	7.4	-0.016
4	56% Effluent	5	0.033	7.4	7.4	-0.015
5	80% Effluent	5	0.033	7.4	7.4	-0.016
6	100% Effluent	5	0.033	7.4	7.4	-0.015

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 1 OF 2

CLIENT Mena

START DATE/TIME 3-23-21 TG 1415

OUTFALL 001

END DATE/TIME 03-30-21 DM 1415

LAB ID # 32456

Pcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	2	2	4	3	2	5	3	4	2	4	DM	1300
03/28	8	11	A	A	11	9	10	6	A	9	DM	1345
3/29	A	A	7	9	A	A	A	A	8	A	TG	1415
03/30	13	14	12	13	13	12	14	12	13	13	DM	1415
	23	27	23	25	26	26	27	22	23	26		

\bar{x} # Young w/o Dead = 24.8 CV% = 7.56

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

\bar{x} % Survival = 100.0 CV% = 0.00

Tcon

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	3	2	5	5	2	4	3	4	2	3	DM	1300
03/28	A	6	8	7	9	A	9	8	11	7	DM	1345
3/29	9	A	A	A	A	6	A	A	A	A	TG	1415
03/30	12	12	13	12	14	13	13	13	14	12	DM	1415
	24	20	26	24	25	23	25	25	27	22		

\bar{x} # Young w/o Dead = 24.1 CV% = 8.40

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

\bar{x} % Survival = 100.0 CV% = 0.00

32

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	4	3	3	2	5	2	3	5	3	4	DM	1300
03/28	A	A	9	6	7	11	9	8	10	A	DM	1345
3/29	8	11	A	A	A	A	A	A	A	7	TG	1415
03/30	12	13	14	12	12	14	13	13	13	12	DM	1415
	24	27	26	20	24	27	25	26	26	23		

\bar{x} # Young w/o Dead = 24.8 CV% = 8.67

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

\bar{x} % Survival = 100.0 CV% = 0.00

45

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	3	5	3	4	2	2	5	3	4	4	DM	1300
03/28	9	7	10	A	7	6	A	7	11	6	DM	1345
3/29	A	A	A	9	A	A	8	A	A	A	TG	1415
03/30	13	12	13	14	12	12	13	12	14	13	DM	1415
	25	24	26	27	21	20	26	22	29	23		

\bar{x} # Young w/o Dead = 24.3 CV% = 11.65

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

\bar{x} % Survival = 100.0 CV% = 0.00

7-DAY CERIODAPHNIA DUBIA SURVIVAL & REPRODUCTION

DAILY RAW DATA TABLE

PAGE 2 OF 2

CLIENT Mena

OUTFALL 001

LAB ID # 32456

56

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	4	5	4	2	5	3	5	4	4	3	DM	1300
03/28	9	A	10	6	A	7	9	A	8	7	DM	1345
3/29	A	7	A	A	9	A	A	8	A	A	TG	1415
03/30	14	12	13	12	13	13	12	14	13	12	DM	1415
	27	24	27	20	27	23	26	26	25	22		

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

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

\bar{x} % Survival = 100.0 CV% = 0.00

START DATE/TIME 3-23-21 TG 1415

END DATE/TIME 03-30-21 DM 1415

80

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	3	2	3	5	3	4	5	4	3	2	DM	1300
03/28	8	7	A	11	9	A	10	9	6	8	DM	1345
3/29	A	A	7	A	A	8	A	A	A	A	TG	1415
03/30	13	13	12	13	14	12	12	13	12	13	DM	1415
	24	22	22	29	26	24	27	26	21	23		

\bar{x} # Young w/o Dead = 24.4 CV% = 10.44

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

\bar{x} % Survival = 100.0 CV% = 0.00

100

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
3/24	A	A	A	A	A	A	A	A	A	A	TG	1415
03/25	A	A	A	A	A	A	A	A	A	A	DM	1345
3/26	A	A	A	A	A	A	A	A	A	A	TG	1400
03/27	4	3	2	4	5	2	4	2	2	3	DM	1300
03/28	11	9	7	8	10	A	6	A	9	10	DM	1345
3/29	A	A	A	A	A	7	A	8	A	A	TG	1415
03/30	14	13	12	12	13	13	12	12	13	14	DM	1415
	29	25	21	24	28	22	22	22	24	27		

