

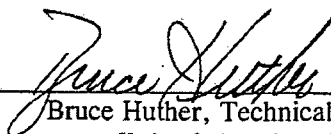
**CITY OF MENA WWTF  
OUTFALL 001**

**Chronic Biomonitoring Report  
Permit Number NPDES AR0036692  
AFIN Number 57-00042**

*Ceriodaphnia dubia*  
*Pimephales promelas*

July 22, 2014

Reviewed by:



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TOXICITY TEST REPORT - CHRONIC

Client ..... City of Mena WWTF                      Laboratory I.D. .... 22630  
Permit No. .... NPDES AR0036692                      Begin Date ..... July 22, 2014  
Sample ..... Outfall 001

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 picked up at the facility by Huther & Associates on July 21, July 23, and July 25, 2014. Effluent samples from Outfall 001 were collected and composited using an automatic sampler by facility personnel. Two toxicity tests were requested: a seven-day *Ceriodaphnia dubia* survival and reproduction test (EPA Method 1002.0), and a seven-day *Pimephales promelas* larval survival and growth test (EPA Method 1000.0). Test organisms, procedures and quality assurance requirements were in accordance with the EPA manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," Fourth Edition, (EPA-821-R-02-013).

The effluent samples were analyzed for total residual chlorine (Standard Methods, 22<sup>nd</sup> Edition, 4500-Cl D) and contained <0.01 mg/L, <0.01 mg/L, and <0.01 mg/L, respectively. Effluent and laboratory dilution water hardness, alkalinity, conductivity, pH, and dissolved oxygen data were collected and recorded.

**TEST SETUP**  
*Ceriodaphnia dubia*



The seven-day *Ceriodaphnia dubia* survival and reproduction test was initiated at 1515 hours, July 22, 2014. Five concentrations were prepared (32%, 42%, 56%, 75%, and 100% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (unnamed tributary of Prairie Creek). The test was conducted in 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). *C. dubia* neonates were less than 24 hours old and within eight hours of the same age at test initiation. Neonates were placed in beakers following a randomized block test design. Fresh solutions were prepared and renewed daily. Daily feeding consisted of 0.5 mL *Selenastrum capricornutum* and cerophyll per test chamber. The test proceeded for seven days during which survival, reproduction and water quality data were collected daily.

A control of 10 replicate beakers containing one neonate each in distilled, deionized, reconstituted water (same as diluent) was conducted concurrently with the test. There was 100% survival in the control. The test ended at 1515 hours, July 29, 2014. 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****PMSD: 8.1%****NOEC: 100% Effluent****TEST SETUP***Pimephales promelas*

The seven-day *Pimephales promelas* larval survival and growth test was initiated at 1550 hours, July 22, 2014. Five concentrations were prepared (32%, 42%, 56%, 75%, and 100% effluent) utilizing distilled, deionized laboratory water reconstituted to match the hardness, alkalinity and pH of the receiving stream (unnamed tributary of Prairie Creek). The test was conducted in 300 mL distilled water rinsed plastic beakers containing 250 mL of solution (eight larvae per beaker, five beakers per concentration). *P. promelas* larvae were less than 24-hours old at test initiation and originated from a minimum of three in-house spawnings. Fresh solutions were prepared and renewed daily. Larvae in each test chamber were fed <24-hour-old *Artemia* (brine shrimp) three times per day. The test proceeded for seven days during which survival and water quality data were collected daily.

A control of five replicate chambers containing eight larvae each in distilled, deionized, reconstituted water (same as diluent) was conducted concurrently with the test. There was 100% survival in the control. The test ended at 1550 hours, July 29, 2014. At test termination, all larvae were sacrificed, dried for 24-hours, and weighed. Survival and growth (weight) data were statistically analyzed ( $p = 0.05$ ) according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

**SURVIVAL**  
*Pimephales promelas*

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

**LOEC: Not Applicable**  
**NOEC: 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: 9.6%**  
**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 WWTF, Outfall 001 **passed** for this testing period.

Huther and Associates

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

CLIENT : City of Mena WWTF  
 NPDES # : AR0036692  
 LAB ID # : 22630  
 TEST TYPE : 7 Day Chronic  
 TEST ORGANISM : *Ceriodaphnia dubia*  
 ORGANISM AGE : < 24 Hours  
 ORGANISM SOURCE : In House  
 RECEIVING WATER : unnamed tributary of Prairie Creek  
 DILUTION WATER : Laboratory Adjusted  
 SAMPLE TYPE : 24 Hour Composite  
 DATE COLLECTED : 07/21/14 07/23/14 07/25/14  
 DATE RECEIVED : 07/21/14 07/23/14 07/25/14  
 BEGIN DATE/TIME : 07/22/14 1515  
 END DATE/TIME : 07/29/14 1515  
 TEST TEMPERATURE (°C) : 25 ± 1  
 PHOTO PERIOD : 16-hr. Light 8-hr. Dark  
 LIGHT INTENSITY : 50-100 ft. candl.  
 TECHNICIAN : N. Lehr

SURVIVAL & REPRODUCTION SUMMARY

Control										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
07/23/14	A	A	A	A	A	A	A	A	A	A
07/24/14	0	0	0	0	0	0	0	0	0	0
07/25/14	A	A	A	A	A	A	A	A	A	A
07/26/14	0	0	0	0	0	0	0	0	0	0
07/27/14	3	2	3	2	4	2	2	2	2	2
07/28/14	8	7	6	8	8	9	7	8	8	7
07/29/14	23	20	22	20	24	24	21	22	20	23
x # Young 21.9 C.V. 7.28% 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
07/23/14	A	A	A	A	A	A	A	A	A	A
07/24/14	0	0	0	0	0	0	0	0	0	0
07/25/14	A	A	A	A	A	A	A	A	A	A
07/26/14	0	0	0	0	0	0	0	0	0	0
07/27/14	2	2	2	4	3	3	2	2	3	3
07/28/14	8	10	11	11	11	10	8	11	9	10
07/29/14	20	22	24	25	24	21	20	22	23	23
x # Young 22.4 C.V. 7.85% x% Survival 100% C.V. 0.00%										

42% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
07/23/14	A	A	A	A	A	A	A	A	A	A
07/24/14	0	0	0	0	0	0	0	0	0	0
07/25/14	A	A	A	A	A	A	A	A	A	A
07/26/14	0	0	0	0	0	0	0	0	0	0
07/27/14	2	2	3	3	4	4	3	4	3	3
07/28/14	8	11	11	11	11	13	9	12	9	10
07/29/14	20	25	24	24	25	26	21	23	21	22
x # Young 23.1 C.V. 8.77% x% Survival 100% C.V. 0.00%										

56% Effluent										
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
07/23/14	A	A	A	A	A	A	A	A	A	A
07/24/14	0	0	0	0	0	0	0	0	0	0
07/25/14	A	A	A	A	A	A	A	A	A	A
07/26/14	0	0	0	0	0	0	0	0	0	0
07/27/14	2	4	3	4	3	2	3	3	3	3
07/28/14	8	12	12	11	10	12	11	9	13	12
07/29/14	20	25	24	23	24	24	23	22	26	27
x # Young 23.8 C.V. 8.36% x% Survival 100% C.V. 0.00%										

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

ex 1: 

A
4

 alive today  
 total young to date

ex 2: 

5
12

 alive, 5 young today  
 total young to date

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

City of Mena WWTF

Lab ID# 22630

Test Date: July 22, 2014

75% Effluent																						
Date	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10												
07/23/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/24/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/25/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/26/14	2	A	A	A	A	A	A	A	A	A												
	2	0	0	0	0	0	0	0	0	0												
07/27/14	A	3	5	2	2	2	3	2	2	4												
	2	3	5	2	2	2	3	2	2	4												
07/28/14	10	9	8	7	9	6	7	8	7	6												
	12	12	13	9	11	8	10	10	9	10												
07/29/14	13	12	13	14	13	14	13	11	12	12												
	25	24	26	23	24	22	23	21	21	22												
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">x# Young</td> <td style="width: 15%;">23.1</td> <td style="width: 15%;"></td> <td style="width: 15%;">C.V.</td> <td style="width: 15%;">7.20%</td> </tr> <tr> <td></td> <td>x% Survival</td> <td>100%</td> <td></td> <td>C.V.</td> <td>0.00%</td> </tr> </table>												x# Young	23.1		C.V.	7.20%		x% Survival	100%		C.V.	0.00%
	x# Young	23.1		C.V.	7.20%																	
	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												
07/23/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/24/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/25/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/26/14	A	A	A	A	A	A	A	A	A	A												
	0	0	0	0	0	0	0	0	0	0												
07/27/14	3	2	4	2	2	3	2	2	2	2												
	3	2	4	2	2	3	2	2	2	2												
07/28/14	6	9	7	10	8	9	10	8	8	7												
	9	11	11	12	10	12	12	10	8	9												
07/29/14	13	14	13	13	14	12	12	13	14	13												
	22	25	24	25	24	24	24	23	22	22												
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">x# Young</td> <td style="width: 15%;">23.5</td> <td style="width: 15%;"></td> <td style="width: 15%;">C.V.</td> <td style="width: 15%;">5.01%</td> </tr> <tr> <td></td> <td>x% Survival</td> <td>100%</td> <td></td> <td>C.V.</td> <td>0.00%</td> </tr> </table>												x# Young	23.5		C.V.	5.01%		x% Survival	100%		C.V.	0.00%
	x# Young	23.5		C.V.	5.01%																	
	x% Survival	100%		C.V.	0.00%																	

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

ex 1: 

A
4

 alive today  
 total young to date

ex 2: 

5
12

 alive, 5 young today  
 total young to date

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

City of Mena WWTF

Lab ID# 22630

Test Date: July 22, 2014

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	32%	42%	56%	75%	100%	
07/22/14	Start	25.0	1	7.90	7.76	7.57	7.46	7.32	7.16	WCL
07/23/14	24 Hr.	25.2	1	7.71	7.64	7.55	7.49	7.37	7.29	WCL
07/23/14	Renew	25.0	1	7.57	7.53	7.42	7.33	7.19	7.09	WCL
07/24/14	48 Hr.	25.4	1	7.74	7.63	7.51	7.43	7.31	7.28	WCL
07/24/14	Renew	25.1	2	7.96	7.77	7.51	7.39	7.26	7.31	WCL
07/25/14	72 Hr.	25.0	2	7.79	7.69	7.54	7.48	7.36	7.26	RWU
07/25/14	Renew	24.6	2	7.85	7.66	7.45	7.27	7.07	6.90	RWU
07/26/14	96 Hr.	25.3	2	7.75	7.69	7.56	7.52	7.43	7.36	RWU
07/26/14	Renew	24.9	3	7.61	7.53	7.39	7.31	7.16	7.00	RWU
07/27/14	120 Hr.	25.4	3	7.71	7.63	7.55	7.48	7.41	7.37	RWU
07/27/14	Renew	24.9	3	7.61	7.53	7.39	7.31	7.16	7.00	RWU
07/28/14	144 Hr.	25.7	3	7.73	7.57	7.40	7.30	7.14	7.08	WCL
07/28/14	Renew	25.0	3	7.62	7.44	7.33	7.21	7.13	7.05	WCL
07/29/14	168 Hr.	25.4	3	7.64	7.49	7.46	7.41	7.33	7.17	WCL

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	32%	42%	56%	75%	100%	
07/22/14	Start	25.0	1	8.57	8.63	8.95	8.67	8.80	8.96	WCL
07/23/14	24 Hr.	25.2	1	8.15	7.99	7.92	7.89	7.92	7.92	WCL
07/23/14	Renew	25.0	1	8.65	8.72	8.73	8.68	8.78	8.76	WCL
07/24/14	48 Hr.	25.4	1	8.05	7.92	8.61	7.98	7.94	7.78	WCL
07/24/14	Renew	25.1	2	8.80	8.56	8.85	8.92	8.80	8.33	WCL
07/25/14	72 Hr.	25.0	2	7.85	8.41	8.12	7.83	7.69	7.70	RWU
07/25/14	Renew	24.6	2	8.05	8.22	8.48	8.55	8.83	8.83	RWU
07/26/14	96 Hr.	25.3	2	8.14	8.19	8.11	8.03	7.99	7.93	RWU
07/26/14	Renew	24.9	3	8.21	8.31	8.66	8.72	8.74	8.74	RWU
07/27/14	120 Hr.	25.4	3	8.09	8.12	8.08	8.07	8.16	8.22	RWU
07/27/14	Renew	24.9	3	8.21	8.31	8.66	8.72	8.74	8.74	RWU
07/28/14	144 Hr.	25.7	3	8.20	8.38	8.26	8.34	8.44	8.20	WCL
07/28/14	Renew	25.0	3	8.48	8.40	8.42	8.39	8.41	8.34	WCL
07/29/14	168 Hr.	25.4	3	7.92	7.59	7.51	7.57	7.53	7.62	WCL