\bar{x} # Young w/o Dead = 24.4 CV% = 11.46

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

\bar{x} % Survival = 100.0 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 3-23-21 JC 1430
 OUTFALL # 001 PROJECT # 32456 DATE/TIME ENDED 3-30-21 MH 1430
 ORGANISM ID# PFV-21-081

Conc.	3-24-21 JC 1430					3-25-21 JC 1055					3-26-21 MH 0940					3-27-21 JC 1100					3-28-21 JC 1235									
	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	8	8	8	8	8
TCO1	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
45	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
Initials Date/Time	3-24-21 JC 1430					3-25-21 JC 1055					3-26-21 MH 0940					3-27-21 JC 1100					3-28-21 JC 1235									

Conc.	3-29-21 MH 0820					3-30-21 MH 1430					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
TCO1	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
45	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
Initials Date/Time	3-29-21 MH 0820					3-30-21 MH 1430						

Client / Facility Mena
 Lab ID Number 32456
 Outfall Number 001
 Test Date 3-23-21

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
3-23-21	1	6.80	8.52	40	18	154	20.01	N/A	TN
3-25-21	2	7.09	8.45	48	32	150	20.01	N/A	TN
3-27-21	3	6.87	7.85	36	20	154	20.01	N/A	TN

INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER

Date	Samp. No.	pH	DO	Hardness mg/L CaCO ₃ ¹	Alkalinity mg/L CaCO ₃ ¹	Conduct. umhos/cm ¹	Resid. Cl ₂ mg/L ¹	Dechlor(mL) Na ₂ S ₂ O ₃ mg/L ¹	Analyst
3-23-21	RS 1	7.64	8.45	24	32	63	20.01	N/A	TN
3-25-21	RS 2	7.71	7.76	32	32	63	20.01	N/A	TN
3-27-21	RS 3	7.94	8.03	24	20	57	20.01	N/A	TN

Notes:

**APPENDIX A
RAW DATA**

CHRONIC REFERENCE TOXICANT TEST RESULTS

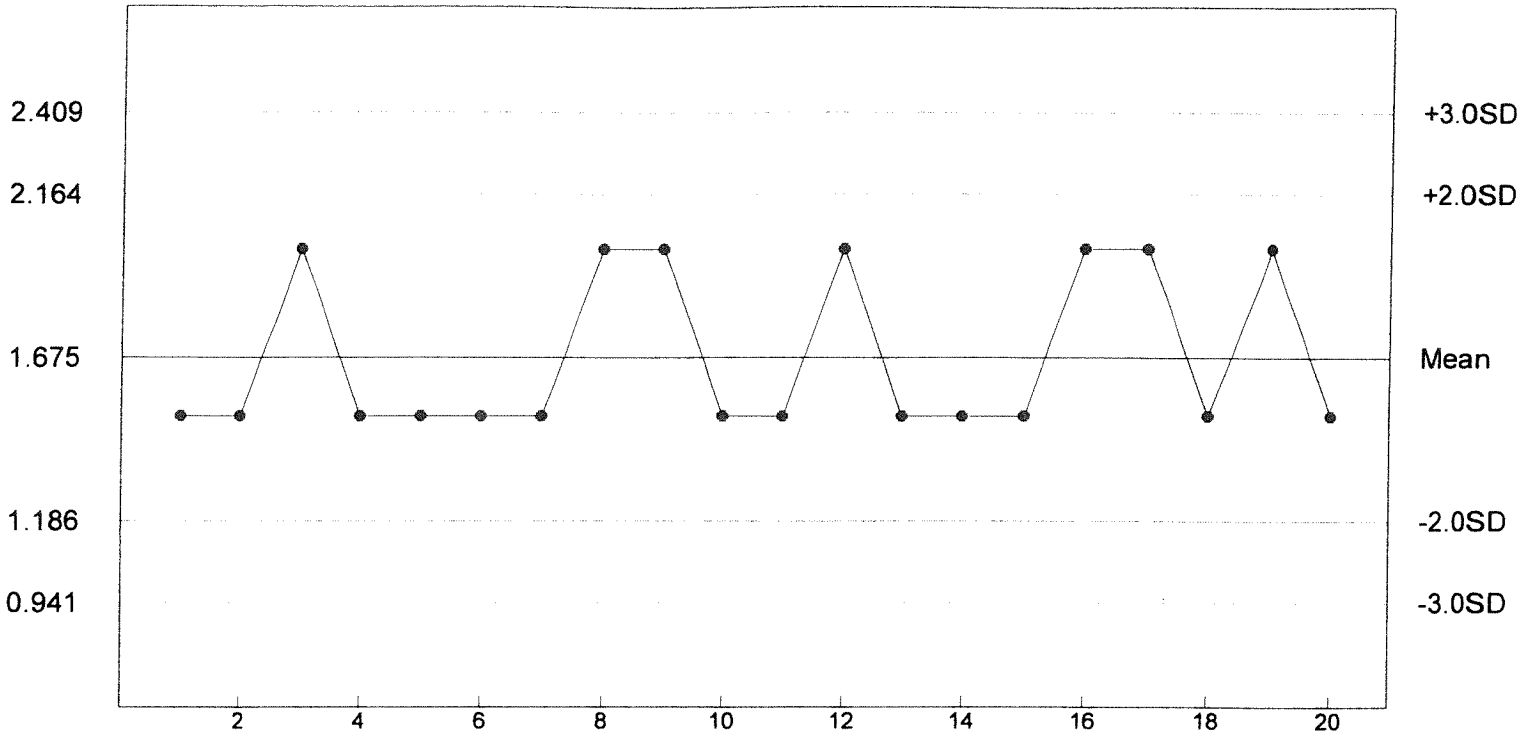
SPECIES: *Ceriodaphnia dubia*
 CHEMICAL: Sodium Chloride
 DURATION: 7-Days
 TEST NUMBER: 3
 TEST DATE: 03/03/21 - 03/10/21
 1600 Hrs - 1600 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (g/L)	NUMBER EXPOSED	NUMBER DEAD
0.5	10	0
1.0	10	0
1.5	10	1
2.0	10	7
2.5	10	9
3.0	10	10
4.0	10	10

LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR REPRODUCTION	NOEC FOR REPRODUCTION
2.0 g/L	1.5 g/L	1.0 g/L	0.5 g/L

Reference Tox Sodium Chloride g/L

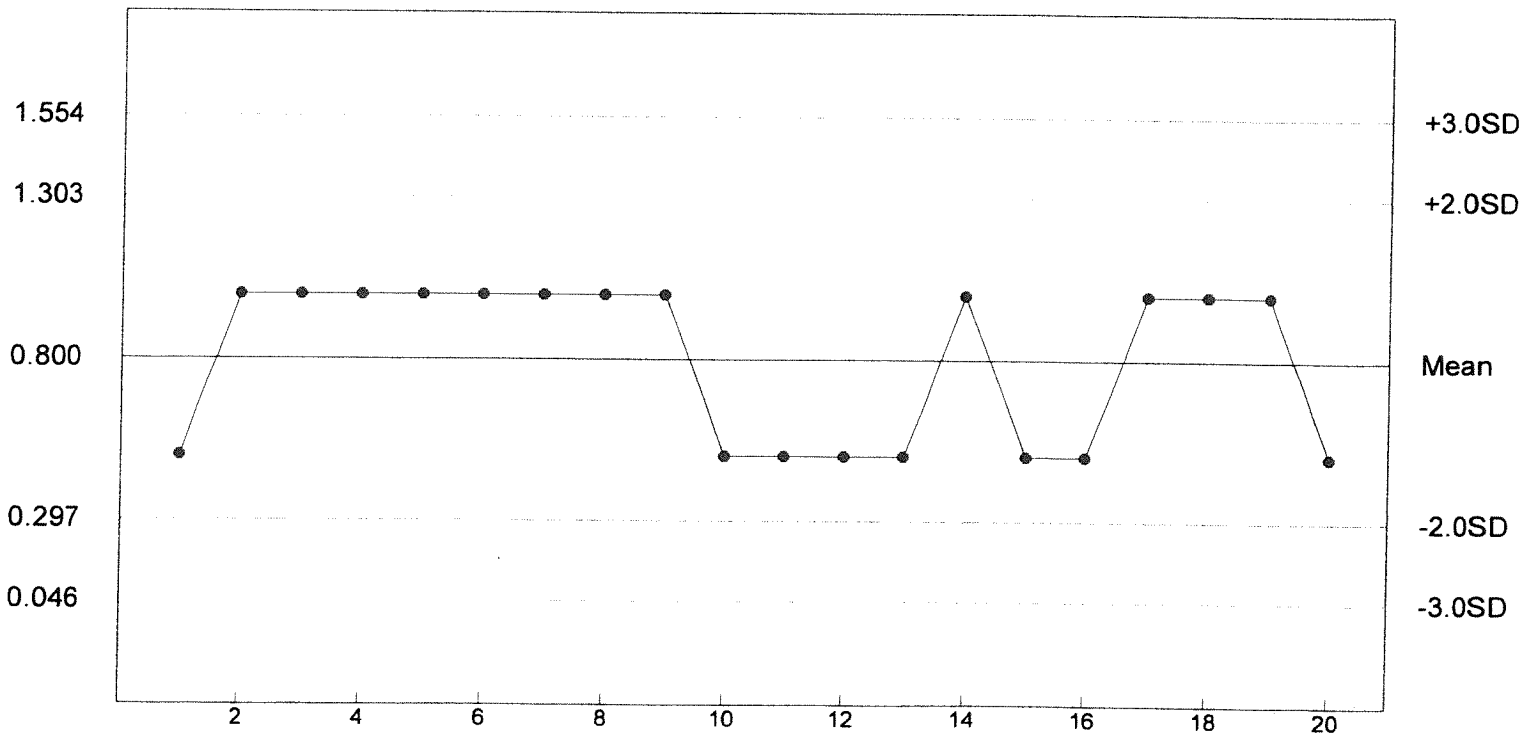
C. dubia Survival - NOEC



n= 20 Mean= 1.675 SD= 0.245 CV= 14.61% Min= 1.500 Max= 2.000