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

City of Mena WWTF

Lab ID# 22630

Test Date: July 22, 2014

**INITIAL CHEMISTRY MEASUREMENTS @ 100% EFFLUENT**

Date	Samp. No.	pH	DO	Hardness mg/L CaCO <sub>3</sub>	Alkalinity mg/L CaCO <sub>3</sub>	Conduct. umhos/cm	Resid. Cl <sub>2</sub> mg/L	Dechlor(mL) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> mg/L	Analyst
07/22/14	1	7.23	8.43	36	28	121	<0.01	N/A	TN
07/24/14	2	7.31	8.33	40	28	133	<0.01	N/A	TN
07/26/14	3	7.29	8.27	44	26	136	<0.01	N/A	TN
07/22/14	Con	7.90	8.57	40	38	206	-	-	TN

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

Huther and Associates, Inc.  
 Begin Date: July 22, 2014  
 Lab I.D.# 22630

**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	24.000	21.900
2	32% Effluent	10	20.000	25.000	22.400
3	42% Effluent	10	20.000	26.000	23.100
4	56% Effluent	10	20.000	27.000	23.800
5	75% Effluent	10	21.000	26.000	23.100
6	100% Effluent	10	22.000	25.000	23.500

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V. %
1	Control	2.544	1.595	0.504	7.28
2	32% Effluent	2.933	1.713	0.542	7.65
3	42% Effluent	4.100	2.025	0.640	8.77
4	56% Effluent	3.956	1.989	0.629	8.36
5	75% Effluent	2.767	1.663	0.526	7.20
6	100% Effluent	1.389	1.179	0.373	5.01

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	2	18	21	16	3

Calculated Chi-Square goodness of fit test statistic = 2.4196

Table Chi-Square value (alpha = 0.01) = 13.277

Data Pass normality test. Continue analysis.

Bartlett's Test For Homogeneity of Variance

Calculated B1 statistic = 2.97

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	24.733	4.947	1.678
Within (Error)	54	159.200	2.948	
Total	59	183.933		

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	21.900	21.900		
2	32% Effluent	22.400	22.400	-0.651	
3	42% Effluent	23.100	23.100	-1.563	
4	56% Effluent	23.800	23.800	-2.474	
5	75% Effluent	23.100	23.100	-1.563	
6	100% Effluent	23.500	23.500	-2.084	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, DF=40,5)

No statistically significant difference

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

Grp	Identification	Num of Reps	Minimum Sig Diff (In Orig. Units)	% of Control	Difference from Control
					Control
1	Control	10			
2	32% Effluent	10	1.774	8.1	-0.500
3	42% Effluent	10	1.774	8.1	-1.200
4	56% Effluent	10	1.774	8.1	-1.900
5	75% Effluent	10	1.774	8.1	-1.200
6	100% Effluent	10	1.774	8.1	-1.600

Huther and Associates

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

CLIENT City of Mena WWTP SAMPLE TYPE 24 Hour Composite  
 NPDES # AR0036692 DATE COLLECTED 07/21/14 07/23/14 07/25/14  
 LAB ID # 22630 DATE RECEIVED 07/21/14 07/23/14 07/25/14  
 TEST TYPE 7 Day Chronic BEGIN DATE/TIME 07/22/14 1550  
 TEST ORGANISM *Pimephales promelas* END DATE/TIME 07/29/14 1550  
 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 Adjusted TECHNICIAN Z. Geiger

SURVIVAL SUMMARY

Conc.	07/23/14					07/24/14					07/25/14					07/26/14					07/27/14				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Con	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
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
75%	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.	07/28/14					07/29/14					x % Survival	C.V. %
	A	B	C	D	E	A	B	C	D	E		
Con	8	8	8	8	8	8	8	8	8	8	100.0	0.00
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
75%	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. %
Con	0.4910	0.4260	0.4450	0.4610	0.4290	0.4504	5.92
32%	0.4750	0.4560	0.4210	0.4950	0.5040	0.4702	7.06
42%	0.4870	0.5020	0.4960	0.5020	0.4450	0.4864	4.92
56%	0.5030	0.4270	0.4810	0.4650	0.5010	0.4754	6.57
75%	0.4450	0.4850	0.5020	0.5040	0.4950	0.4862	4.98
100%	0.4710	0.4950	0.5040	0.4970	0.4230	0.4780	6.94

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

City of Mena WWTF

Lab ID# 22630

Test Date: July 22, 2014

**WET CHEMISTRY MEASUREMENTS**

Date	Time	Temp	Samp. No.	pH of Solution						Analyst
				CON	32%	42%	56%	75%	100%	
07/22/14	Start	25.0	1	7.90	7.76	7.57	7.46	7.32	7.16	WCL
07/23/14	24 Hr.	25.8	1	7.64	7.54	7.31	7.23	7.04	7.03	WCL
07/23/14	Renew	25.0	1	7.57	7.53	7.42	7.33	7.19	7.09	WCL
07/24/14	48 Hr.	25.8	1	7.53	7.40	7.33	7.20	7.04	7.01	WCL
07/24/14	Renew	25.1	2	7.96	7.77	7.51	7.39	7.26	7.31	WCL
07/25/14	72 Hr.	25.8	2	7.55	7.35	7.22	7.17	7.08	6.85	RWU
07/25/14	Renew	24.6	2	7.85	7.66	7.45	7.27	7.07	6.90	RWU
07/26/14	96 Hr.	25.9	2	7.72	7.67	7.54	7.40	7.30	7.18	RWU
07/26/14	Renew	25.0	3	7.76	7.67	7.52	7.43	7.30	7.29	RWU
07/27/14	120 Hr.	25.6	3	7.88	7.74	7.65	7.45	7.32	7.11	RWU
07/27/14	Renew	24.9	3	7.61	7.53	7.39	7.31	7.16	7.00	RWU
07/28/14	144 Hr.	25.8	3	7.74	7.69	7.47	7.42	7.26	7.14	WCL
07/28/14	Renew	25.0	3	7.62	7.44	7.33	7.21	7.13	7.05	WCL
07/29/14	168 Hr.	25.6	3	7.80	7.56	7.42	7.35	7.19	7.03	WCL

Date	Time	Temp	Samp. No.	DO (mg/L) of Solution						Analyst
				CON	32%	42%	56%	75%	100%	
07/22/14	Start	25.0	1	8.57	8.63	8.95	8.67	8.80	8.96	WCL
07/23/14	24 Hr.	25.8	1	8.18	8.27	8.73	8.26	8.15	8.19	WCL
07/23/14	Renew	25.0	1	8.65	8.72	8.73	8.68	8.78	8.76	WCL
07/24/14	48 Hr.	25.8	1	8.59	7.60	7.78	7.54	8.36	7.66	WCL
07/24/14	Renew	25.1	2	8.80	8.56	8.85	8.92	8.80	8.33	WCL
07/25/14	72 Hr.	25.8	2	8.86	8.82	8.70	8.00	7.69	7.60	RWU
07/25/14	Renew	24.6	2	8.05	8.22	8.48	8.55	8.83	8.83	RWU
07/26/14	96 Hr.	25.9	2	8.54	8.80	8.62	8.04	8.39	8.63	RWU
07/26/14	Renew	25.0	3	8.64	8.70	8.99	8.75	8.41	8.27	RWU
07/27/14	120 Hr.	25.6	3	8.63	8.74	8.52	8.63	8.41	8.77	RWU
07/27/14	Renew	24.9	3	8.21	8.31	8.66	8.72	8.74	8.74	RWU
07/28/14	144 Hr.	25.8	3	8.11	8.14	8.06	8.18	8.72	8.64	WCL
07/28/14	Renew	25.0	3	8.48	8.40	8.42	8.39	8.41	8.34	WCL
07/29/14	168 Hr.	25.6	3	8.34	8.70	7.66	8.26	8.48	8.96	WCL

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

City of Mena WWTF

Lab ID# 22630

Test Date: July 22, 2014

**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
07/22/14	1	7.23	8.43	36	28	121	<0.01	N/A	TN
07/24/14	2	7.31	8.33	40	28	133	<0.01	N/A	TN
07/26/14	3	7.29	8.27	44	26	136	<0.01	N/A	TN
07/22/14	Con	7.90	8.57	40	38	206	-	-	TN

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

Huther and Associates, Inc.  
 Begin Date: July 22, 2014  
 Lab I.D.# 22630

**PIMEPHALES PROMELAS STATISTICAL ANALYSES**  
 Growth

Summary Statistics on Transformed Data Table 1 of 2

Grp	Identification	N	Min	Max	Mean
1	Control	5	0.426	0.491	0.450
2	32% Effluent	5	0.421	0.504	0.470
3	42% Effluent	5	0.445	0.502	0.486
4	56% Effluent	5	0.427	0.503	0.475
5	75% Effluent	5	0.445	0.504	0.486
6	100% Effluent	5	0.423	0.504	0.478

Summary Statistics on Transformed Data Table 2 of 2

Grp	Identification	Variance	Sd	Sem	C.V.%
1	Control	0.001	0.027	0.012	5.92
2	32% Effluent	0.001	0.033	0.015	7.06
3	42% Effluent	0.001	0.024	0.011	4.92
4	56% Effluent	0.001	0.031	0.014	6.57
5	75% Effluent	0.001	0.024	0.011	4.98
6	100% Effluent	0.001	0.033	0.015	6.94

Shapiro - Wilk's Test For Normality

D = 0.020

W = 0.920

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 = 0.83

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	0.004	0.001	1.059
Within (Error)	24	0.020	0.001	
Total	29	0.025		

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

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

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

Grp	Identification	Transformed Mean	Mean		T Stat	Sig
			Calculated In	Original Units		
1	Control	0.450	0.450			
2	32% Effluent	0.470	0.470		-1.080	
3	42% Effluent	0.486	0.486		-1.963	
4	56% Effluent	0.475	0.475		-1.363	
5	75% Effluent	0.486	0.486		-1.952	
6	100% Effluent	0.478	0.478		-1.505	

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

No statistically significant difference

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

Grp	Identification	Num of Reps	Minimum Sig Diff (In Orig. Units)	% of Control	Difference
					from Control
1	Control	5			
2	32% Effluent	5	0.043	9.6	-0.020
3	42% Effluent	5	0.043	9.6	-0.036
4	56% Effluent	5	0.043	9.6	-0.025
5	75% Effluent	5	0.043	9.6	-0.036
6	100% Effluent	5	0.043	9.6	-0.028

**APPENDIX A  
RAW DATA**

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

CLIENT Mena  
 OUTFALL 001  
 LAB ID # 22630  
Con

START DATE/TIME 7-22-14 NL 1515  
 END DATE/TIME 7-29-14 NL 1515  
32

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	A	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	3	2	3	2	4	2	2	2	2	2	MH	1140
7/28	8	7	6	6	8	9	7	6	6	7	NL	1145
7/29	12	11	13	12	12	13	12	14	12	14	NL	1515
	23	20	22	21	24	21	21	20	23			

$\bar{x}$  # Young w/o Dead = 21.9 CV% = 7.28  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	A	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	2	2	2	4	3	3	2	2	3	3	MH	1140
7/28	6	8	9	7	8	7	6	9	6	7	NL	1145
7/29	12	12	13	14	13	11	12	11	14	13	NL	1515
	20	22	24	25	24	21	20	22	23	23		

$\bar{x}$  # Young w/o Dead = 22.4 CV% = 7.65  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

42

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	A	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	2	2	3	3	4	4	3	4	3	3	MH	1140
7/28	6	9	8	8	7	9	6	8	6	7	NL	1145
7/29	12	14	13	13	14	13	12	11	12	12	NL	1515
	20	25	24	24	25	20	21	23	21	22		

$\bar{x}$  # Young w/o Dead = 23.1 CV% = 8.77  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

56

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	A	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	2	4	3	4	3	2	3	3	3	3	MH	1140
7/28	6	8	9	7	7	10	8	6	10	9	NL	1145
7/29	12	13	12	12	14	12	12	13	13	15	NL	1515
	20	25	24	23	24	23	22	26	27			