Reference Tox Sodium Chloride g/L

C. dubia Reproduction - NOEC



n= 20 Mean= 0.800 SD= 0.251 CV= 31.41% Min= 0.500 Max= 1.000

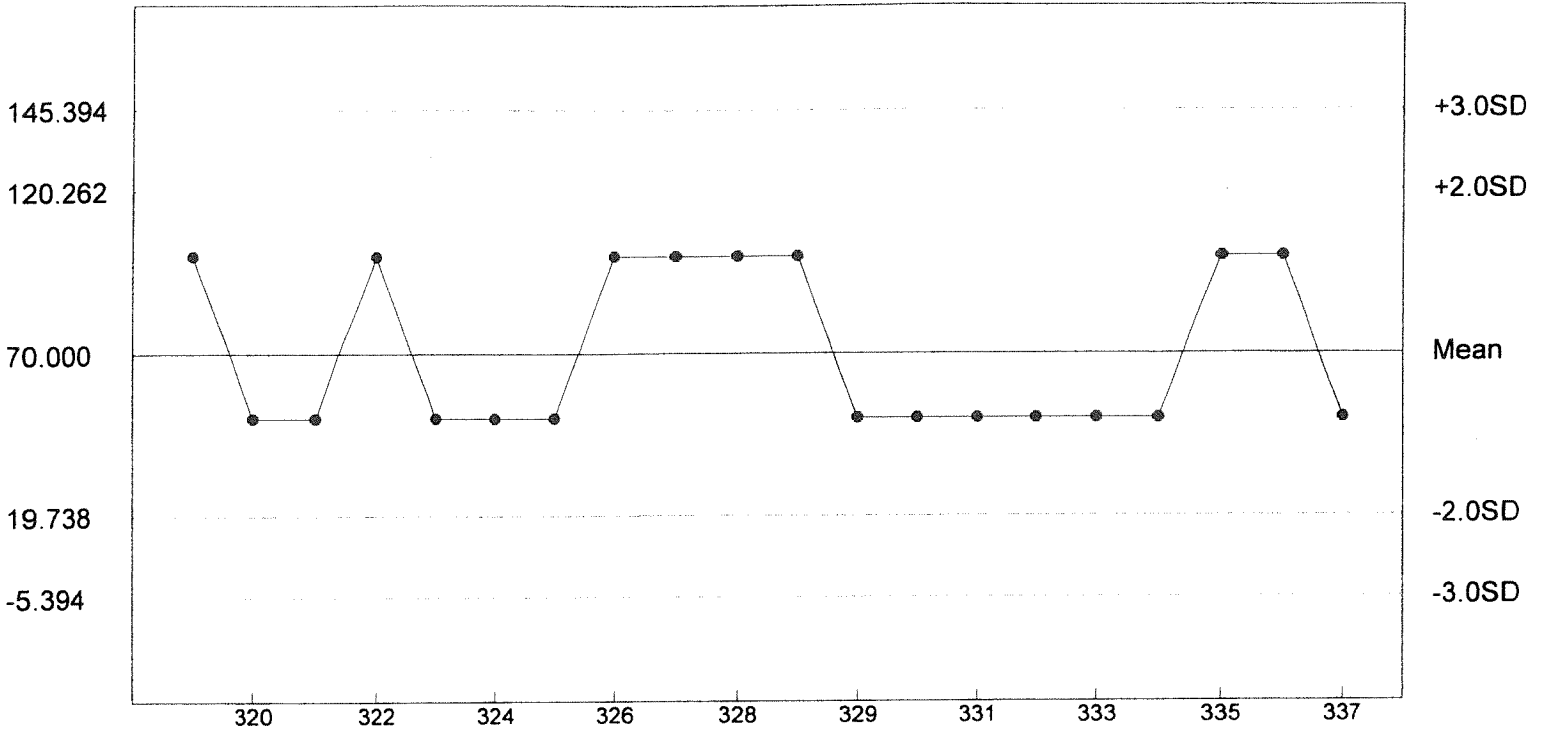
CHRONIC REFERENCE TOXICANT TEST RESULTS

SPECIES: *Pimephales promelas*
 CHEMICAL: Copper Nitrate
 DURATION: 7-Days
 TEST NUMBER: 3