$\bar{x}$  # Young w/o Dead = 23.8 CV% = 8.36  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00



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

CLIENT Mena  
 OUTFALL 001  
 LAB ID # 22630

START DATE/TIME 7-22-14 NL 1515  
 END DATE/TIME 7-29-14 NL 1515

75

100

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	2	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	A	3	5	2	2	2	3	2	2	4	MH	1140
7/28	10	9	8	7	9	6	7	8	7	6	NL	1145
7/29	13	12	13	14	13	14	13	11	12	12	NL	1515
7/29	25	24	26	23	24	22	23	21	22	22	NL	1515

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
7/23	A	A	A	A	A	A	A	A	A	A	ZG	1515
7/24	A	A	A	A	A	A	A	A	A	A	NL	1430
7/25	A	A	A	A	A	A	A	A	A	A	NL	1100
7/26	A	A	A	A	A	A	A	A	A	A	ZG	1325
7/27	3	2	4	2	2	3	2	2	2	2	MH	1140
7/28	6	9	7	10	8	9	10	8	6	7	NL	1145
7/29	13	14	13	13	14	12	12	13	14	13	NL	1515
7/29	22	25	24	25	24	24	24	23	24	27	NL	1515

$\bar{x}$  # Young w/o Dead = 23.1      CV% = 7.20  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

$\bar{x}$  # Young w/o Dead = 23.5      CV% = 5.01  
 $\bar{x}$  # Young w/Dead =              CV% =  
 $\bar{x}$  % Survival = 100              CV% = 0.00

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

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

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

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

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

CLIENT/FACILITY Mena  
 OUTFALL # 001 PROJECT # 22630  
 ORGANISM ID# PPO-14-202

DATE/TIME STARTED 7-22-14 26 1550  
 DATE/TIME ENDED 7-29-14 26 1550

Conc.	A					B					C					D					E									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E					
Con	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
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
75	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	7-23-14 MH 1550					7-24-14 MH 1430					7-25-14 NL 0805					7-26-14 MH 0905					7-27-14 MH 1655									

Conc.	A					B					Mean Survival	C.V.%
	A	B	C	D	E	A	B	C	D	E		
Con	8	8	8	8	8	8	8	8	8	8	100	0.00
32	8	8	8	8	8	8	8	8	8	8	100	0.00
42	8	8	8	8	8	8	8	8	8	8	100	0.00
56	8	8	8	8	8	8	8	8	8	8	100	0.00
75	8	8	8	8	8	8	8	8	8	8	100	0.00
100	8	8	8	8	8	8	8	8	8	8	100	0.00
Initials Date/Time	7-28-14 NL 0845					7-29-14 26 1550						



Client / Facility Mena  
 Lab ID Number 22630  
 Outfall Number 001  
 Test Date 7-22-14

**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
7/22	1	7.23	8.43	36	28	121	60.01	Na	TN
7/24	2	7.81	8.33	40	28	133	5	5	5
7/26	3	7.29	8.27	44	26	136	5	5	5
7/22	CON	7.90	8.57	40	38	206	—	—	5

**INITIAL CHEMISTRY MEASUREMENTS @ RECEIVING WATER**

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

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**APPENDIX B**  
**REFERENCE TOXICANTS**

**CHRONIC REFERENCE TOXICANT TEST RESULTS**

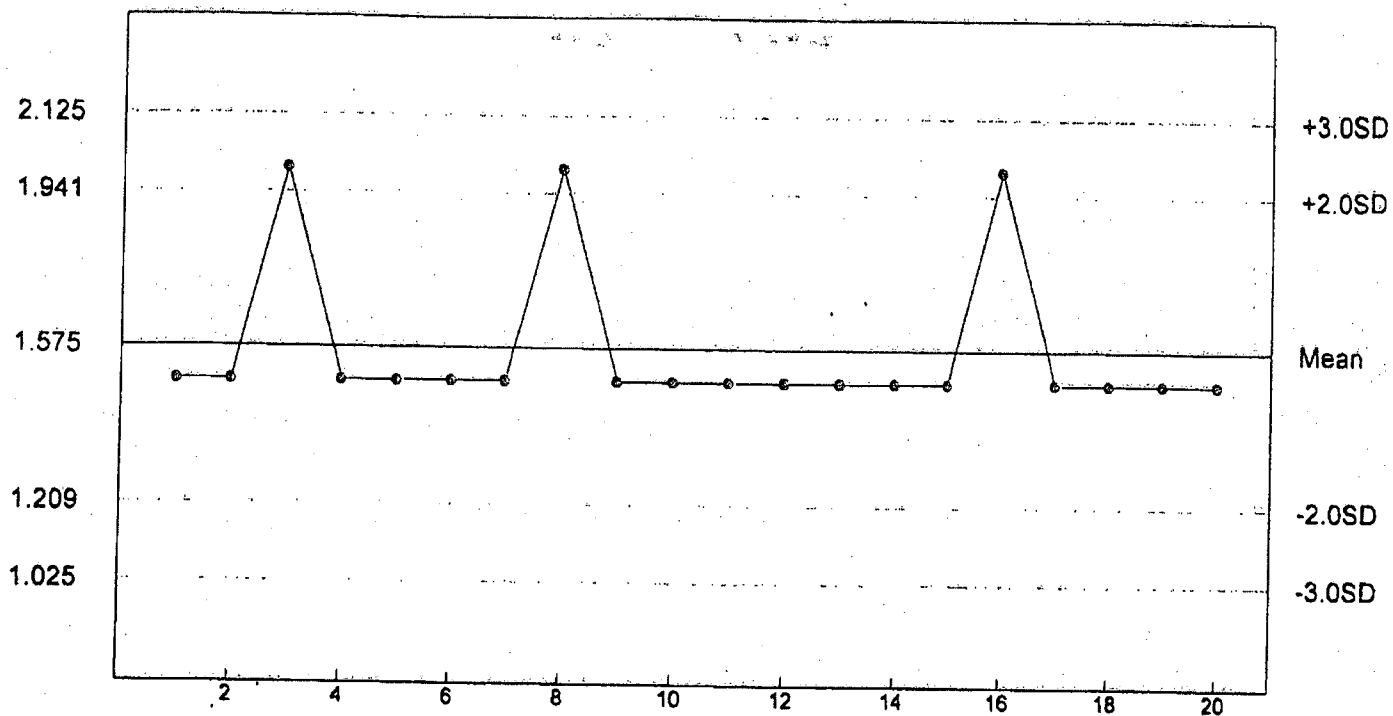
SPECIES: *Ceriodaphnia dubia*  
 CHEMICAL: Sodium Chloride  
 DURATION: 7-Days  
 TEST NUMBER: 07  
 TEST DATE/TIME: 07/01/14 - 07/08/14  
 0930 Hrs - 0930 Hrs  
 STATISTICAL METHOD: Fishers, Dunnetts/Steels

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

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

Reference Tox Sodium Chloride g/L

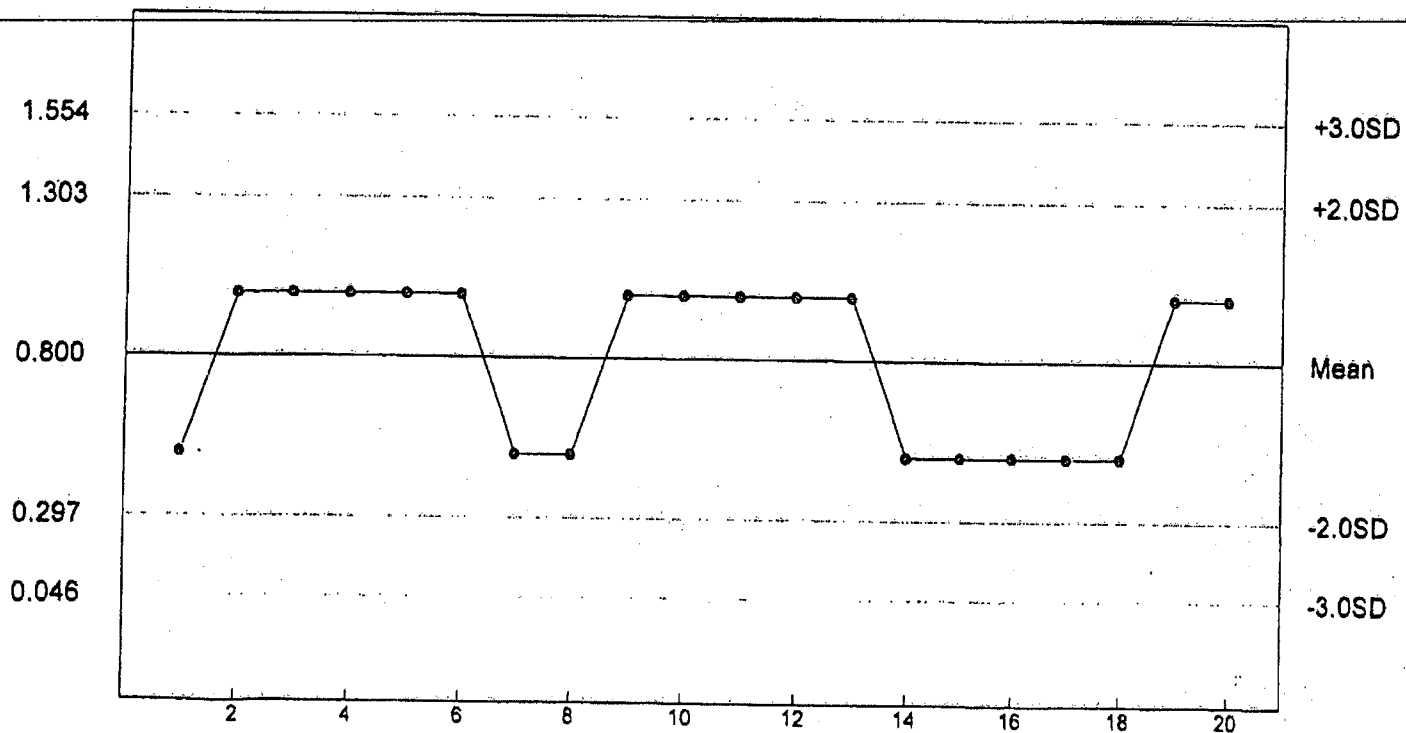
*C. dubia* Survival - NOEC



n= 20 Mean= 1.575 SD= 0.183 CV= 11.63% 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**

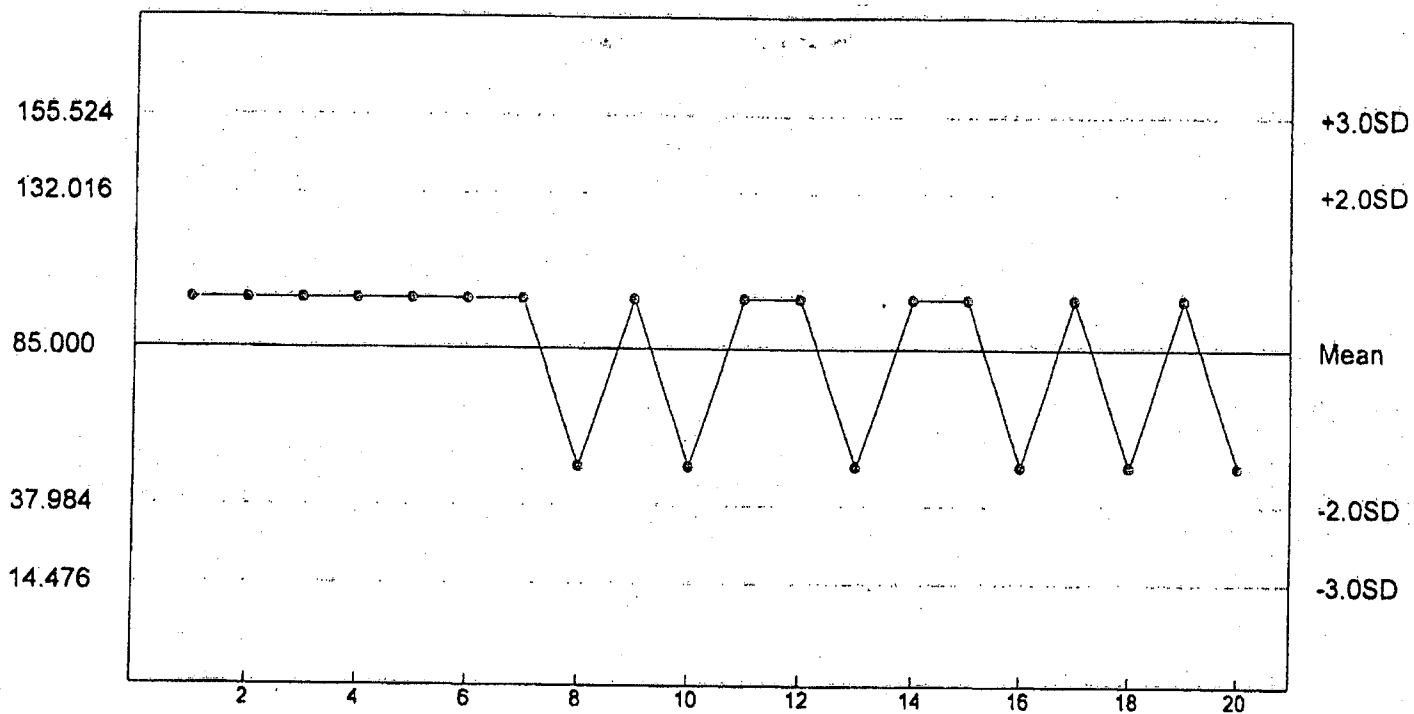
SPECIES: *Pimephales promelas*  
 CHEMICAL: Copper Nitrate  
 DURATION: 7-Days  
 TEST NUMBER: 07  
 TEST DATE/TIME: 07/01/14 - 07/08/14  
 1445 Hrs - 1445 Hrs  
 STATISTICAL METHOD: Dunnetts/Steels