 TEST DATE: 03/03/21 - 03/10/21
 1500 Hrs -1600 Hrs
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	0
100	40	9
200	40	15
400	40	40
800	40	40

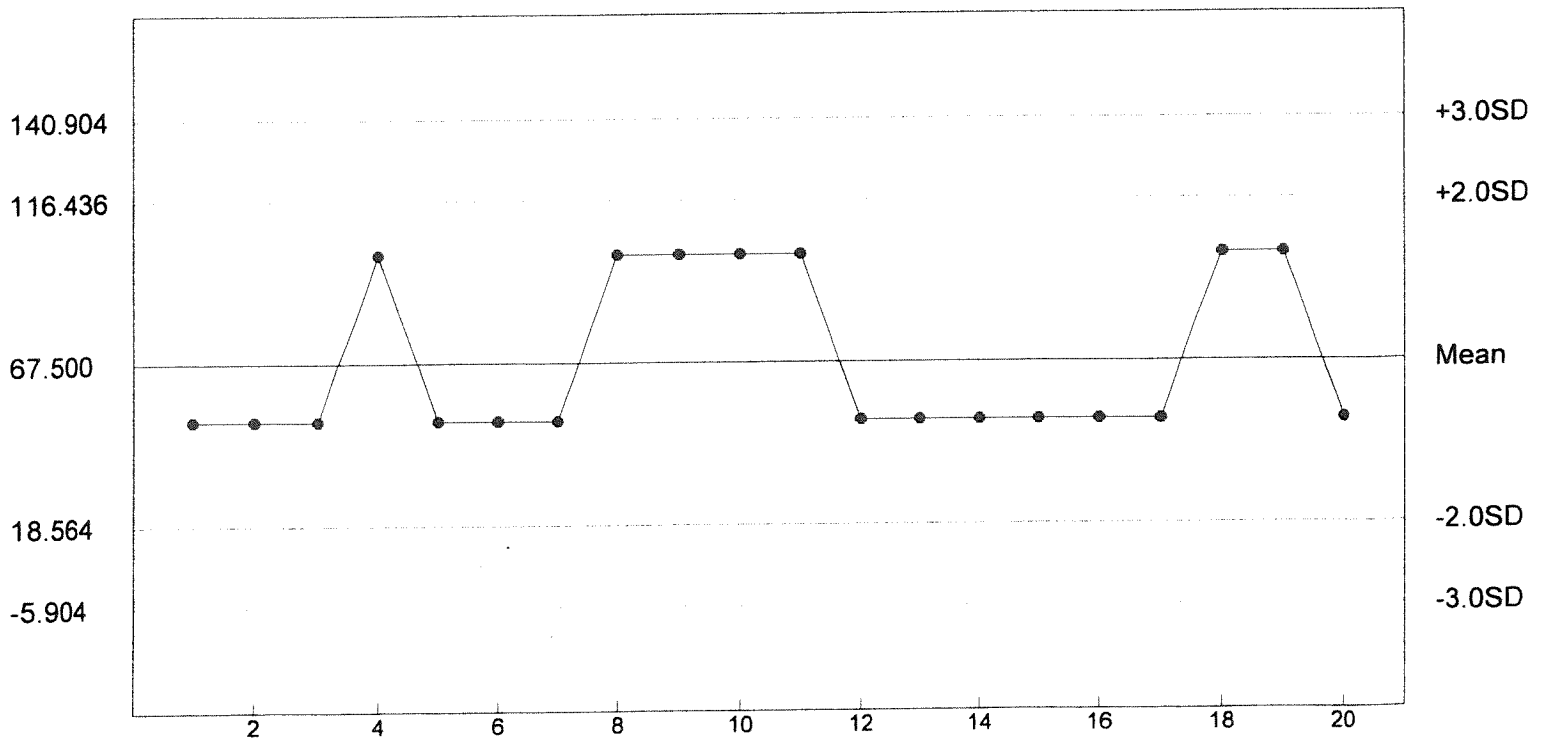
LOEC FOR SURVIVAL	NOEC FOR SURVIVAL	LOEC FOR GROWTH	NOEC FOR GROWTH
100 ug/L	50 ug/L	100 ug/L	50 ug/L