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
12.5	40	0
25	40	0
50	40	1
100	40	26
200	40	35
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

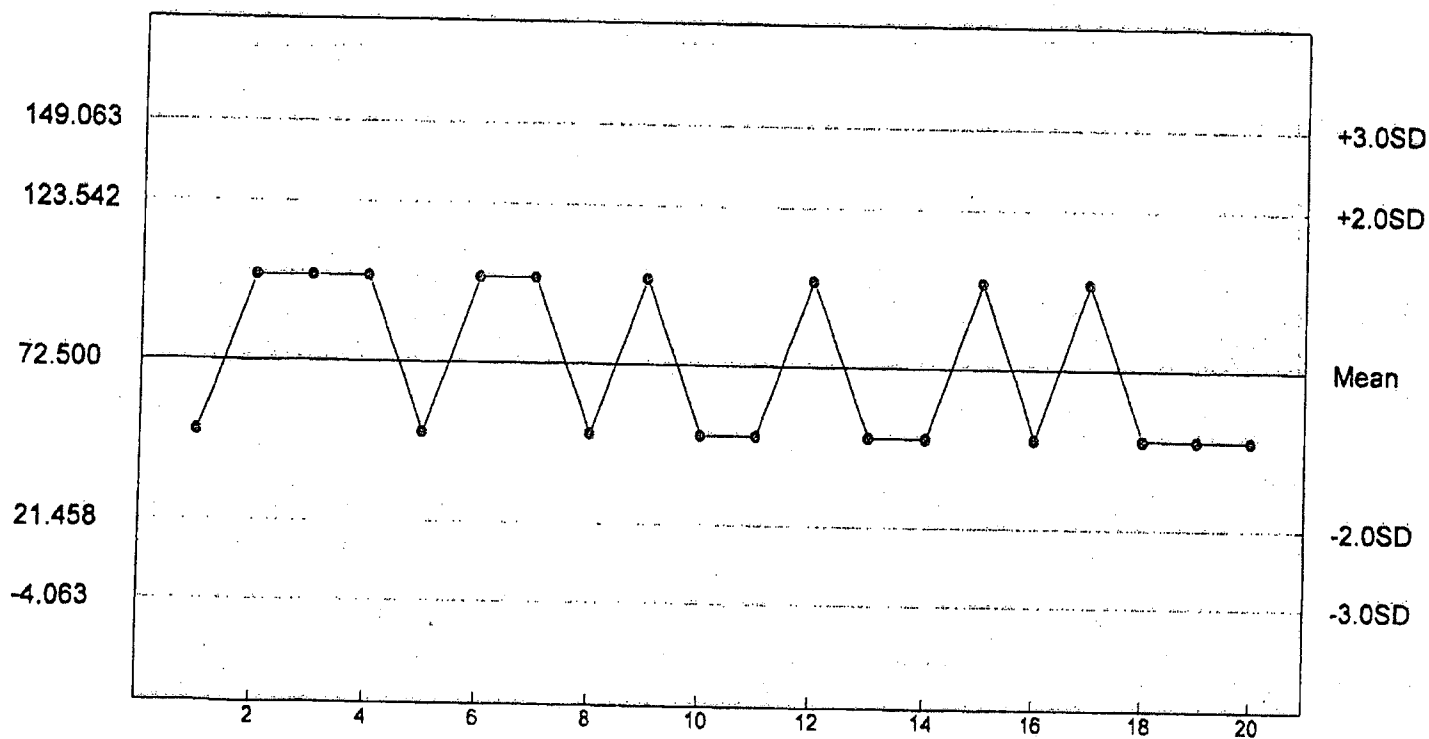


Reference Tox Copper Nitrate ug/L  
*P. promelas* Chronic Survival - NOEC



n= 20 Mean= 85.000 SD= 23.508 CV= 27.66% Min= 50.000 Max= 100.000

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



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

**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 # 226030 PROJECT NAME Mena PERMIT# AL0036692

#### 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	Jeff	20 JULY 2014 0700	21 JULY 2014 0700	24	X			

#### 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

TYPE OF TEST 7 day C/F  
 NAME OF RECEIVING WATER unnamed trib. of Prairie Creek  
 DILUTION WATER USED FOR THIS TEST Lab

RELINQUISHED BY: [Signature] DATE: 21 JULY TIME: 1145 RECEIVED BY AT THIS DATE/TIME: Rance - HUTHER Driver 21 JULY 2014

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: [Signature] DATE: 7/21/14 TIME: 2030 SAMPLE TEMP. @ RECEIPT: 4°

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

### CHAIN OF CUSTODY RECORD

PROJECT # 22030 PROJECT NAME Mena PERMIT# AR00316092

#### 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	Jeff	22 JUL 14 0700	23 JUL 14 0700	24	X			1

#### RECEIVING WATER SAMPLES

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

TYPE OF TEST 7 day C/F  
 NAME OF RECEIVING WATER unnamed trib. of Prairie Creek  
 DILUTION WATER USED FOR THIS TEST Lab  
*Rance - Huther driver*

RELINQUISHED BY: [Signature] DATE: 23 JUL 14 TIME: 0915 RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_  
 METHOD OF SHIPMENT: Greyhound Pick Up \_\_\_\_\_ Client Delivered \_\_\_\_\_ Other \_\_\_\_\_  
 RECEIVED: [Signature] DATE: 7/23/14 TIME: 2200 SAMPLE TEMP. @ RECEIPT. 50

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

CHAIN OF CUSTODY RECORD

PROJECT # 22630 PROJECT NAME Mena PERMIT# AP0036692

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	Jeff	24 JUL 2014 0700	25 JUL 2014 0700	24	X			

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR REC'G) H.O GRABS. GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED

TYPE OF TEST 7 day C/F  
 NAME OF RECEIVING WATER unnamed trib. of Prairie Creek  
 DILUTION WATER USED FOR THIS TEST Lab

*Rance-Huther driver*

RELINQUISHED BY: [Signature] DATE: 25 JUL 14 TIME: 0900 RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_  
 RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ RECEIVED BY AT THIS DATE/TIME \_\_\_\_\_

METHOD OF SHIPMENT: Greyhound Pick Up \_\_\_\_\_ Client Delivered \_\_\_\_\_ Other \_\_\_\_\_

RECEIVED: [Signature] DATE: 7/25/14 TIME: 2000 SAMPLE TEMP. @ RECEIPT. 4°

**CITY OF MENA WWTF  
 NPDES PERMIT NO. AR0036692  
 AFIN 57-00042  
 BIOMONITORING REPORTING  
 TEST DATE: 07/22/14**

***Ceriodaphnia dubia***

**Response**

A. If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0". <b>Parameter TLP3B</b>	0
B. Report the NOEC value for survival. <b>Parameter TOP3B</b>	100%
C. Report the NOEC value for reproduction. <b>Parameter TPP3B</b>	100%
D. If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0". <b>Parameter TGP3B</b>	0
E. Report the higher (critical dilution or control) Coefficient of Variation (CV%), <b>Parameter TQP3B</b>	7.28%
Report Parameter No. 22414 (lowest NOEC value) for Ceriodaphnia dubia.	100%

***Pimephales promelas***

**Response**

A. If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0". <b>Parameter TLP6C</b>	0
B. Report the NOEC value for survival. <b>Parameter TOP6C</b>	100%
C. Report the NOEC value for reproduction. <b>Parameter TPP6C</b>	100%
D. If the NOEC for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0". <b>Parameter TGP6C</b>	0
E. Report the higher (critical dilution or control) Coefficient of Variation (CV%), <b>Parameter TQP6C</b>	6.94%
Report Parameter No. 22414 (lowest NOEC value) for Pimephales promelas.	100%

AR 0036692

Fed at UPS back (send labels)

MENA, ARK

CPRIO ONLY \$525.00

LAB WATER 40 hardness

Wade Spencer

(479) 234-2592

menawwtp@gmail.com

auto/auto collect

FED EX GROUND OUT

UPS BACK : OUR ACCOUNT, INVOICE BACK

Sept 17, 19, 21

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)  
 NAME: MENA, CITY OF - WASTEWATER TREATMENT PLANT  
 ADDRESS: 323 POLK 53  
 MENA, AR 71953  
 FACILITY: MENA WASTEWATER TREATMENT PLANT  
 LOCATION: 323 POLK 53  
 MENA, AR 71953  
 ATTN: MIKE SPENCER, WW SUPERVISOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 DISCHARGE MONITORING REPORT (DMR)

Form Approved  
 OMB No. 2040-0304

AR0036692	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
07/01/2014	09/30/2014

DMR Mailing ZIP CODE: 71953  
 MAJOR

001-OTRLY-CHRONIC WET TESTING  
 External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Whole effluent toxicity	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	*****	0	1/4 QTR	24 HR COMP
22414 1 0	PERMIT REQUIREMENT	*****	*****	*****	100	*****	*****	%		Quarterly	COMPOS
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	*****	0	1/4 QTR	24 HR COMP
Whole effluent toxicity	PERMIT REQUIREMENT	*****	*****	*****	100	*****	*****	%		Quarterly	COMPOS
22414 S 0	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	*****	0	1/4 QTR	24 HR COMP
See Comments	PERMIT REQUIREMENT	*****	*****	*****	100	*****	*****	%		Quarterly	COMPOS
Pass/Fail Static Renewal 7 Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
TGP3B 1 0	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
Pass/Fail Static 7 Day Chronic Pimephales Promelas	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
TGP6C 1 0	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
TLP3B 1 0	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales Promelas	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
TGP6C 1 0	SAMPLE MEASUREMENT	*****	*****	*****		*****	*****	*****	0	1/4 QTR	24 HR COMP
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	*****	0	Quarterly	COMPOS
NOEC Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****	*****	0	1/4 QTR	24 HR COMP
TOP3B 1 0	PERMIT REQUIREMENT	*****	*****	*****		*****	*****	%		Quarterly	COMPOS
Effluent Gross											

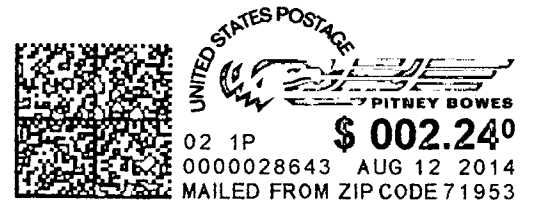
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE		DATE
		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE
TYPED OR PRINTED				

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

CALENDAR QUARTERS: (JAN-MAR) (APR-JUN) (JUL- SEP) & (OCT-DEC). (PASS=0/FAIL=1) IF NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART II.  
 CONDITION 11, 57-00042



MEWA WWTTP  
323 POIK 53  
MEWA AR  
71953



ADEQ  
(WATER - BIO MONITORING)  
5301 NORTHSHORE DR.  
NORTH LITTLE ROCK, AR  
72118-5317