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



n= 20 Mean= 70.000 SD= 25.131 CV= 35.90% 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 B
REFERENCE TOXICANTS**

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 # 32456 PROJECT NAME Mena WWT PERMIT# Ac 003 66692

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	21 MAR 21 0800	22 MAR 21 0800	24	AUTO	-	AUTO	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR RECEIVING) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Prairie Creek	M Spencer	22 MAR 21	0815	1

TYPE OF TEST _____
 NAME OF RECEIVING WATER _____
 DILUTION WATER USED FOR THIS TEST _____

RELINQUISHED BY: M Spencer DATE: 22 MAR 21 TIME: 1000 RECEIVED BY AT THIS DATE/TIME: Office Store @ 1015 (sk.)

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: FEDEX

RECEIVED: Matt Turner DATE: 3-23-21 TIME: 1000 SAMPLE TEMP. @ RECEIPT: 4.30 F 121

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

CHAIN OF CUSTODY RECORD

PROJECT # 32456 PROJECT NAME Meat PERMIT # Ar 0034692

OUTFALL SAMPLES

24-Hr Flow Weighted Composite Other

OUTFALL NUMBER	PERSON TAKING SAMPLE	START DATE/TIME	END DATE/TIME	# OF PORTIONS COMPOSED	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	23 Mar 0800	24 Mar 0800	24	Auto	-	Auto	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H ₂ O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED
Pearre Creek	M Spencer	24 Mar 21	1000	1

TYPE OF TEST _____
 NAME OF RECEIVING WATER Pearre
 DILUTION WATER USED FOR THIS TEST _____

RELINQUISHED BY: M Spencer DATE: 24 Mar 21 TIME: 1015 RECEIVED BY AT THIS DATE/TIME: Office Store E @ 1030
 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 FedEx
 RECEIVED: Matt Horner DATE: 3-25-21 TIME: 1015 SAMPLE TEMP. @ RECEIPT: 2.0

JRI

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

CHAIN OF CUSTODY RECORD

PROJECT # 32456 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	MSPencer	22 March 0802	22 March 0803	24	-	-	Auto	24

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	MSPencer 0803	26 March 21	1030	1

TYPE OF TEST 7 Day C/F
 NAME OF U.T. OF PRAIRIE CREEK RECEIVING WATER
 DILUTION WATER USED FOR THIS TEST RS

RELINQUISHED BY: MSPencer DATE: 26 March 21 TIME: 1030 RECEIVED BY AT THIS DATE/TIME: Office Store (Signed)
 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 [Signature] Client Delivered Other FedEx
 RECEIVED: [Signature] DATE: 3-27-21 TIME: 0945 SAMPLE TEMP. @ RECEIPT: FPI: 4.1

**CITY OF MENA WWTP
 NPDES PERMIT NO. AR0036692
 AFIN 57-00423
 BIOMONITORING REPORTING
 TEST DATE: 03/23/21**

<i>Ceriodaphnia dubia</i>	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	11.46%
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	

<i>Pimephales promelas</i>	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	5.81%
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.	